



PUNJAB VISION DOCUMENT 2030

DEPARTMENT OF PLANNING, GOVERNMENT OF PUNJAB



PREPARED BY:

INSTITUTE FOR DEVELOPMENT AND COMMUNICATION, CHANDIGARH



VISION DOCUMENT 2030 FOR THE STATE OF PUNJAB

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PREFACE

Growth per se does not lead to equity. Inclusive growth cannot be reached simply by redistributing the gains after the growth. Policies of inclusion have to be based on creating conditions for the historically disadvantaged groups to participate in the growth process and to be able to have access to assets, livelihood, jobs and investments. The institutional arrangements and factors related to governance around health, education and social welfare are important factors that impact economic outcomes.

Given this perspective the approach followed in Vision 2030 document is to prioritise goals, overcome the limitation of segmented and compartmentalised administrative setup and non-holistic policy prescriptions. For instance, each government department has its own priorities and if particular department's priorities take precedence over the other, that is likely to lead to dissonance within the system. Further, it has been argued that the use of measure has to be in consonance with the sustainable development goals. To illustrate, the aggregate health achievement of Punjab, to a great extent, conceals its glaring social inequality. Health inequality based on gender is alarmingly high in the state. Caste-based inequality in access to basic health services is also prevalent in the state.

In view of this we have divided the Punjab Vision Document 2030 on SDG into four pillars which includes three elements, socially-just growth, redistributive sustainable development and productive engagement of citizens. In order to arrive at an integrated policy perspectives, the SDG goals were rearranged for Pillar I, i.e. inclusive economic growth. SDG goals 8, 2, 15, 13, 9, 7 for Pillar II on Citizen Well-Being: Redefining Quality Parameters and Processes. SDG 1, 6, 11, 3, 4, 5, 10 for Pillar III Peace and Governance. SDG 16 for Pillar IV Resource Mobilisation and Investment SDG 17.

These pillars have factored in challenges to, address people's well-being, revitalisation of sectoral growth and maintain peace and harassment and corruption-free governance. The main challenges identified for citizens well-being were dignified living including poverty, hunger, livelihood and shelter. The institutional factors for improving access to quality education, health, sanitation, safe drinking water and electricity have also been addressed. For meeting the challenge of building a socially-just society, the issues arising out of caste, gender and geographical divides have been identified. These identified issues have been interwoven into growth processes. In the context of Punjab, the slowdown in agriculture, skewed industrial base and a fiscally stressed economy have emerged as main factors hampering growth of income leading to pauperisation of people living on the margins. Along with this, the tensions emanating from cross border terrorism and drug

smuggling, spiral of religio-caste conflicts, corruption and citizens' safety have also impacted the well-being of citizens.

A composite strategy has been formulated. The main focus has been to built-in the redistribution of income into the growth strategy itself. For instance, it has been visualised to double the income of the small farmers through technology upgradation, improvement in soil quality, integrated water use and provision of quality seeds. It has been proposed to improve the land quality by restoration of bio-diversity through deployment of crop varieties in the fields, enrichment of a natural ecosystem and gene-banks. A long-term strategy for diversification of economy has been proposed by giving impetus to modern small-scale industrial complex and transforming the structure of employment from farm to non-farm through skill development and by building robust infrastructures. A dedicated rail freight traffic corridor, creation of dry ports, sustainable energy system, linking rural areas with urban centres and accessible and modern agricultural markets have been factored in to achieve a double digit growth. A special focus has been given to develop competitive human resource by improving quality of education and skill development. The underlying thrust of vision document is to create conditions for the vulnerable sections to avail these opportunities in an equitable manner and also lays sufficient emphasis on building both institutional and citizens capacities and also formulate strategy to converge engaged governance with e-governance for trust-building, efficient and accountable delivery of services.

Pramod Kumar
Co-ordinator and
Director, IDC

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The leadership role of the Chief Secretary Sh. Sarvesh Kaushal, IAS has made it possible to produce this vision document at such a short span of time.

A comprehensive introduction by Prof. Pramod Kumar has added value to the document. The contributors to the goals are: Prof. B.S. Ghuman (SDG 1); Prof. H.S. Shergill and Dr. Varinder Sharma (SDG 2); Prof. K.K. Talwar, Prof. Rajesh Kumar and Mr. Sandeep Sharma (SDG 3); Prof. Sachidanand Sinha and Prof. Rainuka Dagar (SDG 4); Prof. Rainuka Dagar (SDG 5); Prof. K.P. Singh (SDG 6); Mr. Balour Singh and Ms. Nadia Singh (SDG 7); Prof. Lakhwinder Singh (SDG 8); Prof. J.S. Bedi (SDG 9); Dr. Sanjeev Kumar (SDG 10); Prof. S.L. Sharma, Prof. R.S. Sandhu and Prof. Ramanjit Johal (SDG 11); Prof. B.S. Dhillon (SDG 13); Prof. B.S. Dhillon and Prof. R.S. Sidhu (SDG 15); Prof. Pramod Kumar (SDG 16); and Prof. Sunil Kumar Sinha (SDG 17).

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S.R. Ladhar, IAS
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INTRODUCTION : STRUCTURAL TRANSFORMATION OF ECONOMY AND REVITALISATION OF SECTORAL GROWTH: PILLAR I

Punjab is frequently decried for continuously sliding down in NSDP per capita ranking of Indian states. Has Punjab really fallen behind other states in terms of development? This chapter analyzes drivers of sectoral growth overtime, identifies challenges and suggests strategies for structural transformation of the economy.

It has been argued that the growth rate has shown deceleration in the last few years particularly in two sectors, i.e. agriculture and allied services. The growth rate in Punjab has remained much below the targeted rate of growth of 7 per cent (SDG target). Punjab's economy has remained heavily dependent on agriculture, but progressively becoming service-oriented.

The goalpost for Punjab economy by 2030 is to achieve an average compound growth rate in the range of 7.3 to 8.8 per cent per annum, which will result in structural transformation in Punjab economy by increasing the share of services to 63 per cent and industrial sector to be 24 per cent. And agriculture sector to come down to 12 per cent. This can be achieved if Punjab can achieve a growth rate of 11 per cent by 2030.

The growth of Punjab's agriculture over the last four and a half decades has been remarkable. Punjab has a high proportion of its geographical area under cultivation (82.73 per cent) and contributes almost one-third to the central pool of food-grains, rendering it important for the country's food security. Productivity of food-grains is much higher in Punjab than the all-India average. Growth of agricultural production has mainly been the result of intensification which has been facilitated by expanding irrigation to almost 100 per cent area, use of chemical fertilisers and use of HYV seeds, mechanisation of farm operations and specialisation in rice and wheat cultivation. Another factor that has supported specialisation of wheat-rice production is the availability of migrant labour from UP and Bihar to carry out harvesting of wheat and transplantation and harvesting of rice.

Agricultural productivity in Punjab has reached its peak and scope for increasing growth with higher input has slowed down and also raised certain areas of concerns. This include accumulation of farm debt resulting in farmers' suicides, to the negative impact on natural resources like receding ground water table, water-logging, considerable damage to soil fertility that have become major problems leading to large scale exodus of farmers from agriculture; and environmental consequences like growth of pesticide residues in water, milk, vegetables and grains; and air pollution caused by smoke generated by rice and wheat straw burning.

The engine of growth is the modern manufacturing sector which can be developed by reducing environmental costs by new innovation investments that will advance green growth. The structure of employment shall also change from farm to non-farm as unemployment is high in rural areas through skill development, agriculture allied industry and modern services.

It has been argued that strategies are yet to be formulated to maintain the current growth rate of rice and wheat yield in Punjab. For achieving this target low yield areas, low yield villages and low yield farmers will be identified and the causes of their low yield will be found and policy intervention will be tailored to remove these causes and help the low yield areas, villages, and farmers to raise their yield to Punjab's average level. The second component of the strategy is to ensure that all farmers use only university/experimental farm produced seeds of rice and wheat. The agricultural department will ensure that adequate supply of such certified seeds is available to farmers at the sowing time. The third component of the strategy is to ensure the timely supply of adequate power, fertilizer, credit and other inputs, so that rice and wheat are sown during the period that results in the highest yield. Other things remaining the same, the timely sowing results in 10 to 15 per cent increase in yield.

Punjab is predominantly an agrarian state. Out of the total land area of 50.4 lakh ha, 82 per cent is agricultural land. The total cropped area in a year is about 78.5 lakh ha. It is the agroecosystem rather than the natural ecosystem which needs to be protected for its long term sustainability.

Developing and refining water saving technologies in crop production; micro-irrigation system for efficient use of irrigation water; technology for conjunctive use of brackish water; biodrainage using salt tolerant crops/trees in water logged areas; policy to prevent installation of deep tubewells in over-exploited block. There is need to promote less water using crops like cotton, pulses, fodders, timber trees, etc.

There is urgent need to adopt appropriate soil, crop and land management practices that help to mitigate ill effects of climate change on soil environment, reduction in soil degradation, maintaining soil quality. Thus, adopting a landscape approach will bring these two approaches together to evaluate soil quality more comprehensively. Crop genotypes having tolerance to multiple stresses to be identified. As an example, wheat genotypes need to be tested under high stress conditions for developing varieties having terminal heat tolerance. Maintain and protect forest biodiversity with emphasis to afforestation, reforestation and reduced deforestation.

Along with this, initiatives have to be taken to diversify economic activities to dairy farming, horticulture, fishery and food processing. Small farmers will be induced to shift to dairy farming in a big way. To improve the milk yield of animals, high quality germ plasma will be imported in sufficient

quantity and artificial insemination services will be provided at doorsteps of dairy farmers.

A comprehensive strategy for structural transformation of the economy has to be implemented with realignment of the sectors. To shift from farm to non-farm employment generation, the traditional industry has to be given support for environment-friendly technology upgradation, skilled human resource and credit facilities.

Punjab has good base in grain mills, rice shellers, metal-based light engineering, knitwear and hosiery, leather and leather products, and sports goods industries. 95 per cent of the woollen knitwear produced in the country is made in the textile clusters based in Ludhiana. In the past, Punjab mainly witnessed growth in small scale sector though investment in clusters at Ludhiana, Malerkotla and Batala. The large scale sector in the state could not perform well despite the presence of a few large players in the state in industries such as automotives and textiles.

The state can thus achieve higher growth path by promoting industries where it has natural advantages. The higher growth rate of 8.8 per cent per annum in the Punjab economy is essential to double the VA per employee by 2030 at full employment rate. The doubling of productivity per worker is essential in order to enhance the affordability to pay decent emoluments to workers without harming the growth prospects. Thus, the targets for the economy are quite inter-related and any set back in one sector has the capability to derail the whole strategy.

It is projected that the non-factory sector is likely to grow at higher rates of 10.9 per cent in case the policy to promote labour intensive sector are introduced rather than restricting employment. The medium sector growth rate is projected at 23.3 per cent per annum. Thus, the manufacturing sector growth is going to be lead by medium scale sector, followed by small and micro units.

For structural change, a sustainable strategy to provide decentralised renewable energy for use in agriculture, industry, commercial and household sector, and particularly in rural areas has to be put in place. For example, Punjab produces a large amount of paddy straw and its burning results in

STRATEGY
<ul style="list-style-type: none"> • Revitalisation of sectoral growth. • Agriculture Productivity and Income of small farmers to be doubled through technology upgradation, improvement in soil quality, integrated water use and provision of quality seeds. • Restoration of bio-diversity through deployment of crop varieties in the fields, enrichment of natural ecosystem and gene banks. • Diversification of crops by 2030 (cotton (5), Maze (4), Pulses (0.70), Agri-forestry (1.45) (in lac ha.) • Promotion of non-farm activities • Modern small-scale industrial complex <ul style="list-style-type: none"> • Transform structure of employment from farm to non-farm activities through skill development, agriculture allied, industry, modern services • Infrastructure <ul style="list-style-type: none"> • Dedicated rail freight traffic corridor and create dry ports; sustainable energy; conventional and non-conventional; strengthening of rural link roads and increased regulated agriculture market.

serious environmental damage. Punjab has an opportunity to set up second-generation bi-ethanol refineries using paddy straw as feedstock. Such plants would also be able to generate co-products of biogas, pellets and compost; resulting in additional income for farmers for supply of paddy straw; creation of a number of direct/indirect jobs; and lower petrol/diesel usage.

In addition to clean energy, the focus should also be on building dedicated rail freight corridor and dry port and strengthening of rural link roads and increased regulated markets.

The above mentioned challenges are pointers towards viable strategies related to inclusive economic growth that have been dealt with in detail in this section (Pillar I). This section deals with the following goals:

- **SDG 8:** Decent Work and Economic Growth: Promote Sustained, Inclusive and Sustainable Economic Growth, Full and Productive Employment and Decent Work for All.
- **SDG 2:** Zero Hunger: End Hunger, Achieve Food Security and Improved Nutrition and Promote Sustainable Agriculture.
- **SDG 15:** Life On Land: Protect, Restore and Promote Sustainable Use of Terrestrial Ecosystems, Sustainably Manage Forests, Combat Desertification, Halt and Reverse Land Degradation, Halt Biodiversity Loss.
- **SDG 13:** Climate Action: Take Urgent Action to Combat Climate Change and Its Impacts.
- **SDG 9:** Industry, Innovation and Infrastructure: Build Resilient Infrastructure, Promote Inclusive and Sustainable Industrialisation and Foster Innovation.
- **SDG 7:** Affordable and Clean Energy: Ensure Access to Affordable, Reliable, Sustainable And Modern Energy For All.

Pramod Kumar
Co-ordinator and
Director, IDC

SDG: 8
DECENT WORK AND ECONOMIC GROWTH: PROMOTE SUSTAINED,
INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL
AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

THE RATE OF ECONOMIC GROWTH SCENARIO

During the past decade and a half, the growth rate scenario shows that the growth rate of Punjab economy is much below the targeted rate of growth of seven per cent (SDG target). The recent period growth rate has displayed marginal deceleration and two sectors, primary and secondary sectors, recorded clear deceleration in growth rates. Therefore, the future three year scenario displays marginal rise which can coincide with the targeted growth rate given by SDGs. However, Punjab has high potential to achieve growth rate double digit to 11 per cent by 2030. The estimated future growth rate is based on the assumption of acceleration in the rate of growth of services sector and industrial sector will occupy the position of most dynamic and lead sector of the Punjab economy. It will emerge as the engine of growth of the Punjab economy.

Table 8.1
Average annual Growth rate of GDP-2001 to 2013-14 and projected to 2030

Sectors	2001-02-2014-15	2012-13-2014-15	Growth by 2020	Growth by 2030
Primary sector	1.05	0.29	1.20	2.00
Secondary sector	5.00	3.20	5.50	12.50
Tertiary sector	8.00	8.00	8.00	9.00
Punjab	5.70	5.50	7.00	11.00

Source: Statistical Abstracts of Punjab

Punjab economy has remained heavily dependent on agriculture but progressively becoming service oriented. This service orientation is relatively autonomous in character. If the true linkages are generated then services sector should support the two productive sectors. But the services outpaced both the sectors and it is expected that this trend will continue until it is arrested through conscious efforts of the state government. Therefore, an alternative scenario that makes engine of growth of the economy the industrial sector and service sector. The growth rate scenario will result into the relative change in income structure of Punjab economy whereas agriculture will be shedding its share which will go to services and industrial sector. It is plausible as per the relative high rate of industrial growth assigned to this sector. Agriculture sector's share of GSDP will come down to 12 per cent. This will be supported and guided by the state policy.

Punjab economy needs not only diversified economic base but also transformation of its workforce. The elasticity of employment in agriculture is very low (or even negative) and therefore large proportion of workforce engaged directly in agriculture could not earn decent livelihood. Thus it is

imperative to shift the workforce from agriculture to non agriculture but remunerative economic activities. Industrial sector can be the most important source of relatively low level of skilled employment. Therefore, it is significant to direct government efforts to create environment in which industrial sector can flourish and absorb large proportion of the growing workforce as well as workforce released by the agriculture sector.

GOAL 8: SUSTAINED ECONOMIC GROWTH OF STATE ECONOMY

Target 2030: 8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries					
Indicator	Baseline/ Ongoing Program	Milestone 1 By 2020	Milestone 2 By 2024	Target By 2030	Assumptions Programs for change
State Domestic Product Gr Rt 8.8 % pa during 2016-30 Per Capita NSDP Index	5% (2012-15) 100	7% 117	9% 150	11% 263	<ul style="list-style-type: none"> • Increase investment efficiency by raising the saving GDP ratio to 28% and 35% by 2030. This can be channelized for investment. • The engine of growth is the modern manufacturing sector which can be developed by reducing environmental costs by new innovation investments that will advance green growth. • Agriculture led industrial development to be promoted (see SDG 2) Sustained Economic Growth in accordance with Punjab circumstances with expected growth in the range of 7-11 %. • Also see SDG 2 and SDG 9
Source: Punjab Statistical Abstract and data derived using growth rate projected for Punjab economy by the Author.					

Note: The structural changes in Punjab economy are also estimated in SDG 9 by 2030. Based on the analysis undertaken in SDG 9, the per capita NSDP Index is likely to increase from 100 in the base line period to 118-123 by 2017-2030, 147-162 by 2020-24 and 216-263 by 2030-31. Thus, the end year growth target projected in SDG 9 for overall Punjab economy are likely to give result almost similar to results derived in SDG 8 for overall Punjab economy based on average projected compound growth in the range of 7.3-8.8 per cent per annum during 2016-30.

It is projected that by 2030 the industrial sector will be able to employ the 25 per cent of the total workforce. This transformation of the workforce will not only receive better livelihood due to high productivity-high wage employment but will also generate dynamism of high productivity high wage employment in other sectors of the economy. The economy as a whole will move towards decent wage system.

The targeted rate of economic growth if translated into achieving higher social goal posts then it is called economic development with emphasis on inclusive growth. This do not occur automatically. Thus the state government will step up efforts to make the economic growth process more inclusive and socially just.

Agriculture Linked Economic Growth

To make the process of economic growth more inclusive, the industrial development will be linked with agriculture and hence high value added agriculture crops along with processing and marketing activities. Therefore, to generate, save and reinvest the surpluses for more inclusive and sustainable development the new industrial development path needs to change organizational pattern from family business to member based modern cooperatives. However, private corporate sector can also be involved in the crucial areas where they have unique competitive advantage and government will enact laws to generate capture spillover benefits from such practices. Local and landless labour should also be involved in new ventures and thus labour force involved in new activities should be given decent wages. This rise of income of poor and landless households will generate higher multiplier effect and will further boost income of the state and results in higher level of investment and growth. This will improve level of living and will also generate demand for green goods. This systemic change will also ensure the transformation of the economy from informal sector led development to formal sector led development.

**SDG 2:
ZERO HUNGER: END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED
NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE**

SUSTAIN CURRENT GROWTH RATE OF RICE AND WHEAT YIELD

Current Status

Agricultural production in Punjab is dominated by rice and wheat crops which are cultivated on about 80 percent of cropped area and contribute about 85 percent of the total value of crop production. Cotton is the only other important crop that is cultivated on about 4 percent of cropped area and contributes about 5 percent of the value of total crop production. The remaining 15 percent of value of crop production is contributed by maize, sugarcane, pulses, oil seeds etc. At present Punjab is producing 151 lakh tones of wheat, 111 lakh tones of rice, 4.6 tones of maize, 13.42 lakh of cotton and 5.8 lakh tones of sugarcane (Statistical Abstract of Punjab, 2015). The contribution of agriculture to NSDP is given in Table 2.1.

**Table 2.1
Contribution of Agriculture in total NSDP (at 2004-05 prices) in Punjab**

Years	Percentage share of Agriculture in total NSDP
2009-10	47.9
2010-11	44.7
2011-12	41.4
2012-13	38.4
2013-14	35.8

Source: Handbook of statistics on Indian Economy, 2014-15, RBI.

The contribution of only agriculture in total Net state Domestic Product(NSDP) is declining very fast within last five years it declined by 12 percent points and the NSDP originating in agriculture grew by just 0.33 percent per annum during this period.

The average yield of main crops in Punjab is given in Table 2.2.A and shown in Figure 2.1. At present rice yield is growing at the rate of 1.15 percent per year and wheat yield at the rate of 0.75 percent per year. The rice and wheat yield in Punjab being already the highest in the country, it will require considerable effort to maintain the existing growth rate of rice and wheat yield.

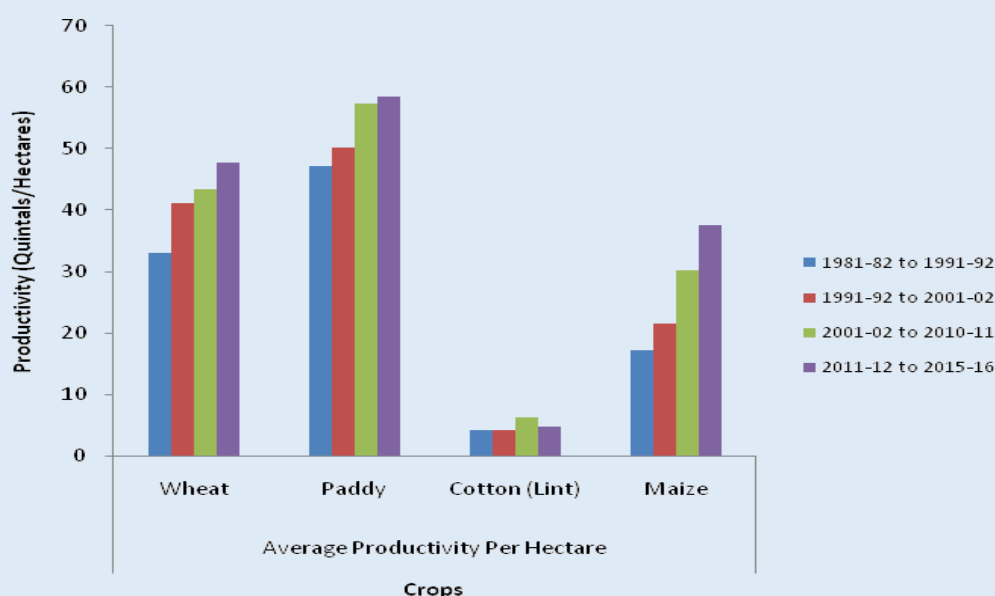
There is no significant difference in the food grains yield of small, medium and big farmers in Punjab but there are farmers, villages and districts (like Gurdaspur, Pathankot, Ropar and Hoshiarpur) where food grains yield is lower than the Punjab average. The focus should be on stepping up the food grain yield of these less efficient farmers, villages and districts.

Table 2.2.A
Average Productivity of Main Crops in Punjab (Quintals/Hectare)

Years	Average Productivity Per Hectare			
	Wheat	Paddy	Cotton (Lint)	Maize
1981-82 to 1991-92	33.2	47.2	4.3	17.4
1991-92 to 2001-02	41.2	50.3	4.4	21.6
2001-02 to 2010-11	43.5	57.4	6.4	30.3
2011-12 to 2015-16	47.8	58.5	4.9	37.6

Source: Statistical Abstracts of Punjab

Figure 2.1
Average Productivity of Main Crops in Punjab (Quintals/Hectare)



Strategy

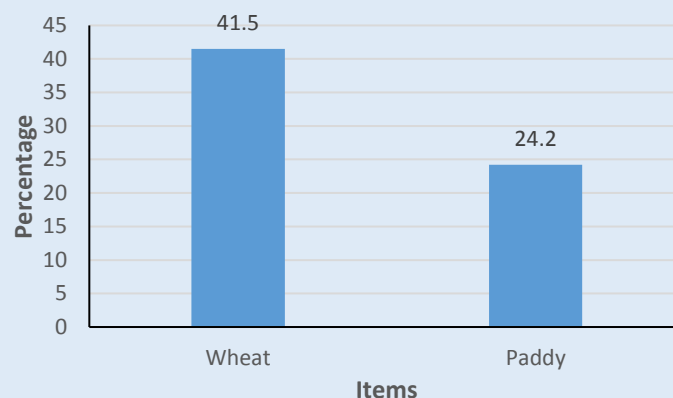
The strategy is to maintain the current growth rate of rice and wheat yield in Punjab. For achieving this target low yield areas, low yield villages and low yield farmers will be identified and the causes of their low yield will be found and policy intervention will be tailored to remove these causes and help the low yield areas, villages, and farmers to raise their yield to the Punjab average level. The second component of the strategy is to ensure that all farmers use only university/experimental farm produced seed of rice and wheat. The agricultural department will ensure that adequate supply of such certified seeds is available to farmers at the sowing time. The third component of the strategy is to ensure the timely supply of adequate power, fertilizer, credit and other inputs, so that rice and wheat are sown during the period that results in highest yield. Other things remaining the same, the timely sowing results in 10 to 15 percent increase in yield.

TO ENSURE SUSTAINABILITY OF FOODGRAIN PRODUCTION

- At present Punjab is producing about 111 lakh tonnes of rice and 151 lakh tonnes of wheat.

- Punjab is the largest contributor to central pools of foodgrains. Statistical Abstract of Punjab, 2015 (see figure 2.2 below)

Figure 2.2
Percentage Contribution of wheat and rice to central pool by Punjab



- Main Threats to Sustainability of Foodgrain production in Punjab are:
 - Falling ground water level. (see table 2.3 below). The average rainfall is decreasing and the average decline in water table come by 30cm from 1999-2000 to 2013-15.

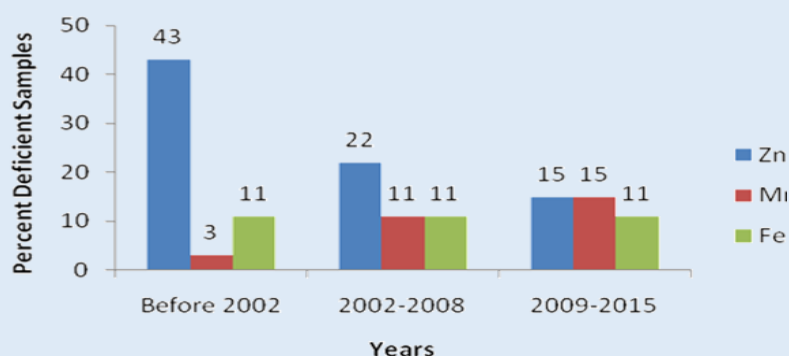
Table 2.3
Water Table Decline in Central Punjab

Period	Average decline (cm/year)	Average Rainfall (cm)	Additional Tube wells (no. In Lakh)
1990-2000	-25	64	1.53
2000-2005	-90	37	2.58
2005-2008	-75	41	0.92
2008-2013	-45	53	1.20
2013-2015	-55	36	0.31

Source: State of Environment Reports, Punjab, 2007-14

- Inadequate and irregular power supply especially during paddy season it is a major problem.
- Deterioration in soil fertility.
- Out of the micronutrients, Zinc (Zn) deficiency is the most widespread problem in Punjab from 2002 to 2009-15. (See Figure 2.3)

Figure 2.3
Periodic Changes in Micronutrient Status of Punjab Soils



Source: U.S. Sadana Etal, 2010, Best crops- South Asia

- Low return per acre due to very slow growth of yield.
- Slow growth of Minimum Support Price compared to growth in cost of production of rice and wheat.
- Absence of any new technical breakthrough in high yielding varieties of rice and wheat.
- To ensure sustainability of foodgrains production following targets are fixed:
 - To halt the fall in ground water table by advancing the date for starting of paddy transplantation to 18th June, by 2020, to 23rd June by 2025 and to 30th June by 2030.
 - To fix the maximum area for paddy cultivation per power operated tubewell and enforce it.
 - To ensure eight hours of regular power supply to tubewells throughout the year.
- To improve the soil fertility the following targets are proposed:
 - Precision levelling of 50 percent of area by 2020, 75 percent of area by 2025, and 100 percent of area by 2030.
 - Conversion of sandy lands into loamy lands in Southern Punjab: 30 percent by 2020, 60 percent by 2025, and 100 percent by 2030.
 - To tackle the water logging problem in Southern Punjab. The target is to reclaim 40 percent of water logged area by 2020, 70 percent by 2025 and 100 percent by 2030.
- To ensure the use of quality university approved seeds of rice and wheat. The target is to cover 56 per cent area by 2020, 75 per cent by 2025 and 100 per cent by 2030.
- To press the Central Government to increase the Minimum Support Price of rice and wheat in proportion to the rise in cost of production of these two crops.

CROP DIVERSIFICATION

Status:

The green revolution technologies that were instrumental in boosting cereal production started displaying a 'slow down trend' in the late 1980s. As yields increased, the productivity growth expectedly slowed down owing to biological limit of the crop plants. Rice-wheat cropping system, being highly productive and hence input intensive, has adversely affected water resources (both in terms of quantity and quality) and environment. Expansion of area under rice cultivation turned out to be an ecologically unsound practice as intensive cropping of rice affected the natural resources and excessive drawl of water resulted in the depletion of ground water.

Earlier there were arrays of landraces/local varieties. As the scientists developed high yielding varieties, these were adopted by the farmers due to their higher yields and effective extension system resulting narrowing of on-farm genetic diversity that led to the attack of diseases and pests. Environmental pollution due to excessive use of chemical fertilizers and pesticides and burning of crop residues has become a great cause of concern. Based on the report of the committee on crop diversification headed by Dr. G.S. Kalkat, Chairman of Punjab State Farmers Commission, the State Government has planned to bring down the area under rice to 16 lakh ha in a phased manner over a period of five years. The key shift would be towards maize, cotton, sugarcane, fodder, pulses, fruits, vegetables and agro forestry.

Strategies:

- Policies equally favourable for alternative crops namely minimum support price (MSP) and assured marketing are required. For ensuring shift to alternative crops, foremost challenge is giving price above or at least as remunerative as paddy. The returns from maize and cotton should be at least 15 per cent more than paddy. Likewise, MSP for pulses should be implemented effectively.
- For enhancing an area under maize to 5 lakh ha by 2025, there is need to augment its use as feed in poultry and dairy farming. There is a vast scope to use it in many industrial products of which particular mention is made of ethanol which can be mixed with petrol. Blending of petrol with ethanol should be increased from 10 to 15 per cent.
- For cotton, the state has proposed that the Cotton Corporation of India be asked to carry out MSP operations in all cotton markets in the state. Support of textile industries is also required for enhancing cotton production. Twenty designated markets for cotton need to be upgraded under the Technology Mission.

- For sugarcane, the crushing season of at least 180 days for sugar mills needs to be ensured by developing early maturing varieties and sick cooperative sugar mills need to be revived. Though, water requirement of sugarcane is high, it is important for the state due to local market demand and long product shelf life. There is a need of modernizing existing sugar mills in the state.
- There is a need to strength the technology development programme for other alternative crops.
- Wheat and rice cultivation is almost fully mechanized. The increase in area under other crops for diversification will aggravate labour problem. Machines for alternative crops such as maize grain drier, cotton picker, sugarcane harvester, sugarcane trench planter, oilseed drill, vegetable picker, garlic planter, potato planter, etc., would be required for acceleration of the diversification process.
- Collection centers/pack houses should be set up with facilities like washing, cooling, grading and packaging for marketing of fruits and vegetables. Punjab also requires infrastructure for export of perishables.
- The subsidies should be targeted on land development, underground water channels, improved implements, adoption of modern technologies, installation of tube wells for marginal farmers, infrastructure for export of vegetables, flowers, fruits, farmer training, etc.
- To exploit specific adaptation niches need to be created by providing technical input and managing marketing and thereby enhancing profit of crops like basmati rice, groundnut, barley, chickpea, pea, muskmelon, watermelon, celery, kinnow, litchi, flowers, etc. The potential of *Kandi* area of the state for organic production of various crops needs to be exploited. Another alternative option is promoting vegetable cultivation under net houses and in peri-urban areas.
- In all crops especially fruits and vegetables, price crash due to glut is a matter of concern. Processing of fruits and vegetables, post-harvest storage and establishing cold chains is essential to ease out such situation. For perishable commodities, niches may be developed and as far as possible, the farms should be located near the markets.
- There is growing demand for wood products and, thus, a good scope to bring more area under agroforestry. This would require technology and infrastructure in the form of modern wood markets having facility of high-tech saw mills and seasoning plants and wood industries making laminated wood from poplar and *Eucalyptus*.
- Beyond crops, diversification towards dairy farming, poultry, piggery and fish farming are extremely important. There has to be a more focused research on fodder crops for developing improved varieties and their production technology so as to bring more area under these crops.

Efforts should be made to improve productivity of milch animals. Supplemental subsidiary occupations such as mushroom production and bee-keeping can also play an important role in agriculture diversification and provide livelihood security to the rural populations on sustainable basis. These diversification options will provide regular income and are, therefore, more attractive for marginal and small farmers.

DOUBLE INCOME OF SMALL FARMERS

Current Status

There are about 3.60 lakh small farmers (34 percent of all) in Punjab whose operated area is less than 5 acres. This per year income from cultivation is not sufficient to provide them even the minimum satisfactory standard of living. According to the recent NSS 70th round survey, of Some Characteristics of Agricultural Households in India, during the year 2013; the per year income of a Punjab farmer operating 5 acres of land was Rs. 2.82 lakh, which comes to Rs 23500 per month; an amount not sufficient to meet even the basic needs of a family of 5 members. The main reasons for low income of small farmers are: dependence on rice and wheat cultivation, high overhead costs of using machinery, and non availability of supplementary non-farm sources of income.

Strategy:

To double the income of small farmers by 2030 the following strategy will be used. Small farmers will be induced to shift to dairy farming in a big way. To improve the milk yield of animals high quality germ plasma will be imported in sufficient quantity and artificial insemination services will be provided at doorsteps of dairy farmers.

- To strengthen the existing milk marketing system, a Milk Chilling Centre will be established in every village, and a Milk Processing Plant in every cluster of 40-50 villages.

Dairy Farming and Animal Husbandry:

- Vision 2030 of the Dairy Development Department (Govt. of Punjab) envisages that the milk production will be doubled in the state which will translate into a growth rate of about 7 percent per annum. This growth will come from the efforts of Animal Husbandry Department, Dairy Development Department and Milkfed , Punjab. It is assumed that 50 percent share for the growth will be of Animal Husbandry Department on account of genetic upgradation of dairy animals and disease control. The remaining 50 percent will be further shared by Dairy Development Department and Milkfed Punjab on equal basis as remunerative farm gate milk price works as a growth engine. Out of the 1.75 percent share of the growth of this department, 1 percent is expected to come from the induction of new dairy animals and 0.75 percent from

the improved dairy farm management practices triggered by the awareness, training and capacity building programme undertaken by the department.

The vision up to 2030 is to enhance the production of milk and productivity of the milch animals up to the following targets (table 2.4):

Table 2.4
Current Status and Future Strategies for Enhancing Milk Production

S.N	Production parameters.	2005-06	2010-11	2015-16	2019-20	2029-30
1.	Total milk production. (thousand tons)	8908.52	9423	10774.20	12000.00	19000
2.	Average Milk yield /animal/day/					
	Exotic	--	--	15.06 kg.	18.00 kg.	22.00kg.
	Cross breed	9.050 kg.	10.947 kg.	10.81 kg.	11.50 kg.	14.00 kg.
	Indigenous	--	--	6.76 kg.	7.00 kg.	9.00 kg.
	Non Descript	2.836 kg.	6.501 kg	5.01 kg.	5.25 kg.	7.00 kg.
	Buffalo:- Indigenous	7.111 kg.	8.567 kg.	9.04 kg.	9.50 kg.	11.00 kg.
	Non Descript	--	--	5.08 kg.	5.50 kg.	7.00 kg.
3.	Per capita availability. (gms.)	919	931	993	1050	1200
4.	Total Egg production. (million)	3520	3544	4422	4600	4830
5.	Per capita availability (no.).	134 eggs	128 eggs	152 eggs	160 eggs	170 eggs
6.	Total Meat Production. (Thousand tons)	4.46	175	249.91	270.00	300.00
7.	Total wool production. (lac kg)	7.12	5.06	4.73	5.00	5.50
8.	Green fodder availability (per animal/day)	19.6 kg.	28 kg.	30 kg.	35 kg.	42.00

Source: Vision Document (2030) , Department of Animal Husbandry(Govt.of Punjab).

HORTICULTURE:

Current status

At present (2014-2015) Punjab is producing 11 lakh tones of Kinnow, 22 thousand tonnes of Orange, 1.13 lakh tonnes of Mangoes, 1.82 lakh tonnes of Guava, 68 thousand tonnes of pear,32 thousand tonnes of litchi and small quantities of many other fruits. The total fruit production is 16.44 lakh tonnes.

The decadal growth of horticulture crops in Punjab is given below in Table 2.5.

Table 2.5
Decadal Growth of Area and Production of Horticulture Crops

Particulars	2004-05	2014-15	%increase	Water Consumption of Increased Area
Area (lac ha)	2.10	3.11	48%	1 lakh ha area consumed 30% less water as compared to wheat-paddy rotation.
Production (lac MT)	33.84	59.00	74%	
Productivity (MT/ha)	16.00	18.97	18%	

Source: Department of Horticulture (Govt. of Punjab)

Fruit production in Punjab is growing over the 2004-05/2014-15 decade, area under fruits grew by 48 per cent, production by 74 percent and productivity by 18 percent.

Strategy:

The following vision in the coming fifteen years may be adopted to diversify agriculture and to raise income of farmers.

- **Area Expansion under Horticulture Crops:** *The department proposes to bring addition of 130000 ha area under horticulture crops up to 2030. The expansion of area occurs with the different interventions like production technologies, Post Harvest Management, Human Resource Development etc.*
- **Mushroom Production:** *Presently, 5044 tonnes of mushrooms are being produced in Punjab which is the 4.20 percent of the national production.* In this background 70 such units are proposed to establish in Punjab up to 2030.
- **Protected Cultivation:** Protected cultivation of high value vegetables has emerged as the single most important technology for ensuring nutritional security, high productivity, improved quality and lucrative returns during the last decade or so. Keeping in mind the need of the day, it has been proposed to cover 325 ha area under these structures.
- **Beekeeping:** *Presently, 15000 tonnes of honey is being produced in Punjab which constitutes 37 per cent of the apiary honey production of the country. Punjab is the leading state in the honey export by exporting 12000 tonnes of honey from the total export of India i.e. 33000 tonnes. It has been proposed to promote the beekeeping by the addition of 3.5 lac bee boxes along with the colonies.*
- **Litchi, Guava, and Horticulture Estates:** Pathankot and Patiala districts are identified as the Natural Grown Areas of litchi and guava, respectively. On the pattern of Citrus Estate, three more estates are proposed to be established for litchi, guava, and horticulture at Sujapur (Pathankot), Wazidpur (Patiala) and Faridkot, respectively.
- **Establishment of Pea Estate:** Pea is one of the important vegetables in Punjab. It covers an area of 22149 ha with the annual production of 2.28 lakh MT. Amritsar, Hoshiarpur, Shaheed Bhagat Singh Nagar, Patiala are major growing districts in Punjab. It is proposed to establish Pea Estate at Hoshiarpur where world class facilities will be provided.
- **Establishment of Estates:** Estate is a Natural Growing Area of a crop where it can be better promoted by providing the facilities to the farmers under one roof. Five such Estates have been

established for the Citrus in Hoshiarpur, Mukatsar Sahib and Fazilka districts where world class facilities are being provided to the citrus growers.

- **Horticulture Mechanization and Hydraulic Pruning Machine:** It is proposed to provide 10000 machines like tractors, power tillers, bed makers, mulch laying, self propelled machines, power knap sack spray pumps, tractor mounted spray pumps etc. Due to shortage of skilled labour, mechanized pruning has become necessary. In Punjab, Citrus Estates have already imported hydraulic pruning machines. With the pruning of orchard trees with these machines, labour cost of worth Rs. 9000 can be saved as compared to manual pruning. Keeping in view the efficiency of these machines, 40 such machines are being proposed to import. It is also proposed to import 40 electrostatic spray pumps with a capacity of 1000 litres.

Miscellaneous Strategies:

- Small farmers will be encouraged to use hired tractors, rather than owning tractors. A suitable subsidy will be given to farmers who do not own tractors.
- Small farmers without power operated tubewell be identified and registered and power connection to their tubewells will be given on a first priority basis.

RURAL INFRASTRUCTURE, AGRICULTURE RESEARCH AND EXTENSION

(A) Rural Infrastructure

- All the 12000 villages are already linked to Mandi Towns by pucca roads.
- The present condition of these roads is not good; these are narrow roads, with poor surface quality.
- Target is to improve these roads:
 - To widen the village link roads by two feet (one feet on each side). Target is to cover 30 percent villages by 2020, 60 percent villages by 2025 and 100 percent by 2030.
 - To upgrade the quality of village link roads to the main high way roads level. Target is to cover 30 percent villages by 2020, 60 percent villages by 2025, and 100 percent by 2030.
- This will not only improve the road infrastructure for farmers, but will also make lot of more land available for setting up industry along these widened roads.

(B) Agricultural Research

- To strengthen the agricultural research system by providing adequate funds.

- To concentrate the agricultural research effort on preparing higher yielding varieties of rice and wheat.
- To concentrate agricultural research effort on discovering ways and means to reduce water use in paddy cultivation.
- To concentrate the animal husbandry research on improving the milk yield of buffalo's and desi cows.

(C) Agriculture Extension Services

- Rice and wheat cultivation in Punjab is virtual contract farming: Punjab farmers are producing rice and wheat for Central Government on a sort of contract.
- To improve rice and wheat cultivation agricultural extension services need to be expanded and improved.
- Target is to have a trained extension worker resident in each village, who should actively supervise sowing, growth and harvesting of rice and wheat crops of farmers of the village. He will be made responsible for monitoring the sowing, growing and harvesting of rice and wheat on each and every separate plot under cultivation in his village.
- Target is to have such village level agricultural extension workers in 40 percent villages by 2020, 70 percent villages by 2025, and 100 percent villages by 2030.

ENSURE PROPER FUNCTIONING OF FOODGRAIN MARKETS

- Almost the entire surplus production of rice and wheat in Punjab is purchased by government agencies at minimum support price fixed by Central Government.
- At present there are 149 regulated agricultural markets, and 294 sub-yards attached to these markets.
- On the average a regulated market/sub-yard is serving 27 villages and 2260 farmers.
- Owing to the entire output of wheat and paddy flowing into these markets immediately after harvesting; these markets are not able to properly accommodate the produce, and that results in wastage and hardship to farmers.
- Rice and wheat flowing into the market is kept in open space without any cover to protect it from rain and storms. This results in considerable damage to foodgrains kept in the open space.
- To reduce this wastage of foodgrains and hardship to farmers the market network needs to be expanded and improved.

- Target is to expand the network of markets in the next 15 years. Target is to increase the number of regulated markets/sub-yards to 160 (350) by 2020, 180 (450) by 2025, and 200 (600) by 2030. Aim is to provide a regulated market/sub-yard for every cluster of 15 villages and 1250 farmers.
- To provide adequate space for uploading of rice and wheat produce, the existing floor area of market is to be doubled in the next 15 years. Target is to double the floor area in 40 percent markets by 2020, 70 percent markets by 2025, and 100 percent markets by 2030.
- To protect the foodgrains lying at the market floor, adequate arrangement for covering it at the time of rain and storm will be made. Target is to make this arrangement in 40 percent of markets by 2020, 70 percent markets by 2025, and 100 percent markets by 2030.
- To ensure the speedy disposal of rice and wheat coming to markets the target is to ensure the sale, weighing, and lifting of rice and wheat marketed within 3 days of its arrival in the market.
- To ensure timely and speed payment of the sale money to farmers, the target is to ensure full payment of sale money to farmers within 7 days of the sale.

GOAL 2: ZERO HUNGER: END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

End hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
End Hunger and Provide Nutritious Food for All by 2030					Almost all the undernourished population belongs to poor sections of society. This group is already identified in Punjab under the Atta-Dal Scheme. The strategy will be to provide at cheap subsidized prices nutrition rich foods like kidney bean, soya bean, potato and seasonal vegetables to all the Atta-Dal scheme families.
- Hunger Index Punjab	13.68% (IFPRI, 2008) Lowest among Indian States	Reduce to 10%	Reduce to 7%	Reduce to 0%	
- Calorie undernourishment in percentage of population	11% (IFPRI, 2008) Lowest among Indian States	Reduce to 8%	Reduce to 4%	Eliminate calorie under- nourishment in population	
Source: Hunger Index, IFPRI, 2008.					

End all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
About 16 percent of children in Punjab were under weight in 2013-14 Underweight children percentage - Rural - Urban - SC population	16% 17.4% 13.7% 17.2 (2013-14)	Reduce to 10%	Reduce to 5%	Eliminate underweight in children	From within the Atta-Dal scheme families the underweight children will be identified and registered by Primary Health Centre Workers aided by Anganwari Centre Workers. The identified underweight children will be provided free dietary supplements to gain weight to the normal level through Primary Health Centres. See SDG 3 and 5 for other targets
Source: Underweight children: Rapid Survey of Children, 2013-14, Ministry of Women and Children, GoI					

Double the agricultural incomes of farmers					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Double Small Farmer's Income by 2030	Rs. 2.82 lakh per year	Rs. 3.25 lakh per year	Rs. 4.50 lakh per year	Rs. 5.64 lakh per year	<ul style="list-style-type: none"> To induce them to shift some area to vegetable farming by providing subsidized seed, free technical advice and assured marketing at a remunerative price. To induce them to shift into dairy farming, by providing cheap credit, low cost insurance, fast and free veterinary services and assured marketing at a remunerative price. To strengthen the existing milk marketing system, a Milk Chilling Centre will be established in every village, and a Milk Processing Plant in every Cluster of 40-50 villages. To import germ plasma and provide Artificial insemination services at doorstep to dairy farmers. Small farmers of foot hills region will be encouraged to shift some area to horticultural crops like litchi and guava. Small farmers will be encouraged to use hired tractors, rather than owning tractors. A suitable subsidy will be given to farmers who do not own tractors. Small farmers without power operated tubewell be identified and registered and power connection to their tubewells will be given on a first priority basis. To encourage small farmers to take up Mushroom production, poultry farming and bee keeping.
Source: Characteristics of Agricultural Households in India (NSSO), 70 th Round, 2013.					

Sustaining current growth rate of rice and wheat yield					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Growth Rate: <ul style="list-style-type: none"> Rice (1.15% per year) Wheat (0.75% per year) 	58.5 quintals	59.85 quintals	63.29 quintals	66.93 quintals	<ul style="list-style-type: none"> Identify low yield areas, villages and farmers and concentrate policy intervention on these low yield areas, villages and farmers to step up their yield to the average level of Punjab. The reasons for their low yield will be identified and remedial steps will be taken to raise their foodgrain yield to the state level. The reasons for their low yield will be identified and remedial steps will be taken to raise their foodgrain yield to the state level. To ensure that all farmers use only quality university/experimental farm produced seeds. To ensure timely supply of power, fertilizers, credit and other inputs, so that rice and wheat are sown during the period that results in highest yield. Other things remaining same, timely sowing results in 10 to 15 percent increase in yield.
	47.8 quintals	48.52 quintals	50.34 quintals	52.23 quintals	
Source: Strategy for Sustainable Expansion of Foodgrains Production in Punjab, 2012, IDC					

Reducing farmers debt in Punjab					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Farmers in debt trap	17% (2010)	Reduce to 12%	Reduce to 6%	Reduce to 0	Whose annual interest liability of debt is greater than net surplus (over variable cost) generated on their farms (percent of all farmers) to be waived off by state in a phase manner. By taking farmers out of debt ___farmer suicide will get checked.
Health insurance	1 lakh farmers	4 lakh farmers	7 lakh farmers	All 11 lakh farmers	The state government has decided to provide insurance cover to approximately 11 lakh farmers in the state under Bhagat Puran Singh Sehat Bima Yojna. As per the scheme an insurance cover of Rs.5 lakh is provided to the family in case of death or disability of head of the family. The family is also entitled to free medical facility upto Rs.50000 per year under the scheme.
Farmers Pension	Nil	3 lakh farmers	6 lakh farmers	All 11 lakh farmers	The state has planned to introduce a new Farmers Provident Fund-cum-Pension Scheme where government will make a matching annual contribution. The beneficiary will pay an annual contribution for at least 10 years. On attaining the age of 60 years, farmer will be paid monthly pension equivalent to the interest on the cumulated corpus. This scheme will be administered through Punjab State Cooperative Bank through its various branches.
Source: Growth of Farm Debt in Punjab 1997-2008, IDC, 2010 and Budget Speech 2016-17 (Government of Punjab).					

Expanding milk production in Punjab					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Animal Husbandry	107.74 lac tons (2015-16)	110.00 lac tons	120.00 lac tons	190.00 lacs tons	<p>State contributes 7.55 of total milk production in the country with less than 2% of cattle/buffalo population</p> <p>Animal husbandry contributes 13% of SDP.</p> <p>Import germ plasm to increase milk production to the level of 30 litres per day in cross breed animals, ETT intervention, Provide AI (Artificial Insemination) services at doorstep level: Target is to cover 97 percent cattle under this programme, implementation of National Dairy Plan Phase-I: The programme aims at improving animal health and animal productivity. The milk collection through cooperatives would be strengthened at the grass root levels.</p> <p>Infrastructure for Animal Health</p> <ul style="list-style-type: none"> - Set up specialized veterinary polyclinics in all district; Improve vaccination programme to prevent animal diseases; Launch deworming programme and organize meals to promote and provide deworming; strengthening disease diagnostic facilities at each district level. - Extension activities: The extension services to strengthen to spread awareness of latest scientific development in the animal husbandry. - Development of Feed & Fodder: Area based fodder consisting of various minerals to be promoted in the state to increase milk production in the state.
Source: Vision Document (2030), Department of Animal Husbandry, Government of Punjab.					

Ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<p>To Ensure Sustainability of Foodgrain Production</p> <ul style="list-style-type: none"> Sustainability of foodgrain production <ul style="list-style-type: none"> Crop yield gap (actual yield as percentage of potential or water-limited potential yield) Soil Fertility <ul style="list-style-type: none"> Precision levelling Conversion of sandy lands into loamy lands in Southern Punjab Water Logging in Southern Punjab To ensure the use of quality university approved seeds of rice and wheat 	<p>Halt the fall in ground water table by advancing the date of paddy transplantation 10th June</p>	<p>Halt the fall in ground water table by advancing the date of paddy transplantation 18th June</p>	<p>Halt the fall in ground water table by advancing the date of paddy transplantation 23rd June</p>	<p>Halt the fall in ground water table by advancing the date of paddy transplantation 30th June</p>	<ul style="list-style-type: none"> At present Punjab is producing about 111 lakh tonnes of rice and 151 lakh tonnes of wheat. Punjab is the largest contributor to central pools of foodgrains. Main threats to sustainability of foodgrain production in Punjab are falling ground water level, inadequate and irregular power supply, deterioration in soil fertility, low return per acre due to very slow growth of yield, slow growth of Minimum Support Price compared to growth in cost of production of rice and wheat, absence of any new technical breakthrough in high yielding varieties of rice and wheat. To fix the maximum area for paddy cultivation per power operated tubewell and enforce it. To ensure eight hours of regular power supply to tubewells throughout the year. To press the Central Government to increase the Minimum Support Price of rice and wheat in proportion to the rise in cost of production these two crops.
		<p>50% of area 30%</p>	<p>75% of area 60%</p>	<p>100% of area 100%</p>	
<p>Reclaim 40% of water logged area</p>					
<p>Reclaim 70% of water logged area</p>					
<p>Reclaim 100% of water logged area</p>					
<p>Cover 56% of area</p>					
<p>Cover 75% of area</p>					
<p>Cover 100% of area</p>					
<p>Source: State Environment Report (2014) and SDG 2</p>					

Expanding rural infrastructure in Punjab					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> • Rural Infrastructure, Agriculture Research and Extension - Linkage of villages to mandi (market) towns by pucca roads - Widen link roads by 2 feet (1 feet each side) - Upgrade the quality of village link roads to the main high way roads level • Agriculture Extension Services <ul style="list-style-type: none"> - Trained agriculture extension workers in all villages 	<p>All 12000 villages already covered but poor surface quality and conditions and narrow</p>	<p>30% villages</p>	<p>60% villages</p>	<p>100% villages</p>	<ul style="list-style-type: none"> • This will not only improve the road infrastructure for farmers, but will also make lot of more land available for setting up industry along these widened roads • Agricultural Research • Rice and wheat cultivation in Punjab is virtual contract farming: Punjab farmers are producing rice and wheat for Central Government on a sort of contract, to improve rice and wheat cultivation agricultural extension services need to be expanded and improved, target is to have a trained extension worker resident in each village, who should actively supervise sowing, growth and harvesting of rice and wheat crops of farmers of the village. They will be made responsible for monitoring the sowing, growing and harvesting of rice and wheat on each and every separate plot under cultivation in his village. • Farmers with crop insurance <ul style="list-style-type: none"> - Pradhan Mantri Fasal Bima Yojana should be implemented in all the districts. It should be the target to cover all the farmers in this scheme.
Source: Statistical Abstracts of Punjab, 2015					

Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<p>Ensure Proper Functioning of Foodgrain Markets</p> <ul style="list-style-type: none"> • Expand network of markets <ul style="list-style-type: none"> - Regulated markets/subyards • Floor area of market to be doubled in <ul style="list-style-type: none"> - Percentage of markets targeted • Protecting foodgrain by covering arrangements at time of rain/storm <ul style="list-style-type: none"> - Percentage of markets targeted 	149 (294)	160(350)	180(450)	200(600)	<ul style="list-style-type: none"> • Almost the entire surplus production of rice and wheat in Punjab is purchased by Government Agencies at Minimum support price fixed by Central Government. • At present there are 149 regulated agricultural markets, and 294 sub-yards attached to these markets. • On the average a regulated market/sub-yard is serving 27 villages and 2260 farmers. • Owing to the entire output of wheat and paddy flowing into these markets immediately after harvesting; these markets are not able to properly accommodate the produce, and that results in wastage and hardship to farmers. • Rice and wheat flowing into the market is kept in open space without any cover to protect it from rain and storms. This result in considerable damage to foodgrains kept in the open space. • To reduce this wastage of foodgrains and hardship to farmers the market network needs to be expanded and improved. • Aim is to provide a regulated market/sub-yard for every cluster of 15 villages and 1250 farmers. • To ensure the speedy disposal of rice and wheat coming to markets the target is to ensure the sale, weighing, and lifting of rice and wheat marketed within 3 days of its arrival in the market. • To ensure timely and speed payment of the sale money to farmers, the target is to ensure full payment of sale money to farmers within 7 days of the sale.
Source: Statistical Abstracts of Punjab, 2015					

**SDG 13:
CLIMATE ACTION: TAKE URGENT ACTION TO COMBAT CLIMATE
CHANGE AND ITS IMPACTS**

**SDG 15:
LIFE ON LAND: PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL
ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT
AND REVERSE LAND DEGRADATION AND BIODIVERSITY LOSS**

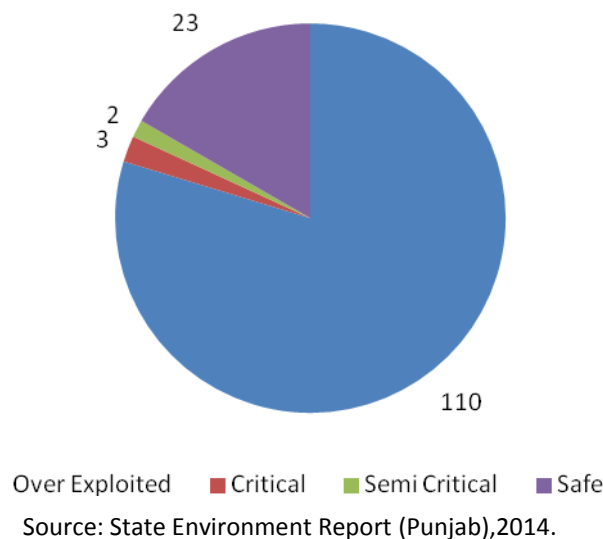
SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEM

A. NATURAL RESOURCE MANAGEMENT

Status:

There is an over exploitation of water resources in several regions as indicated by rapid decline in ground water levels. There is depletion of ground water in about 110 blocks out of total 146 blocks (See figure15.1).

**Figure 15.1
Categorization of Blocks on Ground Water Development**



Likewise, intensive cropping using varieties having higher productivity have caused mining of soil nutrient reserves, leading to depletion of soil fertility and emergence of multi-nutrient deficiencies of macro and micro nutrients in the state. In the south western districts of Punjab, water logging and saline water are posing problems in crop cultivation.

Strategies:

In order to address these challenges, there is a need for concerted efforts to improve water and nutrient use efficiency and enhance soil health through a combination of measures.

- It is imperative to reduce ground water use by developing and refining water saving technologies in crop production such as short duration rice varieties, direct seeded rice, drip irrigation and fertigation systems, laser leveling, mulching, etc.
- On farm rain water conservation through construction of water harvesting structures and ground water replenishment through recharge structures have to be promoted.
- Emphasis should be laid on soil testing for need based integrated use of fertilizers, and soil health cards should be prepared and issued to every farmer in the state.
- In some countries, sensor-based technologies are proving useful in the efficient management of natural resources. Precision agriculture like laser land leveling and soil mapping through GPS are the outcome of such approaches. This will lead to need based nutrient application.
- The time gap between the harvesting of rice and sowing of wheat is not enough to degrade crop residues. Thus burning of rice and wheat residues after harvest is a major problem in the state and technologies need to be promoted for their on-field management such as incorporation in soil using straw chopper or retention on soil surface by modified happy seeder. In addition, there are options for off site management such as bale making for energy generation, dry fermentation in biogas plant, compost making etc.
- In south-western Punjab, technologies for conjunctive use of brackish and good quality waters as well as management of brackish water will be further refined and rice genotypes having tolerance to salinity will be identified. Bio-drainage technology using fast growing tree species such as *Eucalyptus* and salt tolerant crop varieties such as that of rice will be developed for water-logged areas.
- Excessive use of nitrogen fertilizers is a serious issue. There is urgent need to adopt appropriate soil, crop and land management practices that help to mitigate ill effects of climate change on soil environment, reduction in soil degradation, maintaining soil quality. Thus, adopting a landscape approach will bring these two approaches together to evaluate soil quality more comprehensively.
- The 2007 IPCC report documents increasing air temperature and precipitation particularly over last 30-50 years. The question arises as to whether changes in historical climate may affect in selecting the appropriate land and water management practices to mitigate ill effects of climate variability on soil environment and crop yield. The practices like no-tillage along with optimum use of water and fertilizer increase physical, chemical and biological quality that reduces

requirement for pesticides and herbicides, control off site pollution and environment bio-diversity.

- More research is required to design appropriate water and soil management strategies in order to mitigate ill effects of climate change on soil environment and obtaining better crop yields.

B. CONSERVATION OF BIODIVERSITY

Status:

Due to the introduction of new varieties there has been slow decline in biodiversity of the state. The local varieties have been replaced by exotic varieties with narrow genetic base. There is urgent need to restore biodiversity in flora and fauna of the state to maintain balance in the agro ecosystem. All this is best achieved through enrichment of biodiversity on the agricultural farms. Two distinct tiers of crop biodiversity are evident - at the level of crops as such and at varietal level within a crop. There are two interlinked repositories of crop diversity: one is deployed on the farmer's field and the other is maintained in gene banks.

Strategies:

- Deployment of appropriate varieties and practices will ensure sustainable use of land and water resources. Water and nutrient use efficiency varies in cultivators and can be of great ecological significance. Similarly, deployment of resistance to diseases and pests can have a huge ecological pay-off. Host plant resistance to biotic stresses has been a significant and a highly successful component of breeding programmes.
- Physiologically robust and efficient cultivars in the context of abiotic stresses and resource-use efficiencies are now emerging as a distinct possibility, particularly with increasing use of molecular and biotechnological tools in crop improvement.
- Genetically mediated resilience to both biotic and abiotic stresses is also assuming greater relevance in the context of climate change and weather aberrations. The genes for tolerance to entire spectrum of resistance, however, lie dispersed in diverse germplasms including exotic and wild related species. This is biodiversity at genic level, which needs to be filtered and incorporated into crop varieties through sophisticated and intensive breeding efforts.
- The state is committed to this long-term sustainability oriented view of crop agro-ecosystems rather than immediate productivity with ecological adverse side effects. The upgradation of the crop breeding system is mandatory to serve this objective effectively. A well endowed state level gene bank, networked with national and international counterparts can prove to be a far-sighted initiative in this regard.

- A third aspect of biodiversity relates to its enrichment in natural ecosystems. The 6.5 per cent forest area of the state can be made more effective and ecologically rewarding. Even in case of natural biodiversity, deployed and conserved sections can be developed to strengthen each other mutually.
- There is hardly anything in the name of parks for natural flora and fauna with the aim of maintaining the largest possible spectrum of genetic diversity with scientific management in well protected reserves. Development of botanical gardens/ arboretums of natural plant species, including trees and shrubs and zoological parks are a dire-need. Similarly, plant species of medicinal value and those with extreme or specific environmental adaptations as well as species with various futuristic potentials need to be maintained. There is an increasing aesthetic awareness with respect to natural flora and society as a whole can become a participant in maintaining biodiversity in beautiful, recreational landscapes. Thus, biodiversity needs of the state hold unique challenges and opportunity which require serious in-house research.
- Work needs to be taken up for conserving useful, farmer friendly bird species. Bio-diversity among insect species and micro-organisms is required to find out beneficial insects and microbes for use as bio-control agents in important crops. Consortia of microbial organisms need to be developed and promoted for healthy growth of crops and their protection from various pests and diseases.

SUSTAINABLE MANAGEMENT OF FORESTS

Status:

At present, in Punjab the forest cover is just 4.85 per cent which is quite less as compared to the minimum forest area (20 per cent) required to maintain the ecological balance of an area as recommended by the National Forest Policy (1988). The growth in total area under forest is given in table 15.1. The area under forests in Punjab is reducing due to a number of reasons.

Table 15.1
Area under forest in Punjab

Years	Total area under forest (sq. km)	Percentage to total area in Punjab
2010-11	3058	6.07
2011-12	3050	6.06
2012-13	3011	5.98
2013-14	2442	4.85
2014-15	2442	4.85

Source: Statistical Abstracts of Punjab for various years.

The large scale cutting of trees for infrastructure projects, widening of roads, canals and lack of quality planting stock and lack of awareness in the society are the bottlenecks for improving the tree

cover of the state. In addition, there is a regular feature of wood price drop almost every decade which discourages small and marginal farmers to adopt agroforestry. Such large scale deforestation and desertification – caused by human activities and climate change – pose major challenges to sustainable development and have affected the lives and livelihoods of millions of people in the fight against poverty. Efforts are being made to manage forests and combat desertification. Under the Green Punjab Mission the government has set an ambitious target to increase the forest cover of the state to 15 per cent. Moreover, under the crop diversification plan the state has set a target to bring about two lakh ha under agroforestry. In this agriculture intensive state, it is not possible to divert agriculture land as such to forestry. The biomass productivity of natural forests is about 1 t ha⁻¹yr⁻¹, whereas agroforestry practices have demonstrated that this could be safely enhanced to 20 t ha⁻¹yr⁻¹ by carefully selecting tree-crop combinations. Under such a scenario adoption of agroforestry on farmers' field holds promise. Traditional agroforestry comprised of retaining trees on field bunds and/or inside fields. After the advent of fast growing tree species, industrial agroforestry came into being with plantation of poplar, safeda and dek. Many progressive farmers have adopted agroforestry and the recent case studies have proved that tree cultivation along with crops is economical, relatively more sustainable and can help to reach the target of tree cover. Trees are usually considered to be hardy and free from insects pests problems. But over the passage of time many insect pest, disease and nutrient deficiency problems are noticed in plantations.

Strategies:

- There is a need to evolve new improved varieties of trees and to develop techniques for production of quality planting material. The clonal forestry must be promoted for large scale reforestation projects and agroforestry plantations based on fast growing and high yielding clonal planting stock of various species. Suitable tree-crop combinations need to be identified for different agro-climatic zones of state and to standardize their package of cultivation practices. Suitable tree species and management practices need to be standardized for saline waterlogged areas.
- The extension services need to be developed to disseminate established technologies to tree growers. Agroforestry products particularly wood based are either consumed locally or traded conventionally. The market is highly un-organized and middle man usually exploits tree growers. There is a need to establish effective marketing system by which farmers get reasonable price of their produce. Laws regarding harvesting of tree produce from farmers' field and transit for marketing should be simplified. The government owned forest areas should be managed with an objective of sustainability and conservation of diverse flora and fauna.

- Agroforestry is known to have the potential to mitigate the climate change through microclimate moderation and natural resources conservation in the short run and through carbon sequestration in the long run. There is a need to integrate economically important trees in the farming system to improve the productivity through natural resource conservation, to restore the ecological balance and to enhance the socio-economic status of farmers.
- The Department of Forests and Wildlife Preservation Punjab has proposed to do plantations over an area of 87,394 ha under different schemes from 2017-18 to 2029-30 to achieve the sustainable development goals. The detail of activities under the proposed programme for Sustainable Development Goals from 2017-18 to 2029-30 are as under:

Revision of working and management plans

Department will review existing plans and further update management plans of State forests, update growing stocks of forest (which include enumeration of trees on forest lands), demarcate and survey of forests, prepare forests maps using modern tools and techniques (including GIS/GPS), develop infrastructure for improved mobility, communication, etc.

Green India Mission

Government of India has approved the perspective plan for Green India Mission for the State of Punjab. In the selected landscape, the proposals have been framed for treatment of 76 sub-watersheds in Shiwalik tract of the State over a period of 6 years, in which approximately 18994 ha will be treated along with cross cutting interventions and soil and moisture conservation works. Plantations will be undertaken with the objective of enhancing quality of forest cover and improvement of eco system services. Among the cross cutting interventions, 247 self-help groups (SHGs) will be constituted and financial support will be provided for community development and livelihood enhancement. Emphasis will be on undertaking soil and moisture conservation works for holistic treatment of the project area. It has proposed to do plantation over an area of 18994 ha with a budget outlay of Rs. 21,001 lakh from 2017 to 2021-22.

Intensification of forest management:

This Government of India's scheme makes judicious use of all available methods for better protection and conservation of forest resources of the State. These methods include management of forest fires, maintenance of fire lines, purchase of firefighting equipment, demarcation of forest boundaries, improving communication through wireless equipment and creation of awareness among the local masses. It is proposed to strengthen work on the above components during the next decade. It is proposed to spend Rs. 4050 lakh from 2017 to 2029-30 under this scheme.

Conservation, management and development of wildlife in the State:

The main objective of this scheme is upkeep and development of 13 Wildlife Sanctuaries, 3 Community Reserve and one Conservation Reserve of the State as well as 5 Zoological Parks/Mini Zoos located in Chhatbir, Neelon, Ludhiana, Patiala and Bathinda and conservation of wildlife outside Protected Areas. The scheme also addresses the issue of man-animal conflict through suitable compensation against crop damage or damage to the property and life due to Wildlife including snake bites. It is proposed to spend Rs. 15,250 lakh from 2017 to 2029-30 under this scheme.

Bamboo Mission:

The main objective of this scheme is to promote plantation of bamboo and fibre crops in forest and non forest areas to mitigate the soil erosion. Facilitate bamboo working for improvement of existing stands, management of natural bamboo forest and bamboo flowering areas. Promote handicrafts through cluster facility center and contribute towards social and economic empowerment of people at the grass-root level encompassing farmers, artisans and other stakeholder through employment generation and improved gainful livelihood opportunities. It is proposed to spend Rs. 3400 lakh from 2017 to 2029-30 by doing plantation over an area of 1400 ha under this scheme.

State Forest Development Agency (SFDA):

Ministry of Environment, Forest and Climate Change (MoEFCC) is implementing National Afforestation Programme for regeneration of degraded forest and adjoining areas through State Forest Development Agency at State Level, Forest Development Agency at district level and Joint Forest Management Committee at village level. This is a hundred per cent Centrally Sponsored Scheme. It has proposed to spend Rs. 3400 lakh from 2017 to 2029-30 by doing plantation over an area of 4200 ha under this scheme.

Punjab Forestry Watershed Development Project:

This is a comprehensive project addressing the issues pertaining to enhancing of the tree and forest cover of the State. Under this scheme soil and water conservation works and promotion of ICT and E-Governance will be undertaken. The major part of degraded lands in the State is located in the Shiwalik belt, which is an ecologically fragile area. Extensive soil and moisture conservation works like brushwood and dry stone check dams, continuous live hedges, vegetative spurs and other masonry structures have been undertaken under this scheme. It is proposed to spend Rs. 23200 lakh from 2017 to 2029-30 by doing plantation over an area of 14,000 ha under this scheme.

Biodiversity and Natural Conservation Project:

This is a comprehensive, taking a holistic and integrated approach by evolving suitable strategies for protection, conservation and development of forests, wildlife and other natural resources coupled with livelihood generation for poverty alleviation. The emphasis will be on the involvement of local people in various tasks so that they contribute effectively and at the same time benefit from the investments proposed to be made under it. This includes conservation and management of biodiversity, protection and development of existing forest resources, integrated watershed development of the Shiwalik hills, reclamation of saline/alkaline areas and waterlogged areas through biodrainage, ecotourism development for creating environmental awareness, development of community forest resources and extension activities and adoption of modern technologies in the Department for better governance. It is proposed to spend Rs. 231453 lakh from 2019 to 2027-28 by doing plantation over an area of 48800 ha under this scheme.

CLIMATE CHANGE

Status:

The changing climate is adversely affecting the productivity of crops. An increase in temperature can reduce crop duration, affect chilling requirement of horticulture crops such as pear and stone fruits, enhance evapo-transpiration rate, alter photosynthate partitioning between source and sink, affect the survival and distribution of existing pest and pathogen populations and the emergence of new insect pests and pathogens, hasten nutrient mineralization in soils and decrease fertilizer use efficiency. Thus it is important to draw our focus on development of adaptation technologies to mitigate the adverse effects of climate change on crop production.

Strategies:

- Special efforts need to be made to develop suitable technology for prediction of extreme weather events such as hailstorm, cloud burst, excessively hot weather and frost for giving timely advice to the farmers and minimize losses.
- Crop genotypes having tolerance to multiple stresses should be identified. As an example, wheat genotypes need to be tested under high stress conditions for developing varieties having terminal heat tolerance.
- Wild relatives of important crops should be evaluated for identification of genes for hardy traits.
- Multiple cropping system need to be developed as adaptive measure to changing climate.
- Use of remote sensing technology for assessment of crop losses due to biotic and abiotic stresses needs to be taken up.

GOAL 15: LIFE ON LAND: PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Ecosystem: Protection of Agro-ecosystem and improve water and nutrient use efficiency: - Ground water - Promotion of underground pipeline system for on-farm rain water conservation and ground water replenishment	Depletion in water table in 110 blocks out of 146	-	-	Restore ground water in all 146 block	Punjab is predominantly an agrarian state. Out of total land area of 50.4 lakh ha, 82% is agricultural land. The total cropped area in a year is about 78.5 lakh ha. It is the agroecosystem rather than the natural ecosystem which needs to be protected for its long term sustainability. Developing and refining water saving technologies in crop production; Micro-irrigation system for efficient use of irrigation water; technology for conjunctive use of brackish water; biodrainage using salt tolerant crops/trees in water logged areas; policy to prevent installation of deep tubewells in over-exploited block (target 100%)
	7,870 thousand hectares total cultivated area	Cover 60,000 ha	Cover 140,000 ha	Cover 300,000 ha	
Source: State Environment Report, Punjab					

Ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> Crop diversification Refine cropping system with new alternatives: Replacement of area under rice with crops such as maize, cotton, pulses, fodder, vegetables, fruits and agroforestry 	Area under rice: 2,894 thousand hectares	100000 ha/year	100000 ha/year	100000 ha/year	<p>Promoting less water using crops like cotton, pulses, fodders, timbe etc.</p> <p>Rice-wheat cropping system, being highly productive and hence input intensive, has adversely affected water resources (both in terms of quantity and quality) and environment. Expansion of area under rice cultivation turned out to be an ecologically unsound practice as intensive cropping of rice affected the natural resources and excessive drawl of water resulted in the depletion of ground water.</p> <p>Policy for remunerative prices and assured marketing for alternatives</p> <p>Technology for increased productivity and stability of alternate crops</p> <p>Value addition and processing</p> <p>Deploy implements and technology for in site and off site management of crop residue.</p> <p>Excessive use of nitrogen fertilizers is a serious issue. There is urgent need to adopt appropriate soil, crop and land management practices that help to mitigate ill effects of climate change on soil environment, reduction in soil degradation, maintaining soil quality. Thus, adopting a landscape approach will bring these two approaches together to evaluate soil quality more comprehensively.</p>
Source: State Crop Diversification Plan and Statistical Abstracts of Punjab.					

Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Sustainable management of forests	Existing forest area 4.85% target to increase it to 16% (required forest area 20% to maintain ecological balance) as per National Forest Policy, 1988	Forest cover 8.5 %	Forest cover 12 %	Forest cover 16 %	<p>Develop strategies for forest management: Maintain and protect forest biodiversity with emphasis to those which are threatened with extinction, Control invasive species</p> <p>Maintain and improve soil productivity and minimize soil erosion and contamination with heavy metals</p> <p>Evolve new improved varieties of trees</p> <p>Develop techniques for large-scale multiplication of quality planting material for afforestation programmes</p> <p>Promote fast growing trees for agroforestry plantations and identify suitable tree-crop combinations for different agro-climatic zones of the State</p> <p>Identify suitable tree species and develop management practices for saline waterlogged areas</p> <p>Increase awareness among people regarding environmental benefits of forests and ensure their participation in forest management</p>
Source: Green Punjab Mission and Statistical Abstracts of Punjab.					

Combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Check land degradation	117200 ha degraded lands	Constitute 247 self-help groups 2200 ha plantation on degraded areas 8000 ha plantation and soil and water conservation works	Treatment of 76 sub-watersheds in Shivalik tract 5200 ha plantation on degraded areas 14000 ha plantation and soil and water conservation works	Treatment of 76 sub-watersheds in Shivalik tract 5200 ha plantation on degraded areas 14000 ha plantation and soil and water conservation works	Management practices to check land degradation: Afforestation on degraded sub-mountainous areas, restricted grazing and human movement, contour bund stabilization, watershed management in <i>Kandi</i> area
Source: Wasteland Atlas of India; Department of Forest & Wildlife Preservation, Punjab					

Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Halt bio-diversity loss	Not applicable		Promote maize, cotton, sugarcane, <i>Kharif</i> fodder, <i>arhar</i> , mungbean, groundnut, vegetables, kinnow, guava, pear, agroforestry in niche areas	Develop and maintain 13 wildlife sanctuaries, 3 community reserve, 1 conservation reserve, 5 zoological parks	<p>On farm conservation: Conserve landraces and farmers' varieties grown earlier;</p> <p>Crop niches: Promotion of crops suitable for a particular ecological zone of the State e.g. Basmati;</p> <p>Seed gene banks: Utilization in crop breeding for varietal diversity and improvement (Facilities at ICAR-National Bureau of Plant Genetic Resources, New Delhi may be used)</p> <p>Enrichment of natural ecosystem: Conserve sections of forest rich in natural flora and fauna</p> <p>Conservation of native plant species under natural conditions: Development and management of botanical gardens/ arboretums</p> <p>Conservation of microbial diversity: Development of consortia of different useful microbial flora to promote healthy growth of crops and their protection from various pests and diseases (Facilities at ICAR-National Bureau of Agriculturally Important Microorganisms, U.P. may be used) with commercialization of potent strains of microbes by 2030;</p> <p>Conservation of diversity in native fauna: Establishment of zoological parks / zoos, bird sanctuaries for conservation of native birds and animals and development of wetlands through aqua culture like different species of fish and aquatic plants.</p>
		Promote bamboo plantation on 500 ha	Promote bamboo plantation on 700 ha	Promote bamboo plantation on 900 ha	
		Management of 12000 ha forest area for biodiversity conservation	Management of 21000 ha forest area for biodiversity conservation	Management of 22000 ha forest area for biodiversity conservation	
Source: Department of Forest & Wildlife Preservation Punjab					

GOAL 13: CLIMATE ACTION: TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

Target 2030: 13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Climate resilience and adaptation	<ul style="list-style-type: none"> - On going through SMS, e-mail, press and media, needs to be strengthened - SMS alerts to few farmers (~1.5 L) - Work in progress to assess crop loss at Punjab Remote Sensing Centre (PRSC) 	<p>Efficient use of Mobile Apps, Weather Portal etc to give information to farmers of the state</p> <p>Cover major pest and diseases of main crops</p> <p>Cover major and minor crops in different agro climatic zones</p>	<p>Specialized advanced centres for dissemination of weather information for farmers at district level</p> <p>SMS alerts to all farmers</p> <p>Use of drone for assessment of biotic and abiotic stresses</p>	<p>To reach almost all the farmers of the state</p> <p>Cover all pests and diseases of different crops, vegetables and trees</p>	<p>Special efforts need to be made to develop suitable technology for prediction of extreme weather events such as extreme rainfall events, strong winds, hailstorm, and frost for giving timely advice to the farmers and minimize losses.</p> <p>Development of forewarning systems for emerging pest and disease problems due to climate change.</p> <p>Use of remote sensing technology for assessment of crop losses due to biotic and abiotic stresses needs to be taken up.</p>

Target 2030: 13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
	<ul style="list-style-type: none"> - Decision Support System (DSS) initiated at PAU - Research work initiated at PAU under NICRA project - Automatic weather stations at district level, need to be strengthened at block level 	<p>Validation of latest simulation models under changing climate scenarios for major crops</p> <p>Refine cultural and management practices</p> <p>Identify potential crop genotypes</p> <p>Cover half the blocks</p>	<p>Validation of latest simulation models under changing climate scenarios for major crops</p> <p>Refine cultural and management practices</p> <p>Identify potential crop genotypes</p> <p>Cover all the blocks</p>	<p>Applicability of models for yield forecasting of major crops at district level</p> <p>Refine cultural and management practices</p>	<p>Simulation of crop productivity using actual weather data and futuristic climate change scenarios.</p> <p>Development of cultivars tolerant to biotic and abiotic stresses e.g. wheat varieties with terminal heat tolerance</p> <p>Crop genotypes having tolerance to multiple stresses should be identified. As an example, wheat genotypes need to be tested under high stress conditions for developing varieties having terminal heat tolerance.</p> <p>Wild relatives of important crops should be evaluated for identification of genes for hardy traits.</p> <p>Multiple cropping system need to be developed as adaptive measure to changing climate.</p> <p>Efficient use of ICT for timely dissemination of weather and agro-advisories to the farmers</p> <p>Strengthen network of Automatic Weather Stations at block level and to issue block level weather forecasts for the farmers.</p>

Target 2030: 13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Mitigation technologies	<p>Crop / Income Diversification Plan</p> <p>Green Punjab Mission</p>	<p>Promote subsidiary occupations</p> <p><i>In situ</i> and off site crop residue management</p> <p>Promote plantations of fast growing tree species for biomass production</p>	<p>Promote subsidiary occupations</p> <p><i>In situ</i> and off site crop residue management</p> <p>Promote plantations of fast growing tree species for biomass production</p>	<p>Promote industry to consume tree / plant biomass</p>	<p>Dairy, fishery, piggery, honey bee production, mushroom production</p> <p>Organic farming in niche areas</p> <p>Mulching with crop residue and plastic material</p> <p>Reduction of green house gases in agriculture</p> <p>Afforestation, reforestation and reduced deforestation</p> <p>Use of forestry products for bioenergy to replace fossil fuel use</p> <p>Tree species improvement to increase biomass productivity and carbon sequestration</p> <p>Improved remote sensing technologies for analysis of vegetation / soil carbon sequestration potential and mapping of land-use change</p>
Source: Punjab Agricultural University; Punjab Remote Sensing Centre					

SDG 9: PUNJAB INDUSTRIAL SECTOR SCENARIO: 2017-30

Introduction: The SDG 9 looks at the state of Punjab Industrial Sector vis-a-vis other sectors of economy and highlights the constraints faced by the economy in achieving higher, inclusive and sustainable growth. After examining the sector-wise growth rates achieved in the past, the higher growth is projected based on achievable potential in case corrective strategy is adopted to resolve the constraints for the three year periods: 2017-18 to 2019-20, 2020-21 to 2023-24 and by 2030-31. The focus of the chapter in next sections is then shifted to industrial sector with emphasis on the manufacturing sector as it accounts for almost two third of industrial sector value added (VA) and also because some of other sectors of industry are separately being dealt in other SDG chapters in detail. The last few sections of this chapter thus focus on various aspects of manufacturing sector.

The chapter is divided into five sections. In the first section of this chapter i.e. section 9.1 on Structural Changes and Punjab Economic Development, the sector-wise growth in Punjab economy is discussed as growth in industrial sector is also linked to measures and potential achieved in other sectors. Ignoring any important segments/sectors may impact growth prospects of overall Punjab economy. The high growth in industry could only be achieved / sustained, if the industries having strong backward and forward linkage and using locally available raw material are promoted and is supported by good infrastructure and services. The growth path based on locally available raw material should be possible in case aspects such as ensuring the crucial crop diversification requirements, soil and water conservation aspects are taken care. The section 9.1 reviews the past growth taken place in Punjab Net State Domestic product (NSDP) and project the growth by 2030-31 along with structural changes in NSDP and employment as the purpose is high, inclusive and sustainable growth.

On the basis of growth projected in section 9.1 for industrial sector, the changes within industrial structure are discussed in section 9.2 on Punjab Industrial Sector. As the manufacturing sector is dominant sector within industrial sector, the focus from section 9.3 onward is placed on the manufacturing sector. Section 9.3 looks into the growth prospects for the manufacturing sector into three parts. Part 9.3.1 deals with the state of manufacturing sector among various segments such as Micro, Small and Medium Enterprises (MSME), Own account Manufacturing enterprises (OAME), non-factory sector, factory sector (FS) units engaging less than 100 employees, FS units engaging employees in the range of 100<500, FS units engaging more than 500 employees. All this analysis is done using unit-wise ASI and NSSO-unorganized manufacturing data. The detailed analysis is undertaken to know the importance of MSME in Punjab manufacturing.

In section 9.2, analysis for manufacturing sector at two-digit is undertaken. In section 9.3, the MSME estimates derived using ASI & NSSO unorganized manufacturing data for year 2010-11 are reconciled with NAS, series 2011-12 data for base price 2011-12. Section 9.4 looks at the constraints faced by Punjab manufacturing sector and then suggest strategies to overcome these challenges in order to allow Punjab manufacturing sector to grow at faster rate. The section 9.5 project the vision for Punjab MSME sectors for three periods i.e. next three year from 2017-20, seven years from 2017-24 and for the period 2017-30 in case the strategies to achieve higher growth are implemented. The last section 9.6 deals with Summary and conclusions.

9.1: Structural Changes and Punjab Economic Development:

The high growth in industry could be achieved / sustained, if the industries having strong backward and forward linkage and using locally available raw material are promoted and is supported by good infrastructure and services. To meet the requirements of locally available raw material, the crucial crop diversification requirements would be fulfilled as soil and water conservation aspects should not be ignored any further and hence is very much linked to developments in the agriculture sector. These sectors and industries having strong linkages are also the one having high potential to grow and mainly falls in labour intensive sectors and thus have high employment generating potential. Freezing & preserving of farm products, horticulture & livestock products, manufacturing of textiles, machinery, non-metallic, motor vehicle, food processing, paper-wari etc are industries in which Punjab is competitive and have strong linkages with economy. These industries have potential to grow and are capable of generating high growth in employment by promoting labour intensive sector. There is however deficiency in the way we define small scale sector in order to promote labour intensive units. Presently the share of medium scale sector is very negligible in Punjab manufacturing sector in whatever way we define the Medium sector and thus technology spillover effect from large to medium to small to micro units is missing.

There is thus strong need to promote R&D, which encourages technological advancement in sectors conducive for labour intensive and MSME units. Thus, the Government institutes along with proper funding and intervention is essential to ensure R&D takes place in areas suitable for local conditions by not only increasing spending on R&D, but by developing incentive mechanism in favour of researchers working in such areas.

The skill development is another crucial area, which can result in growth in labour productivity. Presently the Government is spending huge resources on this, but these are not benefiting the general labour force as the corporate houses managed to pocket money for their ongoing in-house skill development programs and in other cases duplicate attendance of students regularly enrolled

for other programs is shown in order to share benefits from the Government announced incentives etc. The need is therefore to develop skill development/training institutes of repute in major cities of the state, which should be capable of carrier counseling to suggest the opportunities available locally and then should impart skill development programs on the basis of caliber and requirements of labour force in order to enhance their productivity.

In order to have sustainable development in Punjab economy, it is important to promote those industries which have strong inter-linkages within industries and among various sectors of economy. The inter-linkage are in the form of raw material requirements from other sectors such as fruits, vegetables and livestock products requirements to process, cement and steel industry requirement to develop infrastructure, infrastructure and electricity requirement to support other sectors, availability of skilled and unskilled labour force after meeting the requirements in other sectors, skill and R&D importance to enhance labour productivity and impact of income growth to generate higher demand in various sectors etc. The inter linkage can lead to slowdown in the entire economy if corrective measures are not done. These inter linkages explains to some extent the Punjab is falling from highest per income state to middle income state in the country as the agriculture sector slowed down in the past. This is because the sector is still very relevant for Punjab economy despite the fact that its share of agriculture has declined in Punjab NSDP and employment over time. In fact, Punjab agriculture is still very relevant not only for Punjab economy, but for country as whole in terms of how long it can sustain the burden of food security when it is facing major constraints in terms of water scarcity and soil degradation due to excessive focus on mono-culture production. The sectors such as banks, I&T and industrial sectors are also very crucial to provide support to other sectors.

Punjab economy sector-wise data for period 2004-15 is split into three periods: 2004-05 to 2007-08, 2007-08 to 2010-11 and 2010-11-2014-15 based on the difference in growth pattern observed in the past. The period 2004-08 was high growing period, when NSDP grew by 8.1 per cent pa. The highest growth of 18.6 % pa is observed in manufacturing sector during this period, which resulted in high growth of 17.3 % pa for industrial sector. Agriculture and allied sector also showed comparatively high growth of 2.3 % pa during this period.

Table 9.1
Trend Growth Rates in NSDP of Punjab

Industrial sectors	Trend Gr Rate (% pa) base price 2004-05	Growth rates based on average of yearly % pa changes (base price 2004-05)			Projected % pa Growth rate from 2016-17 to by 2030-31 at Constant Prices
		During 2004-15	2004-07	2007-10	
Agriculture	1.2	2.3	0.7	0.9	1.2-2.3
Industry	7.3	17.3	6.8	1.3	8.4-9.0
Manufacturing	8.7	18.6	8.8	1.7	9.0-9.5
Services	8.9	7.2	9.3	9.5	9.3-10.5
NSDP	6.3	8.1	6.1	5.1	7.4-8.5
Per Capita NSDP	4.5	6.2	4.2	3.5	6.3-7.0

Source: NAS statistics data on sector-wise Punjab NSDP.

Source: Bedi, presentation at IDC, 8th August 2016, based on ongoing work on “Structural Changes in Punjab Economy”

Figure 9.1
Trend of SDP and its Components:

Note: FY 2004-05 shown as 2005 and so on in all graphs in the report

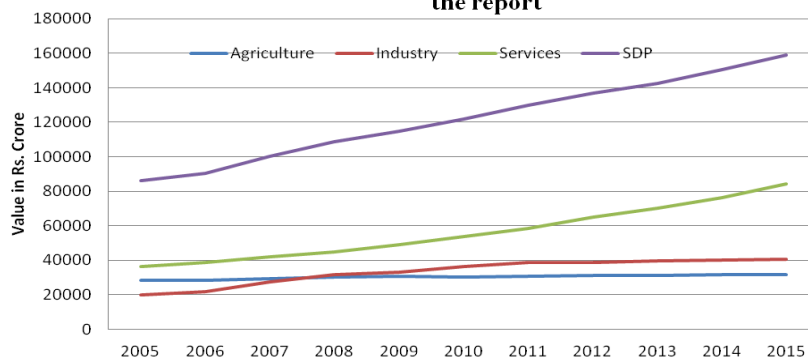
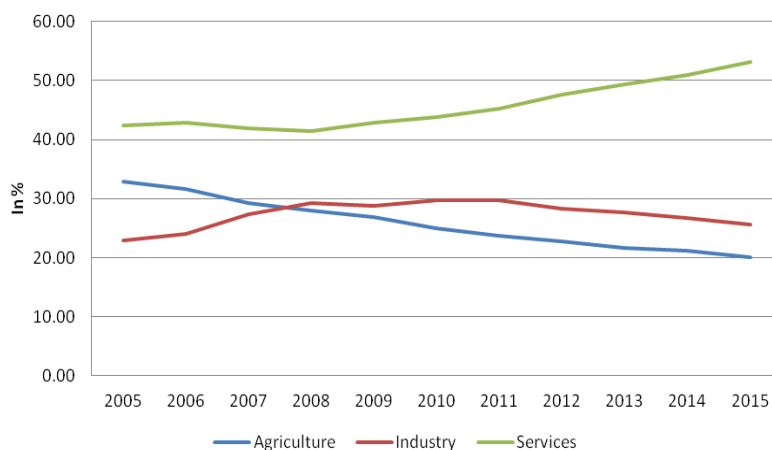


Figure 9.2
Percentage share in SDP



In the period 2007-11, there was no sector which performed extremely well. The period 2010-2015 witnesses low growth in all the sectors. With the result, the overall growth rate declined from 8.1 per

cent pa during 2004-08 to 6.1 per cent pa during 2008-11 and further to 5.1 per cent pa during 2010-15.

The slowdown in world economy is resulting slowdown in India's exports. During 2013-14, Punjab's exported worth Rs 23723 crore manufacturing goods. Presently, the share of exports constitutes around 11.5% of Punjab's manufacturing production. The major exports of Punjab are of manufacturing of wearing apparel (accounting for 31% share), textiles (23.5% share), machinery and equipment (14.8%), food products (13.1%) and motor vehicles, trailers and semi-trailers (6.5% share) of Punjab's manufacturing exports. The rising input cost in agriculture with very low rise in yield and negligible share of medium sector in manufacturing are the important reasons for unimpressive growth etc. The service sector however did not slow down during all these three sub-periods.

It is expected that the growth in Punjab economy is going to be lead by service sector with growth targets in the range of 9.3-10.5 per cent pa with manufacturing growing at slightly lower rate. The export led growth in corporate houses is not going to work for Indian manufacturing sector as China has already developed huge over-capacity in capital intensive sectors. China has achieved competitiveness with the support of large infrastructure and service sector.

Punjab manufacturing sector as a future strategy should lead in areas where it has natural competitive based on locally available raw material and the support of good infrastructure and service sectors. This is possible by developing technology suitable for the sector by promoting R&D in labour intensive technology and creating talent likely to be used in such industries by developing educational, skill development and vocational training institutes. With proper policy interventions the average NSDP of Punjab can grow in the range of 7.4 to 8.5 during 2016-30.

On an average compound growth rate of 7.5 per cent per annum could be achieved during the period 2016-30 with some efforts, but it will not be sufficient to absorb the entire labour force, if we also wish to simultaneously achieve target of doubling per capita labour productivity. To achieve average CAG of 7.5 percent, the NSDP has to grow from 5.3 percent during 2017-20 to 7.3 percent p.a. during 2020-24 and 8.3 percent during 2024-2030. The unemployment rate in-fact can be as high as 16.5 per cent of the participating population for labour force. The estimates of labour force are derived using age composition of population, mortality rate, growth in net migration level and likely changes in labour force participation. The entire labour productivity rise is not expected to come from modernization push, but a significant portion may also be the result of increase in education and skill development programs.

In order to absorb the entire labour force and simultaneously double the labour productivity, the NSDP growth rate has to be increased to 8.5 per cent per annum during the period 2017-30. This can

be made possible if NSDP grow by 6.7% p.a. during 2017-20 and 7.9% p.a. during 2020-24 and 9.5% p.a. during 2024-30. Presently work force participation rate in Punjab is 39.2 per cent during 2011 as per 68th round NSS-UE data. The estimates about availability of labour force by 2030 is estimated using age-wise distribution of population from census 2011 data, mortality and migration rate and the natural growth in population over time.

The Punjab economy is likely to witness major structural changes due to wide difference in projected growth rates for various sectors. The projected growth rates for overall NSDP are likely to be in the range of 7.4-8.5 per cent per annum. The Punjab NSDP during base year 2016-17 is projected to have Rs 285789 crore at base price and Per capita Net State Domestic Product at Rs 95795 at 2011-12 prices (derived based on 2015-16 data from Economic Survey, Government of Punjab). In year 2030-31, the NSDP is likely to touch in the range of Rs 774688 crore to Rs 889829 crore and per capita NSDP at 95795 at 2011-12 prices. The per capita NSDP is likely to more than double by 2030-31 and is likely to increase from Rs 95795 during 2016-17 at 2011-12 prices to in the range of Rs 107444-111987 by 2019-20 and then to Rs 135448-144126 by 2023-24 and further in the range of Rs 216433-248601 by 2030-31 at 2011-12 prices depending upon the two growth scenarios.

The growth in agriculture sector is going to be in the range of 1.2 to 2.8 per cent per annum. The agriculture share is thus likely to come down to 13 per cent, while share of service sector may account for two third of Punjab NSDP by 2030. The shares of industry and manufacturing within industry are not going to change much.

Table 9.2
Structural Changes in Punjab NSDP at Constant Prices based on 2011-12 base series data (% share)

	Various Sector % share in Punjab NSDP				% per capita growth rate		
	2016	2019-20	2023-24	2030-31	2019-20	2023-24	2030-31
Agriculture	29.4	25.9-25.1	20.5-20.2	12.8-13.0	0.98-1.3	1.26-2.2	1.28-2.8
Industry	21.3	22.6-22.1	23.4-22.7	24.3-22.9	7.3-8.0	8.3-8.7	8.9-9.6
Manufacturing	12.7	13.9-13.3	14.6-13.9	15.6-14.5	8.6-8.5	8.7-9.1	9.3-10.2
Services	49.3	51.5-52.8	56.1-57.1	62.9-64.1	6.8-9.2	9.7-10.0	10.1-11.3
N.S.D.P	285789	333301 -347393	442617 -470974	774688 -889829	5.3-6.7	7.3-7.9	8.3-9.5
Per Capita	95795	107444 -111987	135448 -144126	216433 -248601	4.2-5.7	6.3-6.8	7.2-8.4

Source: Derived using Economic and Statistical Organization, Government of Punjab data and Bedi, presentation at IDC, 8th August 2016, based on going work on "Structural Changes in Punjab Economy, by 2030".

The growth alone cannot help in achieving the path of inclusiveness and for allowing it has to result in higher employment generation, but should also result in increase in labour productivity in order to enhance the capabilities of sectors to pay higher compensation to workers without affecting growth momentum. The following changes in Punjab Employment structure are predicted.

Table 9.3
Structural Changes in Punjab Employment by 2030 (% share)

	Various Sector % share in Punjab Employment		VA in Rs Lakh Per employee	Projected Increase in labour Productivity Index
	2011	2030	2011 at 2011-12 prices	During 2011-30
Agriculture, forestry and fishing	36.4	19.7	1.9	2 times
Industry	31.5	25.0	1.5	3.5 times
Services	32.0	62.9	2.8	2.15 times
Punjab Economy	100.0	100.0	2.1	2.0 times to achieve full employment at average NSDP growth of 8.8% CAG (1.6 times to achieve full employment at average NSDP growth of 7.3 % CAG)
Employment in Crore	1.09	3.1 % pa Gr Rt		

Note: 1. CAG: Compound Annual growth Rate.

Note 2: Employment required by 2030 are estimated using current employment, unemployment rate, age composition of population from 2011 census, migration & mortality rates.

2. Among employed in 2011, a large number 4.7 lakhs seek further employment. Total number of unemployed & employed, seeking employment account for 13.3 % of labour force as against 10.7 per cent in case of India.

3. Productive Employment need to grow by 3.1 % pa for inclusive growth & zero poverty for the period 2016-30.

4. Farm Income likely to double & income of other sectors likely to >double by 2030.

6. Major Employment Generation: Service Sector (almost 50%), Manufacturing 20% share of employment.

NSSO 68th Employment and Unemployment survey 2011-12.

Figure 9.3
Sectoral NSDP Scenario: 2016

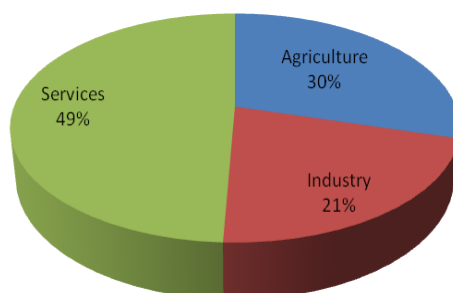


Figure 9.4
Sectoral GDP 2030-31 based on Scenario - 2

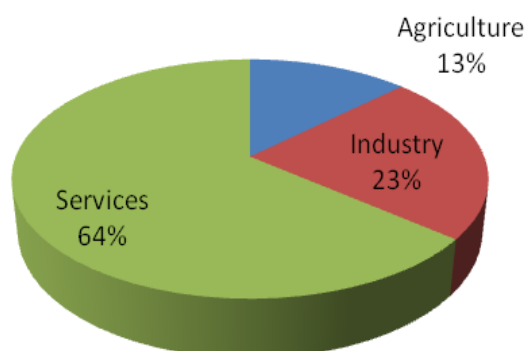


Figure 9.5
Employment in 2011

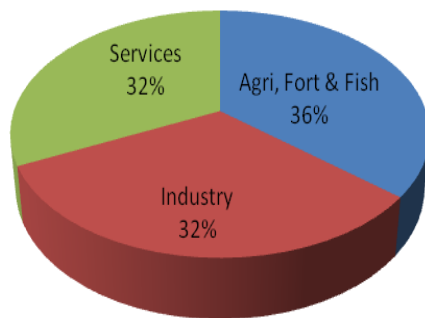
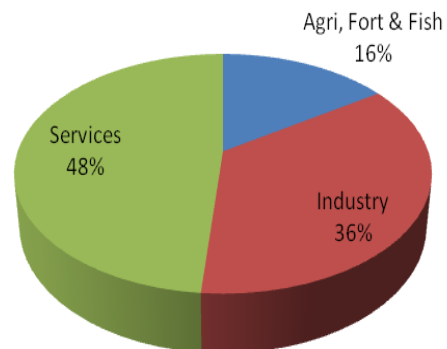


Figure 9.6
Employment in 2030



The total number of persons employed considering principal and subsidiary activity (PS&SS) in Punjab during 2011 are estimated at 1.09 crore out of total 2.77 crore population. If a person was engaged in more than one of the economic activities, his/her number is counted more than once in this definition.

These estimates slightly differ from the Directorate Census operation, which placed work force equivalent to 98.97 lakh during 2011. But, the analysis in this chapter is done on the basis of NSS-U&E data as this is considered more reliable from employment-unemployment point of view by accounting for the changes in NSS estimates on the basis of population census estimates for Punjab, 2011. The VA per employee in Punjab for agriculture sector is Rs 1.9 lakh, industry Rs 1.5 lakh and services sector Rs 2.8 lakh based on 2011-12 price series date. Thus labour productivities are highest for the service sector in Punjab. The agriculture and agriculture allied sector though lag behind service sector is doing better compared to industry sector, but this sector is more prone to high fluctuations.

9.2: Punjab Industrial Sector: Industrial sector consists of manufacturing, mining, construction and electricity. Manufacturing is most important industrial sector currently accounting for two third share of industrial sector NSDP. The manufacturing sector grew at 8.7% pa trend rate compared and was higher compared to other industrial sector at NAS, Base year data 2004-05. The growth was much higher for registered manufacturing sector at 11.9% pa, while unregistered manufacturing sector grew by 5.8% per annum during the same period (Table 9.4).

The performance of other industrial sectors such as mining and quarrying, electricity, gas and water supply and construction was not that good (Table 9.4), which resulted in slower overall industrial growth at 7.3% p.a. during 2004-05 to 2014-15. The mining sector share which was very low at the beginning of 2004 declined to almost negligible level over time and this sector is expected to show

further decline in absolute terms with decline taking place in river water flow resulting in less potential for sand mining coupled with various kind of restrictions imposed.

The growth in construction sector should pick with (i) likely increase in housing demand under the affordable housing scheme, (ii) construction requirement for setting up infrastructural projects in power, road, railways, ports and civil aviation to support the expected higher growth in Punjab economy, which in turn will drive higher growth for steel and cement industry. The sector-wise growths are quite interrelated. The same is true about electricity sector.

The electricity availability has improved in Punjab, but Punjab's demand is likely to increase with expected higher growth in manufacturing and service sector. Availability of electricity for 24 hours is very crucial especially for Micro, Small and Medium sector units as such units don't have captive power capacity, in order to allow such units to operate according to their full potential. In order to meet such demand for high growth, there is strong need to tap non-conventional energy sources as these are also beneficial from the point of view of environment. Punjab Government has made efforts in this direction and encouraged Private Public sector participation through Punjab Energy Development Agency (PEDA). PEDA has also been laying special emphasis on tapping international funding for developing renewable energy projects in the state.

The data in table 9.3 reflect that the industrial sector productivity is so low compared to other sector and there is thus need for further investigation to know the reason for same. Ideally, the labour productivity levels in Industry and other sector should be higher compared to agriculture as the usage of machinery and modern technology is expected to be higher in these sectors, which increases labour productivity.

The industrial sector is not able to perform well because of very low productivity in construction, electricity and non-factory. The VA per employee is very low in construction sector at Rs 1.3 lakh. The low productivity in manufacturing is because of outdated technology used in non-factory sector/ Micro, Small and Medium sector Enterprises (MSME). The factory sector especially large scale sector has competitively much higher labour productivity. The very low labour productivity in unorganized manufacturing sector and construction sector in absolute terms without adopting many safety norms suggest that the high employment growth targets alone cannot serve much purpose and thus productivity per employee is targeted to be much more in sectors where level is presently low and at least double among major sectors of production by 2030. This will cause trickledown effect and ensure rise in wages and compensation to employees and hence ensure inclusiveness and poverty reduction.

Table 9.4
Productivity per employee in various Industrial Sectors in Punjab

	Trend Gr rate during 2004-05 to 2014-15 (% pa)	Various Industrial Sector % share in Punjab NSDP during 2016-17 based on 2011-12 series	Various Industrial Sector % share in Punjab Employment 68 th round NSS-E U data 2011	VA Rs lakh per employee during 2011 at 2011-12 base price	Projected Increase in labour Productivity index
i. Mining & quarrying	(-)12.7	0.1	0.0	7.3	2.1 times
ii. Manufacturing	8.7	58.2	53.4	1.6	2.5 times
iv. Electricity, gas and Water supply	4.7	11.1	4.8	2.9	2.3 times
iii. Construction	4.8	30.7	41.8	1.3	2.2 times
Industry (i+ii+iii+iv)	7.3	100.0	100.0	1.5	2.5 times

Source: Derived using ASI & NSSO Unorganised manufacturing data, NSSO Employment-Unemployment data for 2011 and NAS Statistics data on sector-wise Punjab NSDP.

The labour productivity in units/sectors can be doubled in labour intensive sectors by encouraging R&D, which is essential to develop technological changes adoptable under local conditions. This burden of funding and encouraging R&D to promote technology suitable for inclusive growth should be taken by Government for better results. Presently, the R&D efforts are mainly done by corporate houses, which have western interest to develop technology suitable to safeguard the interest of big corporate houses. Even the researchers, academicians working in state run technical institutes mainly get sponsored projects for technology improvement of that nature only.

After examining the state of sub-sectors within industry such as mining, electricity, construction and manufacturing, the most dominant segment of industrial sector ie manufacturing sector in Punjab is discussed in detail in section 9.3.

9.3: Punjab Manufacturing Sector based on data from factory and non-factory sector for year

2010-11: The data for Punjab manufacturing sector is analyzed by combining the ASI and NSS-unorganized manufacturing sector data. The analysis for factory and non-factory sector, MSME sector and other classification is done using unit-wise data. The analysis is based on state of unit rather than criteria on which the unit is registered with ASI, MSME sector etc. Thus if a units with less than 10 worker is registered with factory sector, it is clubbed with non-factory sector in our analysis and vice versa for all the segments for which the analysis is presented in this chapter.

In Punjab the total number of operational enterprises during 2010-11 was 3.94 lakhs, out of which OAME accounts for 2.7 lakhs which is more than 70% of the total enterprises. The other units employing less than 10 workers accounts for 26.8%. Thus, 97.4% of the Punjab's manufacturing units were employing less than 10 workers in the year 2010-11.

The non-factory units employing workers in the range of 10-20 accounts for additional 643 units which are 0.2% of the total Punjab's manufacturing enterprises. The factory sector units thus accounts for only 2.4% of the remaining share in number of operational enterprises during 2010-11, which adds to 9588 number of operational enterprises during 2010-11. This number is different than the published ASI data as the units which are hiring less than 10 workers without power and less than 20 workers with power are taken out and added in non-factory sector and vice versa.

The units falling within factory sector are further split into various segments. 38% of units falling under factory units operate with less than 20 workers and without the use of power. Additional 52% of the factory sector units employ persons in the range of 20-100. Thus, only 935 units in Punjab are employing workers 100 or more, out of which 196 are engaging persons even greater than 500.

Using MSME definition, the dominance of smaller units is reflected in such division as well. As per this distribution, 95% share fall under Micro units i.e. units investing in Gross Fixed Capital less than Rs 25 lakhs. Small units accounts for additional 4.8% of the total operational enterprises in Punjab, which adds to 19027 enterprises. The units falling under medium sectors account for only 244 i.e. operational units having Gross Fixed Capital in the range of Rs 5-100 crore. The Large units account for 223, out of which units using Gross Fixed Capital greater than 100 crore are 67 during 2010-11 (Table 9.5).

Table 9.5
Number of Operational Units in Punjab Manufacturing Sector during 2010-11

Number of Operational Units in Punjab Manufacturing Sector among various segments during 2010-11							
	OAME	Non-factory Sector Units Other than OAME	FS Units engaging 10<100 persons	Units Engaging >=100<500 Persons	Units engaging >=500 Persons	Total	% Share in Manufacturing
Micro	277007	92344	4980	53	1	374386	95.0
Small	1130	13965	3504	407	20	19027	4.8
Medium	0	11	86	133	14	244	0.1
Large-I > Rs 10 cr<=100 cr	0	34	82	138	102	355	0.1
Large-II >100 Cr	0	0	0	8	59	67	0.0
Total	278137	106355	8652	740	196	394079	100.0
% share	70.6	27.0	2.2	0.2	0.0	100.0	

Source: Derived by Author using unit-wise ASI & NSSO Unorganised manufacturing data.

The average number of person working in operational units are estimated to be merely 3 in Punjab manufacturing sector and thus the average size of units is too small. This is because of dominance of OAME units (Table 9.5). The technology used in most units is outdated and hence is lots of units go out of operation very often especially in smaller units. Even the units registered with factory sector units remain non-operational quite often. As per ASI data, the numbers of non-operational units in 2010-11 are estimated at 2166.

Table 9.6
Persons Engaged Per Operational Units in Punjab Manufacturing Sector during 2010-11

Persons Engaged Per Operational Units in Punjab Manufacturing Sector among various segments during 2010-11(No of person/unit)								
	OAME	Non-factory Sector Units Other than OAME	FS Units engaging 10<100 persons	Units Engaging >=100<500 Persons	Units engaging >=500 Persons	Average	Total Persons in all units Engaged	% Share of persons engaged in Manufacturing in each segment
Micro	1.2	4	27	130	2258	2	828229	60.3
Small	1.9	5	30	163	675	14	264780	19.3
Medium		11	56	202	878	181	44152	3.2
Large-I > Rs 10 cr<=100 cr		5		270	1084	431	153109	11.1
Large-II >100 Cr					1363	1240	83664	6.1
Average	1.2	4	29	189	1119	3	1373934	100.0
Total Persons Engaged in all units	340832	420993	252610	140209	219289	1373934		
% share of persons engaged in each segment	24.8	30.6	18.4	10.2	16.0	100.0		

Source: Derived by Author using unit-wise ASI & NSSO Unorganised manufacturing data.

Micro units employ on an average 2 per son, small 14, Medium 181, Large-I 431 and Large-II 1240. Apart from OAME units, the other non-factory units on an average employ 4 persons per unit. Factory sector units employing persons in the range of 10-100 on an average engage 29 persons. The problem however is the very few units in medium and large scale sector and also in factory sector engaging more than 100 persons. Out of total 13.7 lakh persons engaged in manufacturing sector as per the ASI & NSSO unorganized manufacturing sector (16.9 lakh as per NSS 68th Round Employment Unemployment data for year 2011), 55.4 per cent persons were engaged in non-factory sector units, 18.4 per cent in factory sector employing less than 100 workers and only 26.2 per cent were employed in units hiring more than 100 persons. As per other definition, the 79.6 per cent of manpower in manufacturing sector is engaged in Micro and small sector units during 2010-11 as derived using unit-wise ASI & NSS unorganized manufacturing sector data.

This explains very low emoluments paid to persons engaged on an average per person in Punjab manufacturing sector. The non-factory sector on an average was paying merely Rs 25778 to persons per annum engaged during 2010-11, which is very low and can take care of only minimum subsistence level (Table 9.7). As the size of units increase, the payment to employees increases. Micro units pay only Rs 17633 per annum, while smaller units pay Rs 60433 on an average. Medium sector was paying emoluments per person amounting to Rs 96526 in 2010-11, which is very close to salaries paid by large scale sector at Rs 108062. The very large sector units however pay much higher

on an average at Rs 168873 to attract and retain skilled workers. Thus, the growth of medium sector is very crucial and it can grow only with technology improvement to enhance the productivity suitable for the sector.

Table 9.7
Emoluments Per Persons in Operational Units in Punjab Manufacturing Sector during 2010-11

Emoluments Per Persons Engaged in Operational Units in Punjab Manufacturing Sector during 2010-11 among various segments during 2010-11 (Rs of Emoluments per person)								
	OAME	Non-factor y Sector Units Other than OAME	FS Units engaging 10<100 persons	Units Engaging >=100<500 Persons	Units engaging >=500 Persons	Average	Total Emoluments paid in Rs Crore	% Share of Emoluments in Manufacturing in each segment
Micro	11.4	24158	40917	45203	176127	17633	1460	22.3
Small	63.0	32832	64332	88833	56261	60433	1600	24.4
Medium		62147	94926	101299	87043	96526	426	6.5
Large-I > Rs 10 cr <=100 cr		94764		112544	106736	108062	1655	25.2
Large-II >100 Cr					166926	168873	1413	21.6
Average	11.8	25778	53132	97967	125530	47703	6554	100.0
Total Emoluments Paid in Rs Crore	0.4	1085	1342	1374	2753	6554		
% share of Emoluments in each segment	0.0	16.6	20.5	21.0	42.0	100.0		

Source: Derived by Author using unit-wise ASI & NSSO Unorganised manufacturing data.

The low paying capacity of various size units is affected by the labour productivity in various segments. The labour productivity in factory manufacturing units in Punjab manufacturing is 6.4 times at Rs 375890 per person compared to labour productivity of Rs 58508 per person during 2010-11 in non-factory sector (those actually employee less than 10 worker with power and less than 20 without use of power) as derived using unit-wise ASI & NSS Unorganised manufacturing data. Thus it appears that the employment taken up by most of persons in most of unorganized sectors is not choice driven, but is taken up as a last resort for survival as most of these engagements are disguised employment with entire family having no alternative options for livelihood. The data on productivity of various sectors of Punjab economy are presented in Table 9.8 for year 2016-17.

Table 9.8
Rs of VA Per Persons in Operational Units in Punjab Manufacturing Sector during 2010-11

VA Per Persons Engaged in Operational Units in Punjab Manufacturing Sector during 2010-11 among various segments during 2010-11 (Rs of VA per Person Engaged)								
	OAME	Non-factor y Sector Units Other than OAME	FS Units engaging 10<100 persons	Units Engaging >=100<500 Persons	Units engaging >=500 Persons	Average	Total VA in Rs Crore	% Share of VA in Manufacturing in each segment
Micro	41741	66117	73829	44590	379730	58092	4811	17.5
Small	98924	94971	213638	160318	87660	158589	4199	15.3
Medium		1567723	466507	268368	162807	264190	1166	4.2
Large-I > Rs 10 cr<=100 cr		7065	3011059	475860	363724	483383	7401	26.9
Large-II >100 Cr				1695385	1165494	1181853	9888	36.0
Average	42095	71796	202387	287489	632277	199906	27466	100.0
Total VA in Rs Crore	1435	3023	5112	4031	13865	27466	100	
% share of VA in each segment	5.2	11.0	18.6	14.7	50.5	100.0		

Source: Derived by Author using unit-wise ASI & NSSO Unorganised manufacturing data.

The VA per person for micro units is Rs 58092, Small Rs 158589, Medium Rs 264190 and Large-I Rs 483383 and Large-II Rs 1181853. This shows the kind of technology difference in various segments. The labour productivity of MSME units have to be increased and that is possible with technological improvement.

Importance of Micro Small and Medium Scale Enterprises (MSME) and Factory & Non-Factory Sector in Punjab Manufacturing VA:

The micro, small and medium sectors are playing an important role in development of Punjab economy, but most of these units are operating without the use of modern technology. Thus, the productivity levels of units using traditional outdated technology are very low and this explains the low labour productivity in unorganized manufacturing and construction compared to average labour productivity in agriculture. These sectors should not be merely attracting disguised employment. The purpose is therefore not only to make the micro, small and medium sector, major employment generating sector, but the growth in employment should be productive. As discussed earlier, this could be made possible through R&D initiatives, skill development initiatives and targeting promotional activities better toward labour intensive sectors by bringing in definitional changes so that labour intensive technology development and implementation programs can be made more effective.

Thus, the analysis in this study is based on how these labour intensive sub-sectors are going to grow relatively by encouraging the modern use of technology, which in turn will decrease the use of labour to produce additional VA. Even after accounting for these technological advancements, the relative performance of these sectors could make a large difference in additional employment generation

even for the same overall VA growth.

Unfortunately, the data available from published sources for this purpose such as Ministry of MSME and Directorate of Punjab industry sources does not provide picture in perspective in comparison to overall manufacturing sector as universe. ASI & NSS unorganized manufacturing data derived for these segments gives better picture on MSME than Ministry of MSME data, but there is some comparability with Ministry of MSME and Directorate of Punjab industry data.

The data in Table 9.9 reflect that share of Micro, Small and Medium units in Punjab manufacturing VA account for 17.1, 15.3 and 4.2 per cent respectively in 2010-11. The dominant share of manufacturing Value Added produced in large scale sector, there may be some changes in shares as expert committee has recommended revision of limits for MSME sector.

The data presented here also jointly present the share of factory vs non-factory sector in the columns & MSME segment in the rows of tables presented to have better understanding. The share of non-factory sector accounts for only 16.2 per cent share of manufacturing GAV, while units engaging more than 500 employees accounts for 50.5 per cent of VA of manufacturing sector (Table 9.9).

Table 9.9
VA in Punjab Manufacturing Sector during 2010-11 (Rs Crore)

	VA Share in Various sub-sectors of Punjab Manufacturing 2010-11 (Rs. Crore)					% Share in Manufacturing
	Non-factory Sector	Units engaging <100 persons	Units Engaging >=100<500 Persons	Units engaging >=500 Persons	Total	
Micro	78.5	21.4	0.7	1.8	100.0	17.1
Small	17.9	54.0	25.4	2.8	100.0	15.3
Medium	1.7	19.2	62.0	17.2	100.0	4.2
Large-I > Rs 10 cr<=100 cr	0.0	21.8	24.0	54.2	100.0	26.9
Large-II >100 Cr	0.0	0.0	4.4	95.6	100.0	36.0
Total	16.2	18.6	14.7	50.5	100.0	100.0

Source: Derived by Author using unit-wise ASI & NSSO Unorganised manufacturing data.

Figure 9.7A
Share in Manufacturing GDP in 2011

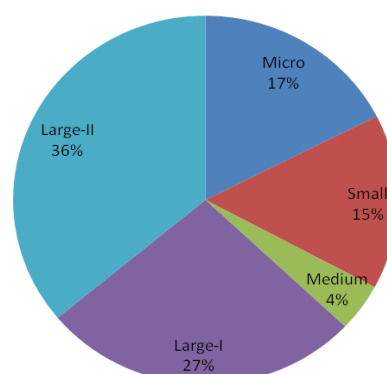
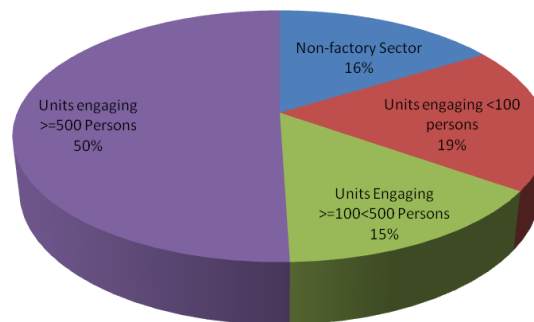


Figure 9.7B
Share in Manufacturing GDP: 2011



9.3.2 Analysis for Manufacturing Sector at Two Digit Level:

The above analysis clearly reflects that the labour intensive sectors are most crucial, but we are unable to take benefit because of outdated technology used in this segment. An attempt is thus made here to understand as how various industries at two digit level are performing and what kind of these industries are i.e. labour or capital intensive. The analysis at two digit is done on the basis of persons employed per VA.

In Table 9.10 A, 9 industries out of top 12 are presently employing average to high number of persons per Rs crore VA. These 9 industries constitutes 76 per cent of VA in the Punjab manufacturing sector, which is much higher compared to 37 % share of these industries share in Indian manufacturing sector. Eighty-one per cent of Punjab's manufacturing sector employees are engaged in these 9 industries. The share of these 9 industries in corresponding VA for India is 4 per cent compared to overall share of 2.9 per cent for Punjab in India's manufacturing. The high share of these industries reflect that Punjab is competitive in these industries and same is expressed in study conducted by IIFT reflecting rising share of such products in domestic and internationally market due to competitiveness (IIFT, March, 2015, A Study on Punjab Export Potential and Strategy Sponsored by Punjab Small Industries & Export Corporation, Chandigarh PROJECT TEAM Rakesh Mohan Joshi Ram Singh Jaydeep Mukherjee).

Table 9.10 A
Top Industries with highest share in Punjab Manufacturing
employing high to average no. of persons per unit of VA

NIC 2008 Code	Industry	Punjab's each Industry share in Punjab Manufacturing		No. of Persons Employed Index per RS Crore VA in 2010-11 Punjab	India's each industry share in Indian Manufacturing In VA (%)	Punjab share in India In VA (%)
		In VA (%)	In Employment (%)			
13	Manufacture of textiles	32.0	21.0	29.4	7.5	12.5
10	Manufacture of food products	7.4	15.8	95.9	8.1	2.7
28	Manufacture of machinery and equipment n.e.c.	7.0	4.4	30.8	5.7	3.6
14	Manufacture of wearing apparel	6.1	18.4	135.4	4.3	4.1
25	Manufacture of fabricated metal	5.8	7.2	60.5	5.3	3.2
24	Manufacture of Basic Metals	5.4	2.6	28.4	10.7	1.5
30	Manufacture of other transport equipment	4.8	4.2	42.3	2.6	5.4
23	Manufacture of other non-metallic mineral products	4.3	6.2	77.4	5.8	2.2
29	Manufacture of motor vehicles, trailers and semi-trailers	3.1	1.5	31.3	5.3	1.7
	Total of above	75.9	81.3	50.5	36.9	4.0

Source: Derived by Author using ASI & NSSO Unorganised manufacturing data, NAS statistics data on sector-wise Punjab NSDP.

These 9 industries on an average employ 50.5 persons per Rs crore of VA generation during 2010 at 2016-17 prices, which is very close to Labour per VA for overall Punjab manufacturing sector because of dominant share of such industries. Obviously, there are various other industries with fewer shares in Punjab manufacturing sector engaging much more employment per unit of VA. The data in Table 9.10 B is of three industries with high share in Punjab manufacturing VA, but engaging much less persons i.e. in the range of 7.4-16.2 per Rs crore VA (Table 9.10 A).

Table 9.10 B
Top Industries with highest share in Punjab manufacturing employing fewer no of persons per unit of VA

NIC 2008 Code	Industry	Punjab's each Industry share in Punjab Manufacturing		No. of Persons Employed index per Rs Crore VA in 2010 at 2016-17 Prices Punjab	India's each industry share in Indian Manufacturing In VA (%)	Punjab share in India In VA (%)
		In VA (%)	In Employment (%)			
11	Manufacture of beverages	5.7	0.9	9.5	1.1	14.8
20	Manufacture of chemicals and chemical products	3.8	0.9	16.2	7.9	1.4
21	Manufacture of pharmaceuticals	3.4	0.4	7.4	4.7	2.1
	Manufacturing	100	100	50.0	50	2.9

Source: Derived by Author using ASI & NSSO Unorganised manufacturing data, NAS statistics data on sector-wise Punjab NSDP.

Since, one of important objective is to generate more employment; the promotional activities should focus mainly on industries as specified in Table 9.10 A, while the high capital intensities should be allowed to function on its own without any restriction and major promotional spending from Government. Among the 12 industries discussed above, four namely (i) Manufacture of pharmaceuticals, (ii) Manufacture of beverages and (iii) Manufacture of chemicals and chemical products (iv) Manufacture of other non-metallic mineral products uses dominantly capital intensive technology. The chemical industry in it seems to have strong linkage with textile sector.

The industries having strong backward and forward linkages in Table 9.11 are (i) manufacturing of textile industry, (ii) Manufacture of machinery and equipment n.e.c, (iii) Manufacture of motor vehicles, trailers and semi-trailers, (iv) Manufacture of Basic Metals and (v) Manufacture of fabricated metals. For example, manufacture of textiles though is labour intensive, but is less so as compared to other industries in Table 9.10 A. But textile sector is very crucial because of its comparative strong backward linkages with raw cotton, wearing apparel and chemical industry.

Table 9.11
Type of technology used in Top 12 Industries having highest share in VA of Punjab

VA	Industry Name	VA % Share of Units employing different range of persons per Rs crore of VA in 2010-11 in each Industry Group					Total
		>=50	50-8	8-2	2-0.5	<0.5	
28	Manufacture of machinery and equipment n.e.c.	20.8	77.3	1.9	0	0	100
29	Manufacture of motor vehicles, trailers and semi-trailers	16.5	70.8	12.7	0	0	100
24	Manufacture of Basic Metals	13.6	69.9	11.7	4.8	0	100
25	Manufacture of fabricated metal	32.2	50.9	16.9	0	0	100
10	Manufacture of food products	40.6	44.9	15.3	-0.8	0	100
14	Manufacture of wearing apparel	57.7	41.8	0.4	0	0	100
30	Manufacture of other transport equipment	56	41	3.1	0	0	100
13	Manufacture of textiles	5.8	33.2	61	0	0	100
23	Manufacture of other non-metallic mineral products	36.9	1.8	40.1	21.1	0.2	100
21	Manufacture of pharmaceuticals	9.2	16.9	46.6	27.3	0	100
11	Manufacture of beverages	1.1	14.4	84.5	0	0	100
20	Manufacture of chemicals and chemical products	4.4	9	48.5	38.1	0	100
Total Manufacturing		22.5	39.3	34	4.2	0	100

Source: Derived by Author using ASI & NSSO Unorganised manufacturing data, NAS statistics data on sector-wise Punjab NSDP.

But the most crucial industries for the Punjab economy are those with strong backward and forward linkages and also having much more labour intensive and have high share in Punjab manufacturing (Table 9.10 A) and thus should be promoted through sustainable means. The industries having high share in VA for units employing 8-50 persons (Table 9.11) are: (i) Manufacture of wearing apparel (58 % share of such units in industries VA), (ii) Manufacture of other transport equipment (56 % share) and (iii) Manufacture of food products (41% share).

Thus it appears that the relative performance of sub-sectors such as Micro, Small, Medium and Large Scale Manufacturing sector reflect the situation better in order to capture the impact of growth on employment.

9.3.3: Reconciling Micro Small and Medium Enterprises (MSME) data from ASI & NSSO-Unorganized manufacturing Sector with NAS data for Punjab manufacturing sector:

Data from ASI & NSSO unorganized sector derived is not easily reconcilable with NAS data especially for 2011-12 series. The data on unorganized manufacturing sector is available only for year 2010-11 from NSSO and there are wide differences in these estimates with NAS data. Same is true of ASI data. Considering the importance of CSO data on NAS data to make the overall performance of one sector in context of overall economy, the author for his another ongoing work has attempted to make the ASI & NSSO unorganized manufacturing data comparable with NAS data at aggregate level by raisings different segments data in different proportions on the basis of certain criteria/assumptions for year 2010-11.

Estimates for 2016-17 for MSME using 2010-11 adjusted data: By making the adjustments, the data derived is made comparable with NAS 2011-12 at aggregate level. By using the indicators of growth available with Ministry of MSME and Department of Industries, Punjab, the estimates for year 2016-17 for VA are worked out in Table 9.12 at 2016-17 prices.

Table 9.12
VA in Punjab Manufacturing Sector during 2016-17 at 2011-12 prices adjusted for NAS, have series 2011-12

	VA share in Various sub-sectors of Punjab Manufacturing (Rs Crore)						
	Non-factory Sector	Units engaging <100 persons	Units Engaging >=100<500 Persons	Units engaging >=500 Persons	Total	% Share in Manufacturing	Employment per Unit VA Index (taking 100 for Overall Manufacturing)
Micro	84.3	14.0	0.4	1.2	100.0	23.7	31.3
Small	26.3	48.4	22.8	2.5	100.0	15.4	53.9
Medium	2.7	19.0	61.3	17.0	100.0	3.9	31.8
Large-I > Rs 10 cr<=100 cr	0.0	21.8	24.0	54.2	100.0	24.4	17.5
Large-II >100 Cr	0.0	0.0	4.4	95.6	100.0	32.6	7.2
Total	24.1	16.9	13.3	45.7	100.0	100.0	47.2

Source: Derived by Author using unit-wise ASI & NSSO Unorganised manufacturing data and NAS, 2011-12 Series data.

Figure 9.8A
Share in Manufacturing GDP 2016-17

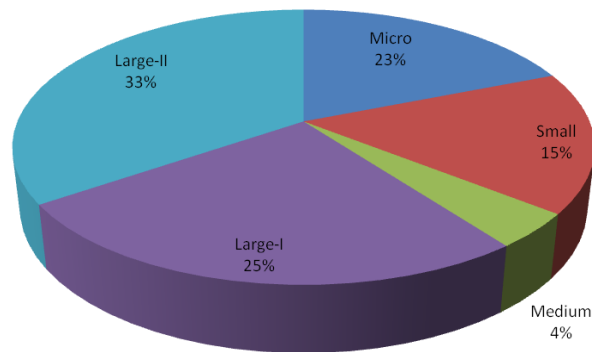
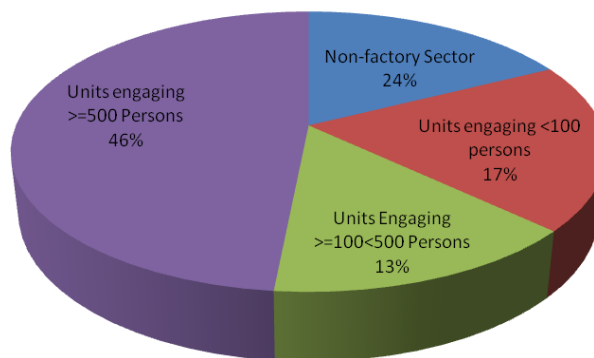


Figure 9.8B
Share in Manufacturing GDP 2016-17



9.4 Challenges and Strategies: Punjab Manufacturing Sector

An attempt is being made to suggest viable strategies to overcome the constraints and boost employment generation.

Constraints:

- (i) **Constraints for Medium Size Units:** Negligible share of medium size units in Punjab manufacturing sector results in limited re-innovation taking place to promote technology suitable for the sector, which in turn restrict the spill over effect from large to medium to small sector units. Thus the technology available for large sector is not appropriately adjusted to make it adaptable for MSME sector. The medium sector is capable to develop in-house technological improvement and If their number is large enough, they can invest heavily in R&D as a group. Groups in order to develop technology suitable for the sector with the support of skilled employees.
- (ii) **Constraints for Micro and Small Size Units:** The unreliable contracting relationship between large and small units comes in the way of growth model led by large scale units by taking over

major marketing role. In the absence of such collaboration, suitable technology transfer/support from large to small sector is not taking place. With the result, most of smaller units are operating with outdated technology.

(iii) Infrastructural constraints affect MSME sector growth prospects more: Lack of infrastructure such as electricity shortage affects the performance of smaller units more as most of large units have the capability to built in-house alternative arrangements. For the same reason, the infrastructure required for pre and post manufacturing activities mainly affects MSME units.

(iv) High cost of land affects manufacturing sector competitiveness: Manufacturing in Punjab is also affected by high cost of land in general and especially near major cities, where the infrastructure is otherwise conducive for industrial growth.

(v) Incentive Mechanism is designed in such a way which encourages technology advancement in comparative less competitive segments and thus results in slow growth compared to potential in case competitive segments are being promoted: Most of R&D units are either funded or part of big corporate houses. The R&D in such units mainly focuses on improvement of capital intensive technology as it relatively enhances their competitiveness viz micro and smaller units. Even the Government R&D institutes are not able to pursue the research in labour intensive areas as the funding for R&D, which is mainly funded in collaboration with large corporate hoses, is mainly meant for improvement for capital intensive technology. Therefore, the research in labour intensive direction areas is not taking place. The technological development in general in states like Punjab and even country as whole in fact has taken back seat as it is easier for large units to adopt technology developed by advanced countries with minor or no modifications. The incentive mechanism such as duty draw back schemes anyway encourages import of such technology developed in advanced countries by encouraging export led growth model.

These developments result in eroding our competitiveness day by day in areas in which we have natural comparative strengths/advantageous. The way we define small scale sector in order to promote these segments also lead to in way growth restrictions on such segments. For example, in order to avoid the operational restriction for factory sector, several units try to restrict the employment limits and hence act as a constraint to increase employment growth. The MSME definition on the other hand promotes units based on the fixed capital limit. Both these definitions target wrong aspects in their efforts to promote the small scale sectors by ignoring crucial indicators such as capital or labour intensive nature of units. There is thus need to develop incentive mechanism which through appropriate definitional changes and by developing appropriate infrastructure bring changes suitable for adoptability of labour intensive technology as per local advantageous. Presently, the share of large scale sector on the basis of two

alternative definitions such as investment in GFC >Rs 10 crore and alternatively say units with hired persons ≥ 500 per units accounts for around 63 per cent and 50.5 per cent respectively in Punjab's manufacturing VA. The shares of these segments almost turn upside down when it is measured as percentage of Punjab's manufacturing employment. The medium sector is having very low share by whatever definition, we tried to measure it.

Thus by promoting such capital intensive technology, we instead of reaping the benefits of demographic dividends are in fact burdened by having high unemployment/disguised employment/people not employed very productivity kind of scenario. Thus, in order to be successful and promote high development, the growth model has to be different.

Strategies:

Punjab's manufacturing growth story thus has to be different in order to achieve sustainable high growth in manufacturing sector and this growth path has to be built considering the areas where we have natural advantageous rather than artificially strengthening segments through large investments. The process of Globalization is reversing and more and more countries are reverting to protectionist measures and thus growth led model on which large companies relied so far is not going to work. China has already taken lead in such segments and has achieved scale economies and in-fact has built huge overcapacity. Thus future lies in looking for suitable local condition conducive for development of MSME business, with more emphasis on domestic market. The following measures could be helpful in promoting sustainable growth:

- i. **R&D and technology Development in labour intensive technology can make the difference:** In order to build upon the strengths, technology up-gradation in labour intensive sector could be a major step in right direction. For this to happen, Government has to put major efforts not only to set up technical institutes, but ensure that funding is there for the scientist working in such projects as smaller units cannot afford financing of such projects.
- ii. **Skill development by investment in educational and other institutes may reduce the skill set requirement gap:** The Central Government spend lots of money presently to promote technical skills, but these schemes are not meant to build institutes. The Government support is mainly used either to finance already running projects of big corporate houses or few organization are trying to take advantageous of Government funding by enrolling students, who are practically enrolled for some other regular courses in some institutes through under hand deal with such institutes. The lack of investment in educational and other institutes along with inappropriate procedures adopted to hire the teachers/trainers result in downgrading the level of education/training available to masses. This resulted in lack of availability of skilled manpower.

The MSME sectors mainly operating with outdated technology find it difficult to afford higher emoluments required to attract such talent.

- iii. **Vicious Circle for MSME:** Thus, MSME units are trapped in vicious circle. The obsolete use of technology with poor infrastructural support resulted in low productivity, which in turn make it difficult to pay higher wages to hire skilled manpower, which further result in low productivity and thus not making it possible to invest and resulting in using outdated technology. ***Obsolete technology and poor infrastructure - Low productivity - Inability to hire skilled manpower and support R&D for developing suitable technology for the sector – Non-availability of appropriate technology for the sector - Outdated technology.***

The huge difference in productivity level among various sectors explains the unsustainable kind of structure in Punjab manufacturing sector. The results from factory and non-factory sector combined data shows that the per crore of gross value added in Micro units creates 2.5 times more employment, small: 1.2 times, medium: 0.8 times and Large-I: 0.5 times and large II: 0.2 times compared to overall average in Punjab manufacturing (Table 9.12).

Thus even if labour productivity in smaller units is increased by 2-3 times by 2030 through modernization process, the sector may benefit in terms of overall growth and thus employment compared to what it may achieve by remaining lagged behind using obsolete technology. Thus, the strategy should be to exploit natural strengths by developing labour intensive technology suitable for growth of MSME sectors and supporting it with required infrastructure. The GST could be helpful in achieving economies of scale in otherwise fragmented domestic market.

- iv. **Develop Infrastructure and supporting Services:** There is also need to improve rural link roads, amend APMC, refrigerated vehicles, dedicated rail freight traffic corridor and create dry ports; sustainable energy (conventional & non-conventional) and develop service sector such as information and technology to promote industry. The lack of proper planning leads to failure of several infrastructural related projects. Market based institutions with an effective government regulation may help in developing infrastructure in the state required for development of several sectors.
- v. **Financial Institute for Smaller units:** Micro Units Development and Refinance Agency (MUDRA) Bank is set up by Government of India for development and refinancing activities relating to micro units can be very helpful for development of Micro units as per the announcement in Union Budget for FY 2016. The purpose of MUDRA is to provide funding to the non corporate small business sector. Under the scheme, Pradhan Mantri Mudra Yojana three categories of interventions has been named which includes: (i). **Shishu (Child) category:** For start ups, Rs.

50,000 loan with interest obligation of 10 to 12 % available. (ii). **Kishor Category** – This one is for units who have started, but not yet established yet, a loan in the range of Rs 50,000 to 5 Lakhs with interest obligation of 14-17%. (iii). **Tarun Category:** All small business or units eligible for a loan cover of upto Rs. 10 Lakh with Interest rate of 16%.

vi. Abundant Raw material to promote Food-Processing sector: The sufficient agriculture produces are available to be used as raw material. There is going to be improvement in their availability in case diversification process succeed, which would also be helpful in creating sustainability in agriculture sector. Agro based industries have strong backward and forward linkage. The sectors which have potential to grow include freezing, preserving and processing of farm products such as milk and milk products, horticulture, meat, fish & other livestock and other products such as paprawari etc.

The food processing units in India are mainly operating with highly labour intensive technology. Apart from the strategies discussed earlier, the promotion of storage, refrigerated vehicles and promotion of e-commerce through use of Mobile networks & transactions authenticated by interlinking Aadhar supported by e-Governance set-up can bring major change in the way this business is being carried so far and thus can lead to major growth prospects in the sector. APMC act needs to be amended by taking necessary precautions to avoid unnecessary hoarding of essential commodities and at the same time making it easier to allow procurement of agricultural raw materials by food processing companies. A few big units on the line of e-commerce in retail can play role in developing MSME in food processing sector.

vii. Dyeing Facility: Good dyeing units need to be developed for the overall growth of textiles and clothing sector in which Punjab is very competitive. Without developing dyeing segment, the overall availability of good quality fabrics gets restricted. But dyeing units of this sector can create pollution problem. It is better to take appropriate steps at the very beginning to tackle such pollution related problem in order to not allow the problem reach beyond control.

9.5 Vision for `Manufacturing Sector for three year period i.e. from 2017-20, seven year period i.e. 2017-24 and 2017-31: The projections are made on the basis of past growth trends and the expected changes in situations on the basis of strategies to be adopted. The past trend is considered on the basis data from NAS series 2004-05 as it gives comparatively long period data for recent years. The high growth targets (Scenario II: higher in the range projected) is achievable as presented in Table 9.1. The projections are made for three periods i.e. 2017-18 to 2019-20, seven year period i.e. 2017-18 to 2023-24 and 2017-18 to 2030-31 (Tables 9.13 & 9.14).

Table 9.13
Target 1: Sustained Economic Growth in accordance with Punjab
circumstances with expected growth in the range of 7.4-8.5 % at 2016-17 prices.

Indicator	Baseline Ongoing Program	Milestone 1 2017-2020	Milestone 2 2024	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> Per Capita NSDP At 2011-12 Prices 	Rs 95795	Rs 107444 -Rs 111987	Rs 135448- Rs 144126	Rs216433- Rs 248601	Promote sectors with strong backward and forward linkages through R&D, labor training, infrastructural development in order to more than double per capita income in the state
<ul style="list-style-type: none"> Per Capita NSDP Index 	100	112-117	141-150	226-260	

The NSDP in state can grow in the range of 7.4 per cent per annum to 8.5 per cent per annum by promoting sector having strong backward and forward linkages through R&D, labour training and required infrastructural development. This means per capita NSDP index in the state is likely to increase from 100 to 226-260 by 2030-31. However, the overall doubling of per capita income may not result in doubling of per capita VA in the entire economy and the aspects to achieve inclusive growth may be ignored to some extent if it failed to achieve full employment target by 2030-31. In order to have full employment target by doubling the VA in all sector, the growth rate target has to be raised to 8.8 per cent per annum.

Table 9.14
Target 2: Achieve higher levels of productivity through diversification, technological upgrading and innovation by focusing on high value added and labor intensive sectors.

Indicator	Baseline Ongoing Program	Milestone 1 2017-2020	Milestone 2 2024	Target 2030	Assumptions Programs for change
Index for VA per person Employed in Various Sectors:					Restructuring of employment essential. Improving skill sets of employees and modernizations sectors especially labor intensive to enhance labor productivity.
- Overall Economy	100	111-116	127-141	162-200	
<ul style="list-style-type: none"> Industry Manufacturing 	100			240	
<ul style="list-style-type: none"> - F.S 	100			242	
<ul style="list-style-type: none"> - Non F.S 	100			187	
<ul style="list-style-type: none"> Agriculture and Services 	100			643	
	100			Double or > Double	

This will result in bringing several structural changes and share of agriculture in NSDP, which is having low potential for higher growth, likely to decline to low of 13 per cent by 2030-31. The industry and

manufacturing sector share is going to rise marginal in NSDP as the growth is going to be lead by service sector. The share of service sector is likely to rise from 51.5 -52.8 per cent in 2016-17 to 62.9-64.1 per cent in NSDP by 2030-31.

Table 9.15
Target 3 : Structural Changes in NSDP and Employment in order to double Income in Punjab Economy

a) NSDP					Assumptions Programs for change: This is assumed that improvement in skill and improvement in R&D to promote technological progress in labor intensive sectors essential to at least double NSDP per worker. This is essential to afford decent payment to workers with modernization of labor intensive Sector in order to not affect the growth momentum.
Indicator	Baseline Ongoing Program	Milestone 1 2017-2020	Milestone 2 2024	Target 2030	
Agriculture	29.4	25.9-25.1	20.5-20.2	12.8-13.0	
Industry	21.3	22.6-22.1	23.4-22.7	24.3-22.9	
Manufacturing	12.7	13.9-13.3	14.6-13.9	15.6-14.5	
Services	49.3	51.5-52.8	56.1-57.1	62.9-64.1	
b) Employment					
Agriculture	36.4			15.7	
Industry	31.5			35.7	
Services	32.0			48.6	
	100			100	
Target 4: Full Employment: Unemployment rate can be as high as 16.5% of labor force by 2030 even by achieving NSDP growth of 7.4% in case the per capita productivity of workers need to be doubled in all the important sectors of production by 2030.					
Note: In order to achieve full employment and also double per capita VA per workers employed, the growth need to be as high as 8.5% p.a. and there is need for major structural transformation both in terms of NSDP and Employment. This can be achieved with modernization in labor intensive competitive sectors in order to enhance growth potential of such sectors & by moving labor where it is abundant to high growing sectors. Skill of employees should be improved by providing proper educational and skill development institutes.					

This thus would require lots of structural changes on employment front. The persons from sectors with low growth potential need to be moved out to high growing sectors and the sectors with low productivity level have to modernize at faster pace, but in labour intensive sectors. The full employment target with doubling of VA per workers in major sectors could be achieved at growth rate of 8.5 per cent per annum. These aspects bring the importance of higher growth through modernization in labour intensive sector in order to achieve various targets in the state for sustainable development. The growth in industrial sector is going to be higher in order to achieve this, but the service sector likely to outperform industry. Thus, there is not going to be major structural changes in the share of industry at aggregate level in Punjab economy (Table 9.16) both in terms of NSDP and employment. Within industry, manufacturing sector is going to grow at faster rates followed by electricity sector.

Table 9.16
Target 5: Increase in the share of Industrial sector of Punjab

Indicator	Baseline Ongoing Program	Milestone 1 2017-2020	Milestone 2: 2024	Target 2030	Assumptions Programs for change:
Industrial sector share as % of NSDP	Share likely to marginally increase from base line level of 23.7% share in NSDP to 25.8 per cent in 2030 and employment share likely to be stagnant at 31% in Punjab Economy.				Industrial Growth likely to be high. But Service sector likely to outperform growth continuously going to be led by service sector.
Structural changes in Industrial NSDP					
Industry	21.3			22.9	
Construction	6.6			6.2	
Electricity	2.0			2.2	Unorganized sector growth needs to be higher to increase employment at faster rate.

With these kinds of structural changes, the productivity is likely to grow in all sectors in case the NSDP would grow at 8.8 per cent per annum.

Manufacturing Sector: The trend growth rate for the manufacturing sector was 8.7 per cent per annum during 2004-05 to 2014-15. The registered sector in this grew by 11.9 per cent per annum and registered sector by 5.8 per cent per annum. In future, based on the steps taken, the manufacturing sector growth can vary from 9.0 per cent per annum to 9.5 per cent per annum as against 8.7 per cent per annum trend growth achieved during 2004-14. Even with growth rate, the share of manufacturing is projected to rise marginally in Punjab NSDP and Punjab employment. These growth targets will result in raising the share of manufacturing in NSDP.

But within manufacturing sector, the strategy suggested is likely to bring major structural changes in case it is properly implemented and the growth would lead to employment generations. It is projected that the non-factory sector is likely to grow at higher rates of 10.9 per cent in case the policy to promote labour intensive sector are introduced rather than restricting employment. The medium sector growth rate is projected at 23.3 per cent per annum. Thus, the manufacturing sector growth is going to be lead by medium scale sector, followed by small and Micro units. This is likely to bring the following structural changes within manufacturing sector.

Table 9.17

Target 6: Improve Structural Changes in such a way which results in productivity growth in all segments of manufacturing sector. Presently structure is biased in terms of NSDP towards large sectors, while employment responsibility mainly fall in Micro & Small scale sectors.

Structural changes within Manufacturing sector							
Indicator	Baseline Ongoing Program		Milestone 1: 2017-2020	Milestone 2: 2024	Target 2030		Assumptions Programs for change:
	NSDP share	Emp Share			NSDP share	Emp Share	Medium Sector to grow to fill the gap of spillover effect not taking place due to missing medium scale sector. Technology improvement through proper R&D initiatives and skilled Development Programs can lead to growth in productivity and thus, growth of MSME sector.
Micro	23.7	60.2			23.7	48.3	
Small	15.4	19.3			26.2	27.0	
Medium	3.9	3.2			19.4	13.9	
Large 1	24.4	11.2			14.4	6.7	
Large 2	32.6	6.1			16.3	4.1	
	100	100			100	100	
Target 7: Growth of MSME sector							
	Comparative Labor Employed Index per unit of VA in Different Sectors		Through labor productivity growth Index during 2016-30		Comparative Labor Employed index per unit of GVA in Different Sectors		
Micro	254		191		133		
Small	125		186		67		
Medium	83		177		47		
Large 1	46		151		30		
Large 2	19		115		16		
Total	100		153		65		

The growth is going to be slow in larger units with such units allowed to grow on the basis of natural strengths and this is likely to be in segments in which large scale sector is essential in developing other segments of the economy. The data in Tables 9.18 and 9.19 present the detailed structure of manufacturing sector NSDP and employment by 2030-31.

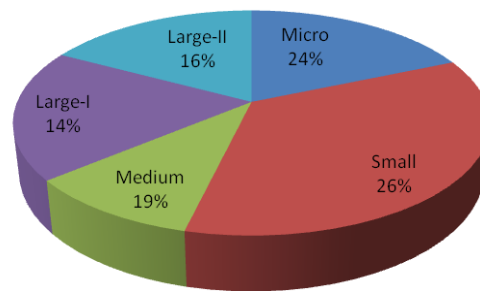
Table 9.18

GVA in Punjab Manufacturing Sector during 2030-31 at 2011-12 prices (Rs Crore): adjusted for NAS, 2011-12 Series

	GVA share in Various sub-sectors of Punjab Manufacturing 2030-31 (Rs Crore)						
	Non-factory Sector	Units engaging <100 persons	Units Engaging >=100<500 Persons	Units engaging >=500 Persons	Total	% Share in Manufacturing	% pa Gr Rt 2016-2030
Micro	84.3	14.0	0.4		100.0	23.7	9.9
Small	26.3	48.4	22.8	2.5	100.0	26.2	14.1
Medium	2.7	19.0	61.3	17.0	100.0	19.4	23.3
Large-I > Rs 10 cr<=100 cr	0.0	21.8	24.0	54.2	100.0	14.4	5.8
Large-II >100 Cr			4.4	95.6	100.0	16.3	4.6
Total	27.4	22.9	22.2	27.6	100.0	100.0	9.9

Source: Derived by Author using unit-wise ASI & NSSO Unorganised manufacturing data and NAS, 2011-12 Series data.

Figure 9.9
Share in Manufacturing GDP 2030-31



The growth in manufacturing employment projected in Table 9.15 however would crucially depend upon the level of growth and path taken and could only be achieved if MSME and industries suitable for the local conditions such as food processing, textiles and apparel, transport vehicles manufacturing, rural industries etc are promoted.

Table 9.19
Employment in Punjab Manufacturing Sector during 2030-31

	Employment share in Various sub-sectors of Punjab Manufacturing 2030-31					% Share in Manufacturing
	Non-factory Sector	Units engaging <100 persons	Units Engaging >=100<500 Persons	Units engaging >=500 Persons	Total	
Micro	82.4	16.5	0.8		100.0	48.3
Small	29.8	40.1	25.1	5.0	100.0	27.0
Medium	0.3	10.9	61.0	27.8	100.0	13.9
Large-I > Rs 10 cr<=100 cr	0.1	3.5	24.3	72.0	100.0	6.7
Large-II >100 Cr			3.1	96.9	100.0	4.1
Total	47.9	20.5	17.4	14.1	100.0	100.0

Source: Derived by Author using unit-wise ASI & NSSO Unorganised manufacturing data and NAS, 2011-12 Series data and on the basis of expected growth in labour productivity in various segments.

The share of food processing sector is likely to grow from current level of 8.7 per cent share in manufacturing NSDP to 11.2 per cent share. Textile is likely to grab almost 50 per cent share of Punjab manufacturing sector from present level of 37.7 per cent share to 48.7 per cent share in 2030. The wearing apparel share is likely to grow from 7.2 per cent to 9.3 per cent, while the shares of all other sectors are likely to decline in manufacturing sector. Some sector may in fact decline in absolute, while other are likely to grow by less than average level of growth i.e. lower than 8.8 to 9.5 per cent in two alternative scenarios.

9.6 Summary and Conclusions:

The Punjab state has good base in grain mills, rice shellers, metal-based light engineering, knitwear and hosiery, leather and leather products, and sports goods industries. 95% of the woollen knitwear produced in the country is made in the textile clusters based in Ludhiana. In the past, Punjab mainly

witnessed growth in small scale sector though investment in clusters at Ludhiana, Malerkotla and Batala. The large scale sector in the state could not perform well despite the presence of a few large players in the state in industries such as automotives and textiles, in which state was in fact having comparative advantageous.

The state can thus achieve higher growth path by promoting industries where it has natural advantageous. Punjab Economy seems to have scope to grow faster in cases the various constrain which are currently not allowing the sector to grow. The higher growth rate of 8.5per cent per annum in the Punjab economy is essential to double the GVA per employee by 2030 at full employment rate. In case growth rate restrict at the rate of 7.4 per cent per annum, the target of doubling labour productivity remain unfulfilled at full employment level. At 7.4 per cent per annum rate of growth for the economy; the labour productivity index may grow 1.62 times at full employment rate. The doubling of productivity per worker is essential in order to enhance the affordability to pay decent emoluments to workers without harming the growth prospects. Thus, the targets for the economy are quite inter-related and any set back in one sector has the capability to derail the whole strategy. The R & D, labour training and infrastructural development can help in achieving the target of high growth in productivity and employment by promoting modernization of labour intensive technology, which in turn can result in achieving better demographic dividends. There is thus need for several structural changes in the Punjab economy in case we want the growth to be inclusive. The labour need to be moved out from sectors likely to grow at slower rate and the productivity growth need to be faster in sectors currently lagging behind. In graph 2005 means FY end 2005 i.e 2004-05 and same for other years.

¹ In graph 2005 means FY end 2005 i.e 2004-05 and same for other years.

Target 2030: 9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Increase in the share of Industrial sector of Punjab					Share likely to marginally increase from base line level of 21.3% share in NSDP to 22.9 per cent in 2030 and employment share likely to be stagnant at 31% in Punjab Economy. Industrial Growth likely to be high. But Service sector likely to outperform growth continuously going to be led by service sector.
• Structural changes in Industrial NSDP					
- Industry	21.3			22.9	
- Construction	6.6			6.2	
- Electricity	2.0			2.2	
• Almost negligible					
- Manufacturing	12.7			14.5	
- Punjab Economy	100			100	
Source: National Accounts Statistics, 2010-2011, Structural Changes in Punjab Economy, by 2030- Bedi					

Target 2030: 9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Structural changes within manufacturing sector					<p>Improve Structural Changes in such a way which results in productivity growth in all segments of manufacturing sector. Presently structure is biased in terms of NSDP towards large sectors, while employment responsibility mainly fall in Micro & Small scale sectors.</p> <p>Medium Sector to grow to fill the gap of spillover effect not taking place due to missing medium scale sector. Technology improvement through proper R&D initiatives and skilled Development Programs can lead to growth in productivity and thus, growth of MSME sector.</p>
• NSDP share					
- Micro	23.7			23.7	
- Small	15.4			26.2	
- Medium	3.9			19.4	
- Large 1	24.4			14.4	
- Large 2	32.6			16.3	
• Employment share					
- Micro	60.2			48.3	
- Small	19.3			27.0	
- Medium	3.2			13.9	
- Large 1	11.2			6.7	
- Large 2	6.1			4.1	
• Growth of MSME sector					
- Micro	254			133	
- Small	125			67	
- Medium	83			47	
- Large 1	46			30	
- Large 2	19			16	
Source: Annual Survey of Industries 2011-12, NSSO					

**SDG 7:
AFFORDABLE AND CLEAN ENERGY: ENSURE ACCESS TO
AFFORDABLE, RELIABLE, SUSTAINABLE
AND MODERN ENERGY FOR ALL**

Introduction

Sustainable Development Goals (SDGs) were introduced by the United Nations General Assembly in the year 2015, under the agenda of *Transforming Our World: The 2030 Agenda for Sustainable Development*. These goals have been formulated with the prerogative of meeting global and national aspirations in a defined time frame. There are 17 such sustainable development goals. Of these one of the key goals is to 'Ensure access to affordable, sustainable, reliable and modern energy for all.'

Energy is one of the vital components of a sustainable development trajectory because it has been the main stay of development of human civilization, as well as global economic development (Smil, 2008). However, in recent years some major challenges associated with energy use have come to the forefront. These include declining global oil reserves and peak oil crisis, geo-political turmoil in middle-eastern economies and adverse impact of fossil fuels on the environment. All these factors have made it imperative to move towards commercial development of renewable sources of energy. Many scholars believe that renewable energy has the potential to replace fossil fuels on a commercial basis due to its many desirable properties (Jacob, 2012; Brown and Brown, 2013). It was believed that large-scale commercial production of renewable energy would lead to decline in carbon emissions, promote energy security among developing nations, diversify agriculture and reverse land degradation (HLPE, 2013). Renewables constitute only 10 percent of the global energy needs currently and efforts are being put in place to develop these on a more extensive scale.

ELECTRIC ENERGY

1.1 General

Electrical Energy Requirement /EER (MU) & Peak Demand (MW) are important elements of the electrical power projections to meet the future power requirements of various categories of consumers. The electrical energy demand represents the productive element which goes into the capital expenditure while peak demand is the operational parameter of the utilization of electrical energy. A planned load growth study in industry, agriculture, commercial, domestic & other categories of consumers has been taken for

future predictions based upon the baseline data of PSPCL from the year 2004-05 to 2014-15 for various category of consumers. This study lead the Committee to project the figures of MU & MW requirements up to the year of 2035-36.

Similarly Power Availability is a crucial element to conclude if organization would be surplus or deficit for the coming years

Demand Forecast

2.1 Methodology Adopted:

The Committee has worked with methodology based upon Average Annual Growth Rate (AAGR) and Compound Annual Growth Rate (CAGR) by taking base year 2013-14 for Electrical Energy Requirement (MU) and base year 2014-15 for maximum peak demand (MW). To carry out these projections, data from the year 2003-04 to 2013-14 was considered to calculate these AAGR & CAGR.

This forecasting of Electrical Energy Requirement (MU) and peak demand (MW) has incorporated T&D losses.

2.2 CEA Methodology for Demand- Forecast

On the basis of statistical data available with Planning for various categories of consumers such as domestic, commercial, agriculture, industry etc, the projections were prepared with the methodology of CEA which is based on time series analysis for the State of Punjab. As per guidelines of CEA, the following averages were calculated:-

- Average Annual Growth Rate.
- Compound Annual Growth Rate.
- Weighted Chronological/Reverse Chronological Averages.

The projections of energy consumption by domestic, commercial, Public lighting, Public water works, irrigation, industry LT, Industry HT & bulk supply consumers was carried out separately and summed up on yearly basis up to the year 2035-36. The annual energy requirement (MU) and annual peak demand (MW) were worked out by taking into account the T&D loss projected corresponding to that year, energy saving and demand side management.

Similarly quarterly average and Base for Energy requirement (MU) & peak demand (MW) were calculated.

Monthly Peak load demand (MW) & Energy Requirement (MU) were calculated up to the year 2035-36.

Gross installed capacity and month wise availability (MW/MU) was worked out and compared with month wise demand (MW/MU) to calculate surplus/deficit up to the year 2035-36. It is stated that the installed capacity/ up-coming projects data is available from the office of CE/PP&R up to the year 2024-25 only.

2.11 Year wise & Category wise EER Forecast upto the year 2031-32:

Category wise growth forecast has been calculated to bring out the annual peak demand (MW) and annual energy requirement (MU) by taking into account the T&D loss reduction fixed corresponding to that year, energy saving and demand side management.

Year-wise component of total energy consumption by various categories of consumers is depicted in the Table 7.1

Table 7.1
Year-wise consumption of energy by different consumers

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2026-27	2031-32	2035-36
1. Domestic	10344	11190	12131	13130	14105	15119	16188	17317	18507	24304	31596	37936
2. Commercial	2969	3190	3484	3804	4144	4515	4930	5384	5879	8331	11750	15212
3. Public Lighting	159	170	182	195	206	217	229	241	254	309	367	417
4. Public Water Works	427	470	520	575	629	687	751	820	894	1271	1797	2256
5. Irrigation	10224	11283	12416	13617	14891	16239	17667	19177	20774	29236	40036	50318
6. LT Industries	3209	3550	3953	4383	4728	5093	5480	5890	6324	8699	11807	14957
7. HT Industries	8712	9697	10779	11945	13005	14070	15199	16396	17665	22361	27991	33367
8. Bulk Supply	1303	1385	1462	1544	1627	1709	1796	1888	1984	2452	3024	3516
Total (Energy Consumption)	37347	40935	44927	49193	53333	57649	62240	67112	72282	96963	128367	157981
T&D Losses-MU	7622	8083	8558	9024	9419	10054	10641	11244	11874	15863	20914	25654
T&D Losses-in%	16.95	16.49	16.00	15.50	15.01	14.85	14.60	14.35	14.11	14.06	14.01	13.97
Energy Requirement-MU-(UR)	47778	49018	53485	58216	62752	67703	72881	78357	84156	112827	149281	183635
Annual Load Factor-%(UR)	54.06	48.51	51.01	53.51	56.01	58.51	61.01	63.51	66.01	71.01	76.01	80.01
Peak Load Demand-MW (UR)	10089	11534	11968	12419	12789	13208	13636	14083	14553	18137	22418	26199

Source: PEDAs, Government of Punjab, 2016

It is evident that peak demand which was 11534 MW in the year of 2014-15 it will rise to 14553 MW in 2021-22, 18137 MW in 2026-27, 22418 in MW in 2031-32 which will further increase to 26199 MW by 2035-36.

2.12 UTILISATION PATTERN /GROWTH RATE

The annual growth rate from 2013-14 to 2031-32 has been tabulated below wherein the overall growth rate from 2014-15 to 2031-32 varies from 3.0 to 9.2 per cent.

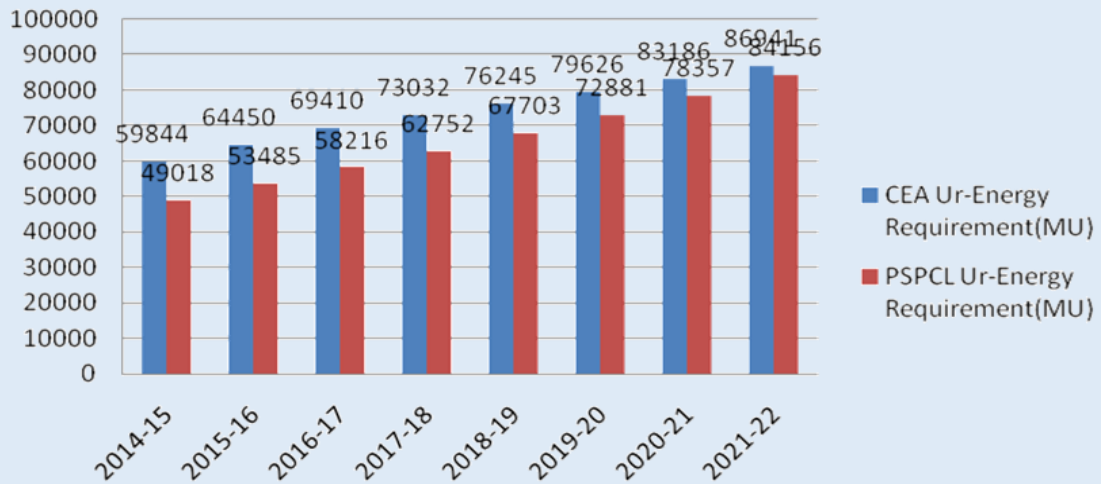
Table 7.2
Pattern of Utilisation of Electrical Energy Consumption

	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2026-27	2031-32
Domestic	27.7	27.3	27.0	26.7	26.4	26.2	26.0	25.8	25.6	25.1	24.6
Commercial	8.0	7.8	7.8	7.7	7.8	7.8	7.9	8.0	8.1	8.6	9.2
Irrigation	27.4	27.6	27.6	27.7	27.9	28.2	28.4	28.6	28.7	30.2	31.2
Industries	31.9	32.4	32.8	33.2	33.2	33.2	33.2	33.2	33.2	32.0	31.0
Others	5.1	4.9	4.8	4.7	4.6	4.5	4.5	4.4	4.3	4.2	4.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Annual Growth Rates											
Domestic	11.4	8.2	8.4	8.2	7.4	7.2	7.1	7.0	6.9	5.5	5.3
Commercial	9.5	7.4	9.2	9.2	8.9	8.9	9.2	9.2	9.2	7.1	7.1
Irrigation	-5.2	10.4	10.0	9.7	9.3	9.1	8.8	8.5	8.3	6.8	6.3
Industries	1.8	11.1	11.2	10.8	8.6	8.1	7.9	7.8	7.6	5.2	5.0
Others	7.9	7.2	6.9	6.9	6.4	6.2	6.2	6.2	6.2	5.1	5.2
Total	3.0	9.6	9.8	9.5	8.4	8.1	8.0	7.8	7.7	5.9	5.7

Source: PEDA, Government of Punjab, 2016

PSPCL vs CEA Energy Requirement (MU) Year wise: Similarly comparison for Energy is prepared as projected by PSPCL vs CEA projection as per 18th EPS.

Figure: 7.1
PSPCL vs CEA Energy Requirement (MU) Year wise



Source: PEDA, Government of Punjab, 2016

Table 7.3
Year-wise PSPCL vs CEA Energy Requirement

Year	CEA	PSPCL
	Ur-Energy Requirement(MU)	Ur-Energy Requirement(MU)
2014-15	59844	49018
2015-16	64450	53485
2016-17	69410	58216
2017-18	73032	62752
2018-19	76245	67703
2019-20	79626	72881
2020-21	83186	78357
2021-22	86941	84156

Source: PEDA, Government of Punjab, 2016

Table 7.4
Installed Capacity in MW in Punjab

Sector-wise Installed Capacity											
	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Thermal	7,181	9,503	10,504	10,504	10,504	10,504	10,504	11,164	12,040	12,255	12,471
Hydro	3,344	4,035	4,264	4,517	4,710	4,710	4,710	4,710	4,710	4,710	4,710
a) Bio mass (PEDA)	144	164	194	224	324	424	474	504	504	504	504
b) Mini Hydel (PEDA)	106	121	130	136	139	149	159	169	169	169	169
c) Solar (PEDA)	220	420	670	1,420	2,170	2,420	2,620	2,720	2,720	2,720	2,720
d) Baggasse & Co-gen (PEDA)	81	91	111	131	181	231	281	301	301	301	301
Nuclear	197	197	197	197	197	197	197	197	197	197	197
Total	10,955	11,912	16,070	17,129	18,224	18,634	18,944	19,764	20,640	20,856	21,071

Source: PEDA, Government of Punjab, 2016

It is evident from above table that the installed capacity from all sources shall increase from 11272 MW in 2014-15 to 18944 MW in 2020-21 and 21071 MW in 2024-25. This has been further used to predict the availability of energy for future.

Conclusion and Future Policy Actions

- The PSPCL is surplus in terms of **Peak Demand (MW)** up to the year 2019-20 & in terms of **Energy (MU)** up to the year 2020-21.
- PSPCL becomes deficit in peak demand from 2020-21 onwards & in energy from the year 2021-22 onwards.
- In view of the surplus power scenario, no capacity addition up to the year of 2019-20 is envisaged. However in case of scenario without Hajipur TPP, the state may become power deficit in the range of about 2 per cent in 2020-21 and 5 per cent to 12 per cent (1247 MW) peak demand deficit for a period of four months (summer/paddy) in 2023-24 and this gap is likely to touch 21 per cent in 2025-26 and the period of deficit might extend to 6 months (May to October). Execution of Hajipur TPP may be planned in such a way so as to start commercial operation of first unit in the summer 2021-22 and the second unit in the year 2022-23 positively.

In view of surplus power available up to the year of 2019-20, it may not be prudent to tie up any more thermal power through pit head plants or otherwise till 2019-20. Further, phase out 6 units of 210 MW at GGSSTP and replacing these with 3X800 MW super critical units and in view of completion of designed life of renovated GNDTP unit no.1 & 2, are likely to be phased out between 2021 to 2026.

PEDA has supplied the Road Map to build the Solar/NRSE capacity up to 4775 MW by the end of 2019-20, this energy shall have to be utilized in the system. Further, it was also deliberated that such huge capacity in solar power may result into huge surplus and huge deficit during different time blocks of the day due to limitation in ramp up and ramp down rates of thermal power station, technical minimum constraints of generating stations and obligatory nature of power from hydro and nuclear generating stations. So, such a scenario would have huge financial implications for PSPCL in addition to operational constraints. The actual availability from such installed capacity and power from such sources particularly solar being relatively infirm and inconsistent, projections have been worked on the basis of available data as per record.

The projections have been worked out keeping in view the following assumptions and considerations:

- No major change has been envisaged in the cropping pattern of the state

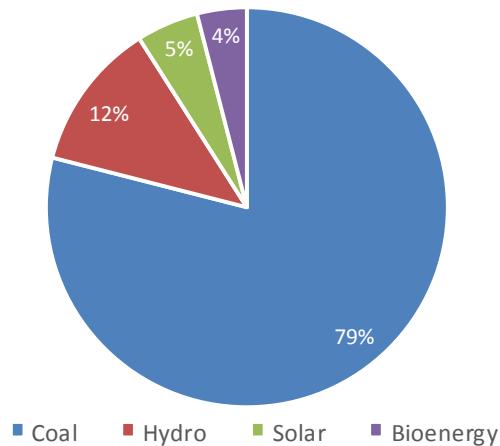
- The industrial growth considering continuation of Incentivizing policy for Industry by the Government.
- Already agreed AT&C loses trajectory has been taken into account.
- The specific consumption in various categories has been assessed by considering use of BEE "5 STAR RATED" equipments in future and other DSM measures.
- Availability of existing power plants has been in future as there is no specific time line to weed out old thermal units.
- Availability of Power Plants has been worked out considering standard load factor and availability of all inputs like coal, oil and water as per requirement.
 - In view of surplus power available up to the year of 2019-20, it may not be prudent to tie up any more thermal power through pit head plants or otherwise till 2019-20.
 - Capacity addition, which is required only by 2021-22, should be considered through 2X660 MW Ultra Super Critical Thermal Power Plants at Hajipur i.e. Ist unit of 660MW at Hajipur be planned for commissioning in 2021-22 & IInd unit in the year 2022-23.

Renewable Energy

Punjab, the epicenter of Green Revolution in India is now being touted for a leading role in the renewable energy sector in India and is now being touted as a 'green power' economy in recent years. Being a primarily agriculture state, it has large quantities of agro residue, which could be gainfully utilized for energy recovery for commercial, industrial and domestic applications. In addition, there is huge potential for use of solar energy for power generation. Punjab has also a developed large canal network with potential for harnessing hydropower.

The Punjab Energy Development Agency is making continuous efforts for increasing the share of Renewable Energy in total energy mix to achieve the sustainable development goals set at national level for clean and affordable energy. Currently renewable energy constitutes only 10 percent of the total energy needs in the province, however under the prerogative of sustainable development goals (SDGs) in the state, efforts are being made to increase the share of renewable energy to 30 percent of the total energy matrix by the year 2030.

Figure 7.2
Share of renewable energy in the energy matrix of Punjab



Source: Energy Statistics of India

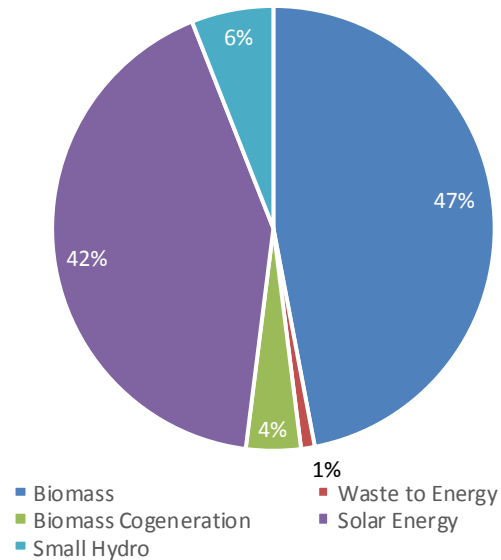
KEY AREAS FOR DEVELOPMENT OF RENEWABLE ENERGY BY THE STATE GOVERNMENT

The following are the thrust areas for development for renewable energy in the state-:

- **Small hydel projects:** Canal systems are being harnessed to generate electricity by building small, mini and micro hydel units across these canals.
- **Biomass based power projects:** Punjab holds large potential for energy generation from agro- residues (cotton stalks, paddy husk, paddy straw, etc.).
- **Cogeneration power projects:** Co-generation technologies are used for converting dry biomass for co-generation in sugar, paper, fertilizer chemical, textile and other industries.
- **Solar photovoltaic based technologies:** The state is endowed with vast potential of solar energy estimated at 4-7 KWH/square metre of solar insolation levels, which the government is keen to tap for strengthening power infrastructure in the state by setting up solar energy based power projects. A major rooftop programme for Solar Photovoltaic Power Project has been launched in the state under which the rooftop SPV Power Projects have been setup at various important government, institutional and religious buildings.
- **Biogas development program:** Numerous biogas plants have been installed across the villages in Punjab. These biogas plants are fuelled by biogas and used for meeting cooking and heating requirements at the household level. PEDDA provides 10 percent financial subsidy for setting up these biogas plants.

- Energy Conservation in agriculture, industrial, commercial and domestic sector.
- Promotion of Renewable Energy Devices for daily use.

Figure 7.3
Renewable Energy Composition in Punjab



Source: TERI, 2015

RENEWABLE ENERGY TARGETS IN THE STATE OF PUNJAB

Renewable energy targets, in consonance with the requirements of the SDGs have been fixed by the state government for the next 30 years, up to March 2030. These are as summarized in Table 7.5:

Table 7.5
Status of Renewable Energy In Punjab And Targets For The Next 30 Years

Project / Programme	March 2016	Agenda for 7 years (2017-18 to 2023-24)	3 years (2017-18 to 2019-20)	Agenda 5 years (2024-25-2029-30)	Cumulative March 2030
Solar Power Projects:					
a. Ground Mounted Solar Power Projects	391 MW	1500 MW	500 MW	2000 MW	4422 MW
b. Rooftop Solar Power Projects	28.5 MW	150 MW	50 MW	150 MW	370 MW
c. Canal Top Solar Power Projects	--	50 MW	15 MW	50 MW	105 MW
					----- 4897 MW
Biomass Power :					
a. Biomass Power (IPP)	62.5 MW	500 MW	200 MW	400 MW	962.5 MW

Project / Programme	March 2016	Agenda for 7 years (2017-18 to 2023-24)	3 years (2017-18 to 2019-20)	Agenda 5 years (2024-25-2029-30)	Cumulative March 2030
b. Biomass Co-generation Power Projects c. Bio-refinery	410 MW --	200 MW 1 (60,000 MT of Bio-ethanol per annum)	100 MW	150 MW 1 (60,000 MT of Bio-ethanol per annum)	775 MW 2 (120000 MT of Bio-ethanol per annum)
Mini / Micro Hydro Power Projects	135 MW	100 MW	30 MW	100 MW	370 MW
Solar Rooftop Power Projects under Net Metering	5.50 MW	90 MW	25 MW	125 MW	226 MW
National Biogas Programme	172000 Nos.	35000 Nos.	15000 Nos.	45000 Nos.	257000 Nos.
Solar Water Heating Systems	3300000 LPD	2100000 LPD	900000 LPD	1800000 LPD	7450000 LPD
Solar Street Lights	20545 Nos.	200000 Nos.	75000 Nos.	250000 Nos.	520545 Nos.
Energy Efficiency / Conservation (Avoided)	648 MW	375 MW	175 MW	500 MW	1548 MW

Source: PEDA, 2015

STATE STRAGIES TO ACHIEVE THE TARGETS UNDER THE SUSTAINABLE DEVELOPMENT GOALS

The state government is planning to launch a number of schemes in order to achieve each of the components of the SDGs specified. In this section we will elucidate on the strategies and the policies, which have been put in place in order to achieve the SDG targets

- **Target 1, 2, 3 and 5:** These four targets are concerned with ensuring access to modern, sustainable energy, while increasing the contribution of renewable energy in the state energy matrix. In order to achieve these goals the state government is undertaking the following policies:-

1. Implementation of New and Renewable Sources of Energy Policy (NRSE, 2006) (Revised in 2012)

The New and Renewable Sources of Energy Policy (NRSE) was launched by the state government in 2006 and later revised in 2012. The key policy objectives of this scheme are as follows:-

1. To maximize and improve the share of renewable sources of energy to 10 percent of the total installed power capacity in the state by 2022.
2. To promote renewable energy initiatives for meeting energy / lighting needs in rural

areas and supplementing energy needs in urban, industrial and commercial sectors.

In order to achieve these two objectives the state government has adopted the following set of strategies:

1. Implementation of New and Renewable Sources of Energy Policy (NRSE):

The NRSE was launched by the Punjab government in the year 2006 and later revised in 2012 in order to promote renewable energy based technologies in the state. The policy focuses on attracting private sector investment, providing decentralized renewable energy in rural areas in order to improve the quality of power and a greater focus on R&D efforts in the renewable energy sector. This policy has the following set of objectives:-

- a) To maximise and improve the share of new and renewable sources of energy to 10 percent of the total installed power capacity in the state by 2022. NRSE sector wise details are mentioned separately.
- b) To promote renewable energy initiatives for meeting energy/lighting needs in rural areas and supplementing energy needs in urban, industrial and commercial sectors.

Table 7.6
Strategies and Incentives Implemented by the Punjab Government Under the NRSE, 2012

S.No	Strategy	Incentives
1	To create conducive conditions for attracting private sector investment in NRSE projects along with broader participation by public community/civil society.	<ul style="list-style-type: none"> • 100% exemption from entry tax. • 100% exemption on fee and stamp duty for the project.
2	To provide decentralized renewable energy for use in agriculture, industry, commercial and household sector, and particularly in rural areas.	
3	To provide support to specific NRSE projects	<ul style="list-style-type: none"> • Exempt solar PV projects from NOC under pollution control norms. • 100% exemption from payment of Change of Land Use Charge (CULC) and External Development Charge (EDC) for land required for renewable projects.
4	To support research and development, commercialization and demonstration efforts in new and emerging technologies.	

2. Policy on net metering for Grid Interactive Roof - Top Solar Photo Voltaic Power Plants:

Punjab currently has rooftop solar projects amounting to approximately 8.52 MW of installed capacity. This policy requires grid interconnectivity of rooftop solar systems by deploying net metering through which power can be sold to Punjab State Power

Corporation Limited (PSPCL). The policy applies to the distribution licensee and consumers of distribution licensee in Punjab. The Punjab government has fixed a target of 100 MW under net metering policy for the next one year.

Target 4: This target is primarily concerned with bringing about improvement in the rate of energy efficiency.

UDAY (Ujwal DISCOM Assurance Yojna) : This scheme was launched in 2015 and provides for financial turnaround and revival of power distribution companies in order to provide a sustainable solution to power distribution companies. States accepting UDAY and performing as per operational milestones will be given additional/priority funding through *Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)*, Integrated Power Development Scheme (IPDS), Power Sector Development Fund (PSDF) or other such schemes of Ministry of Power and Ministry of New and Renewable Energy.

The key policy objectives are:

- States shall take over 75 percent of DISCOM debt over 2 years- 50 percent of DISCOM debt in 2015-16 and 25 percent in 2016-17. This debt will not be included in the fiscal deficit of the states in the financial years 2015-16 and 2016-17.
- DISCOM debt not taken over by the State shall be converted by the Banks / Financial Institutions into loans or bonds with interest rate not more than the bank's base rate plus 0.1 percent.

Table 7.7
State absorption of future losses of DISCOMs in a graded manner funded

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
Previous Year's DISCOM loss to be taken over by State	0% of the loss of 2014-15	0% of the loss of 2015-16	5% of the loss of 2016-17	10% of the loss of 2017-18	25% of the loss of 2018-19	50% of the previous year loss

Source: PED, Government of Punjab, 2016

- State DISCOMs will comply with the Renewable Purchase Obligation (RPO) outstanding since 1 April 2012.

KEY CHALLENGES RELATED TO CLEAN ENERGY IN PUNJAB

- 1. Lack of enforcement of RPOs:** The Renewable Purchase Obligations (RPOs) is the biggest driver for the uptake of renewable energy by state utilities and captive users. The RPO regime is an instrument for stimulating renewable energy investments. However lack of

RPO enforcement has led to concerns about the final purchase of renewable power. Instead of forcing defaulters to buy RECs (Renewable Energy Certificates) to cover shortfall in power purchase, states are allowing the obligated entities (such as DISCOMs and captive consumers) to 'carry forward' deficits to the next financial year. There also needs to be harmonization of the state-level RPO targets with the national targets.

- 2. Off taker risk:** The creditworthiness of the distribution companies is a critical issue and plays a key role in determining the bankability of a PPA (Power Purchase Agreement). Very few companies are in good financial health. When companies have poor financial health, the risk of off-taker default and delayed payments is high. Weak financials of companies will keep them from meeting commitments and affects the effectiveness of instruments that have been put in place for deployment of renewables.
- 3. Permits and land acquisition:** There is a need to streamline, accelerate, and standardize the acquisition of permits, clearances, and other administrative hurdles that the developer must cross. These relate particularly to land acquisition and environmental permitting. Acquisition of land is a critical aspect for infrastructure development and the approval processes and inability of the state governments to provide an effective single-window clearance to developers has caused considerable challenges. Lack of coordination among key organizations like revenue department, state pollution control board, grid operators has led to time and cost overruns resulting in high transaction costs. A robust system setting a time bound target for getting all approvals without having to follow up with different state government departments needs to be put in place for renewable energy developers.

The **Biomass Cooked Stove Initiative**, move out of energy poverty is costly and unsuitable for the poor. The cost of purchasing biomass cylinders is 50,000 while a 10 per cent subsidy amounts to 5000 making them out of the reach of most villagers. An average sized biogas stove requires 25 to 30 kilograms of cow dung per day not available with landless without cattle ownership. Only wealthy farmers can afford to install these.

This poor implementation and planning with respect to alternative energy projects has led to many projects in the state being closed down prematurely. In 2011 the government employed a Dubai based company, A to Z infrastructure limited to set up cogeneration power plants in three large co-operative sugar mills in Morinda, Fazilka and Nawanshahar. However all the three projects failed eventually. It has also been seen that although there are procedures on paper to ensure that renewable energy

developments are environmentally friendly in the form of Clean Air Mechanism, it is rarely implemented in practice. Most renewable energy companies openly flout environment norms.

CONCLUSION AND FUTURE POLICY ACTIONS

From the above discussion it can be concluded that renewable energy developments are a favourable energy alternative for Punjab. However, these need to be implemented while considering the social, economic and institutional aspects of sustainability in the future so that these are a viable energy alternative in the future. Also a number of policy actions can be implemented in the future years in order to broaden the scope of these policies:

- Use unproductive land to promote development of Solar Parks by Private Sector Developers (by purchasing of agricultural land or acquiring government land). All possible incentives should be extended to companies setting up solar parks under the state's industrial policy and under investment promotion schemes.
- Promote 'farm level solar power generation' where land-owning farmers can install solar power projects of 2-3 MW capacity. Such projects can have multiple purposes of generating clean energy, tackling the issues of land scarcity, result in additional income for the farmer as well as foster skill development.
- Introduce scientific processing and treatment of municipal, urban and industrial solid waste. Such waste to energy projects can be developed to target additional power generation.
- Punjab produces a large amount of paddy straw and its burning results in serious environmental damage. Punjab has an opportunity to set up second-generation bio-ethanol refineries using paddy straw as feedstock. Such plants would also be able to generate co-products of biogas, pellets and compost; result in additional income for farmers for supply of paddy straw; creation of a number of direct/indirect jobs; and lower petrol/diesel usage.

**GOAL 7: AFFORDABLE AND CLEAN ENERGY: ENSURE ACCESS TO AFFORDABLE, RELIABLE,
SUSTAINABLE AND MODERN ENERGY FOR ALL**

Target 2030: 7.1 Ensure universal access to affordable, reliable and modern energy services					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> • Share of population using reliable electricity by 2011 • Total • Rural • Urban • Solar energy • Total • Rural • Urban • Kerosene and other • Total • Rural • Urban • Share of population using modern cooking solutions (LPG/PNG and Biogas) • Total • Rural • Urban • LPG/PNG • Total 	<p>96.1</p> <p>95.5</p> <p>98.3</p> <p>0.1</p> <p>0.1</p> <p>0.1</p> <p>2.5</p> <p>3.2</p> <p>1.2</p> <p>55.9</p> <p>40.7</p> <p>80.1</p> <p>54.5</p>	<p>97.1</p> <p>96.6</p> <p>98.7</p> <p>0.0</p> <p>0.0</p> <p>0.0</p> <p>0.0</p> <p>0.0</p> <p>0.0</p> <p>64.6</p> <p>51.0</p> <p>84.7</p> <p>62.6</p>	<p>98.3</p> <p>98.0</p> <p>99.3</p> <p>0.0</p> <p>0.0</p> <p>0.0</p> <p>0.0</p> <p>0.0</p> <p>77.5</p> <p>67.5</p> <p>90.7</p> <p>74.5</p>	<p>100</p> <p>100</p> <p>100</p> <p>0</p> <p>0</p> <p>0</p> <p>0</p> <p>0</p> <p>0</p> <p>100</p> <p>100</p> <p>100</p> <p>95</p>	<p>Trend of consumers growth is calculated for domestic consumers up to 2013-14 which varies 4 to 6 %,but growth rate of same for future has been assumed in downward trend from 4 to 3.25 %, considering that at present all the households are electrified.</p> <p>Similarly, for specific energy, growth rate is assumed in downward trend considering use of energy efficient devices in future and judicious use of electricity. Finally, domestic energy requirement has been calculated prospectively.</p>

Target 2030: 7.1 Ensure universal access to affordable, reliable and modern energy services					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> • Rural • Urban 	38.9 79.3	47.3 83.6	60.4 89.3	85 98	<p>The Biomass Cooked Stove Initiative move out of energy poverty. It is also 15% costly and unsuitable for the poor. The cost of purchasing biomass cylinders is INR 50,000 while a 10% subsidy amount to Rs. 5,000 making them out of the reach of most villagers. An average sized biogas stove requires 25 to 30 kilograms of cow dung per day not available with landless without cattle ownership. Only wealthy farmers can afford to install these.</p>
<ul style="list-style-type: none"> • Biogas • Total • Rural • Urban 	1.4 1.8 0.8	1.9 3.1 1.0	2.9 5.9 1.3	5 15 2	
<ul style="list-style-type: none"> • Share of energy from renewable 	10%	15%	22%	30%	
<p>Source: Base year data derived from Census 2011 data. Targets worked out on the basis of development in the sector and past growth rates. PEDAs, Government of Punjab, 2016</p>					

Target 2030: 7.2 Increase substantially the share of renewable energy in the global energy					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Energy from renewables					<ul style="list-style-type: none"> Support NRSE Projects by: <ul style="list-style-type: none"> Exempt solar PV projects from NOC under pollution control norms. 100% exemption from payment of Change of Land Use Charge (CULC) and External Development Charge (EDC) for land required for renewable projects. Provide incentives for attracting private sector investment in NRSE projects along with broader participation by public community/civil society. <ul style="list-style-type: none"> 100% exemption from entry tax. 100% exemption on fee and stamp duty for the project. Provide decentralized renewable energy for use in agriculture, industry, commercial and household sector, and particularly in rural areas. <ul style="list-style-type: none"> Use unproductive land to promote development of Solar Parks by Private Sector Developers (by purchasing of agricultural land or acquiring government land). All possible incentives should be extended to companies setting up solar parks under the state's industrial policy and under investment promotion schemes. Promote 'farm level solar power generation' where land-owning farmers can install solar power projects of 2-3 MW capacity. Such projects can have multiple purposes of generating clean energy, tackling the
Solar Power Projects:					
- Ground Mounted Solar Power Projects	391 MW	1891 MW	2391 MW	4422 MW	
- Rooftop Solar Power Projects	28.5 MW	178.5 MW	228.5 MW	370	
- Canal Top Solar Power Projects	--	50 MW	65 MW	105 MW	
Biomass Power :					
- Biomass Power (IPP)	62.5 MW	562.5 MW	762.5 MW	962.5 MW	
- Biomass Co-generation	410 MW	610 MW	710	775	
-Power Projects Bio-refinery	--	1 (60,000 MT of Bio-ethanol per annum)		2 (120000 MT of Bio-ethanol per annum)	
Mini / Micro Hydro Power Projects	135 MW	235 MW	265 MW	370 MW	
Solar Rooftop Power Projects under Net Metering	5.50 MW	95.5 MW	102.5 MW	226 MW	
National Biogas Programme	172000 Nos.	207000 Nos.	222000 Nos.	257000 Nos.	
Solar Water Heating Systems	3300000 LPD	5400000 LPD	6300000 LPD	7450000 LPD	
Solar Street Lights	20545 Nos.	220545 Nos.	295545 Nos.	520545 Nos	
Energy Efficiency / Conservation (Avoided)	648 MW	1023 MW	1198 MW	1548 MW	

Target 2030: 7.2 Increase substantially the share of renewable energy in the global energy					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Energy installed capacity index of various sources:					<p>issues of land scarcity, result in additional income for the farmer as well as foster skill development.</p> <ul style="list-style-type: none"> • Introduce scientific processing and treatment of Municipal, Urban and Industrial solid waste. Such waste to energy projects can be developed to target additional power generation. • Punjab produces a large amount of paddy straw and its burning results in serious environmental damage. Punjab has an opportunity to set up second-generation bi-ethanol refineries using paddy straw as feedstock. Such plants would also be able to generate co-products of biogas, pellets and compost; result in additional income for farmers for supply of paddy straw; creation of a number of direct/indirect jobs; and lower petrol/diesel usage. • Support research and development, commercialisation and demonstration efforts in new and emerging technologies.
Thermal	100	146	174	229	
Hydro	100	141	141	167	
Biomass (PEDA)	100	294	350	655	
Mini hydal (PEDA)	100	141	159	201	
Soar (PEDA)	100	1,100	1,236	4,347	
Biogas and co-gen (PEDA)	100	285	372	716	
Nuclear	100	100	100	100	
Total	100	165	187	100	
Source: Punjab Energy Development Agency, 2016					

Target 2030: 7.3 Double the global rate of improvement in energy efficiency					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Energy Saving	5%	7	10	15%	Energy audit in industrial units, institution and electricity saving in agriculture sector. Energy consumption in the conditioned commercial buildings is currently at 200 kwh or more per sq.mt. It can be brought down to 120-160 kwh per sq.mt, showing energy saving potential of 20-40% depending upon the hours of building use and climate conditions.
Source: Punjab Energy Development Agency, 2016					

Target 2030: 7.a Enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Revenues allocated to sustainable development	Udav Yojana	5% of the loss of 2016-17			<ul style="list-style-type: none"> States shall take over 75 percent of DISCOM debt over 2 years- 50% of DISCOM debt in 2015-16 and 25% in 2016-17. This debt will not be included in the fiscal deficit of the states in the financial years 2015-16 and 2016-17. DISCOM debt not taken over by the State shall be converted by the Banks / Financial Institutions into loans or bonds with interest rate not more than the bank's base rate plus 0.1%. States shall take over the future losses of DISCOMs in a graded manner and shall fund them as follows: <ul style="list-style-type: none"> 2017-18: 5% of the loss of 2016-17 2018-19: 10% of the loss of 2017-18 2019-20: 25% of the loss of 2018-19 2020-21 50% of the previous year loss.
	DDUGJY	10% of the loss of 2017-18			
	IPDS	25% of the loss of 2018-19			
	PSDF	50% of the previous year loss			
Source: Punjab Energy Development Agency, 2016					

Target 2030: 7.b Expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Capital outlay of new and renewable energy	Less than 0.1% of total budget			0.5%	<ul style="list-style-type: none"> • Lack of enforcement of RPOs: The Renewable Purchase Obligations (RPOs) is the biggest driver for the uptake of renewable energy by state utilities and captive users. The RPO regime is an instrument for stimulating renewable energy investments. However lack of RPO enforcement has led to concerns about the final purchase of renewable power. Instead of forcing defaulters to buy RECs (Renewable Energy Certificates) to cover shortfall in power purchase, states are allowing the obligated entities (such as DISCOMs and captive consumers) to 'carry forward' deficits to the next financial year. There also needs to be harmonization of the state-level RPO targets with the national targets. • Off taker risk: The creditworthiness of the distribution companies is a critical issue and plays a key role in determining the bankability of a PPA (Power Purchase Agreement). Very few companies are in good financial health. When companies have poor financial health, the risk of off-taker default and delayed payments is high. Weak financials of companies will keep them from meeting commitments and affects the effectiveness of instruments that have been put in place for deployment of renewables. • Permits and Land acquisition: Therefore, streamline, accelerate, and standardize the acquisition of permits, clearances, and other administrative hurdles that the developer must cross. These relate particularly to land acquisition and environmental permitting. An effective single-window clearance to developers to be created. Improve coordination among key organization like revenue department, state pollution control board, grid operators to overcome time and cost overruns resulting in high transaction costs. A robust system with a time bound target for getting all approvals without having to follow up with different state government departments needs to be put in place for renewable energy developers.
Source: Punjab Energy Development Agency, 2016					

**INTRODUCTION : PEOPLE’S WELL BEING: REDEFINING QUALITY PARAMETERS AND PROCESSES:
PILLAR II**

The Punjab model of development is one of the most equitable among the Indian states. The economy since 1960s has been growing (with few exceptions) at an annual rate in the vicinity of 5 per cent. The fruits of development in the state have percolated down. No other Indian state has the distinction of growing at a rate of 5 per cent spread over the last 50 years and has simultaneously very impressive track record on account of equity. As a result of the blending of growth and equity, the percentage of people below poverty line in Punjab has declined. At present the percentage of people below poverty line is eight per cent which is the second lowest in the country. This section analyses paradoxes of development in the state. It also attempts to redefine quality parameters and processes for people’s well-being. Along with this, strategies have formulated for improving quality education, health, sanitation, safe drinking water and electricity. The gap between castes, gender and geographical divides in terms of access to gains of development, social security and safety nets has been identified and policies suggested to bridge this.

In Punjab, 93 per cent of rural households are living in pucca houses and 82 per cent of rural households have the drinking water source within the house premises itself. In composite ranking on the basis of proportion of rural households owning and using consumer durable goods and enjoying housing and living facilities, Punjab is at the top amongst eight high-income states. The comparison clearly indicates that benefits of economic growth have percolated to the rural population in Punjab to a greater extent, compared to Maharashtra, Gujarat, Tamil Nadu and other high-income states.

The rural scheduled caste and tribe households, the most excluded group, owning and using various consumer durable goods and living facilities in Punjab is higher as compared to those in Maharashtra, Gujarat and Tamil Nadu. In Punjab, 89 per cent of the rural scheduled caste households are living in pucca houses and 26 per cent and 64 per cent of rural households own motorcycle/scooter and bicycle respectively. In the composite ranking, Punjab is again at the top in terms of benefits of development percolating to the rural scheduled castes and tribes.

Whereas, within Punjab the incidences of poverty are more pronounced in case of socially disadvantageous groups like the scheduled castes.

Among general population, poverty reduction has mainly been attributed to the development of agriculture and trickling down of its benefits across rural society as well as urban societies through forward and backward linkages. The agricultural sector growth has reached its limits in the state. At present it has rather been facing worst of the crisis and hence can no longer be relied upon for the removal of poverty especially among socially and economically disadvantaged groups like women, scheduled caste and migrant labour.

A comprehensive and focused strategy has to be formulated as high growth rate and direct poverty alleviation programmes alone are not sufficient to eliminate poverty from the state specially from socially handicapped groups mainly because the productive resource base of these communities is fragile. In the long run, poverty can be alleviated by improving direct access of the poor to economic resources particularly ownership of land and other productive resources, access to basic services, natural resources, technology, financial services including microfinance and building the resilience of the poor for coping with climate related shocks and disasters.

For widening the productive base of the poor and improving access to basic services, there is need to improve ownership of land and property of poor, and creating employment opportunities for poor in sectors other than agriculture.

For productive engagement of youth, the strategy should be to introduce poor specific policy of skill development as a part of the flagship programme of Skill India. At least one third of the resources of Skill India should be allocated for the training of the youth from poor families by the government.

Social Development: Education and Health

Social indicators however, do not complement the economic performance of the state and leaves much to be desired in terms of translating economic gains into social outcomes for its people, especially keeping in mind the impact that improvement in social indicators have on well-being of its people.

Education Status

Punjab has done well since the introduction of SSA in terms of enrolment at various stages of school education. According to the U-DISE data for 2014-15 GER for primary classes stands at 103 and 107 for boys and girls in Punjab which is higher than the comparable figures for India as a whole. Similarly, figures for upper primary classes in the state are also significantly higher. However, it was observed to be lower than the national average for the secondary and higher secondary classes. In spite of the growth in enrolments registered across various stages of education, it will be instructive to note that GER is a gross measure, which includes over aged children as well.

Therefore, when we take the age specific enrolment into consideration then it is observed that as per the NSSO (2014) about 6 per cent children in the 6-10 years age were currently outside the ambit of school education in Punjab. The percentage of girls in the urban areas was found to be significantly higher than that of the rural areas. The percentage of drop out school children was much higher in the 14-17 age-group, though it was lower than that at an all India average. Such children are almost equally distributed across the districts of Punjab. They belong to very poor property-less households and also from the historically and socially deprived social groups such as the SCs. Studies have also indicated that a majority may belong to the migrant agricultural labour households. The need for pre-primary education, among others acquires significance in this context. In spite of significant reduction in drop out sustained retention of children through the school education up to secondary and higher secondary remains a grappling issue.

Another important feature of Punjab school educational scenario has been the private players in the education sector. Punjab has one of the lowest percentage of children enrolled in government schools.

It is instructive to note that, among other factors, the relationship between quantity and quality in school education is very significant. It has been observed that as the quantity of educational infrastructure improved, especially after the introduction of SSA, there has been an appreciable growth in enrolment accompanied by a decline in school drop-out rates. Construction of school buildings, additional class rooms, toilets, mid-day meals among others have had positive and affirmative outcomes in school education. Punjab has done exceedingly well in reinforcing infrastructure in government schools.

The average number of teachers in primary schools in Punjab was observed to 3.4. If teachers are not available in each class, irrespective of the class size, then this may have detrimental effect on learning process of children in their early formative stages of education. Of all teachers in the school sector of Punjab, over 25 per cent are contractual teachers. This is way higher than the all India (13.7) and one of the highest among the major states of India. Pre-service and in-service training of teachers in the state needs a very thorough examination both of the teachers' education programmes, curriculum and the status of DIETs.

On the one hand, while enrolments are a concern in terms of gender and social group inequality, non-enrolment is an equally important problem confronting the state, gender gap exists but is lower than that in other states. On the other hand, social group differences are worse than the all-India gap. Social group inequality is also visible in terms of dropout rates in the state. Within Punjab we find northern districts of the state performing better than the southern districts in terms of various

educational indicators. Further concerns about the educational scenario in the state are raised by issues of accessibility in terms of physical infrastructure as well as monetary cost. Punjab stands in a better position in terms of physical accessibility but cost of education is definitely higher in Punjab than in other states. The government has to revisit schemes to ensure quality education and skills enhancement.

Health Outcomes

Health indicators in the state like life expectancy, IMR, MMR, Under 5 Mortality Rate (U5MR) are better than national figures but comparison to some of the southern states like Kerala and Tamil Nadu leaves much to be desired. Gender disparity in health outcomes is also visible. Physical infrastructure for health care available in rural Punjab is quite comparable to the accepted national norm though it lags in a few parameters like number of PHCs for each CHC. It is worth pointing out that the differentials exist across districts in terms of health infrastructure. Facilities at the CHC level are comparable to national average but again comparison to other developed states puts the position of the state in perspective where a lot is still desired. It is only when secondary and tertiary care is considered that Punjab appears to have performed better than other states.

Disparity in health indicators among social groups is also visible. For example IMR among SCs is higher than non-SC population. Though this is true for all India and many other states, Punjab has been able to narrow down this disparity as well as has performed better than many states. Similarly, although the social group disparity against SCs in U5MR here is lower than all-India average, it is higher than states like Tamil Nadu and Maharashtra. Child under-nutrition and child immunisation are other outcome indicators in which social disparity against SC is visible in the state and the gap between the social groups has been increasing over time.

Institutional delivery, an indicator of access to health services and an important determinant in the safety of children, maternal mortality as well as infant mortality again shows the presence of differentials in access, with SC women having lower access to institutional delivery than non-SC women. In recent years, Punjab has become the state with the highest level of discrimination in access to institutional delivery.

The state has higher incidence of illness in comparison to other high income states, like Maharashtra, Haryana, Gujarat, Karnataka, which also reveals something about the condition of health in the state. The state not only faces the challenges of lifestyle related diseases but also diseases more common among underprivileged societies with poor sanitary conditions. Morbidity in rural areas due to communicable disease is below the national average, while the share of non-communicable diseases was higher than the national average. On the other hand, in urban areas,

share of morbidity due to communicable disease was much higher than the national average while share of non-communicable diseases was lower than the national average. Such morbidity patterns suggest that diseases related with lifestyle conditions and conditions of work are very significant in Punjab. Significantly, even now a large number of diseases are communicable in nature. It is erroneous to assume that Punjab has gone through the epidemiological transition and only now lifestyle diseases are the cause of worry. Some significant issues faced by the health system are access to health care, high out of pocket expenditures, catastrophic health expenditure. Substantial investments is needed in the health sector to make universal health care a reality by 2030. It will require augmentation of infrastructure and human resources to at least 3 times of what it is now. Per capita cost of UHC would be Rs. 5,000 (a conservative estimate) and current spending is about Rs. 2,500.

Inclusive Growth: Scheduled Castes and Gender

It is worth noting that Punjab has the highest percentage of Scheduled Caste population in the country and they have low access to literacy, land and services. The gross enrolment ratio in higher education is 6.1 as compared to 29.6 for others in the total of 17.7 (NSSO 2007-08). The Scheduled Caste unemployment rate is 5.9 as compared to a total of 4.9 (NSSO – 2011-12). They have high infant, child and under five mortality rate (NFHS-III 2006).

There is higher dependence on private services in rural areas as income increases, it is the poorest that use public services for hospitalisation, while in urban areas poor people end up using private services much more. Dependency of poor on private health care in Punjab is much more both in rural and urban areas as compared to the national average. Though gender and caste differentials in utilization pattern are not significant in the rural areas, in urban Punjab higher numbers of SCs go to private hospitals compared to other castes, which is distinctly different from the national trend. This suggests that already low utilization of public services in urban areas is in fact usurped by the well off in Punjab.

There is a need to evolve innovative modes to make Scheduled Castes part of the socio-economic and political mainstream. The traditional skills of plumbing, carpentry, masonry, etc., need to be upgraded with modern technical education. A large population engaged in these occupations can be integrated into formal technical diploma and degree courses to upgrade their skills and social status enhancement. And also to create an Investment Foundation and National Equity Corporation to buy shares of private companies as against loan advanced by SC Land Development and Finance Corporation to prospective entrepreneurs.

The impact of socio-economic development is not inclusive. Most relevant questions arise, such as, why the Scheduled Caste population, in a less casteist Punjabi society, is more deprived in terms of access to land, education and health as compared to the non-Scheduled Castes? Why women and children from the poor families in Punjab are more deprived in terms of access to gains of development, social security and safety nets?

Gender affects men and women differently, impacting on separate dimensions of educational and livelihood access. Gender role expectations that boys need to earn and contribute to the family income care for parents lies with sons and not daughters. The male as the protector and decision maker has different responsibilities, while girls are expected to perform domestic chores. For instance, care related subjects such as nursing or teaching tend to be the choices for girls. Men are expected to provide for the family and inherit family assets – land ownership is with men as are the farmer suicides; both fathers and mothers face violence from children; both partners male and female are targeted in honour killings. No doubt the majority of discriminations – higher proportionate of malnourished, underpaid, abused gender is that of the female (95.6 per cent of GBV is targeted at women in Punjab), but males also face gender discrimination.

Gender equity as equal outcomes for men and women means that policy planning and strategic intervention cannot be gender neutral. For achieving inclusive education for all, the specific positioning of boys and girls in different settings such as rural-urban, SC/ST populations need to be reflected in policy agendas. While many considerations are common for all, safety nets, provision of toilets for girls and vocational education needs for boys to check dropouts are specific to gender. Both need to be addressed, through targeted inter-sectionality and multi-sectoral strategies.

The provision of infrastructure and services has made modest contributions to gender rights in Punjab. The need is to provide a gender responsive infrastructure and services whose outreach is bridged through community structures, appealing to cultural sensibilities. One, building capacity which includes provisioning and strengthening of infrastructure, facilities and services such as responsive police stations and community police centres, flagship programmes like make in India, skill India, digital India. Gender and Scheduled Castes to be mainstreamed in departments with capacities of staff (representation, training); systems built for coordination across departments, evolving of sensitive procedures, mechanisms and administrative rules. A second aspect pertains to building a partnership between the citizen and the state –of community institutions such as civil society groups, local leadership, community – kinship groups and media establishments to work in collaboration with state resources and services to sustain change, advance equitable access and engineer effective systems of service-delivery. Third, engage citizens as stakeholders to access services and schemes – include citizen participation as a mechanism to promote *swachh bhara*,

clean drinking water, housing for all, effective delivery of *Atta-Dal* schemes and PDs, banking networks, to debate legislative rights and outreach to scheduled castes and women.

In Pillar II dealing with people's well-being the following sustainable goals have been analysed.

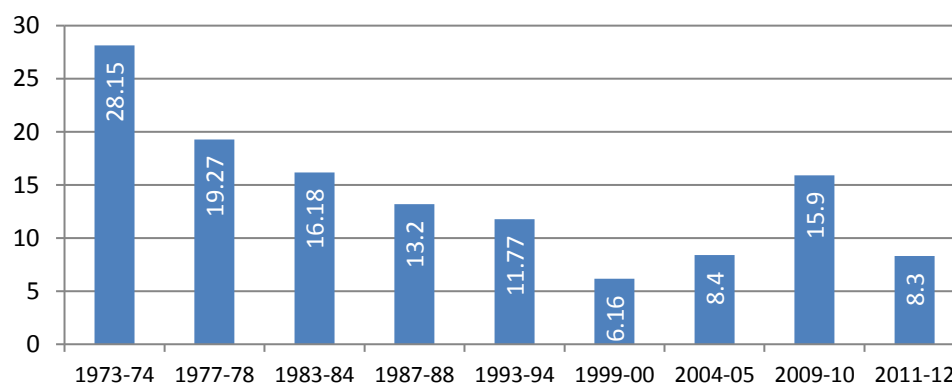
- **SDG 1:** No Poverty: End Poverty In All Its Forms Everywhere
- **SDG 6:** Clean Water And Sanitation: Ensure Availability And Sustainable Management Of Water And Sanitation For All
- **SDG 11:** Sustainable Cities And Communities: Make Cities And Human Settlements Inclusive, Safe, Resilient And Sustainable
- **SDG 3:** Good Health And Well-Being: Ensure Healthy Lives And Promote Well-Being For All At All Ages
- **SDG 4:** Quality Education: Ensure Inclusive And Equitable Quality Education And Promote Lifelong Learning Opportunities For All
- **SDG 5:** Gender Equality: Achieve Gender Equality And Empower All Women And Girls
- **SDG 10:** Reduced Inequalities: Reduce Inequality Within And Among Countries

Pramod Kumar
Co-ordinator and
Director, IDC

SDG 1 :
NO POVERTY: END POVERTY IN ALL IT'S FORMS EVERYWHERE

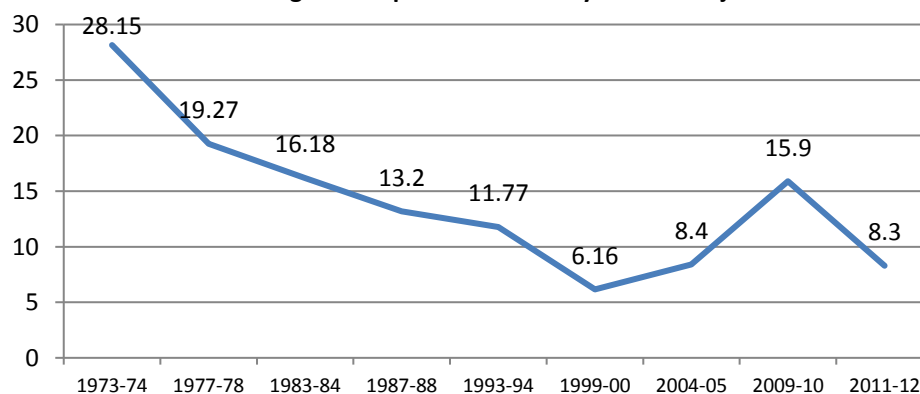
The Punjab model of development is one of the most equitable among the Indian states. The economy since 1960s has been growing (with few exceptions) at an annual rate in the vicinity of 5 per cent. The fruits of development in the state have percolated down. No other Indian state has the distinction of growing at a rate of 5 per cent spread over last 50 years and has simultaneously very impressive track record on account of equity. As a result of the blending of growth and equity, the percentage of people below poverty line in Punjab has declined. At present the percentage of people below poverty line is 8.3 per cent which is the second lowest in the country. Kerala with only 7.05 per cent people below poverty line comes first.

Figure 1.1
Percentage of People Below Poverty Line in Punjab



In Punjab, the percentage of people below poverty line has declined overtime. For e.g., 28.15 per cent people were below poverty line between 1973-74 which further saw a dip to 8.3 per cent between 2011-12. However, during 2004-05 and 2009-10, the percentages of people below poverty line increased (See Table 1.1, Figure 1.1 and Figure 1.2).

Figure 1.2
Percentage of People Below Poverty Line in Punjab



Source: Government of India, 2014

GOALS 1.1, 1.2 AND 1.3

The goal of zero poverty is achievable in Punjab by 2030.

In Punjab, the incidences of extreme poverty measured as people living on less than US \$1.25 (Rs. 80 app.) a day which is more than double of the official definition of both rural (Rs. 35) and urban (Rs 38) poverty line is very low. Making Punjab free from extreme poverty by 2030 is, therefore, an achievable target.

As per the national definition of poverty given by Tendulkar Committee of Planning Commission, in Punjab, 8.3 per cent people were below poverty line in the year 2011-12. This average figure, however, masks wide variations in incidences of poverty across residence, gender, caste and region. For example, according to the Tendulkar Committee, in the rural areas, only 7.66 per cent people were below poverty line as against 9.24 per cent in urban areas (See Table 1.1).

Table 1.1
Number and Percentage of Population below Poverty Line by States-2011-12
(Tendulkar Methodology)

Name of the Committee	Poverty Line (Rs. per capita per month)		% of People Below Poverty Line		
	Rural	Urban	Rural	Urban	Total
Andhra Pradesh	860	1009	10.96	5.81	9.29
Arunachal Pradesh	930	1060	39.93	20.33	34.67
Assam	828	1008	33.89	20.49	31.98
Bihar	778	923	34.06	31.23	33.74
Chhattisgarh	738	849	44.61	24.75	39.93
Delhi	1145	1134	12.92	9.84	9.91
Goa	1090	1134	6.81	4.09	5.09
Gujarat	932	1152	21.54	10.14	16.63
Haryana	1015	1169	11.64	10.28	11.16
Himachal Pradesh	913	1064	8.48	4.33	8.06
Jammu and Kashmir	891	988	11.54	7.20	10.35
Jharkhand	748	974	40.84	24.83	36.96
Karnataka	902	1089	24.53	15.25	20.91
Kerala	1018	987	9.14	4.97	7.05
Madhya Pradesh	771	897	35.74	21.00	31.65
Maharashtra	967	1126	24.22	9.12	17.35
Manipur	1118	1170	38.80	32.59	36.89
Meghalaya	888	1154	12.53	9.26	11.87
Mizoram	1066	1155	35.43	6.36	20.40
Nagaland	1270	1302	19.93	16.48	18.88
Odisha	695	861	35.69	17.29	32.59
Punjab	1054	1155	7.66	9.24	8.26
Rajasthan	905	1002	16.05	10.69	14.71
Sikkim	930	1226	9.85	3.66	8.19
Tamil Nadu	880	937	15.83	6.54	11.28
Tripura	798	920	16.53	7.42	14.05
Uttarakhand	880	1082	11.62	10.48	11.26
Uttar Pradesh	768	941	30.40	26.06	29.43

Name of the Committee	Poverty Line (Rs. per capita per month)		% of People Below Poverty Line		
	Rural	Urban	Rural	Urban	Total
West Bengal	783	981	22.52	14.66	19.98
Puducherry	1301	1309	17.06	6.30	9.69
A&N Islands	NA	NA	1.57	0.00	1.00
Chandigarh	NA	NA	1.64	22.31	21.81
Dadar and Nagar Haveli	NA	NA	62.59	15.38	39.31
Daman and Diu	NA	NA	0.00	12.62	9.86
Lakshadweep	NA	NA	0.00	3.44	2.77
All India	816	1000	25.70	13.70	21.92

Source: Government of India (2014), *Report of the Expert Group to Review the Methodology for Measurement of Poverty*, Planning Commission, New Delhi.

The incidences of poverty are more pronounced in case of socially disadvantaged groups like scheduled castes. For example, in the year 2011-12, 15.6 per cent scheduled caste households were below poverty line as against 3.6 per cent in case of non-SC/ST households. In the urban areas (18.3 per cent), the extent of poverty among SC households was higher than rural areas (14.7 per cent). In case of OBC, the percentage of people below poverty line (8.1 per cent) though was half of that of SC households but higher than non-SC/ST and OBC households (2.3 per cent) (See Table 1.2).

Table 1.2
Incidences of poverty across social groups in Punjab (%)

Social Groups	1993-94			2004-05			2011-12		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
ST	35.9	42.1	36.8	30.7	2.4	18.7	0.0	7.2	6.2
SC	35.1	50.6	38.2	38.4	36.2	37.9	14.7	18.3	15.6
OBC	NA	NA	NA	21.7	20.2	21.3	3.6	14.0	8.1
Others	NA	NA	NA	5.1	9.6	6.9	1.1	3.8	2.3
Non-SC/ST	10.8	20.5	14.1	11.1	12.3	11.5	1.7	6.1	3.6
Total	20.4	27.4	22.4	22.1	18.7	21.0	7.7	9.2	8.2

Source: NSSO Consumption Expenditure Survey

According to the Scheduled Caste Sub Plan 2016-17, out of the total families below poverty line, 61 per cent belong to the scheduled caste households. Further caste wise break-up shows that 26 per cent families belonging to the scheduled caste are below poverty line in the state as against 7 per cent non SC families below poverty line. It is relevant to mention here that Punjab has the highest concentration of Scheduled Caste population in the country, comprising of 31.94 per cent of the total population.

CHALLENGES

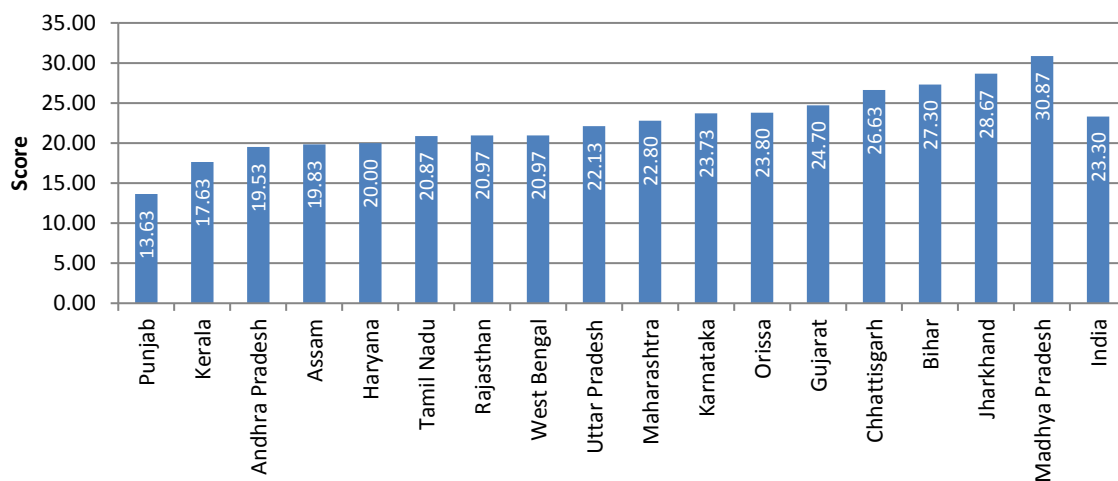
Total eradication of poverty from rural and urban areas including from socially disadvantaged groups by 2030 is the formidable challenge before the state. Among general population, poverty reduction has mainly been attributed to development of agriculture and trickling down of its benefits across rural society as well as urban societies through forward and backward linkages. The agriculture sector growth has reached its limits in the state. It rather at present has been facing worst of the

crisis and hence can no longer be relied upon for the removal of poverty especially among socially and economically disadvantaged groups like women, scheduled caste and migrant labour. Findings sources of growth other than agriculture for alleviating poverty is a real challenge before the state. Punjab being a land locked state faces serious challenges to rely upon industrial sector as a major source of growth. The service sector no doubt contributes maximum to the state income (51per cent), it, however, has not emerged as a reliable engine of growth in the state. Another challenge in the field of poverty is ineffectiveness of the existing poverty alleviation programmes. Notwithstanding the plethora of urban and rural poverty alleviation programmes, the poor are not aware about the schemes and further schemes suffer from handicaps such as multiplicity and lack of co-ordination; wrong identification of the poor; leakages; and corruption.

It is the poor who go hungry. In Punjab, the hunger index is 13.63 and requires a targeted strategy to eradicate hunger.

I. End Hunger And Provide Nutritious Food For All By 2030:

Figure 1.3
India State Hunger Index Score

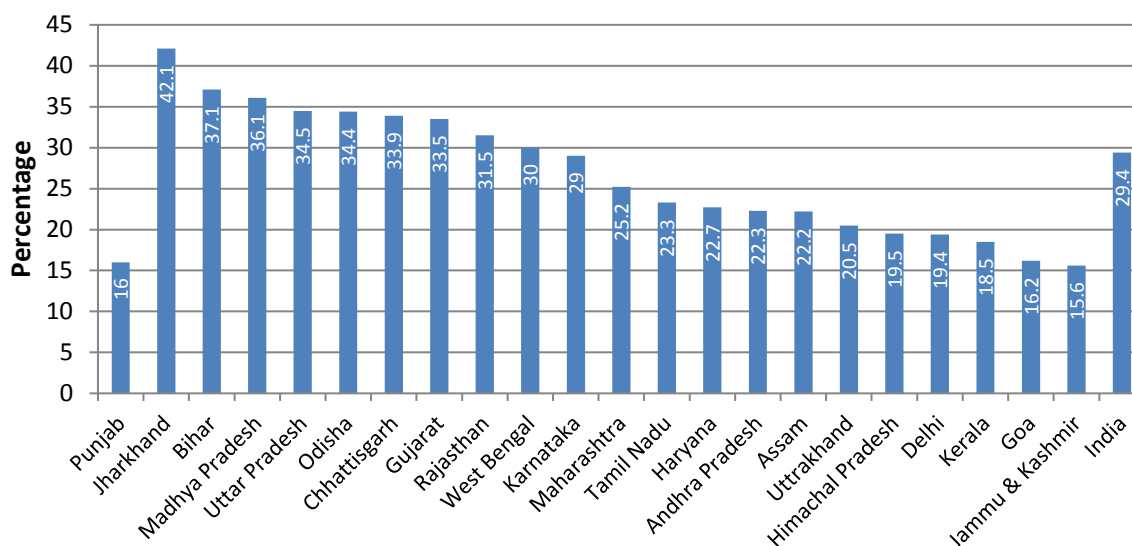


Source: India State Hunger Index, IFPRI (2008)

- Punjab’s Hunger Index Score was 13.63 (lowest among Indian States) in 2008 (IFPRI: India State Hunger Index, 2008). (See Figure 1.3).
- About 11 per cent of Punjab’s population was suffering from calorie undernourishment in 2008 (lowest among Indian states) (IFPRI, 2008).

II. Eliminate Stunting And Wasting of Children Under 5 Years of Age by 2030:

Figure 1.4
Prevalence of Underweight in Under-5 Children in Major Indian States



Source: Rapid Survey on Children, 2014

- About 16 per cent of children in Punjab were underweight in 2013-14 (Rapid Survey of Children, 2013-14, Ministry of Women and Children, GoI). It is lowest among Indian states. A state wise comparison is given in Figure 1.4.
- Proportion of underweight children was 17.4 per cent in rural areas, 13.7 percent in urban areas, and 17.2 per cent among Scheduled Castes.
- Most of these underweight children belong to poorer families. These families are already identified in Punjab under the Atta-Dal scheme.
- Target is to reduce the percentage of underweight children to 10 per cent by 2020, to 5 per cent by 2025, and zero per cent by 2030.

STRATEGIES

In this backdrop, for achieving the goal of zero poverty and below 5 hunger in the state by 2030, a mixture of the following strategies are suggested:

(i) Taking Punjab to a Higher Growth Trajectory of 10 per cent

The Punjab model of development as stated earlier is more equitable vis-à-vis other states. Earlier the state experienced a rate of growth hovering around 5 per cent per annum. With a view to eliminate poverty and hunger from the state, it is suggested to take Punjab to a higher

growth trajectory of 10 per cent by 2030 and a rate of 6 per cent and 7.5 per cent respectively by 2019, 2022, and 2030. These are achievable targets in the lights of strengths of Punjab economy such as:

- Modernized agriculture sector equipped with state-of-the-art technology
- Well developed network of small scale industries
- Expanding base of agro-based industries
- Highly developed infrastructure
- Adequate market
- Good network of educational institutions
- Availability of trained manpower
- Demographic dividends
- Large bank deposits
- Growing Indo-Pak trade

(ii) Revamping the Existing Poverty Alleviation Programmes by Promoting Transparency, Accountability; Mitigating Corruption and Plugging Leakages

The poverty alleviation and employment generation programmes are designed separately for rural and urban areas. The prominent rural poverty alleviation and employment generation programmes are: Sampoorna Grameen Rozgar Yojana (SGRY); Indira Awaas Yojana (IAY) now Pradhan Mantri Gramin Awaas Yojana, Swarnjayanti Gram Swarozgar Yojana (SGSY); Pradhan Mantri Gram Sadak Yojana (PMGSY); Pradhan Mantri Gramodaya Yojana (PMGY); Bharat Nirman Program; Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA); Pradhan Mantri Adarsh Gram Yojana (PMAGY); National Livelihood Mission. The important urban poverty alleviation and employment generation programme include Swarna Jayanthi Shahari Rozgar Yojana (SJSRY); Basic Services for Urban Poor (BSUP)/ Jawaharlal Nehru Urban Renewal Mission (JNNURM) now Atal Mission for Rejuvenation and Urban Transformation (AMRUT); Street Vendors Policy (SVP); and Rajiv Awas Yojana (RAY).

Promoting of transparency, accountability and mitigating corruption hold the key to improve the effectiveness of the ongoing anti poverty programmes. Use of information and communication technology (ICT) in the implementation of anti poverty and employment generation programmes and introduction of social audit for monitoring the implementation of these

programmes will help in ensuring transparency, accountability and mitigating corruption. Computerization of records pertaining to beneficiaries and other details and making them public through internet sources will enable the service delivery mechanism to be transparent. Social audit acts as an effective mechanism to ensure the proper implementation of the programme and thus achieving desired outcomes in the form of benefits reaching the target population. Thus, both these mechanisms, i.e. use of ICT and social audit infuse accountability, transparency and mitigate corruption involved in the implementation of anti poverty and employment generation programmes.

(iii) Dedicated Funds for the Poor in Flagship Programmes like Make in India, Skill India, Digital India, Swachh Bharat, and Smart Cities

The Government of India has announced seven flagship programmes including Make in India, Skill India, Digital India, Swachh Bharat, Smart Cities, Startup India, and Clean Ganga out of which first six are relevant to Punjab. Learning from earlier experiences of flagship programmes bypassing the poor except MGNREGA, it is suggested that in each flagship programme funds to the tune of percentage of people below poverty line be allocated exclusively for the benefits of poor. Based on the estimates prepared by the Tendulkar Committee, in case of rural poor the share of funds works out to be 25.7 per cent and that of urban poor 13.70 per cent . Under no circumstances the diversion of funds will be allowed.

(iv) Ensuring Sanitation Facilities for the Poor under Nirmal Bharat Abhiyan

Poor households both in the urban and rural areas lack sanitation facilities including toilets. The government of India has been implementing Total Sanitation Scheme since 1999. The central government has renamed it as 'Nirmal Bharat Abhiyan' under which specially a toilet has to be constructed in each house. With a view to cover the poor households first, priority should be given to constructing toilets in the households living below poverty line.

(v) Housing for All the Poor by 2022 under the Central Government Scheme

The government of India has already a programme known as Indira Awas Yojana now Pradhan Mantri Gramin Awas Yojana for providing housing facility to the poor. The Central Government has recently approved a flagship programme namely, Housing for All by 2022 for urban areas with the components comprising:

- (a) Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource;
- (b) Promotion of affordable housing for weaker section through credit linked subsidy;

(c) Affordable housing in partnership with Public & Private sectors; and

(d) Subsidy for beneficiary-led individual house construction or enhancement.

On the pattern of urban areas, a comprehensive scheme for housing for all in the rural areas should also be announced at the earliest.

In the scheme of Housing for All specific proportion of funds should be allocated for the urban and rural poor preferably in proportion to their share in the population.

(vi) Ensuring Food Security to the Poor by Improving Effectiveness of Atta Daal Scheme and Public Distribution System

Public Distribution System since its inception and modified versions has emerged as an effective instrument to supply food to the poor at subsidized rate. Various studies including government reports clearly reveals that PDS suffers from many weaknesses including poor targeting, corruption, high leakages, high cost and focus on cereals only. The National Food Security Act, 2013 has enlarged the coverage of population to be served under PDS. With a view to successfully implement NFSA, 2013, the working of PDS has to be improved drastically. For improving the effectiveness of PDS, the mix of following policy prescriptions can be adopted:

1. Shelving the proposals of unbundling of Food Corporation of India and reducing the coverage from 67 per cent of population as per the NFSA to 40 per cent suggested by the Shanta Kumar Committee;
2. Making TPDS result oriented by improving the methodology of identifying target households, plugging leakages and making it cost effective;
3. Preferring local/decentralized procurement system food grains over existing centralized system;
4. The application of ICT for promoting transparency in transactions and minimizing leakages by using global positioning system (GPS) and Short Messaging Services (SMS) on the pattern of Tamil Nadu and Chhattisgarh;
5. Delivery of food grains at the doorstep of TPDS outlets;
6. Linking AADHAR to PDS while getting benefits under the Act so that beneficiary's information is retained;
7. In the licensing of fair price shops, preference to be given to public institutions and bodies namely panchayats, self help groups and co-operatives while licensing fair price shops;
8. Involving women for managing fair price shops;

9. With a view to improve quality of food security, diversification of the commodities to be provided under the PDS;
 10. Pilot testing of schemes like cash transfer, food coupons for ensuring food grains entitlements to targeted in states having developed networking of banks and Aadhar Cards
 11. Provision of pulses in National Food Security Act, 2013 on the pattern of states like Punjab, Chhattisgarh and Tamil Nadu
 12. Improving access of women and children especially to the poor strata to micro-nutrient rich food including meat, eggs, milk and milk products, fruits, vegetables, etc., through the system of food stamps.
 13. The strategy will be to provide at cheap subsidized prices nutrition rich foods like kidney bean, soya bean, potato and seasonal vegetables to all the Atta-Dal scheme families.
 14. From within the Atta-Dal scheme families the underweight children will be identified and registered by Primary Health Centre Workers aided by Anganwari Centre Workers.
 15. The identified underweight children will be provided free dietary supplements to gain weight to the normal level through Primary Health Centres.
- (vii) **Creating Sound Policy Framework by Adopting Bottom-up Approach for Designing New Poverty Alleviation Programmes**

At present the centralized approach is adopted for designing poverty alleviation programmes. The centralized approach suffers from many limitations. First standard uniform programmes for all the states and categories of poor covered under the scheme is adopted. The uniform and homogenous programmes are not compatible with the huge diversity on account of economic, social and political development in the country. The behaviour pattern and priorities of poor also vary across region, gender, caste, religion and location, i.e. rural and urban. The mismatch between homogeneous programmes and heterogeneity of the beneficiaries is one of the biggest stumbling blocks in our existing poverty alleviation programmes. In some cases, there is no taker of the scheme because it is not beneficial to anyone.

Secondly in the centralized approach to policy making popularly known as top-down approach, the policy inputs are mainly obtained either from official deliberations or from research undertaken by research institutes including that of consultancy firms. In this approach, no institutional mechanism is in place to listen to the voice of poor and accordingly accommodate

their preferences and priorities in the policy. Therefore, policies made from above normally fail to deliver when reaches the door steps of the intended beneficiaries, i.e. the poor.

No doubt after the revamping of many poverty alleviation programmes and introduction of new programmes, the role of local governments both urban and rural in their implementation has been articulated but it mainly has remained part of documents as in practice the programmes are still administration driven.

With a view to improve the quality, efficiency and effectiveness of poverty alleviation programmes, it is essential at this juncture to adopt a participatory approach in designing, implementing and evaluating poverty alleviation programmes.

The participants should be all stakeholders in poverty alleviation. They comprise of policy makers, administrators, poor, Panchayat Raj Institutions, municipalities, community leaders, poor, civil society organizations including NGOs. In the entire process of poverty alleviation programme starting from identifying the poor/beneficiaries, selecting the poverty alleviation economic activity, dispersal of subsidy and loans, monitoring the process and finally evaluating the progress should be steered by the stakeholders led by the poor.

III

GOALS 1.4 AND 1.5

Challenges

High growth rate and direct poverty alleviation programmes alone are not sufficient to eliminate poverty from the state specially from socially handicapped groups mainly because the productive resource base of these communities is fragile. In the long run poverty can be alleviated by improving direct access of the poor to economic resources particularly ownership of land and other productive resources, access to basic services, natural resources, technology, financial services including microfinance and building the resilience of the poor for coping with climate related shocks and disasters.

Strategies

For widening the productive base of the poor and improving access to basic services, the following action plan is suggested:

(i) Improving Ownership of Land and Property of Poor

Land is the major source of livelihood for the people of Punjab. The poor and women, however, have negligible access to land. As per the Agriculture Census, 2011, the state has 10000 female farmers operating in only 1 per cent of the total area.

(ii) Creating Employment Opportunities for Poor in Sectors other than Agriculture

Punjab is an agrarian state employing around 35 lac workers in agriculture and allied activities. The agriculture sector has no further scope of generation of productive employment as the employment elasticity of agriculture sector is negative. This sector already has unemployment in the disguised form. In this backdrop for creating avenues for productive employment for unemployed youth from poor families, the options available to state are: non-farm activities, rural small scale and cottage industries, medium and large scale industries in urban areas, and service sector.

For generating sizeable employment for the poor, five types of industries and services have locational advantages in Punjab. These industries include rural small scale and cottage industry, agro-based industry, foot-loose industry and knowledge based industry and other services.

Making Poor Youth Employable

No doubt Punjab has well developed network of institutions of learning. Their benefits have however not reached adequately to the poor as youth from poor families have very low access to technical and vocational education.

Requisite training and skill formation is thus necessary for enabling the poor youth for getting employment in these sectors.

The strategy should be to introduce poor specific policy of skill development as a part of flagship programme of Skill India. At least one third of the resources of Skill India should be allocated for the training of the youth from poor families by the government.

The major initiatives in this regard include:

- a) Revamping of the Industrial Training Institutes (ITIs), Polytechnics
- b) Introducing community colleges
- c) Setting up of finishing schools
- d) Each educational institution adopting 50 poor families for skill development under corporate social responsibility programme
- e) Ensuring successful implementing rural self employment training institute (RSETI) scheme which provides dedicated infrastructure in each rural district of the country to impart

training and skill up-gradation of rural youth including from poor families should also form part of the strategies. Similar institutes should be opened in urban areas and

- f) Incentivizing the formation of Self Help Groups (SHGs) for improving the employment among poor women.

(iii) Improving Access of the Poor to Basic Services

There are many schemes operating in the state ensuring basic services to the people. These schemes include:

- a) Indira Awas Yojana now Pradhan Mantri Awas Yojana which is a central scheme providing financial assistance to the BPL families in rural areas for the construction of houses, sanitary latrines and smokeless chulha. The contributory share between the centre and the state is 80:20 and 60 per cent of the share is reserved for scheduled castes/ Scheduled tribes;
- b) New Housing Scheme launched for constructing houses for economically weaker section;
- c) Deen Dyal Upadhyaya-Gram Jyoti Yojana aiming to provide electricity in rural areas; (d) National Rural Health Mission and National Urban Health Mission ensuring basic health services including to the poor;
- d) Insurance schemes namely Rashtriya Swasthaya Yojana (RSBY)
- e) Bhagat Puran Singh Medical Insurance Scheme
- f) Sarva Shiksha Abhiyan providing elementary education for the children from poor families.

The strategy should be to modify the mandate of each scheme (where applicable) by having a special component for the poor, additional financial assistance to be provided at later stages to sustain and maintain the infrastructure created under each scheme. However, benefits of the schemes are not reaching the target beneficiaries. Therefore, the strategy should also include better co-ordination among agencies providing services, rigorous implementation of the schemes providing basic services followed by regular monitoring and evaluation of these schemes specially by the civil society.

(iv) Financial Inclusion

In Punjab, banks including co-operative banks have wide spread network. Total bank branches in the state were around 10076 in the year 2013. The state has very favourable population (5000) per bank office which is next only to Chandigarh (4000 per bank office). Thus, state is already ahead of other states in case of financial inclusion. With a view to improve upon the financial

inclusion of the poor, the state has implemented Prime Minister Jan Dhan Yojana very successfully by opening 29.17 lakh accounts. For extending the coverage of the scheme to all the families below poverty line, a special drive should be launched by the state. The inclusion of the poor in the banking sector would be a very effective strategy to achieve SDG relating to poverty as the benefits under all the pro-poor schemes can directly be transferred to the bank account of the poor.

- (v) **Significant mobilization of resources by levying Poverty Cess on the pattern of Swachh Bharat Abhiyan and Krishi Cess:** Financial resources are the major constraints to fund poverty alleviation programmes on a larger scale. Sub Goal 1.51a suggests mobilizing sizeable resources to implement programs and policies to end poverty in all its dimensions. Keeping this in view, a Poverty Cess on the pattern of Swachh Bharat Abhiyan and Krishi Cess is recommended. This perennial source of revenue with the government would finance regularly the programmes for alleviating poverty in the country as well as in the state of Punjab.

IV

CONCLUSION

The SDG1 namely No Poverty: End Poverty in All its Forms Everywhere is achievable in Punjab by 2030. In Punjab people below poverty line are only 11.3 per cent . This average figure masks wide variations of incidences of poverty between rural and urban population, among general population, scheduled caste population and backward classes. For example, in the rural areas, only 7.4 per cent people are below poverty line against more than double (17.6 per cent) in urban areas. Similarly around 26 per cent SC families are below poverty line against only 70 per cent non SC families being below poverty line.

The existing agriculture led development model and ongoing poverty alleviation programmes are not sufficient to eradicate poverty in all its forms in Punjab. For making Punjab, poverty free, along with existing model of development and effective implementation of poverty alleviation programmes, it is essential to initiate policy programmes including improving skill base of the poor, dedicated funds for the poor in the flagship programmes, creating employment opportunities for the poor in sectors other than agriculture, improving ownership of land and property to the poor, promoting financial inclusion of the poor , improving access of the poor to basic services and design new participatory poverty alleviation programmes exclusively for the SC, BC, women and migrant labour. Major strategies and policy prescriptions are summed up in the following Box.

Box 1.1**Major Strategies and Policy Prescriptions**

- Taking Punjab to a higher growth trajectory of 10 per cent
- Revamping the Existing Poverty Alleviation Programmes by Promoting Transparency, Accountability; mitigating Corruption and plugging leakages
- Dedicated funds for the poor in Flagship Programmes like Make in India, Skill India, Digital India, Swachh Bharat, Smart Cities and Startup India
- Ensuring sanitation facilities for the poor under Nirmal Bharat Abhiyan
- Housing for all the poor by 2022 under the central government scheme
- Ensuring food security to the poor by improving effectiveness of Atta Daal Scheme and Public Distribution System
- Creating sound policy framework by adopting bottom-up approach for designing new poverty alleviation programmes
- Improving Ownership of Land and Property of Poor
- Creating employment opportunities for poor in sectors other than Agriculture
- Improving Access of the Poor to Basic Services
- Financial Inclusion
- Significant mobilization of resources by levying Poverty Cess on the pattern of Swachh Bharat Abhiyan and Krishi Cess

References:

Government of India (2014), *Report of the Expert Group to Review the Methodology For Measurement of Poverty*, Planning Commission, New Delhi.

GOAL 1: NO POVERTY: END POVERTY IN ALL ITS FORMS EVERYWHERE

Target 2030: 1.1 Eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> • Below Poverty Line (%) - Rural - Urban - Overall 	7.66	Reduce to 5%	Reduce to 2.5%	Reduce to Zero	<p>Taking Punjab to a higher growth trajectory of 11 per cent by 2025 and maintaining it till 2030 with a rate of 7.5 per cent respectively by 2020.</p> <p>Major existing poverty alleviation programmes for rural and urban area include Sampoorna Grameen Rozgar Yojana (SGRY); Indira Awaas Yojana (IAY) now Pradhan Mantri Gramin Awaas Yojana, Swarnjayanti Gram Swarozgar Yojana (SGSY); Pradhan Mantri Gram Sadak Yojana (PMGSY); Pradhan Mantri Gramodaya Yojana (PMGY); Bharat Nirman Program; Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA); Pradhanmantri Adarsh Gram Yojana (PMAGY); National Livelihood Mission; Swarna Jayanthi Shahari Rozgar Yojana (SJSRY); Basic Services for Urban Poor (BSUP)/ Jawaharlal Nehru Urban Renewal Mission (JNNURM) now Atal Mission for Rejuvenation and Urban Transformation (AMRUT); Street Vendors Policy (SVP); and Rajiv Awas Yojana (RAY)</p> <p>Revamping the Existing Poverty Alleviation Programmes by Promoting Transparency, Accountability; Mitigating Corruption and Plugging Leakages.</p> <p>Creating sound policy framework by adopting bottom-up approach for designing new poverty alleviation programmes</p> <p>Significant mobilization of resources by levying Poverty Cess on the pattern of Swachh Bharat Abhiyan and Krishi Cess</p>
	9.24	Reduce to 6.5%	Reduce to 3.25%	Reduce to Zero	
	8.26	Reduce to 6%	Reduce to 3%	Reduce to Zero	

Target 2030: 1.2 reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> • Scheduled Castes Below Poverty Line (%) - Rural - Urban - Overall • Other Backward Classes Below Poverty Line (%) - Rural - Urban - Overall • Poverty Gap Ratio - Rural - Urban 	14.7 18.3 15.6 3.6 14.0 8.1 1.18 1.56 (2011-12)	Reduce to 10% Reduce to 14% Reduce to 10% Reduce to 2% Reduce to 8% Reduce to 5%	Reduce to 5% Reduce to 7% Reduce to 6% Reduce to 1% Reduce to 4% Reduce to 3%	Reduce to zero Reduce to Zero Reduce to Zero Reduce to Zero Reduce to Zero Reduce to Zero	Also see SDG-10 The following specific programmes for total eradication of poverty amongst Scheduled Caste, Other Backward Classes, and women are recommended: <ul style="list-style-type: none"> - Improving Ownership of Land and Property of Poor - Creating Employment Opportunities for Poor in Sectors other than Agriculture by introducing an employment guarantee scheme in urban areas on the pattern of MGNREGA - Dedicated funds (33% of the total) for the poor in Flagship Programmes like Make in India, Skill India, Digital India, Swachh Bharat, Smart Cities and Startup India
Source: For Poverty Estimates, Government of India (2014), Report of the Expert Group to Review the Methodology for Measurement of Poverty, Planning Commission, New Delhi and NSSO Consumption Expenditure Survey					

Target 2030: 1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Social Protection Schemes					
Percentage of eligible population covered under:					
- Atta Dal	31 lakhs (2014)	Cover all 100%	Maintain coverage for 100% eligible	Maintain coverage for 100% eligible	The state department of food and civil supplies has been providing 31 lakh farmers with subsidized wheat and pulses. Through Aadhar bar-coded cards the scheme will improve delivery to the blue card holders
o Blue card priority households (are eligible for scheme)					
- Cashless Health Insurance Scheme	72.69	Cover all 100%	Maintain coverage for 100% eligible	Maintain coverage for 100% eligible	Under the Bhagat Puran Singh Sehat Bima Yojana beneficiaries under various categories have been issued cards. The balance eligible are in the process of being given cards.
o Blue card holders	77.84	Cover all 100%	Maintain coverage for 100% eligible	Maintain coverage for 100% eligible	
o Farmers	76.5				
o Traders	68.63				
o labourer	22.07 (2016)				
- Employability Allowance					For skill Development (See SDG-4)
- Old Age Pension					See SDG-5
- Widow/Destitute/disabled/ Dependent children					See SDG-5
- Education scholarships					See SDG-4 See SDG-2
					- Ensuring food security to the poor by improving effectiveness of Atta Dal Scheme and Public Distribution System
					- Ensuring sanitation facilities for the poor under Nirmal Bharat Abhiyan
					- Housing for all the poor by 2022 under central government scheme
					- Improving Access of the Poor to Basic Services
					Financial Inclusion
Source: Department of Planning Punjab, 2014, 2016					

Target 2030: 1.4 Ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Percentage using banking services					
Males	61%				
Females	30%				
Percentage using telephones					
Tele identity per 100 population					
- Total	103.23				
- Urban	149.67	Maintain above 100 in urban	Maintain above 100 in urban	Maintain to above 100 in rural and urban	
- Rural	68.28 (30 th June 2014)	improve to 85 for rural	improve to 100 for rural		
	Source: See SDG-5				

Table 1.1
Percentage of people below poverty line in Punjab

Year	Percentage of People Below Poverty Line
1973-74	28.15
1977-78	19.27
1983-84	16.18
1987-88	13.20
1993-94	11.77
1999-00	6.16
2004-05	8.4
2009-10	15.9
2011-12	8.3

Source: Government of India, 2014

Table 1.4
India State Hunger Index Score

State	Score
Punjab	13.63
Kerala	17.63
Andhra Pradesh	19.53
Assam	19.83
Haryana	20.00
Tamil Nadu	20.87
Rajasthan	20.97
West Bengal	20.97
Uttar Pradesh	22.13
Maharashtra	22.80
Karnataka	23.73
Orissa	23.80
Gujarat	24.70
Chhattisgarh	26.63
Bihar	27.30
Jharkhand	28.67
Madhya Pradesh	30.87
India	23.30

Source: India State Hunger Index, IFPRI (2008)

Table 1.5
Prevalence of Underweight in Under-5 Children in Major Indian States

States	Percentage
Punjab	16
Jharkhand	42.1
Bihar	37.1
Madhya Pradesh	36.1
Uttar Pradesh	34.5
Odisha	34.4
Chhattisgarh	33.9
Gujarat	33.5
Rajasthan	31.5
West Bengal	30.0
Karnataka	29.0
Maharashtra	25.2
Tamil Nadu	23.3
Haryana	22.7
Andhra Pradesh	22.3
Assam	22.2
Uttrakhand	20.5
Himachal Pradesh	19.5
Delhi	19.4
Kerala	18.5
Goa	16.2
Jammu & Kashmir	15.6
India	29.4

Source: Rapid Survey on Children, 2014

SDG 6
**“CLEAN WATER AND SANITATION: INSURE AVAILABILITY AND SUSTAINABLE
 MANAGEMENT OF WATER AND SANITATION FOR ALL”**

I. INTRODUCTION AND TARGETS

The major focus of the theme SDG-6 is to provide safe affordable drinking water to all besides providing sanitation facilities especially to woman and girls. The theme is in line with the recommendations made at the UN Water Conference held in 1977 at Mar del Plato and later adopted by the U.N. General Assembly in 1980 with the announcement of International Drinking Water Supply and Sanitation Decade (IDWSSD). Again in the year 1992, during the International Conference on ‘Water and Environment’ held at Dublin emphasis was made to provide clean water and sanitation to all on priority basis.

II. ISSUES AND CHALLENGES

In Punjab, 90 per cent of the population depends on groundwater for drinking water. The numbers of drinking water schemes through groundwater are 8627 where as canal based drinking water supply is provided through 846 schemes. Most of the canal based schemes are confined to south-west districts of the state where groundwater quality in deeper aquifers (more than 100 m depth) is not good and has highly saline groundwater with electrical conductivity values more than 4000 micromhos/cm at 25°C. In view of this, the role being played by groundwater in providing drinking water is self evident. However, groundwater resources of the state face many environmental problems which have become the issues of concern for sustainable drinking water schemes. These issues and challenges are briefly discussed below.

(i) Depletion of Water Levels:

Depletion of water levels in the sweet water zone of Punjab state is one of the major concerns. Due to large scale increase in a number of shallow tubewells (1,92,000 in year 1970 to more than 14,00,000 in the year 2014 in Punjab State) and predominance of rice-wheat cropping pattern, water levels have been declining fast since the last two decades. Due to the impact of overexploitation of groundwater in majority of areas the depth of water levels ranges from 10 to 20 m and in critically over exploited areas it ranges between 20 and 40 m. In order to assess the impact of groundwater over development, water levels are monitored by CGWB and state government groundwater organizations in 414 wells. The results of the data indicate that 317 wells out of 414 show declining trend for the last 24 years period- June 1984 – June 2008 (C.G.W.B, 2012). Majority of these wells are located in the districts of Amritsar, Barnala,

Fatehgarh Sahib, Faridkot, Tarn Taran, Ludhiana, Moga, Nawanshehar, Patiala and Sangrur. Apart from these districts Kapurthala, Mansa and Mohali also show declining water level trend. According to CGWB (2012), the maximum fall of 23.17 m in water levels @ 96.54 cm/year has been observed in Moga block of Moga district followed by 22.60 m in Sherpur block of Sangrur district where water levels have been falling at the rate of 94 cm/year. Minimum fall has been in Malout block of Muktsar district. Decline in water levels in Moga district has also affected the chemical quality of groundwater.

According to the Water Resources Directorate, Punjab and CGWB-GOI (2012) out of 138 blocks in Punjab, 110 blocks (75 per cent) are overexploited (exploitation more than 100 per cent of annual recharge), 3 blocks (4 per cent) are critical (exploitation 90-100 per cent), 2 (3 per cent) are semi critical (exploitation 70-90 per cent) and 23 blocks (18 per cent) are safe where exploitation is less than 70 per cent. The safe blocks are confined to Kandi area, base of Siwaliks, saline areas in south western parts, where groundwater cannot be exploited due to quality constraints. The number of over exploited blocks has almost doubled from 53 in the year 1984 to 110 in the year 2012.

Depletion of water levels pose a serious threat for sustainable water supply and water security as the available water supply would get reduced with the depletion of water levels. In addition, the quality of groundwater also deteriorates with declining water levels as has been found in the Moga district. Thus, both quantity as well as quality of water shall be reduced in future. To address the issue, water conservation and rain water harvesting shall be adopted.

(ii) Water logging and salinization

Water levels in south-western parts of Punjab in saline zones have been rising in nearly 20 per cent of the area. Further, the maximum rise 17.95 m was observed from 1984 to 2001 in Lambi block of Muktsar district. Water logged areas (depth to water within 2m) were earlier confined to the south west districts, i.e. Muktsar, Mansa, Faridkot and Ferozepur. However, at present in 2014 critical water logged areas (about 14,000 ha) exist in Muktsar district.

Rising water levels and salinization also poses a serious threat to safe drinking water supply and sanitation schemes.

(iii) Deterioration of groundwater quality

Deterioration of groundwater quality largely due to geogenic (natural) causes is a major issue of concern being faced by the state of Punjab on account of presence of toxic elements like uranium, arsenic and fluoride in the groundwater. These are briefly discussed below.

(a) Uranium hazard:

High level of uranium and heavy metals found in hair samples of 80 per cent of 149 neurologically disabled children under treatment in Baba Farid Center for Special Children, Faridkot (study conducted by Carin Smit, Clinical Metal Toxicologist). Analysis was done by Microtrace Mineral Lab, Germany which lead the department of water supply and sanitation to collect samples from all the groundwater schemes and get them analysed from BARC.

As such, samples of all the water supply schemes were sent to BARC for analysis. A total of 357 water supply schemes covering 513 villages have been found to be affected with uranium with a concentration of more than 60 ppb which is AERB limit. The maximum concentration of uranium found is around 366 ppb in Kotha Alia Lukmanapura of District Fazilka.

Table 6.1
District-wise number of villages having uranium problem in groundwater

Sr. No.	District	Number of villages affected with uranium beyond 60 ppb
1.	Amritsar	0
2.	Barnala	95
3.	Bathinda	29
4.	Faridkot	3
5.	Fatehgarh Sahib	5
6.	Fazilka	52
7.	Ferozepur	128
8.	Gurdaspur	0
9.	Hoshiarpur	0
10.	Jalandhar	0
11.	Kapurthala	1
12.	Ludhiana	22
13.	Mansa	2
14.	Moga	111
15.	Pathankot	0
16.	Patiala	3
17.	Roopnagar	0
18.	Sangrur	44
19.	SAS Nagar	0
20.	SBS Nagar	0
21.	Tarn Taran	18
	Total	513

Source: Water Supply and Sanitaitain Department, 2015

The results of isotopes in groundwater samples by BARC indicates that the uranium present in groundwater of Punjab is natural uranium. The mass percentage of ²³⁵U and ²³⁴U and ²³⁸U in natural uranium 0.72 per cent, 0.005 per cent and 99.27 per cent respectively.

Uranium is known to be nephrotoxic and affects the kidneys and human health in many ways.

To address the issue, R.O. treatment of plants are being installed in various problematic areas.

(b) Arsenic Hazard:

Arsenic hazard in the groundwater of Punjab was unheard of especially in deeper water supply wells. Recent data generated by the water supply and sanitation department indicates the prevalence of the problem in large scale specially in Amritsar and Gurdaspur districts. 114, 42 and 21 habitations in Amritsar, Gurdaspur and Tarn Taran districts respectively have been found to contain more than 0.05mg/L of arsenic levels which was earlier prescribed as a permissible limit for drinking water use. However, if the recent W.H.O. limit of 0.01mg/l is followed, 1585 villages would fall under the unsafe category due to arsenic concentration for drinking water. District wise data on presence of arsenic in groundwater of Punjab as per data generated by Punjab Water Supply and Sanitation department is shown in Table 6.2. In view of the above, it is clear that arsenic poses a serious threat to sustained drinking supply.

Table 6.2
Showing Number of Habitations Failed due to Arsenic Problem

Sr. No.	District	Number of samples tested		Number of habitations failed due to arsenic beyond permissible limit of 0.05 mg/l
		Phase I	Phase II	
1.	Amritsar	486	512	114
2.	Fazilka	90	124	1
3.	Firozpur	586	440	1
4.	Gurdaspur	511	394	42
5.	Roopnagar	308	323	7
6.	Tarn Taran	328	310	21
	Total	2309	2103	186

Source: Water Supply and Sanitation Department, 2015

Arsenic in drinking water causes several health problems especially related to skin, liver and various types of cancers.

To address the issue, new technologies which are economical shall be adopted.

(c) Fluoride hazard:

Fluoride hazard is increasing in the groundwater of Punjab especially in the south-western parts of the state. This is primarily caused by geogenic sources when fluoride gets leached out from sediments to groundwater under favourable geochemical environment. Number of villages suffering from fluoride hazard in Punjab as per data generated by Punjab Water Supply and Sanitation Department are shown in table 6.3.

Table 6.3
Showing districtwise number of villages affected by fluoride

Sr. No.	District	Number of villages affected with fluoride beyond permission limit
1.	Amritsar	3
2.	Barnala	4
3.	Bathinda	2
4.	Faridkot	0
5.	Fatehgarh Sahib	30
6.	Fazilka	25
7.	Ferozepur	1
8.	Gurdaspur	4
9.	Hoshiapur	2
10.	Jalandhar	1
11.	Kapurthala	1
12.	Ludhiana	1
13.	Mansa	8
14.	Moga	2
15.	Pathankot	0
16.	Patiala	159
17.	Roopnagar	0
18.	Sangrur	23
19.	SAS Nagar	11
20.	SBS Nagar	0
21.	Tarn Taran	4
	Total	281

Source: Water Supply and Sanitation Department, 2015

Fluoride poses various health problems like dental and skeletal fluorosis.

To address the issue, water treatment plants are being installed in problematic areas.

(d) Pollution of canals and surface water bodies:

Canal based water supply is in practice in south-western districts of Punjab as groundwater is not fit for drinking water. Recent data shows that at places, the canal water is also contaminated on account of untreated waste water and other solids being discharged into them. This poses again a serious threat to safe water supply through canal network.

In addition, number of wetlands (Harike, Ropar and Kanjali) are also suffering from water quality problems. To address this issue, pollution control laws are being enforced.

(iv) Elimination of open defecation

Total elimination of open defecation in rural areas is also an issue to be addressed under the sanitation schemes. Currently there are 8 lakh households which need to be provided washroom facilities to eliminate 100 per cent open defecation.

III. APPROACH

The above mentioned issues and targets (6.1 - 6.6) shall be achieved by adopting reforms, promoting consistent sector policies and programmes aimed at the following:

- Demand-responsive and decentralized service delivery with full community involvement.
- Metered household connections by providing minimum 10 hours of water supply daily (preferably through 24X7 water supply).
- Sustainability of sources and systems.
- Integrated approach towards improving water supply, sanitation and hygiene behaviour.
- Eliminating water-quality problems in all water quality affected villages.
- Environmental sanitation, including safe household sanitation systems including disposal of sullage water and solid waste management.
- Effective grievance redressal and public information services.
- Promoting public-private partnerships, wherever relevant and appropriate.
- Convergence with relevant departments.

Adoption of Reforms

The state is committed to decentralized management of rural water supply and sanitation schemes, in accordance with the 73rd Constitutional Amendment, by strengthening GPs to manage schemes and provide improved services, with the Department of Water Supply and Sanitation (DWSS) being a partner and facilitator. It is also committed to continue the sector wide approach (SWAp), adopted in development, execution and management of rural water supply and sanitation schemes, through various decentralized management structures including GPs/Village Water and Sanitation Committees (VWSCs) for all type of funding programme.

The DWSS shall, therefore, continue to undertake the following:

- Hand over all single village schemes and intra-village works if multi-village schemes to GPs/VWSCs in a time-bound manner.

- Implement new schemes, as SWAP principles, in all villages that demand such services by passing a resolution in the Gram Sabha agreeing to the conditions of self-management, including beneficiary contribution towards meeting partial capital cost and on completion of schemes, taking over management of created assets on a sustainable basis.
- Transfer funds to implement new single-village schemes and all intra-village works of multi-village schemes to GPs/VWSCs, who will take responsibility for planning, technology selection (type of scheme), procurement (bid invitation, award) and construction activities.
- Provide technical support and undertake major repairs for all schemes operated and maintained by GPs/VWSCs.
- Provide special concessions to all habitations predominantly inhabited under the privileged of disadvantageous groups, persons belonging to scheduled castes and persons residing in economically-backward and other special areas (e.g. villages along the international border, Kandi Area, Bet Area and water-logged areas, etc.).
- Continue to be responsible for construction of common infrastructure, such as water works, laying of distribution of pipelines up to entry point of each village in multi-village schemes, and highly technical works, such as sanitation facilities and Reverse Osmosis (RO) plants, etc.

IV. FINANCIAL REQUIREMENTS

IV (a) SEVEN YEAR STRATEGY AND FINANCIAL REQUIREMENTS (w.e.f. 2017-18 to 2023-24)

At present, DWSS is implementing World Bank assisted Punjab Rural Water and Sanitation Sector Improvement Project (PRWSSIP) and its completion date is 31 March 2021. The project has four components. DWSS intends to execute the same components even after the completion of project for the next two years, i.e. upto 2022-23 to ensure completion of remaining works in the rural areas of the State. Estimated cost projections for the next seven years have been worked out as 3770 crore. Out of this, around Rs. 1280 crore would become available from the PRWSSIP, whereas remaining funds would be provide by the Government of India NRDWP by Niti Aayog for tackling water quality issue in the State and remaining by the State Government. Physical and financial projections for the next seven years have been given in the Table 6.4:

Table 6.4
Depicting 3 years action document for 2017-18 to 2019-20

Sl. No.	Particulars	Unit Rates - INR Lakhs	Physical Projections				Financial Projections (INR in crore)			
			2017-18	2018-19	2019-20	Total	2017-18	2018-19	2019-20	Total
1A : Strengthening Water Supply schemes for Upgradation of service delivery										
	Water Supply schemes	85.00	130	130	128	338	111	111	109	330
1B : Sewerage Schemes with treatment systems										
i	Sewerage Schemes with treatment systems	150.00	0	0	150	150	0	0	225	225
2A : Improvement access to water through households connections										
i	Improved access to water through households connections (no. of households)	0.01500	100000	125000	125000	350000	15	19	19	53
2B : Operational Improvement for improved Water supply Operational Service levels										
i	Operational Improvement for improved Water Supply Service levels	11.00	200	200	200	600	22	22	22	66
2C : Household Sanitation (toilet)										
i	Household Sanitation (toilet) (no. of households)	0.15	130000	195000	250000	575000	195	293	375	863
3A : Water Quality Monitoring										
i	Water Quality Monitoring and Mitigation		0	0	0	0	5	5	5	15
3B : Safe and Treated Water for Water Quality Affected Villages										
i	Installation of Water treatment plants for retrofitting	18.00	50	50	50	150	9	9	9	27
ii	Safe and Treated Water for Water Quality Affected Villages	225.00	0	40	45	85	0	90	101	191
COMPONENT 4: INSTITUTIONAL DEVELOPMENT AND PROJECT MANAGEMENT										
	4A : Institutional Costs						40	42	44	126
	4B : Project Management						20	22	22	64
	Subtotal (4)						60	64	66	190
	Grand Total						417	612	931	1,959

Source: Projection K.P.Singh, 2016

Perusal of the above table indicates that in the next three years starting w.e.f. 2017-18 upto 2019-20, DWSS would strengthen 388 existing piped water supply schemes to improve service delivery and to provide water connections to each household, implement sewerage schemes in 150 villages on pilot basis, provide 3.5 laces individual household connections, do minor operational improvements for improved water supply service in 600 villages, provide 5.75 lace toilets to cover all the remaining households in the rural areas with toilet facility, install water treatment plants in existing water supply schemes where water quality has deteriorated over the years by retrofitting in existing schemes and shifting ground water schemes in 150 villages with surface water supply schemes. In addition, DWSS with lay greater emphasis towards water quality monitoring and mitigation from the existing water sources.

Table 6.5
Depicting physical and financial projections for the 7 years from 2017-18 to 2023-24

Sr. No.	Particulars	Unit Rates- INR Lakhs	Physical Projections							Financial Projections (INR in crore)						
			2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	Total	2017-2018	2018-2019	2019-2020	2020-21	2021-22	2022-23	Total
1A : Strengthening Water Supply schemes for Upgradation of service delivery																
	Water Supply schemes	85.00	130	130	128	87	100	100	675	111	111	109	74	85	85	574
1B : Sewerage Schemes with treatment systems																
i	Sewerage Schemes with treatment systems	150.00	0	0	150	150	100	100	500	0	0	225	225	150	150	750
2A : Improved access to water through household connections																
i	Improved access to water through household connections (no. of households)	0.01500	100000	125000	125000	150000	150000	150000	800000	15	19	19	23	23	23	120
2B : Operational Improvement Water Supply Service levels																
i	Operational Improvement for improved Water Supply Service levels	11.00	200	200	200	200	200	200	1200	22	22	22	22	22	22	132
2C: Household Sanitation (toilet)																
	Household Sanitation (toilet) (no. of households)	0.15	130000	195000	250000	225000	0	0	800000	195	293	375	338	0	0	1200
3A: Water Quality Monitoring																
i	Water Quality Monitoring and Mitigation		0	0	0	0	0	0	0	5	5	5	5	5	5	30
3B : Safe and Treated Water for Water Quality Affected Villages																
i	Installation of Water treatment plants for retrofitting	18.00	50	50	50	50	50	50	300	9	9	9	9	9	9	54
ii	Safe and Treated Water for Water Quality Affected Villages	225.00	0	40	45	36	50	50	221	0	90	101	81	113	113	497
COMPONENT 4: INSTITUTIONAL DEVELOPMENT AND PROJECT MANAGEMENT																
	4A: Institutional Costs									40	42	44	47	50	50	273
	4B: Project Management									20	22	22	24	26	26	140
	Subtotal (4)									60	64	66	71	76	76	413
	GRAND TOTAL									417	612	931	847	482	482	3,770

Source: Projection K.P.Singh, 2016

Perusal of the above table indicates that in the next seven years starting w.e.f. 2017-18 upto 2022-23, DWSS would strengthen 675 existing piped water supply schemes to improve service delivery and to provide water connections to each household, implement sewerage schemes in 500 villages on pilot basis, provide 8 lacs individual household connections, do minor operational improvements for improved water supply service in 1200 villages, provide 8 lacs toilets to cover all the remaining households in the rural areas with toilet facility, install water treatment plants in existing water supply schemes where water quality has deteriorated over the years by retrofitting in existing schemes and shifting ground water schemes in 221 villages with surface water supply schemes. In addition DWSS lays greater emphasis on water quality monitoring and mitigation from the existing water sources.

IV. VISION UPTO THE YEAR 2030

(1) Water Supply

The state is committed to providing 100 per cent individual metered household private connections in rural areas of Punjab. Accordingly the DWSS shall pursue the following initiatives:

➤ Household Connections

- Convert all existing unmetered water connections to metered ones upto the year 2030.
- Ensure that all household connections from new water supply schemes are given metered connections.
- Phase out public taps by ensuring 100 per cent rural households have individual water connections.
- Provide free private water connections inside the outer boundary of individual houses in a phased manner.
- Prioritize provision of free private water connections for scheduled caste and scheduled tribe households in all villages.

(2) Sanitation

- Enable all rural households to have access to and use safe sanitation systems that collect and treat human waste without allowing the contamination of ground water and the spread of diseases.
- Ensure that all government schools and *anganwadis* have functional toilets and safe sanitation systems.

Without adequate arrangements for treatment and disposal, wastewater from village houses and cattle-sheds stagnates in public places and also seeps into hand pumps, open dug wells and ponds, creating environmental pollution and water-related diseases. Garbage dumped in 'rudis' (the traditional village dumping grounds), which are often located near the village ponds, also severely impact their water quality and holding capacity. Village drains are also choked by polythene bags, plastic bottles and sachets causing waste water to overflow and stagnate in low-lying areas. Finally, non-biodegradable waste is also often burnt, contributing to environmental pollution.

To address the issues pertaining to disposal of waste water and solid wastes the DWSS shall:

- Support GPs/VWSCs to manage solid wastes and waste water in their villages (e.g., by renovation of existing ponds by dredging and growing aquatic plants like *Arundo*, *Phragmites* and duckweed).
- Provide technical assistance for treating waste water, renovating and remodelling village ponds, identifying appropriate land fill sites and sourcing incinerators.
- Liaise with other departments, wherever necessary, to provide scientific and eco-friendly facilities (such as biogas generation, vermiculture etc.) to GPs/VWSCs for the safe disposal of the large amounts of cattle waste generated in villages and for the creation of better-quality manure.
- Organize the collection of information on environmental sanitation through online reporting and place this information in the public domain for greater transparency and informed decision-making.

(3) Public-Private Partnerships

With a long-term perspective to avail new opportunities for the rapid expansion of rural water supply and sanitation services, and to merge the skills, expertise and experience from public and private sectors so as to improve services delivered to beneficiaries, DWSS shall explore and adopt appropriate options under Public Private Partnerships (PPP). Such PPP contracts shall be actively explored and adopted for options such as the following:

- Build, Operate and Transfer (BOT) contracts for the installation and O&M of highly technical systems, such as RO plants, sewerage and other systems.
- Contracts of O&M of groundwater and surface-water based water supply schemes.

(4) Behavioural Change Communications

There is a critical need for accelerated behavioural change among households to switch to protected water supplies through house connections and metering, to conserve water, to change sanitation and hygiene practices and be willing to pay for water supply and sewerage services. The DWSS shall therefore, devise and implement appropriate behavioural change communication (BCC) strategies (messages, materials, reach etc.) and related institutional mechanisms, through IEC activities, publications (brochures, pamphlets, newsletters and posters), folk media, print and electronic media, rallies, campaigns, workshops, inter-personal communication (IPC), street plays/puppet shows, public announcements, social mapping, etc.

GOAL 6: CLEAN WATER AND SANITATION: ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

Target 2030: 6.1 Achieve universal and equitable access to safe and affordable drinking water for all					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Percentage of population using 'improved source' of water services		Strengthen 388 piped water connections	Strengthen 675 piped water connections	Maintain 100%	The state is committed to providing 10% individual metered household private connections in rural areas of Punjab.
Total	99.6%				
Urban	99.7%	Provide 3.5 lakh household connections and improved water services in 600 villages	Provide 8 lakh household connections and improved water services in 1200 villages	Maintain 100%	<ul style="list-style-type: none"> - Convert all existing unmetered water connections to metered ones upto the year 2030. - Ensure that all household connections from new water supply schemes are given metered connections. - Phase out public taps by ensuring 100% rural households have individual water connections. - Provide free private water connections inside the outer boundary of individual houses in a phased manner. - Prioritize provision of free private water connections for scheduled caste and scheduled tribe households in all villages. - Undertaken water quality monitoring and mitigation from the existing water sources.
Rural	99.5%	Install water treatment plants by retro fitting in existing schemes and shifting ground water schemes with surface water supply in 150 villages	Install water treatment plants by retro fitting in existing schemes and shifting ground water schemes with surface water supply in 221 villages	Maintain 100%	Adopt institutional reforms where GP, will manage schemes alongwith village and water sanitation committees with support of Department of Water and Sanitation (DWSS) special focus on disadvantaged groups (SC/poor); villages along the international border, Kandi area, bet area and water logged areas.
Adoption of reform	Source: NSS report No. 556: Drinking Water sanitation hygiene and housing condition in India, 2012				

Target 2030: 6.2 Achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Percentage of population using safety managed sanitation services.		Implement sewerage schemes in 150 villages	Implement sewerage schemes in 500 villages	Implement sewerage schemes in all villages	Enable all rural households to have access to and use safe sanitation systems that collect and treat human waste without allowing the contamination of ground water and the spread of diseases.
Total	84.4				
Urban	93.8				Ensure that all government schools and anganwadis have functional toilets and safe sanitation systems.
Rural	77.8	Provide 5.75 toilets rural households	100% provide 8 lakh toilets in rural households	Maintain 100%	Adopt institutional reforms where GP, will manage schemes alongwith village and water sanitation committees with support of Department of Water and Sanitation (DWSS) special focus on disadvantaged groups (SC/poor); villages along the international border, Kendi area, Bet area and water logged areas.
Source: NSS report No. 556: Drinking Water sanitation hygiene and housing condition in India, 2012					

Target 2030: 6.3 Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Percentage of waste water flows treated to national standards	To be generated				<p>Pollution control laws to be enforced to check contamination of canal water which is being polluted with untreated waste waters and other solids being discharged into them.</p> <ul style="list-style-type: none"> - Installation of water treatment plants to meet fluoride hazard, especially in south-west Punjab. - New economical technologies to check arsenic poisoning which is particularly a problem in districts of Amritsar, Gurdaspur and Tarn Taran - Installation of R.O plants to deal with uranium hazard (villages in Ferozpur, Moga, Barnala, Fazilka in particular)
<p>To address the issues pertaining to disposal of waste water and solid wastes the DWSS shall:</p> <ul style="list-style-type: none"> - Support GPs/VWSCs to manage solid wastes and waste water in their villages (e.g., by renovation of existing ponds by dredging and growing aquatic plants like <i>Arundo</i>, <i>Phragmites</i> and duckweed) - Provide technical assistance for treatment waste water, renovating and remodelling village ponds, identifying appropriate land fill sites and sourcing incinerators. - Liaise with other departments, wherever necessary, to provide scientific and eco-friendly facilities (such as biogas generation, vermiculture etc.) to GPs/VWSCs for the safe disposal of the large amounts of cattle waste generated in villages and for the creation of better-quality manure. <p>Organize the collection of information on environmental sanitation through online reporting and place this information in the public domain for greater transparency and informed decision-making.</p>					
Target 2030: 6.6 Protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Water replenishment, efficient usage of water in agriculture.					See SDG-15, 13
Source: See SDG-15, 13					

Target 2030: 6.a Expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Ground water replenishment					See SDG-15
Source: see SDG-15					

Target 2030: 6.b Support and strengthen the participation of local communities in improving water and sanitation management					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Participation of agriculture communities and village panchayats in promotion of ground water and adoption of sustainable technical systems of water usage					<p>PPP contracts shall be actively explored and adopted for options of:</p> <ul style="list-style-type: none"> - Build, Operate and Transfer (BOT) contracts for the installation and O&M of highly technical systems, such as RO plants, sewerage and other systems. - Contracts of O&M of groundwater and surface-water based water supply schemes. <p>Encourage peoples participation to protect water supply, conserve water and adopt hygiene and sanitary conditions. Devise and implement appropriate behavioural change communication (BCC) strategies (messages, materials, reach etc.) and related institutional mechanisms, through IEC activities, publications (brochures, pamphlets, newsletters and posters), folk media, print and electronic media, rallies, campaigns, workshops, inter-personal communication (IPC), street plays/puppet shows, public announcements, social mapping, etc.</p>

SDG 11:
SUSTAINABLE CITIES AND COMMUNITIES: MAKE CITIES AND HUMAN SETTLEMENTS
INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

Punjab is fast marching ahead on the path of urbanization. With 37.49 per cent of its population living in urban areas in 2011, it stands seventh among the top 10 rapidly urbanizing states in India. This is a commendable feature in view of the fact that urban centres contribute around 75 per cent to the state G.D.P. Given the present rate of growth of urban population it is estimated that Punjab may have more than 50 per cent urban population by 2030 and in absolute term estimated urban population 1.45 crore. The character of growth of urbanization, however, leaves something to be desired. Overcrowding, inadequate housing, proliferating slums and polluted spaces are some of the physical markers of its urban growth. Deficits in basic services such as safe drinking water, reliable electricity, basic sanitation, public transport, etc., are some of its civic deficits. The situation of other settlements seems to be no better. Paucity and inequity in access to adequate, safe and affordable housing and basic services, and problems of ecological and environmental degradation are some of its particular areas of concern.

The above facts underscore the significance and urgency of urban planning and growth management on the one hand and roadmap for inclusive and sustainable development of other settlements, on the other hand.

For purposes of preparing a vision document for SDG 11 i.e. sustainable cities and communities: make cities and other settlements inclusive, safe, resilient and sustainable in Punjab by 2030. We need to address three posers:

- I) Where does Punjab stand at present?
- II) Where do we want to take it by 2030?
- III) How to reach it where we want to see it by 2030.

In order to systematically address these posers, the following three point conceptual framework may help us put these in perspective: sectoral mapping of the current status with key challenges of systemic concern, time bound targets, and a roadmap comprising strategies, and mechanisms.

Sectoral mapping may focus on four major sectors of development: spatial planning, infrastructure and basic services, housing and slums, transport and environment. Systemic concerns pertain to adequacy like equity, safety and sustainability across all sectors. The components of infrastructure and basic services are like water, electricity, sanitation, transport, parks and open spaces. Goal-

directed targets may be derived from minimum standards approved by global and national agencies for each sector. Roadmap comprises of policies, programmes and institutional devices.

CURRENT STATUS

Following this conceptual frame, the first poser calls for sectoral mapping. A look at the available official statistics and studies, including our work on “Urban Development in Punjab” published by IDC (2012) show that Punjab has done well in some sectors like water supply (86 per cent), electricity coverage (100 per cent), road network, etc. However, some of the sectors with notable deficits are sanitation services, housing, public transport, slums, parks and open spaces and environment management. In the field of sanitation for instance, it suffers from inadequacies of sewerage network (65 per cent population covered), sewerage treatment plant (38 per cent of sewage treated), storm water drainage (5-15 per cent road coverage) and solid waste management (15 per cent) of total waste managed. Housing is another sector with acute inadequacy of affordable housing for at least one-third of the population or more.

- Punjab is one of the most urbanized states of India. Its level of urbanization has been increasing consistently. The urban population in Punjab has grown from 19.89 lakhs in 1951 to 1.03 crore in 2011. It constituted 21.72 percent of the total population in 1951 and has risen to 37.49 percent in 2011.
- In terms of absolute numbers urban areas gained by 22.5 lakh persons in the decade of 1991-2001 and 21.42 lakh persons in 2001-2011 against 13.5 lakh persons in 1981-91 (Census 2011).
- It is estimated that Punjab’s urban population would be more than 50 per cent and in absolute terms another 42 lakh persons would be added to its urban areas within two decades i.e. 2011 to 2030.
- There are 217 towns in the state. Out of 217 towns, 143 towns are statutory and 74 are census/ non-statutory towns. There is diversity of towns in terms of size, it varies from 2744 to 1618879 persons according to their population size. There are six classes of towns.
- The Scheduled Castes (SC) constituted 31.9 per cent of total population of the state but in urban Punjab their share is 22.71 per cent only. The share varies from 20.2 to 35.0 per cent according to size of towns and it is inversely related to the size of the town. Majority of them are ecologically segregated in cities and towns of the state. The segregation is consistently increasing with size of city (D’souza 1978 and Sandhu 2009) which is contrary to the SDG 11 of inclusive cities.

Table 11.1
Slum Population in Punjab

Particulars	2001	2011
Population living in slum pocket/areas in the state (in lakh)	11.52	14.60
Total population of the towns in which slums have been identified (in lakh)	58.88 (28 Towns)	80.34 (71 Towns)
Percentage of slum population of towns to the total population of these towns	19.56 (28 Towns)	18.17 (71 Towns)
Percentage of slum population to the total urban population of the state	13.97	14.04
Percentage of slum population to the total population of the state	4.74	5.26

Sources: Census of India, 2011

- In Punjab 143 towns were surveyed in Census 2011 but only 71 towns reported to be the slums areas. There were 14.60 lakh slum dwellers living in those areas. These slums were notified and recognized by the local bodies of the towns and identified by the census. They constituted 14.04 per cent of the total urban population. Distribution of slum dwellers in different classes of towns shows that it varies from 1.05 per cent to 69.27 per cent. The share of population is inversely related to the size of the town.
- The above table indicates that only one third of towns have reported slum population. It doesn't depict the real extent of the slums in the state; it only indicates the official figures of slums in Punjab. These figures are non-inclusive as they leave out many towns, including the non-statutory ones.
- As noted above that only 71 towns have slums, this does not mean that remaining 146 towns do not have slums. In fact, all classes of towns of the state have a substantial proportion of population living in slum like conditions, but they have not been identified and notified as slums by the urban local bodies (ULBs). It has been noted that the inadequacy of infrastructure (water supply, sewerage system and drainage) in lower classes of towns is very high and if the definition of a slum is objectively applied to them, a major part of Class II to Class V towns can be treated as slums. Although the poor in small towns which usually lack or have inadequate access to basic amenities have been living in slum like condition, yet they have not been identified as slum residents. In cities they are identified and are visible but in small towns their presence has been ignored officially. In this context, it can be concluded that small towns are ignored by planning and development process at the state level and poor living in slum like conditions in small towns are further marginalized by the local government by not recognizing their locality as slum.
- The low level of literacy, high level of agriculture workers in the workforce, high percentage of scheduled castes population, inadequate basic amenities of life and weaker economic

base are the predominant features of small towns in Punjab. Legally they are urban but due to their neglect by the state and local bodies, they are on the periphery of the whole process of urban development.

- Since slums are mainly inhabited by the poor and majority of Scheduled Caste population also live in slums. There is very intimate relationship between the SC's and the slums.
- Ecologically, slums are located on the peripheries of the cities. Thus, they are not integrated with the city population.
- The state has a lower sex ratio 875 females per 1000 males, and in case of slums the sex ratio improves to 881. Data indicates that sex ratio increases with the lower class of town, i.e. as we move from Class I to V it improves from 875 to 914. Contrary to this, literacy rate is higher in big towns than the small towns (Sandhu 2015).
- Cities of the state are characterized by overcrowding, inadequate housing, proliferating slums, inequality and polluted spaces. This type of unplanned development can be called as urban growth and not urban development.
- Deficits in basic services such as safe drinking water, reliable electricity, basic sanitation, public transport, etc., are some of its civic deficits.
- Deficit of basic services is more pronounced in small towns.

Solid waste management:

- There are 161 of Urban Local Bodies in the State of Punjab
- They generate 3900 MT Municipal Solid Waste daily
- Currently, 3 waste processing units are operational
- 09 Small ULBs identified for best practices
- Punjab Model Municipal Solid Waste Management Plan, 2014 for managing Municipal Solid Waste of all Urban Local Bodies of Punjab (India) on Public Private Partnership (PPP) mode for a concession period of 25 years.
- Under this Punjab Model Municipal Solid Waste Management Plan, 2014, a State Level Municipal Solid Waste Master Plan has been prepared.
- Punjab has been divided into eight Municipal Solid Waste Clusters, viz., i) Jalandhar Cluster, ii) Ludhiana Cluster, iii) Bathinda Cluster, iv) Ferozepur Cluster v) Patiala Cluster, vi) Amritsar Cluster vii) Pathankot Cluster and viii) GMADA Cluster.

- 02 clusters have waste processing plants, remaining 6 proposed in future.

Transport:

- Punjab is number 1, with highest number of deaths in road accidents in the country. Mainly because of lack of understanding of traffic rules, recklessness, driving under intoxication, over-speeding by the semi-literates.
- Ludhiana city has become 'deadliest' in India as far number of accidents and deaths due to accident are concerned.
- The share of public transport is 20 as against the basic standard of 50. Our cities either lack or have inadequate public transport system.
- Number of vehicles in Punjab has increased from 3.60 lakh to 57.11lakh in last three decade (from 1981 to 2011). Consequently, there has been tremendous increase in vehicular congestion (i.e. vehicles per lane kilometer) is 170 as against the norm of 112. Increase in vehicles also lead to air pollution.

Environment:

- Parks and open spaces stand at 1.2 square meters per capita as against the required standard of 9 sq.mt. In Ludhiana, Amritsar and Jalandhar open spaces and parks constitute only upto 1.6 per cent of the total developed area. It is all due to unplanned development and encroachments of public and open spaces in cities.
- Environmental pollution is another sphere of concern. It's higher in main cities/ industrial towns of the state.
- Water table is going down progressively.

Inclusiveness, sustainability, safety and resilience stand out as important.

- Regional imbalance in the process of development
- Disparities and inequities among different classes of cities, Class I cities, 18 in all, and the remaining 199 medium and small towns.
- Intra-city disparities and localities and slums.
- Negligible infrastructure to meet natural disaster.

Coming to systemic concerns, inclusiveness, sustainability, safety and resilience stand out as important.

With respect to inclusiveness, there are four major problems in Punjab: regional imbalance in development, rural-urban disparities, inequities among different classes of cities, and intra city disparities between posh localities and slums.

1. Regional imbalances are evident from privileged position of central zone (60 per cent urban population) cities along G.T. road while South-Western (25 per cent urban population) and North-Western (15 per cent urban population) regions of the state remain neglected. Similarly, there are significant differentials in access between Class I cities, 18 in all, they contain 60 per cent of the urban population of the state and the remaining 199 medium and small towns contain only 40 per cent as shown in Map-1.
2. Rural-urban disparities in access to resources and basic services are fairly evident from official as well as research-based data, with urban settlements having an edge over rural.
3. Slums with 14.04 per cent urban population are sites of marked inequities in access to infrastructure and basic services compared to other localities. Needless to add that slum population largely comprises of migrants, SC's, backward classes and other marginal groups.
4. There is an official tendency to own play the number and proportion of slums. This is done by means of limiting it to notified areas and blacking out the ground realities of irregular slum colonies.

The concern for sustainability has to be appreciated in view of the deteriorating state of air pollution and declining green cover in the cities and receding water table and vanishing forest cover in rural areas add to the problem of unsafe water known for unhealthy quality (cancer – prone) in some border areas of Punjab, especially Malwa, including Fazilka, etc. As for safety, with increasing incidence of road accidents, drug addiction, and other risk factors, it calls for remedial action. The absence of adequate information about our preparedness for nature disaster as well as man-made – concrete measures are yet to be taken.

GOALS AND TARGETS

Turning to poser II, it is about setting goals for Punjab by 2030, SDG 11 has already set the broad goals in terms of making cities and human settlements inclusive, safe resilient and sustainable. The thrust of SDG 11 is obviously on cities with other settlements implying squatter settlements, jhuggis and jhonparies, besides several other unauthorized settlements. In respect of the above referred

four goals, it may be proposed to take aim at achieving the basic standards approved by goal agencies for all sections of society. Viewed in terms of spheres, we have to take care of providing adequate infrastructure, inclusive access to basic services to all sections of society, a credible measure of safety for all, and above all, environmental and ecological sustainability. The sector-wise goals may be worked out in the light of our current status (for details see enclosed data sheet) in each sector and the standard to be achieved in each.

As far as inclusiveness is concerned, there is a need to correct the regional imbalances first. To this end, it is proposed to accord priority to south-western and north-western regions of Punjab, especially for purposes of infrastructural development and development of transport and growth corridors. Backward regions, including sub-mountain and border regions as well deserve special consideration for various purposes. Medium and small towns, similarly, merit special treatment as they have promising growth potential, among other things. Mandi towns and heritage based cities and towns as well deserve preferential treatment.

Rural-Urban disparities in infrastructural facilities and basic services merit urgent attention. Equally important is the goal of providing affordable housing to all within a specified time frame with priority to economically weaker and socially vulnerable sections. Another important priority goal is slum development with a view to making cities slum free.

With regard to sustainability, attending to the problem of cancerous water in some parts of Punjab is what deserves top priority. Similarly, receding ground water table is another priority area. Augmentation of green cover by planting trees may help the cause of meeting the goal of requisite forest and green cover. Promoting modern cooking solutions in rural areas also needs to be undertaken on a priority basis.

No less important are the concerns pertaining to road safety and disaster preparedness. The departments with essential basic services like water and power, as well as health and medical services, among others' have to be specially sensitized to keep themselves ever ready and alert to cope with such an emergency. In addition, what is needed is awareness generation among the people as well as adequate information to them about what to do when they are faced with a disaster situation.

STRATEGIES AND MECHANISMS

Moving on to poser III pertaining to strategies and mechanisms to achieve the above goals, there is a need for out-of-the-box thinking. First, our sectoral challenges pertaining to urban infrastructure and basic services- water, power, solid waste management, sewerage, pollution, housing, roads, public transport, etc., all require upgradation to meet the globally approved norms. At present there is no

policy for urbanization and urban development. Therefore, there is a need to devise a comprehensive policy for overall urban development and for developing the less developed regions and urban centers. Preparation of master plans (including micro plans) and their proper implementation require optimum utilization of land resources within urban areas. We also need to devise a policy of containing migration to bigger cities by rechannelizing its flow from the more developed to the less developed urban centres that have a potential for development.

The data are the basis of any policy and soundness of a policy depends on the quality of data. The existing state of database is problematic, as the data are not only inadequate but also unreliable. Therefore, data banks need to be created at a local level. In this case, help of Urban Statics for HR Assessments (USHA) should be taken to build data banks in every town of the state. USHA is a Central Government scheme which helps to create and monitor the data base under the Ministry of Housing and Urban Poverty Alleviation, Govt. of India. Therefore, upto-date data bank needs to be created at local and state levels. For better governance of cities Urban Local bodies should be empowered as per the 74th CAA.

For purposes of providing affordable housing for all a perspective plan may be prepared to meet the shortage of housing in urban areas at the state-level along with preparing city-level plans on the same lines. Making provision of earmarking 20-25 per cent developed land in all housing projects (both public and private) for urban poor may also be considered.

Our slum development policy may accord priority for prevention of slum formation by making it obligatory on industrialists, builders and others to provide reasonable accommodation well connected with basic services to their workers. Alternatively, they may be made to pay to the government for providing those basics to their workers.

Besides the above, some other measures that merit urgent consideration are: setting up a State Urban Development Commission, strengthening municipal capacities, better devolution of taxes, preparing time-bound measurable blueprints for our cities, especially for purposes of housing, slum improvement, reduction in disparities and promotion of inclusiveness, and managing air pollution and environmental upgradation.

Table 11.2
Target: Basic services

Basic services	Coverage by 2016	Programmes to achieve targets	3 years	7 years	15 years
Water Supply	90%	BUSP, AMRUT and JICA	100% coverage in 2 Metros and all class I towns	100% coverage of all class II towns	100% coverage of all towns of the state
Sewerage system	65%	Do/Sawach Bharat	do	do	do
Close Drainage	59%	do	do	do	do
Sewage Treatment	38%	Punjab urban dev. Mission Scheme/AMRUT	do	do	do
Solid Waste	46%	Do	do	do	do

Source: Census of India, 2011

Housing

Total Housing shortage in Punjab is 7,46,798 units including shortage of 2,80,050 units of urban housing, as per state govt estimates but a study (Sharma, Sandhu and Teotia 2012) estimated that real shortage of urban housing was 9,74,892 in 2011. Govt. intends to achieve the target through Pradhan Mantri Awas Yojna, BSUP, AMRUT and IHSDP and Housing for All by 2022 Mission programmes by 2022. However, it seems that it is not an achievable target even by 2030.

Slum upgrading

The state government document talk about eradication of slums and it is not an achievable target because of legal, financial and rehabilitation implication. Therefore we suggest the upgrading of slums at their present location. It will involve minimum disturbance and least financial resources and it can be done under BSUP and AMRUT schemes and Housing for all by 2022 schemes. More detail is given in the table. Upgrading of slums in state is possible by 2030 provided state is ready to follow the Central Govt. Schemes as per their guidelines for various types of grants under above mentioned schemes.

Table 11.3
Target : Slum Upgradation

Basic Services	Coverage by 2011	Programmes to achieve targets	3 years	7 years	15 years
Water Supply	70%	BUSP, AMRUT AND IHSDP	100% coverage in 2 Metros and all class I towns	100% coverage of all class II towns	100% coverage of all towns of the state
Sewerage system	58%	do	do	do	do
Closed Drainage	50%	do	do	do	do
LPG	67%	do	do	do	do

Source: Census of India, 2011

Smart City Scheme:

Ludhiana, Amritsar and Jalandhar are in the fray with the ranking of 19, 25 and 27th respectively, Ludhiana being already selected in the first round. The state targets to make these cities safe through ICT/CCTV and other technological interventions for safety of pedestrians, smart traffic systems for safety of motorists, etc., in addition to 100 per cent coverage of population by basic services by 2022.

Traffic and Transport

- Punjab has a large road network in the state but it is also number one in deaths due to road accidents. This could perhaps be reduced by the application of triple 'E', i.e. Education, Engineering and Enforcement.
- More effort should be made to improve existing public transport through AMRUT.
- Vehicular congestion can be reduced through making traffic and transport plans for all cities.
- Reduce the deaths from road accidents to half by 2030. For this adopt the strategy of stricter enforcement of traffic rules and equip the traffic police with necessary monitoring equipments and training.

Environment:

- Parks and open spaces have been squeezing with the increase in population of cities due to unplanned development in cities. There is urgent need to give top priority to planned development effectively and stringent measure to stop encroachments by influential persons on public land and open spaces in cities.
- Environmental pollution is the result of rapid urbanization, industrialization and increase of vehicles in urban areas. For more detail see SDG 6 and 15.
- It can be tackled by the Punjab Pollution Control Board through strictly enforcing and implementing its rules regarding pollution.
- Provide for air pollution monitoring systems in all major cities.
- Manage treatment and collection of all municipal solid waste, including bio-medical waste.
- Effective implementation of prohibition on burning dry leaves and other waste.
- Stricter enforcement of all laws regarding management of industrial waste.

Natural and Cultural Heritage:

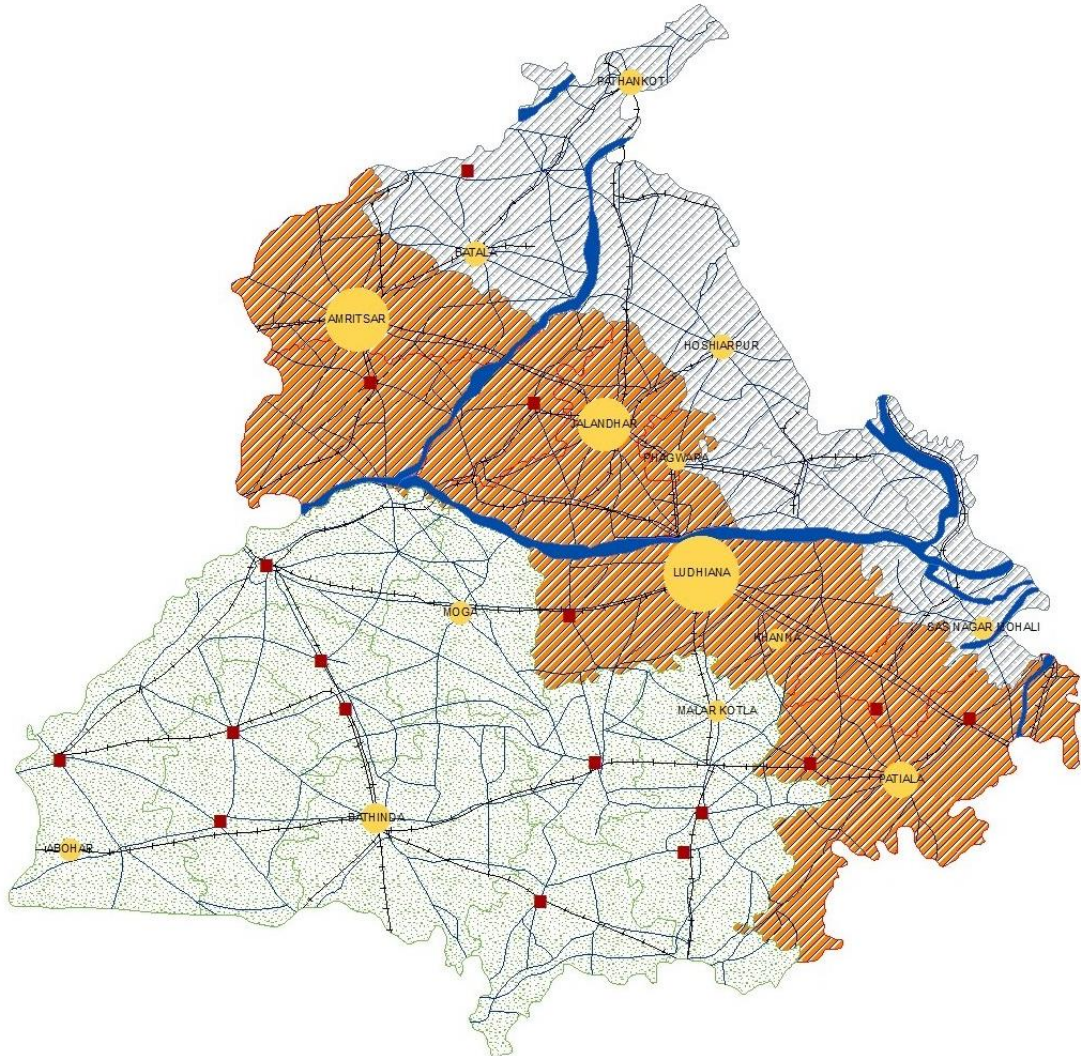
- There are many natural and cultural heritage sites in the state which attract large number of tourists and the government has constituted the Punjab Heritage and Tourism Promotion Board (PHTPB). Natural heritage has been discussed in detail in SDG 15.
- The state government is taking special interest in developing new historical monuments and protecting the old one.
- The Government of India is also helping states through The National Heritage Development and Augmentation Yojana (HRIDAY) that seeks to preserve and rejuvenate the rich cultural heritage of the country.

Preparedness:

Preventive action taken and its benefits: The government executed flood protection works ahead of the flood season.

- *Long term measures taken/proposed to be taken:* The state government executed a number of capital projects for controlling floods on permanent basis. New drains were excavated and some of the drains were reconditioned. Embankments, spurs and studs were constructed on river banks to tame the river water flow. The total cost of the projects was Rs. 51.28 crores and this amount was made available from the state budget. More and consistent effort is needed to combat the natural calamities.
- *Community participation and awareness programmes:* Tree plantation work was done in the river banks/bunds with the help of the people.

Map 1.1
Pattern of Geographical Distribution of Urban Population



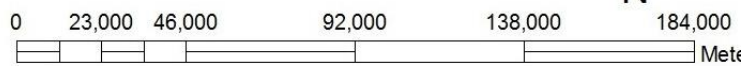
Legend

Class I Towns

Population



- Town
- River
- Railway Line
- Road
- North Eastern
- Central
- South Western



GOAL 11: SUSTAINABLE CITIES AND COMMUNITIES: MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

Target 2030: 11.1 Ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
HOUSING					
<ul style="list-style-type: none"> • Slum and informal settlements - Percentage of population in slums - Housing shortage - Water Supply population covered - Sewerage <ul style="list-style-type: none"> ○ Population covered ○ Sewerage treatment percent treated - Close drainage - Storm water drainage (road coverage) - Solid waste management percent managed 	<p>5.26 (2011)</p> <p>9,74,892 (2011)</p> <p>86%</p> <p>60%</p> <p>40%</p> <p>5-15%</p> <p>15%</p>	<p>100% coverage in 2 metros and all class-I towns</p> <p>100% coverage in 2 metros and all class-I towns</p> <p>100% coverage in 2 metros and all class-I towns</p> <p>100% coverage in 2 metros and all class-I towns</p>	<p>100% coverage of all Class II towns</p> <p>100% coverage of all Class II towns</p> <p>100% coverage of all Class II towns</p> <p>100% coverage of all Class II towns</p>	<p>100% coverage of all towns of the state</p> <p>100% coverage of all towns of the state</p> <p>100% coverage of all towns of the state</p> <p>100% coverage of all towns of the state</p>	<p>Slums constitute 14.04 of the urban population but vary from 1.05% to 69.27% share in different towns. The urban and slum population has grown sharply. In many towns slums have not been identified and notified effecting supply of basic facilities. Besides lack of infrastructure and basic amenities can include majority of class-II to Class-V towns as slums.</p> <p>Programmes to achieve targets</p> <ul style="list-style-type: none"> - BUSP, AMRUT and JICA, - Swachh bharat, Punjab Urban Development Mission Scheme - Swachh bharat, - Punjab Urban Development Mission Scheme

Target 2030: 11.1 Ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
- Parks and open spaces	1.2 Sq.km against 9 Sq.km				Programmes to achieve targets - BUSP, AMRUT and IHDSP - BUSP, AMRUT and IHDSP - BUSP, AMRUT and IHDSP - BUSP, AMRUT and IHDSP
• Slum Upgrading					
- Water supply		100% coverage in 2 metros and all class-I towns	100% coverage of all Class II towns	100% coverage of all towns of the state	
- Sewerage system		100% coverage in 2 metros and all class-I towns	100% coverage of all class-II towns	100% coverage of all towns of the state	
- Closed drainage		100% coverage in 2 metros and all class-I towns	100% coverage of all class-II towns	100% coverage of all towns of the state	
- LPG	100% coverage in 2 metros and all class-I towns	100% coverage of all class-II towns	100% coverage of all towns of the state		
Source: Census of India, 2011					

Target 2030: 11.2 Provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Road Safety • All weather roads - Percentage access within ___km to road - Vehicular congestion (vehicles/lane km)	170 (norm 112)				See SDG-16
Transport • Share of public transport	20 against a basic of 50	Source: See SDG-16			
Target 2030: 11.3 Enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Planning for Inclusive and Sustainable delivery of services for settlements					<p>Town Plan Development</p> <ul style="list-style-type: none"> • Map the slums in each town. • Map wardwise sanitation, water, housing and electricity infrastructure and supply under USHA scheme under Ministry of Housing and Urban <ul style="list-style-type: none"> - For Water and Sanitation, see SDG - 6 - For Energy, see SDG -7 <p>A policy to contain migration to big cities by rechannelizing its flow from the more developed to the less developed urban centres to be checked out.</p> <p>Earmark 20% developed land in all housing projects (both public and private) for urban poor. Make it obligatory on industrialists, builders and others to provide housing with services to their workers. Alternatively, they can to pay to government for providing these basics to their workers.</p>

Target 2030: 11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
HERITAGE PROTECTION Risk Reduction <ul style="list-style-type: none"> • Capital projects for controlling floods <ul style="list-style-type: none"> - Expenditure on river bank construction - Community participation in tree plantation on river bunds/banks. - Preservation of cultural and natural heritage 	51.28 crore				Religious and cultural cities/centres/sites to be identified and site specific preservation and risks to be mapped. Promotion of heritage/tourism to be part of plan to safeguard monuments and settlements.
Source: Town Planning, Government of Punjab, 2015					
Target 2030: 11.5 Significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Climate and non-climate issues					Control of water-borne disease, see SDG-4
Source: See SDG-4					
Target 2030: 11.6 Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Agriculture and Industrial waste control					See SDG-13,15
Source: See SDG-13,15					

**SDG 3:
GOOD HEALTH AND WELL-BEING: ENSURE HEALTHY LIVES
AND PROMOTE WELL-BEING FOR ALL AT ALL AGES**

1. Introduction

Punjab is one of the developed States of India. Health status and health care in the State, to a great extent, reflects the State's economic prosperity. In many aspects, Punjab has done better than the national average in many of the health outcomes. At the same time, given the State's economic development, relative progress with regard to health still needs to invest more in this sector as some other developed states have done much better than Punjab, both in health status and also in provision of accessible health care.

2. Health Status

Life expectancy:

Life expectancy in Punjab is ranked second in India. The male life expectancy is 73.2 years (67.3, India) while the female life expectancy is 77.6 years (69.6, India) in Punjab for the period 2011-15.

IMR:

IMR in Punjab has come down from 61 deaths per 1000 births in 1991 to 26 deaths in 2013. The IMR in Punjab has remained lower than the national average. Similarly, maternal mortality rate in Punjab stands at 141 (2013), much better than the national average of 167, however, Punjab's position in comparison to States like Tamil Nadu and Maharashtra, is poor, (2011-13).

3. Health Infrastructure

Primary Healthcare services in the rural areas of the State are provided through a network of medical institutions comprising of Sub-Centres (2858), SHCs/Dispensaries (1322), PHCs (395) and CHCs (129). Out of 1322 SHCs/Rural Dispensaries, 1187 Rural Dispensaries had been transferred to the Panchayati Raj Institutions (*Zila Parishads*). The performance of rural health infrastructure vis-a-vis the national norm is given in Table 3.1 (below). In case of coverage of doctors, Punjab has done better than the given national norm, however, regarding Sub-centre population, its coverage is less than the norm. Number of Sub centres in the State is higher than the national norm, but in the case of number of Primary Health Centres (PHC) under a Community Health Centres (CHC), the number in Punjab is lesser.

Table 3.1
Performance of Punjab and National Norm of Rural Health Infrastructure

	National Norm	Punjab
Population served per doctor	3500	1210
Population covered by Sub-Centre	3000-5000	5870
Number of Sub-Centres for each PHC	6 Sub Centres	7 Sub Centres
Number of PHCs for each Community Health Centre	4 PHCs	3.4 PHCs

Source: Punjab Draft Annual Plan 2012-13.

Apart from the primary healthcare services in the case of hospitals, Punjab has done much better than the national average (Commission on Macroeconomics and Health, 2005). But, this aggregate picture does not capture the inequality within Punjab. Across the districts, there is a wide variation in the coverage of health infrastructure as well as health personnel (Table 3.2).

Table 3.2
Health facilities across Punjab's Districts

	Population Served per Institution	Population Served per Bed	Population Served per Doctor	Population Served per Midwife	Population Served per Nurse
Shri Muktsar Sahib	12055	1475	5341	4029	547
Ferozpur	14590	1584	2275	1137	591
Amritsar	16846	758	976	883	560
Patiala	14816	921	555	1610	841
Pathankot					
Fatehgarh Sahib	11661	1161	6005	5722	532
Tarn Taran	12391	1388	1122	656	550
Bathinda	12712	1364	991	1021	1098
Moga	12226	1581	5150	1148	458
Gurdaspur	12471	1407	1671	520	555
Ludhiana	25083	2215	855	574	429
Kapurthala	10566	1031	1448	1418	672
Mansa	12954	1527	3756	705	515
Sangrur	13607	1527	1555	1130	1106
SBS Nagar	8339	876	3851	2662	383
SAS Nagar (Mohali)	13165	1853	4009	1265	616
Faridkot	16099	758	520	348	293
Hoshiarpur	10625	1087	1282	554	598
Jalandhar	12969	1253	801	1127	594
Nawanshahr					
Rupnagar	12084	1091	907	456	475
Barnala	10591	1292	1580	1194	544
Fazilka					
Punjab	13512	1251	1170	834	565

Source: Calculated from Statistical Abstract of Punjab for various years.

3.1 Quality of Health Services in Punjab

District Level Household and facility survey (DLHS) for 2012-13 reveals that at the sub centre level, Punjab's performance as compared to other developed States like Maharashtra and Tamil Nadu, is not encouraging. In case of the presence of ANM in sub-centres, 74 per cent of the sub-centres have reported the presence of ANM in Punjab and is placed second after Maharashtra for the sub-centres with ANM.

Availability of health services at the Primary Health Centre level are highly inadequate as compared to other developed states. 53 per cent of PHCs are functioning on 24x7 basis which is lowest across the developed States. In case of residential facility for medical officer as well as presence of at least four beds in PHC, Punjab's performance in comparison to other developed States has been worst. Eighteen per cent of PHCs in Punjab have residential quarter for medical officer, whereas in a State like Maharashtra, it is 87 per cent. In other services, such as, new born care services or referral services for pregnancies/delivery on 24 X 7 hours basis, Punjab's performance has been comparable to other developed States. But again, in terms of rank, Punjab occupies the 3rd and 4th position for both the indicators.

Table 3.3
Facilities at Sub-Centres (2007-08 and 2012-13)

	Sub-Health Centre located in government building		Sub-Health Centre with ANM	
	2007-08	2012-13	2007-08	2012-13
Haryana	54.9	57.7	51.8	58.2
Maharashtra	70	83.6	93	94.8
Punjab	56.1	60.7	79.7	73.7
Tamil Nadu	72.2	75.5	99.8	33.9

Source: International Institute for Population Sciences (IIPS), 2012-13, State Factsheet District Level Household and Facility Survey (DLHS-3), 2012-13: India. Mumbai: IIPS

Table 3.4
Facilities at Primary Health Centre, 2012-13

	Haryana	Maharashtra	Punjab	Tamil Nadu
PHCs functioning on 24 X 7 hours basis	79.3	64	53.1	94.1
PHCs having Lady Medical Officer	34.2	32	37.2	69.4
PHCs with at least 4 beds	75.7	96	65.3	67.7
PHCs having residential quarter for Medical Officer	47.9	87.4	18	18.7
PHCs having new born care services on 24 X 7 hours basis	91.1	94.9	94.1	94.2
PHCs having referral services for pregnancies/delivery on 24 X 7 hours basis	65.6	67.2	60.5	89.1
PHCs conducted at least 10 deliveries during last one month on 24 X 7 hours basis	74.3	50.7	62.7	51.4

Source: International Institute for Population Sciences (IIPS), 2012-13, State Factsheet District Level Household and Facility Survey (DLHS-3), 2012-13: India. Mumbai: IIPS

When it comes to facilities at the Community Health Centres (CHC) level, Punjab has not fared too badly in most of the parameters. The State average is comparable with other developed States with the only exception is being the availability of anaesthetists (Table 3.5). Punjab also lacks in case of new born care services as only 72 per cent of CHCs have this facility in Punjab. Whereas, in Tamil Nadu, it is 84 per cent, 91 per cent in Haryana and 87 per cent in Maharashtra.

Table 3.5
Facilities at Community Health Centres (2012-13)

	Haryana	Maharashtra	Punjab	Tamil Nadu
CHCs having 24 X 7 hours normal delivery services	100	98.4	95.8	99
CHCs having Obstetrician/Gynaecologist	13.2	43.4	34.2	34.3
CHCs having Anesthetist	8.5	27.3	14.2	40.3
CHCs having functional Operation Theatre	46.2	91.6	76.7	72.4
CHCs designated as FRUs	71.7	75.1	75.8	88.8
CHCs designated as FRUs offering caesarean section	14.5	48.7	56	27.4
CHCs having new born care services on 24 X 7 hours basis	91.5	86.8	72.5	83.6

Source: International Institute for Population Sciences (IIPS), 2012-13, State Factsheet District Level Household and Facility Survey (DLHS-3), 2012-13: India. Mumbai: IIPS

At the hospital level, vis-a-vis other developed States, the situation appears to be mixed. In case of paediatricians it was present in 90 per cent of the district hospitals in Punjab, which is the lowest across the developed States. Similarly, in case of 2D echo facility, we see the same pattern. In rest of the indicators, Punjab has been placed third among the four States. So, even though there has been considerable economic progress in the States, it still lags behind the other developed States in assuring quality health service.

Table 3.6
Facilities at District Hospitals (2012-13)

	Haryana	Maharashtra	Punjab	Tamil Nadu
DHs having Paediatrician	95.2	97.4	90	90
DHs having regular radiographer	38.1	79.5	50	50
DHs having 2D Echo facility	38.1	38.5	15	73.3
DHs having Ultrasound facility	90.5	92.3	90	93.3
DHs having three phase connection	100	100	100	100
DHs having critical care area	76.2	89.7	51.7	46.6

Source: International Institute for Population Sciences (IIPS), 2012-13, State Factsheet District Level Household and Facility Survey (DLHS-3), 2012-13: India. Mumbai: IIPS

Availability of facilities at the sub-centre and PHC level in Punjab is much below the national average, except in availability of equipment at sub-centre level and beds at the PHC level. Based on the norms for facilities at the CHC level, Punjab is at least around or marginally above the national average. The situation appears to be much better in Punjab for secondary and tertiary care.

3.2 Progress under National Rural Health Mission

The National Rural Health Mission (NRHM) implemented across the country, among its various objectives, aims at improving the health infrastructure and involves local communities in the promotion of health. Some of the basic agenda of this mission launched in 2005, aimed at improving the RCH programme, upgradation of health facilities and increasing people's participation in making health plans and also in the implementation of the health programmes. Janani Suraksha Yojana (JSY) has been made an integral component of NRHM to promote institutional delivery by using cash incentives. Similarly, upgradation of PHCs into 24 X 7 service centres has been other prime agenda of this mission. Introduction of community-based health worker, also known as Accredited Social Health Activist (ASHA) and involvement of Panchayat in health functioning at the village level by creating village Health & Sanitation Committee (VHCS) are some of the efforts undertaken under NRHM.

Antenatal Care is one of the important component of the safe motherhood programme under NRHM. Fifty eight per cent of women in Punjab have three or more visits for ANC with large district variations. Across districts we do see variation as Rupnagar, Fatehgarh Sahib, SAS Nagar and Jalandhar have performed way above the State average, whereas the coverage in Mansa, Ferozepur, Muktsar and Sangrur has been lower. Even in case of institutional delivery, we see variation across districts ranging from more than 90 per cent to 75 percent with the State average of 87 per cent.

The interface between the community and the public health system at the village level is entrusted to a female Accredited Social Health Activist (ASHA), a health volunteer receiving performance based compensation for promotion of universal immunisation, referral and escort services for reproductive & child health (RCH), construction of household toilets, and other healthcare delivery programmes. According to norm, each village should have one ASHA, in Punjab on average, 95per cent of the villages reported the presence of ASHA. NRHM foundation is built around the community involvement in drawing a village health plan under the auspices of Health & Sanitation Committee (VHCS) of the Panchayat, making rural primary healthcare services accountable to the community and giving authority to the District Health Mission for the implementation of inter-sectoral District Health Plan including drinking water, sanitation, hygiene and nutrition. Overall, in Punjab, only 25 per cent of villages had VHSC, and there were tremendous differences across the districts.

Table 3.7
Selected indicators of progress under NRHM across districts in Punjab (2012-13).

Districts /State	Pregnant women who had three or more ANC visits	Institutional delivery	Received full vaccination	Percentage of villages having ASHA	Percentage of Villages having Village Health Nutrition and Sanitation Committee (VHNSC)	PHCs functioning on 24 X 7 hours basis
Punjab	57.7	82.7	68.4	94.7	58.2	53.1

Source: International Institute for Population Sciences (IIPS), 2012-13, Factsheet District Level Household and Facility Survey (DLHS-3), 2012-13: India. Mumbai: IIPS

5. Morbidity and Utilisation of Health Services

Despite being a developed Indian State, Punjab has a relatively higher prevalence of diseases.

Table 3.8
Inter and Intra state comparison of Cases and Deaths due to different Diseases

Total incidence of cases and deaths			Acute Diarrheal Diseases		Malaria		Acute Respiratory Infections		Viral hepatitis	
State	Total cases (%)	Total deaths (%)	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Punjab	847661 (1.91)	38 (0.56)	197059 (23.25)	27 (71.05)	1667 (0.20)	0 (0.00)	645612 (76.16)	11 (28.95)	3323 (0.39)	0 (0.00)
India	44458973	6799	11701755 (26.32)	1647 (24.22)	953710 (2.15)	446 (6.56)	31684 628 (71.27)	4155 (61.11)	118880 (0.27)	551 (8.10)

Source: Statistical Year Book, India 2014, Ministry of Statistics and Programme Implementation.

Note: Figures in brackets are percentages to total cases of diseases and deaths.

In Punjab, highest deaths are due to acute diarrhoeal diseases while for India respiratory infection result in the highest deaths. (table 3.8).

Analysis from NSSO data for various rounds, clearly show that Punjab not only faces the challenges of lifestyle related diseases that is common in developed societies, but there is a wide incidence of diseases that are prevalent due to poverty and weak sanitary conditions also. In Punjab's rural areas, out of total morbidity, 33 per cent of the communicable diseases was reported, while the national average for the same was 42.4 per cent. The share of non-communicable diseases was 31 per cent, higher than the national average of 21 per cent. In urban areas share of communicable disease in the state was 40 per cent much higher than the national average of 33 per cent. The share of non-communicable diseases was 33 per cent lower than the national average of 38 per cent

Morbidity data from the government source also shows prevalence of infectious and parasitic diseases in the State. Infectious and parasitic disease is one of the top four diseases, both for outpatient and inpatient treatment in the government health institutions in the State. If we look at the cause of death, the share of infectious and parasitic diseases is 24 per cent.

Further, the number of patients treated indoor and outdoor in Punjab has been given in Table 11.9.

Table 3.9
Patient Treated for Inpatient and Outpatient in Punjab.

	Outdoor Patient Share	Indoor Patient Share	Death share
Infectious and parasitic diseases	7.6	8.2	24.0
Neoplasm's	0.2	0.9	1.8
Diseases of blood and blood forming organs	2.7	2.0	4.4
Nutritional and Metabolic Diseases	6.0	2.9	3.0
Mental Disorders	1.2	1.3	0.4
Diseases of the nervous system and sense organs	0.7	0.8	2.0
Eye and Odenexa	0.2	4.6	1.5
Ear and Masoid	0.1	0.3	0.0
Diseases of the circulatory system	6.2	4.8	0.2
Diseases of the respiratory system	2.9	0.8	0.2
Diseases of the digestive system	5.1	4.9	18.4
Skin and Sub- coetaneous Tissue	8.4	1.3	0.3
Muscular Skelton system and connective tissue	4.2	0.9	0.1
Diseases of genito-urinary system	15.2	5.6	10.9
Complication of pregnancy, childbirth and the puerperium	9.6	4.9	5.8
Prenatal Period	1.8	14.5	2.4
Congenital anomalies	3.2	4.6	2.2
Abnormal clinical and laboratory finding	10.1	8.8	5.5
Injury and poisoning	4.0	9.3	0.9
External causes of morbidity and mortality	1.1	10.3	7.7
Others unspecified	9.5	8.3	0.0
Total	100	100	100

Source: Statistical Abstract of Punjab, 2012-13, Government of Punjab

Such morbidity patterns suggest that diseases related with lifestyle conditions and conditions of work are very significant in Punjab. Significantly, disease patterns within the State show that, even now, a large portion of the diseases are communicable in nature.

Punjab not only faces the challenges of lifestyle related diseases but diseases are also prevalent due to poverty and weak sanitary conditions.

6. Health Financing and Burden of Out of Pocket Expenditure in Punjab

Health expenditure (Revenue + Capital) in Punjab has increased at an absolute level. In 1990-95, per capita health expenditure stood at Rs.174 and, it increased to Rs.324 in 2005-10. Punjab had the distinction of having highest per capita health expenditure from 1990 to 2004-05, but in the year 2005-2010, there has been a slip in the rank of the State to sixth place (Table 3.10). The year 2005-2010 also includes the expenditure under the National Rural Health Mission (National Rural Health

Mission)¹. NRHM has categorised States into two groups: focus States and non-focus States. All the eight north-eastern States are focus States and 10 large and financially weak States (Berman and Ahuja, 2008). Although Punjab does not fall under focus States, but other developed States of the country like Tamil Nadu have done much better in terms of health expenditure and is ranked 2nd after Kerala in 2005-2010.

Table 3.10
Per Capita Health Expenditure in Punjab and Other Major States of India

State	Per Capita Health Expenditure**				Rank of the State			
	1990-91 to 1994-95	1995-96 to 1999-2000	2000-01 to 2004-05	2005-06 to 2009-2010*	1990-91 to 1994-95	1995-96 to 1999-2000	2000-01 to 2004-05	2005-06 to 2009-2010*
Andhra	113.0	133.3	166.4	224.2	10	10	5	14
Assam	131.8	121.3	132.2	377.3	4	12	11	3
Bihar	106.7	98.5	85.7	155.1	13	14	15	15
Gujarat	118.6	159.6	145.8	265.6	9	4	9	11
Haryana	119.0	136.5	138.2	322.6	8	7	10	7
Karnataka	123.1	152.5	171.7	343.1	7	6	4	4
Kerala	159.5	183.7	228.2	438.4	2	2	2	1
Maharashtra	126.3	136.0	166.3	309.11	6	8	6	8
MP	111.2	130.8	113.2	242.0	12	11	13	13
Orissa	100.7	106.3	125.9	250.9	14	13	12	12
Punjab	173.8	195.6	229.5	324.0	1	1	1	6
Rajasthan	126.8	159.0	158.7	332.0	5	5	8	5
Tamil Nadu	149.5	175.6	181.0	382.7	3	3	3	2
UP	99.5	93.5	95.0	281.9	15	15	14	9
WB	112.9	133.8	162.8	277.4	11	9	7	10

*Post NRHM period

**Health expenditures are in constant 1999-2000 prices

Source: RBI Bulletin various years and National Rural Health Mission (Online) available at <http://www.mohfw.nic.in/NRHM.htm> Accessed on 10th March 2012

¹In April 2005, the prime minister launched NRHM, committing the national government to increased and more effective health spending. Over 60 per cent of all central government health allocation is now routed through NRHM.

Table 3.11
Health Expenditure as a Share of Total Expenditure

State	1990-91 to 1994-95	1995-96 to 1999-2000	2000-01 to 2004-05	2005-06 to 2009- 2010
Andhra	4.77	4.76	2.27	1.20
Assam	5.09	4.81	2.94	0.58
Bihar	5.60	5.45	2.86	1.01
Gujarat	4.25	4.39	2.02	0.77
Haryana	3.06	3.08	1.76	0.67
Karnataka	5.07	5.25	2.72	0.90
Kerala	5.66	5.29	3.17	1.36
MP	4.75	4.74	2.78	0.82
Maharashtra	4.36	3.95	2.95	1.13
Orissa	4.61	4.52	2.97	0.66
Punjab	4.15	4.33	2.92	0.94
Rajasthan	5.43	5.66	2.89	1.02
Tamil Nadu	5.33	5.50	2.78	0.82
UP	5.18	4.69	2.20	0.79
WB	6.57	5.96	2.84	1.02
All States	5.03	4.90	2.75	0.95

Source: RBI Bulletin various years

Health expenditure in Punjab as a share of total expenditure has come down from 4.15 per cent in 1990-95 to 0.95 per cent in 2005-2010 (Table 3.11). However, this declining trend is not exclusive to Punjab, as a similar trend can be seen across all the major States of the country. But one thing to be noticed is the share of health expenditure in the State that has been lower than the all State average in all the time periods. There has been a decline in the share of health expenditure out of NSDP in Punjab between 1990-95 and 2005-2010, as it has come down from 0.80 per cent to 0.72 per cent. Health expenditure, as a share of NSDP in Punjab, has been lower than the national average. For the year 2005-10, the national average was 1.04 per cent as compared to 0.72 per cent of Punjab and across the major 15 States of the country, Punjab ranked 13th in 2005-10. In fact, for all the time period, the rank of Punjab hovered around 12 per cent and 13 per cent clearly highlighting the low priority of health sector in overall economic development of the State (table 3.12).

Table.3.12
Health Expenditure as a Share of NSDP

State	1990-91 to 1994-95	1995-96 to 1999-2000	2000-01 to 2004-05	2005-06 to 2009-2010*
Andhra	0.95	0.94	0.92	1.01
Assam	1.10	0.98	1.00	1.92
Bihar	1.86	1.78	1.32	1.65
Gujarat	0.85	0.87	0.72	0.73
Haryana	0.61	0.63	0.50	0.58
Karnataka	1.02	0.99	0.94	0.98
Kerala	1.12	1.03	1.03	1.03
Maharashtra	0.74	0.64	0.69	0.66
MP	1.18	1.18	0.98	1.34
Orissa	1.13	1.08	1.11	1.09
Punjab	0.80	0.82	0.86	0.72
Rajasthan	1.20	1.21	1.14	1.49
Tamil Nadu	1.07	0.99	0.87	0.97
UP	1.16	0.98	0.96	1.77
WB	1.00	0.94	0.91	0.89
Average of Major States	1.02	0.95	0.89	1.04

*Post NRHM period

Source: CSO, RBI Bulletin and National Rural Health Mission (Online) available at <<http://www.mohfw.nic.in/NRHM.htm>>
 Accessed on 10th March 2012

6.1 Catastrophic Expenditure on Health in Punjab

Out of pocket expenditure at the household level to a great extent depends upon the health subsidy provided by the government. According to the national health accounts for the year 2004-05, 76 per cent of health expenditure in Punjab is made by the households and only 18 per cent is undertaken by the government (Table 3.13). Public expenditure in Punjab is below the national average and the share of household expenditure in health expenditure is marginally above. Expenditure on health by private firms, NGOs and foreign agencies in Punjab is 1.5 percentage points more than the national average. Even though, public expenditure is a small component of the overall health expenditure (national average of 22 per cent), it is still the most significant expenditure that contributes to the creation of health infrastructure and impacts public health.

Table 3.13
Share of Households, Governments and Others in Health Expenditure

States	Household expenditure as% total Health Expenditure	Public Expenditure as% of total health expenditure	Other Expenditure as% of total health expenditure
Andhra Pradesh	73.38	19.39	7.29
Assam	80.84	17.78	1.38
Bihar	90.17	8.3	1.53
Gujarat	77.51	15.78	6.71
Haryana	85.03	10.56	4.4
Karnataka	70.36	23.18	6.46
Kerala	86.3	10.8	2.9
M.P.	83.41	13.63	2.96
Maharashtra	73.34	22.1	4.55
Orissa	79.04	18.02	2.93
Punjab	76.05	18	5.95
Rajasthan	70	24.5	5.5
T.N.	60.67	26.61	12.72
U.P.	84.28	13.02	2.7
W.B.	78.38	17.27	4.36
All India	73.5	22	4.46

Source: Report of the National Commission on Macroeconomics and Health, page 70.

Health Care: An Overview

Low public expenditure on health (0.89 per cent of GSDP)

Highest cost of hospitalisation (Rs 31,978) and outpatient treatment (Rs 639) per episode of illness in Punjab.

55.7 per cent of households with hospitalisation undergo catastrophic expenditure.

75 per cent hospital beds in public sector, but 70 per cent hospitalisations in private sector.

Only 20 per cent outpatient care sought in public sector.

Draft National Health Policy 2015, but No State Health Policy

HEALTH STRATEGY

The indicator specific target strategies will be addressed through a reorganization and strengthening of an institutional frame which is detailed below:

1. Restructuring of Government Health Institutions

Health institutions to be divided into three basic categories

- Primary Care Centres (at the mini PHC level) to cater to clinical services, emergency support 24x7 and basic reproductive services. Infrastructure, facilities and staff for elementary diagnostic services, emergency and medicines needed for regular use to be available at the Primary Care Centres.

- These to include elementary indoor facilities and emergency transportation vehicles, fitted with modern life-saving equipment for transport of patients to FRUs in case of emergency.
- First Referral Units (FRUs)
 - FRUs to be full fledged diagnostic centres with range of specialties. Current PHCs and/or CHC's can be converted into FRUs with additional FRUs to be created.
 - At FRUs, IPHS code to be followed for norms and facilities.
- Hospitals or Multi-Specialty Hospitals
 - The third tier of healthcare to be at the level of hospitals and multi-specialty hospitals.
 - By 2030, the Indian Public Health Standards (IPHS) to be achieved and the number of health facilities should be increased so that the norm of at least 5 beds per 1000 population is achieved by 2030.
 - Administrative structure to be realigned in terms of staff, service and infrastructure efficient and effective delivery. It is spread under various agencies – PRI, PHSC, DHS, NRHM, and various special initiatives under national disease control programs. Doctors and specialist gaps can be filled through this restructuring. Develop capacity of staff to link health and management skills, upgrade skills to new technologies delivering trauma and counselling services
 - For a holistic approach, to avoid duplication of services, segmentation of treatment and dilution of technical capacity revamp the institutional arrangement of Central and State Ministries which is spread to departments of Health, Family Welfare and Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH)
- Emergency Medical Response System
- Minimum of 15 hospitals in different parts of Punjab to be made functional with special focus on emerge services.
- Catchment area for ambulance to be marked
- Redesigning of round-the-clock emergency services in strategically located primary health centres should be done, keeping in view that the travel time by ambulance is within about half an hour from the patients' home to hospital.

2. Health Workforce:

Health Department employs a large workforce, however, human resource production and management systems are yet to be modernised. Admissions to medical and allied health

professional courses is yet to achieve an egalitarian character. Training programs conducted in tertiary care institutions are largely theoretical and there is less emphasis on acquiring practical skills required for service delivery by a solo practitioner in remote rural health centres. Family Medicine, Community Medicine, and Public Health specialities have not been able to produce enough human resources for health services. There is a need to stress on family medicine as they will be like GP of the past. The education system for production of allied health professionals has not kept pace with the wide variety of skills requirements generated by the modern health care system. It needs to be given priority.

Recruitment, placement, transfer and skill-upgradation are usually done on ad-hoc basis. Performance assessment systems are largely subjective. The density of health workforce per 1000 population is still very inadequate. Opportunities for health service staff especially medical officers to pursue higher education after serving in difficult areas is a positive feature of Punjab. However, opportunities for higher education courses are less for the paramedical staff. For example, AWW, ASHA, ANM do not have much scope of promotion to higher levels due to lack of opportunity for admission to higher courses. A primary health care or a public health course at bachelor level could open doors of higher education to them. BSc Community Health conceived by MCI has been approved by the central government.

An electronic personnel management system can be of great help in human resource management. IPHS norms of staffing must be implemented soon. ASHA can be empowered to provide first aid round the clock in the village, and sub-centre can be upgraded to provide ambulatory clinical services at least for 6 hours every day of the week, every primary health centre can be upgraded to provide round the clock emergency services to population by pooling allopathic and AYUSH services under the supervision of a community medicine/family medicine doctor and by placement of a health assistant with bachelor of public health degree to manage health programs. Community health centres can be manned by a group of about 5 family medicine doctors who can have multiple medical and surgical skills. Allopathic and AYUSH medical systems can be integrated by developing a common foundation course for them by 2030.

3. Act to regulate private health service-providers to be passed.

Government caters to only 18 percent of household expenditure on health. For the poor the unregulated private sector is financially debilitating, unreliable in cost and service provided with profit rather than care the guiding factor. There are a range of service providers from quacks to private hospitals but there are no norms to measure good quality medical services and minimum standards and requirements of hospitals, nursing homes and multi-speciality health care units. The

Act to include: Compulsory registration of private medical establishments; charges payable for different medical treatments and services to be made public; the names of the government doctors and paramedical staff working in private establishments to be listed with responsible committee and clinical records relating to treatment and procedures for patients to be maintained and opened for inspection.

4. Smart Governance:

It is not easy to track every health transaction in hundreds of hospitals and health centres spread across every village, town and city of Punjab, where thousands of health professionals and support staff require supply of vaccines, medicines, and diagnostics on a regular daily basis to perform their assigned duties.

Information technology (IT) solutions are needed for recording and reporting of every health transaction so that an appropriate dash board of indicators can guide decision making at various levels of administration. Online system for storing, distribution, and monitoring of the stocks of medicines, and other essential supplies has been initiated, which needs to be extended to other stores to build an inventory of medical equipment availability and functionality. Online bidding process or rate contracts may reduce procurement delays. Rate contracts of other government institutions may be adopted after review by a committee.

Vital events including cause of death recording and reporting in Civil Registration System can be made a part of e-governance. A dynamic searchable e-database of all health facilities with the type of services offered with a price list should be maintained by the State. In due course, the recording and reporting of each healthcare transaction in the electronic personal health record should be achieved by 2030.

An 'independent' agency or authority should be created to carry out health surveillance by conducting periodic facility and household sample surveys at 3 to 5 year interval for assessment of inputs, processes, outputs, and outcome indicators of SDG 3, and the findings should be put up on website for wider dissemination.

5. Health Financing:

Public expenditure on health is very low in Punjab (0.89 per cent of SGDP). Current per capita government expenditure on health is only Rs 1,441. Whereas Punjab has highest cost of hospitalisation (Rs 31,978) and out-patient treatment (Rs 639) per episode of illness in the country. Out of the households which had hospitalisation during the year, 55.7 per cent had incurred

catastrophic expenditures. About 80 per cent out-patient care and 70 per cent in-patient care were in private sector.

Smart governance should aim to produce more health for the allotted money, however, large investments are needed to revitalise government health sector. There is a fiscal space to increase health budget every year with an aim to have allocation of about Rs 15,000 crore per year i.e. about Rs 5,000 per capita by 2030 so that about 50 per cent need for out-patient and in-patient care can be met from government health institutions, and on an average out-of-pocket expenditure can be reduced to about Rs 200 on out-patient and about Rs 5000 on in-patient care at current prices.

Impact of insurance schemes offering increased financial coverage (RBSK, RSBY, BPSSBY, MMPCRKS, JSSK etc.) should be evaluated, and duplication of expenditure should be avoided, i.e., private health institution should be paid for selected services which are not yet available in government sector or government institutions are not yet able to cope up with the increased patient load. Public sector should compete with private sector to gain the benefits. A district health fund can be created to purchase selected services from private sector whenever needed at a rate contract fixed by the state government on the lines of CGHS. When government hires services from private sector, often patients land up paying out of their pockets extra amount for services and health aids.

GOAL 3: GOOD HEALTH AND WELL-BEING: ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

Target 2030: 3.1 Reduce the global maternal mortality ratio to less than 70 per 100,000 live births					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Reduce maternal mortality ratio to <70/100,000 live births by 2030	141 (2015)	115	85	60	<ul style="list-style-type: none"> • Increase quality of maternity care (ANC, INC and PNC) <ul style="list-style-type: none"> - Improve percentage of births attended by skilled health personal from present 97 (2015) to 100%; Antenatal care coverage to all from present to 64.6%, to all (and increase to atleast four visits) post-natal care coverage for all from present 55.7% (2015)). Promote PMSMS for listed checkups under scheme. • Reduce Anemia <ul style="list-style-type: none"> - Coverage of iron-folic acid supplements for all pregnant women from present 2.3% (2015) - Improve women consumption of 10 defined food groups through nutrition surveillance of women in 15-49 age groups (ANM to coordinate mapping and tracking of all women in ICDS locality. Follow state guidelines for Anaemia correction. - Thyroid checking of all pregnant women to be maintained. - Launch state campaign on nutrition. - Improve health facilities.
Percentage of women of reproductive age (15-49) with anaemia	52.7% (2015)	35	25	15	
Source: Civil Registration System 2015, National Family Health Survey 2015-2016					

Target 2030: 3.2 End preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Neonatal mortality rate/1000 live births	24 (SRS, 2012)	18	13	11	<p>Reduce infant mortality rate, still birth rate and under 5 mortality rate by improving immunization coverage from 68.4 to 100% and below 6 months to be exclusively breast fed.</p> <ul style="list-style-type: none"> - Strengthen RBSK so that each child born is examined by trained person for four D's. - Improve incident rate of diarrhoea in >5 from 3.7 to 1; - Improve percentage of >5 with fever who are treated with appropriate anti-malaria drugs to 100 from 92.2%; - Improve shunting from 28.8% to 10% and wasting from 21.1% to 5% - Ensure free treatment for girl child upto 5 years of age. <p>Targets to be achieved by improved service delivery in reorganized health structures and with a focus on girl children.</p> <ul style="list-style-type: none"> - Increase NBS units from 56 to 78 - Increase NBCC units from 208 to 400 - Enhance capacity for early recognition, management and referral of neonatal and childhood ailments: Free Treatment in public hospitals for girls & boys registered in Anganwadi Centres and State Schools <p>Ongoing: Infrastructure to be strengthened under NBS and NBCC, free girl child treatment.</p>
Source: Sample Registration System, 2012					

Target 2030: 3.3 End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
HIV infections per 1,000 uninfected population by age, sex and key populations - Percentage of new infections	2 (15+ age group)	1.50	0.50	0	<ul style="list-style-type: none"> - Improve treatment rate from 69% to 100%. - Intensify HIV prevention through targeted interventions especially among IDUs & MSM, FSWs, TGs - Improve condom use to 100% for all (FSW use is 96.1; MSM use is 74.8%; by IDU users is 46.4) - Improve detection rate by annualized new smear positive case detection.
- HIV prevalence percentage	0.32	0.29	0.25	0.20	
- Treatment rate percentage	69%	72.5%	85%	100%	
- Mortality (AIDS deaths)	523	225	50	0	
Tuberculosis incidence per 1,000 population	Data to be generated				<ul style="list-style-type: none"> - Improve percentage of cured under directly observed treatment short course from 84% to 100%. Link DR-TB facilities in all PHCs. Install TB centres in all district hospitals - ABER to be maintained at 10% - Ensure availability of vaccines and drugs for Hepatitis, HIV, TB, Malaria, Rabies - Enabling community based monitoring system for outbreak reporting (Alert Villages). - Strengthening of Integrated Disease Surveillance Project (Public Health Laboratory in each district)
Malaria incidence per 1000 population	0.022	Malaria elimination	Malaria elimination	Malaria elimination	
Hepatitis B incidence per 1,00,000 population	Data to be generated				
Hepatitis B vaccine coverage under UIP from 86% to 100%					
Dengue incidence	14,128 cases	Reduce cases by 35%	Reduce cases by 50%	Reduce cases by 75%	
	18 deaths (2015)	Reduce deaths by 100%	Maintain no deaths	Maintain no deaths	

Target 2030: 3.3 End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Hepatitis B	3.7% (2014)	Reduce cases by 25%	Reduce cases by 50%	Reduce cases by 75%	<p>New Initiative: Restructuring of Government Health Institutions</p> <p>Health institutions to be divided into three basic categories</p> <ul style="list-style-type: none"> • Primary Care Centres (at the mini PHC level) to cater to clinical services, emergency support 24x7 and basic reproductive services. Infrastructure, facilities and staff for elementary diagnostic services, emergency and medicines needed for regular use to be available at the Primary Care Centres. <ul style="list-style-type: none"> - These to include elementary indoor facilities and emergency transportation vehicles, fitted with modern life-saving equipment for transport of patients to FRUs in case of emergency. - Surveillance of neglected diseases (Scrub typhus, leptospirosis, brucellosis etc.) - Inter-sectoral Plan for control for zoonotic diseases (rabies, brucellosis, leptospirosis, bird flu etc.) • First Referral Units (FRUs) <ul style="list-style-type: none"> - FRUs to be full fledged diagnostic centres with range of specialties. Current PHCs and/or CHC's can be converted into FRUs with additional FRUs to be created. - At FRUs, IPHS code to be followed for norms and facilities. • Hospitals or Multi-Specialty Hospitals <ul style="list-style-type: none"> - The third tier of healthcare to be at the level of hospitals and multi-specialty hospitals. - Administrative structure to be realigned in terms of staff, service and infrastructure efficient and effective delivery. It is spread under various agencies – PRI, PHSC, DHS, NRHM, and various special initiatives under national disease control programs. Doctors and specialist gaps can be filled through
Hepatitis C	5.2% (2014)	Reduce cases by 25%	Reduce cases by 50%	Reduce cases by 75%	
Rabies	Approximate 200	Reduce to 125	Reduce to 50	NIL	

Target 2030: 3.3 End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Brucellosis	6% of population	Reduce to 4%	Reduce to 2%	NIL	<p>this restructuring. Develop capacity of staff to link health and management skills, upgrade skills to new technologies delivering trauma and counselling services</p> <ul style="list-style-type: none"> - For a holistic approach, to avoid duplication of services, segmentation of treatment and dilution of technical capacity revamp the institutional arrangement of Central and State Ministries which is spread to departments of Health, Family Welfare and Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH) • Emergency Medical Response System • Minimum of 15 hospitals in different parts of Punjab to be made functional with special focus on emerge services. • Catchment area for ambulance to be marked <p>Act to regulate private health service-providers to be passed. Government caters to only 18 percent of household expenditure on health. For the poor the unregulated private sector is financially debilitating, unreliable in cost and service provided with profit rather than care the guiding factor. There are a range of service providers from quacks to private hospitals but there are no norms to measure good quality medical services and minimum standards and requirements of hospitals, nursing homes and multi-speciality health care units. The Act to include: Compulsory registration of private medical establishments; charges payable for different medical treatments and services to be made public; the names of the government doctors and paramedical staff working in the private establishments to be listed to responsible committee and clinical records relating to treatment and procedures for patients to be maintained and opened for inspection.</p>
Leptospirosis	Initiate reporting under IDSP	Reduce the number of cases by 25% of baseline	Reduce the number of cases by 50% of baseline	Reduce the number of cases by 75% of baseline	
Scrub typhus	Initiate reporting under IDSP	Reduce the number of cases by 25%	Reduce the number of cases by 50%	Reduce the number of cases by 75%	
Source: District Level Household and Facility Survey 2012-13 National Vector Borne Disease Control Programme 2015					

Target 2030: 3.4 Reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<p>Reduce by 1/3 premature mortality from NCDs through prevention and treatment and promote mental health and well being</p> <ul style="list-style-type: none"> • Probability of dying by 70 years due to NCDs • Prevalence of hypertension • Prevalence of diabetes 	<p>Approximately 25%</p> <p>40%</p> <p>10%</p>	<p>Reduce to 20%</p> <p>Reduce to 37%</p> <p>Reduce to 9.75%</p>	<p>Reduce to 15%</p> <p>Reduce to 33%</p> <p>Reduce to 9%</p>	<p>Reduce to 10%</p> <p>Reduce to 30%</p> <p>Reduce to 8%</p>	<p>Reduce by one third premature mortality from non-communicable diseases through prevention and accessible treatment.</p> <ul style="list-style-type: none"> - Promotion of physical activity by providing facilities to community; especially among schools by declaring one day as sports day - Health education for reducing salt, sugar & fat intake, and increasing vegetable and fruit intake, especially in schools. - Establishing NCD clinic and CCU in each district hospital - Capacity building for early management of complications - Screening facility at sub centre level - Drug availability at all health facilities including at sub-center - IT enabled patient based records - Referral linkages between SC, PHC, CHC, DH, & MC - Monitoring of NPCDCS & periodic surveillance of risk factors (every five year) - Improving cause of death recording & reporting system <p>Implement Mental Health Act and create facilities at all district hospitals.</p>
Mental Health	Programme implemented in 3 districts	Programme implemented in 3 districts	Programme implemented in 3 districts	Programme to be in all 22 districts	
Source: District Level Household and Facility Survey, 2012-13					

Target 2030: 3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Alcohol consumption/dependency					- Tobacco Act (COTPA) compliant state by 2020 - Reduction of access to alcohol rather than total prohibition by raising taxation on alcohol; restriction of sale outlets etc.
- Men	27.4%	17.5	10	(Dry State)	
- Women	0.3%	0	0		
Narcotics – consumption/dependency					See SDG-16
Source: District Level Household and Facility Survey, 2012-13					

Target 2030: 3.6 Half the number of global deaths and injuries from road traffic accidents					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Road traffic deaths	16.12 per lakh population				See SDG-16
Source: See SDG-16					

Target 2030: 3.7 Ensure universal access to sexual and reproductive healthcare services including family planning, information and education, and the integration of reproductive health into national strategies and programmes.					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Unmet need for family planning	15.2% (DLHS4)	Reduce to 11.5%	Reduce to 8%	Reduce to 5%	Integrate Family Planning Services Building quality services at PHC and at FRU level. Promoting non-scalpel vasectomy through training, monitoring and evaluation. Widen the choice for reproductive health services.
Total fertility rate	1.7	Maintain 1.8 Escalate to maintain replacement level 2.1	Maintain 1.8 Escalate to maintain replacement level 2.1	Maintain 1.8 Escalate to maintain replacement level 2.1	
Couple protection rate	59.4	75	100	100	
Source: District Level Household and Facility Survey, 2012-13					

Target 2030: 3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Proportion of families which had hospitalization and had catastrophic expenditure Disability support	55.7%	Reduce to 35%	Reduce to 15%	Reduce to 6%	Reconstructive surgery to be provided in speciality hospitals. Insurance schemes offering increased financial coverage (RBSK, RSBY, BPSSBY, MMPCRKS, JSSK etc.)- to be strengthened. Provide to all eligible.
	1000 footwear aid available	Cover footwear aid to all eligible	Cover footwear aid to all eligible	Cover footwear aid to all eligible	
Source: Health and Family Welfare, 2015					

Target 2030: 3.9 Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Rural Punjab Urban Punjab	35% 76%				See SDG-6
Source: Health and Family Welfare, 2015					

Target 2030: 3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Strengthen the implementation of the world health organization framework convention on tobacco control in all countries, as appropriate	5 Distt COTPA compliant	10 Distt COTPA compliant	Tobacco free state		All districts to be COTPA compliant by 2018
Source: Health and Family Welfare, 2015					

Target 2030: 3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of intellectual Property Rights regarding flexibilities to protect public health, and in particular, provide access to medicines for all					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Support the research and development of vaccines and medicines for the communicable and non-communicable diseases	Department of Science and Technology	1% of budget on research	1.5 of budget on research	2% of budget on research	Department of Science and Technology may set up a division for basic medical science research Department of Medical Education & Research to set up budget lines for clinical research Directorate of health & family welfare to allocate human & financial resources for operations research

Target 2030: 3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Per capital health expenditure budget in crores	Rs.1,500	Rs.1,500	Rs.8,183	Rs.14,496	See restructuring of health institutions.
Doctors/1000 population	1.115	1.25	1.4	1.5	
Nurses/1000 population	0.648	1.25	1.75	2.0	
Pharmacists/1000 population	0.33	0.33	0.33	0.3	
Ancillary health workers/1000 population	0.33	0.55	0.8	1.0	
Source: Punjab Health Department, 2015					

Target 2030: 3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Institutional capacities to be built	Strengthening of IDSP Inclusion of diseases like Leptospirosis and Scrub typhus etc.	Block level reporting with labs in each district	PHC level reporting	Village level reporting	Integrated Disease Surveillance Program (IDSP) laboratory in each district Outbreak reporting from each village through ASHA Inclusion of neglected diseases under surveillance e.g. brucellosis, leptospirosis, scrub typhus, dog bite etc. Public Health Coordination Committee in each district Public Health Cadre – at PHC (Bachelor of Public Health), CHC (Master of Public Health), District (Additional CS) and State level (Additional Director)

**SDG 4:
QUALITY EDUCATION: ENSURE INCLUSIVE AND EQUITABLE QUALITY
EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL**

Relevance of Education

Education of all promotes human capital formation helping in economic growth and development of populations. The Indian constitution is obligated to provide this basic right to its citizens and the Right of Children to Free and Compulsory Education Act, 2009 puts into practice this commitment. Education provides improved capacities to men and women to earn, an opportunity to come out of poverty and live with dignity, and gain control over their lives and decision-making. Studies show that each additional year of schooling increases an individual's earning potential from 5 to 15 percent (Polachek, 2007). Education directly impacts the economic growth and prosperity of a nation. Each additional year of schooling is found to contribute to 0.58 percent of national GDP (Hanushek and Woessmann, 2008). For communities on the margins, such as scheduled castes, education of members helps protect and strengthen the group identity, language and culture making them secure communities which are in turn more peaceful and participatory in their development. For women, education is a powerful instrument of empowerment – it is not only an avenue for financial autonomy, but helps to secure rights, engage usefully with delivery systems and social institutions. This perspective of education as a pre-requisite to human progress, cutting across sectoral domains finds resonance in the Sustainable Development Goals (SDGs) globally. In other words, education is a recognized condition for a country's development, for securing human rights and social justice in a multicultural polity.

Situational analysis of school education in Punjab

Punjab has done well since the introduction of SSA in terms of expansion of enrolment, transition rates and reduction in dropout rates of children at various stages of school education. Tables According to the U-DISE data for 2014-15 GER for primary classes in Punjab stands at 103 and 107 for boys and girls respectively, which is higher than the comparable figures for India as a whole. Similarly, figures for upper primary, secondary and higher secondary classes in the state are also significantly higher. The age specific enrolment reflects the access to education.

Table 4.1
GER, Transition and Drop Out Rates by Stages of School Education in
Punjab & India , 2013-14

Rates	Punjab			India			
	Sex	Boys	Girls	Total	Boys	Girls	Total
GER							
Primary		103.4	107.3	105.1	98.9	101.4	100.1
Upper Primary		94.6	99.7	96.7	87.7	95.3	91.2
Secondary		85.7	85.4	85.9	78.1	78.9	78.5
Hr. Secondary		68.6	70.4	69.4	54.6	53.8	54.2
Transition rates							
Primary to Upper Primary (All)		97.13	97.04	97.09	89.50	89.99	89.74
Primary to Upper Primary (SC)		96.01	95.76	95.89	87.69	88.71	88.18
Elementary to Secondary (All)		94.27	92.37	93.43	93.76	89.28	91.58
Elementary to Secondary (SC)		92.61	92.07	92.36	92.18	87.76	90.02
Secondary to Hr Secondary (All)		86.66	85.91	86.33	67.59	67.82	67.70
Secondary to Hr Secondary (SC)		79.38	80.19	79.76	65.79	66.71	66.22
Drop out rates							
Primary (All)		1.35	1.21	1.29	4.43	4.14	4.34
Primary (SC)		0.91	0.85	0.88	4.42	3.85	4.14
Upper Primary (All)		2.52	3.27	2.85	3.09	4.49	3.77
Upper Primary (SC)		3.73	3.71	3.73	3.75	5.04	4.38
Secondary (All)		8.93	8.71	8.83	17.93	17.79	17.86
Secondary (SC)		15.36	12.81	14.91	18.96	18.32	18.66
Hr Secondary (All)		7.89	3.2	5.81	1.48	1.61	1.54
Hr Secondary (SC)		15.22	6.12	10.96	2.2	1.38	1.81
Retention Rate in Primary 2014-15							
All Population		88.71	88.11	88.45	79.45	80.00	79.73
Scheduled Castes		89.10	90.52	89.76	82.50	83.40	82.93

Source: U-DISE, 2014-15 School Education in India-Flash Statistics, NUEPA

Age specific enrolment ratio as per NSS (2014) shows about 6 per cent children in the 6-10 years age were currently outside the ambit of school education in Punjab. The percentage of out of school children in Punjab was much higher in 14-17 age-group, though it was lower than that of all India average (Table 4.2). The comparable data from the U-DISE (2014-15) also reports that around 10 per cent children in the 6-10 years age were not attending schools. The percentage of out-of-school children in the 6-13 years age was reported to be 6.5, while those in 14-15 years and 16-17 years in Punjab stood at 20.8 and 39.3 respectively. Thus universalisation of elementary as well as secondary and higher secondary is to be achieved. Table 4.3 takes a look at the incidence of out-of-school children by usual monthly consumption expenditure (UMPCE) quintiles in order to locate higher incidence.

Table 4.2
Out-of-school Children (NSSO, 2014): India & Punjab

Age Group	Area	India			Punjab		
		Male	Female	Persons	Male	Female	Persons
6-10 Years	Rural	11	13	12	6	6	6
	Urban	10	10	10	4	10	7
	Total	11	12	12	5	7	6
11-13 Years	Rural	8	10	9	7	7	7
	Urban	6	6	6	2	3	2
	Total	7	9	8	5	6	6
14-17 Years	Rural	25	28	26	21	18	20
	Urban	19	17	18	11	14	12
	Total	23	25	24	17	17	17

Source: Education in India: 7st Round NSS Report, 2014

One may observe that the bulk of those currently reported to be out-of-school in different age groups are located in the bottom (1st and 2nd) quintiles and that the incidence was nearly negligible in the highest quintile, though it remains significant in the 14-17 age-group.

Table 4.3
Percent not attending by age & UPMCE quintiles in Punjab

Age-cohort/ Quintiles	6-17 Years	6-13 Years	14-17 Years
1st quintile	20.3	38.6	38.6
2nd	9.3	28.0	23.1
3rd	2.9	9.5	8.1
4th	5.6	10.1	11.0
5th	.6	1.4	4.3

Source: Computed from NSSO, 2014

A closer look at the transition and dropout rates as reflected in table 4.1 presents somewhat an unrealistic picture of school education in Punjab. If the transition and dropout rates as reported by the U-DISE were to be trusted then one cannot have the magnitude of out-of-school children in Punjab as revealed by the NSSO data. The proof of something amiss in the school level data comes from the U-DISE data on retention rates for the primary classes, which is 88.45 per cent. Understanding the fact that retention rates exclude the repeaters, and therefore when one takes a look at the repletion rates provided by the same source, which is invariably below 1 per cent in the primary classes (and by implication in the relevant age-cohort as well), then the myth behind dropout rates at the primary level explodes.

The NSSO and Census figures in this context present a much reliable estimate than that of the U-DISE as these are based on data generated from the households and not from schools. Schools data tends to be inflated for a variety of reasons. Table 4.4, though based on the Census 2011 figures show that the percentage of children who never enrolled has remained obstinately higher for the 6-10 year age cohort, although it declines for the higher ages. The percentage of ever enrolled (but not currently attending or school drop outs) in Punjab was not significantly lower than that observed

for the country as a whole. This brings our concern that in spite of phenomenal increase in the number of schools at various stages of school education, Punjab will have to devise disaggregated and targeted initiatives to realise the SDG goal 4.1 in the context of school education. The magnitude of our concern is further supported by the fact that completion rates (table 4.5) by different stages of school education as per the UNICEF methodology remains high for the reference population in the state of Punjab.

Table 4.4
Some aspects of School Enrolment, 2011

Aspects	Area	6-10		11-13		14-17	
		RURAL					
		Boys	Girls	Boys	Girls	Boys	Girls
Attending	Punjab	84.3	83.0	90.1	89.2	74.2	72.0
	India	76.4	76.4	88.2	85.5	69.9	65.4
Currently out of school	Punjab	15.70	17.00	9.90	10.80	25.80	28.00
	India	23.60	23.60	11.80	14.50	30.10	34.60
Never Enrolled	Punjab	14.3	15.1	4.4	5.3	6.6	7.2
	India	20.2	21.8	6.6	8.9	8.0	11.7
Attended Before	Punjab	1.6	1.7	4.6	5.4	19.1	20.8
	India	1.6	1.7	5.1	5.6	19.9	20.7
URBAN							
Attending	Punjab	82.2	81.0	89.3	88.1	76.9	79.0
	India	81.3	80.7	89.4	88.8	77.7	77.1
Currently out of school	Punjab	17.80	19.00	10.70	11.90	23.10	21.00
	India	18.70	19.30	10.60	11.20	22.30	22.90
Never Enrolled	Punjab	15.7	16.8	5.7	6.1	7.2	6.8
	India	16.5	17.0	5.6	5.4	6.0	6.8
Attended Before	Punjab	2.1	2.2	4.8	4.8	15.9	14.1
	India	2.2	2.2	5.3	5.4	16.0	15.9

Source: Census of India, 2011

Table 4.5
Completion Rates, 2014 as per the UNESCO methodology

Sex	Stage	Reference age	Punjab	India
Male	Primary	14-16	90.6	89.9
	Middle(UP)	17-19	82.5	78.9
	Secondary	19-21	66.4	59.0
	Higher Sec	21-23	41.3	39.8
Female	Primary	14-16	93.2	89.2
	Middle(UP)	17-19	84.0	77.3
	Secondary	19-21	67.3	52.8
	Higher Sec	21-23	52.5	34.4

Source: Computed from NSSO, 2014

School segmentation

The presence of private players in education sector of Punjab is very much prominent. Punjab has one of the lowest percentages of children enrolled in government schools among a sample of

selected states (table 4.6). This points out towards an emerging and glaring socio-economic divide between the public and private education sectors in Punjab. It needs no emphasis that a strong public funded educational system is only guarantee to equitable and inclusive education for all.

Table 4.6
Percent Distribution of Students Attending educational
Institutions by Type of Management in Rural Areas, 2014 (NSSO, 71st round)

State/UT	Primary			Upper Primary			Secondary & Higher Sec.		
	Type of Institution								
	Govt.	Pvt.	Pvt.	Govt.	Pvt.	Pvt.	Govt.	Pvt.	Pvt.
		aided	unaided		aided	unaided		aided	unaided
Gujarat	88.13	6.81	5.05	89.17	7.92	2.92	60.28	28.50	11.21
Haryana	55.38	6.15	38.46	70.14	5.69	24.17	58.74	6.69	34.57
Himachal Pr.	59.74	3.83	36.42	75.62	1.00	23.38	80.84	1.39	17.77
Kerala	46.46	20.20	33.33	44.39	31.71	23.90	53.02	27.94	19.05
Maharashtra	79.49	11.54	8.97	64.94	32.03	3.03	37.94	54.94	7.11
Punjab	58.19	4.04	37.77	66.67	4.62	28.72	61.35	8.76	29.88
Chandigarh	69.08	17.71	13.22	64.29	25.56	10.15	90.42	9.58	0.00
all-India	72.41	4.98	22.60	75.98	7.81	16.21	63.58	15.60	20.83

Source: NSSO: 71st Round, 2014

It is to be noted that:

- About one-sixth of children aged 6-10 years never attend educational institutions with almost equally distribution in every districts.
- Understandably, the bulk may belong to very poor property-less households and migrant agricultural labour households and also from the historically and socially deprived social groups such as the SCs.
- The need for pre-primary education, among others acquires significance in this context.
- A large number of students in the relevant age group either never enrol or dropout during transition from elementary to secondary and secondary to higher secondary education.

Learning outcomes in Punjab: Findings of NAS

The latest cycle 4 for class V (survey dated 2015) the following are the findings for Punjab:

- Reading comprehension: The score for Punjab was 249 in comparison to 241 overall for pooled all India sample which was just about the mean value on the scale of 0-500. Girls fared better than boys in Punjab and that there was no significant difference in the scores of rural and urban children.
- The learning outcomes in Mathematics for children of class V was marginally lower than the overall score with no significant difference between boys and girls and also between rural

and urban areas of Punjab. The disturbing finding is that the 2015 score was significantly lower than that of cycle 3 (2012) for Punjab.

3. That non-scheduled and non-OBC children did relatively better. Children of government and government-aided schools obtained lower scores than that of the children from private unaided schools.

In the context of Class X (2015) NAS findings are summarized as under:

1. The mean score of Punjab in all subjects including English, mathematics, science, social studies and MIL was reported to be lower than the overall score of India and differences were significant.
2. The scores of boys and girls were not found to be significantly different in Punjab though the girls and boys of Punjab fared poorly in relation to the overall scores.
3. The scores of rural areas in Punjab were marginally better than that of the urban areas though the difference was not significant.
4. Low levels of learning outcomes was demonstrated in Punjab as the difference in the scores of non-scheduled, non-OBC students were not significantly different from the scheduled castes and OBC children.

An average state score at 75th percentile for the two classes, e.g. Class V and Class X are the medium term goal to be achieved in the next three years and mean state score plus the range of score between 90th and 10th percentiles at the national level for 2030

Common School System: A Vision for SDG of Quality Education for all

A common school, present in a framework of norms and standards that serves as a basic minimum in terms of schooling infrastructure, institutional and governance practices, and quality of teachers is urgent need of the hour.

Table 4.7 very clearly reveals that the government managed schools are very diverse in their composition. There are stand alone primary schools, which constitute nearly 64 per cent of all primary classes, 90 per cent of all stand alone primary schools in Punjab. There are fewer, almost negligible primary with upper primary classes. On the contrary there are fewer stand alone primary schools in unaided sector, which may be relatively younger and would eventually add the upper primary classes. In fact, of 2711 primary with upper primary schools 2131 are unaided and another 541 belong to the 'others' category. There is yet another instance of structural distortion in provisioning of schooling whereby 1813 schools have only 4 classes i.e. class 6 to 10. Composite primary to higher secondary and primary to secondary schools are mostly under private

management. The fragmented grade schools meet no educational principle or position and appear to be more illogical, motivated by considerations other than the logic of educational progression and transition.

Table 4.7
Number of Schools by School Category and Management in Punjab, 2014-15

Management Categories	Primary only(1-5)	Primary with Upper Primary(1-8)	Primary with upper primary and secondary and higher secondary(1-12)	Upper Primary only(6-8)	Upper Primary with secondary and higher secondary(6-12)	Primary with upper primary and secondary(1-10)	Upper Primary with secondary(6-10)	Secondary only(9 & 10)	Secondary with Hr. Secondary(9-12)	Hr. Secondary only/Jr. College(11 & 12)	All Schools
Government	13211	8	67	2882	1613	13	1813	0	1	6	19614
Private aided	66	31	168	5	101	61	37	1	0	0	470
Private unaided	977	2131	1968	2	19	2196	7	1	28	66	7395
Others	387	541	273	1	1	440	4	3	23	30	1703
Total	14641	2711	2476	2890	1734	2710	1861	5	52	102	29182

Source: U-DISE, 2014-15

It is not only that the structure of government schools is so fragmented by grades, it also means that all the teaching and learning resources and infrastructure too gets fragmented and distributed so thinly that it makes little impact besides leading to higher fixed and unit cost.

Early Childhood Care and Education

The objective of the ICDS governed by Ministry of Women and Child Development is to cater to both the health and education of children in the early stages of their physical and intellectual growth. However, the former takes precedence and the later gets neglected. It is observed from table no 4.8 that pre-primary classes are conspicuously absent from the government primary schools, while in composite multi-grade schools they have some measure of presence with a concentration in urban areas. In contrast, in the capital city of Chandigarh over 86 per cent of primary schools have pre-primary classes as is the case with private primary and other multi-grade composite private unaided schools.

The advantage of integrating pre-primary classes in whatever institutional design, e.g. through KG system, or nursery system helps children make an apparent transition to higher levels of education. There is an urgent need to bring about programmatic convergence in the various schemes such as

ICDS aanganwari/balwari and education departments centred on the needs of child development. If cognitive development of children largely gets completed around the age of 6 years, then aanganwadi in its present form is inadequately prepared. This is equally true of the education sector which has seldom addressed the issue of ECCE through teachers' education and training.

Table 4.8
Percent schools with pre primary classes by management in Punjab, 2014-15

States/UTs	Govt				Pvt unaided			
	School types				School types			
	Primary only(1-5)	Primary with Upper Primary(1-8)	Primary with upper primary and secondary and higher secondary(1-12)	Primary with upper primary and secondary(1-10)	Primary only(1-5)	Primary with Upper Primary(1-8)	Primary with upper primary and secondary and higher secondary(1-12)	Primary with upper primary and secondary(1-10)
Punjab	.4	50.0	21.2	30.8	83.2	80.8	77.6	78.6
Chandigarh	85.7	76.9	92.7	95.9	100.0	100.0	100.0	94.7
Gujarat	2.5	2.6	24.5	16.7	35.6	32.7	46.5	41.6
Haryana	56.5	66.7	3.8	100.0	60.3	53.2	51.5	45.8
Himachal Pradesh	2.2	25.0	7.7	25.0	71.1	71.9	73.1	72.2
Kerala	62.2	64.2	42.6	52.9	80.3	81.6	78.3	83.0
NCT Delhi	53.9	50.0	82.8	76.7	22.7	37.1	79.8	61.9

Source: UDISE, 2014-15

Vocational Education: Integration with Secondary & Higher Secondary Education

The Department of School Education & Literacy, Ministry of Human Resource Development, is implementing the scheme of Vocationalization of Secondary and Higher Secondary Education in the country for imparting vocational education to students from secondary stage. Vocational Education under Rashtriya Madhyamik Shiksha Abhiyan (RMSA) has been aligned to National Skills Qualification Framework (NSQF) and is being implemented in the country with the aim of preparing employable and competitive youth. National Skill Qualification Framework has been developed based on the various qualification framework adopted internationally.

But inspite of all these efforts, secondary and higher secondary schools lack adequate facilities for science, technical and vocational education.

Table 4.9
Schools with Integrated Science Labs in Secondary Schools, Punjab 2014-15

School mgmt	Integrated labs in secondary schools	Number of secondary schools	Percent schools
Government	2970	3507	84.7
Pvt. Aided	279	378	73.8
Pvt UnAided	2916	3219	90.6

Source: UDISE, 2014-15

Integrated science labs have registered impressive presence in all secondary schools due to RMSA initiatives from 2009.² However, the situation with respect to various kinds of subject specific laboratories in higher secondary schools across schools under different managements is very poor (table 4.10). Government schools should make their entry point for branding themselves as schools that presented opportunities for diversification in various traditional areas and new trade and technological avenues.

Table 4.10
Higher Secondary Schools with Types of Laboratories in Punjab, 2014-15

Laboratory	School mgmt type	Schools with labs	Total number of schools	Percent schools with labs
Physics Lab	Government	534	1687	31.7
	Pvt. Aided	89	269	33.1
	Pvt UnAided	826	2081	39.7
	Total	1499	5364	27.9
Chemistry Lab	Government	558	1687	33.1
	Pvt. Aided	96	269	35.7
	Pvt UnAided	828	2081	39.8
	Total	1531	5364	28.5
Biology Lab	Government	481	1687	28.5
	Pvt. Aided	73	269	27.1
	Pvt UnAided	781	2081	37.5
	Total	1382	5364	25.8
Computer Lab	Government	1329	1687	78.8
	Pvt. Aided	195	269	72.5
	Pvt UnAided	1083	2081	52.0
	Total	2670	5364	49.8
Mathematics Lab	Government	391	1687	23.2
	Pvt. Aided	48	269	17.8
	Pvt UnAided	569	2081	27.3
	Total	1045	5364	19.5
Language Lab	Government	117	1687	6.9
	Pvt. Aided	5	269	1.9
	Pvt UnAided	253	2081	12.2
	Total	396	5364	7.4
Geography Lab	Government	68	1687	4.0
	Pvt. Aided	5	269	1.9
	Pvt UnAided	145	2081	7.0
	Total	231	5364	4.3
Home Science Lab	Government	51	1687	3.0
	Pvt. Aided	22	269	8.2
	Pvt UnAided	152	2081	7.3
	Total	239	5364	4.5
Psychology Lab	Government	10	1687	0.6
	Pvt. Aided	2	269	0.7
	Pvt UnAided	52	2081	2.5
	Total	69	5364	1.3

Source: UDISE, 2014-15

² Sinha, S (2012) *School Education in Punjab*, IDC, Chandigarh

TECHNICAL EDUCATION

Enhancing technical education capabilities is essential for providing youth employment opportunities and creating a skill reservoir for Punjab specific growth through modern manufacturing and agro industries. There is need to build Punjab's existing technical education base.

The Department of Industrial Training (Punjab) is presently implementing the following flagship schemes with the help of Government of India, for training the youth in upgrading their skills:-

- Craftsman Training Scheme (CTS)
- Apprenticeship Training Scheme (ATS)
- Modular Employable skills/skill Development Initiatives. (MES/SDI)

Table 4.11
Seating capacity under various skill training schemes in Punjab for 2016

Year	CTS	ATS	MES/SDI	MSDC	TOTAL
2016	72041	8000	15000	7500	102541

Source: Department of Industrial Training, Punjab, 2015

Table: 4.12
National & State Level Targets & Timelines For Skill Development For 12th Five Year Plan

TIMELINES	NATIONAL TARGETS	PUNJAB TARGETS (@ 2.5 % of National population)
• UP TO 2022	➤ 500 MILLION/50 CRORE PERSONS	➤ 12.50 MILLION/1.25 CRORE PERSONS
• TOTAL TARGET FOR 12TH FIVE YEAR PLAN (2012-2017) NSDC OF PM TARGET	➤ 80 MILLION/8 CRORE PERSONS	➤ 2 MILLION/20 LAKH PERSONS
• DGE&T/MSDE SHARE FOR 12TH FIVE YEAR PLAN(2012-2017) & PUNJAB SHARE THROUGH ITI'S	➤ 8.5 MILLION/ 85 LAKH PERSONS	➤ 0.215 MILLION/ 2.15LAKH PERSONS

Source: Department of Industrial Training, Punjab, 2015

NCSD OF PM: National Council for Skill Development of Prime Minister

DGE&T: Director General Employment & Training

CTS: Craftsman training scheme

ATS: Apprenticeship Training Scheme

MES/SDI: Modular Employable skills/Skill Development Initiatives

STATE LEVEL TARGETS & TIMELINES FOR SKILL DEVELOPMENT THROUGH ITI'S FOR NEXT 15 YEARS

There is a target to prepare around 24 lakh skilled manpower by 2030, in different fields, under various schemes to enable the Punjabi youths to seek meaningful employment/self employment. Plans include collaboration with industry to prepare skilled workforce and also establishment of training centre to impart the required skills.

Table: 4.13
Enhancement of Capacity to prepare trained manpower

Year	CTS	ATS	MES/SDI	MSDC
2016	72041	8000	15000	7500
2022	100000	9200	20000	28800
2030	140000	11000	27000	35000

Source: Projection Department of Industrial Training, Punjab, 2015

Table: 4.14
Consolidated Proposed Targets to train manpower from 2016 to 2030

Consolidated Target to train manpower up to 2030	CTS	ATS	MES/SDI	MSDC	Total
	1560210	141000	310005	356505	2367720

Source: Projection Department of Industrial Training, Punjab, 2015

INDUSTRY INSTITUTE INTERACTION

- **A Skill Training Academy at Ropar** is being established with collaboration of TATA group. The academy shall prepare skilled workforce @3000-4000 per annum.
- All the ITIs, both in Government and Private Sector are mandated to run two shifts.
- In PPP scheme as per Institutional Development plan (IDP), additional 8400 seats shall be added.
- **Involvement of Industry as partner**
The department would foster ITI – Industry linkages and industry would have a role in the management of the ITIs. All the ITI's are managed by The Institute Management Committees (IMC's) chaired by Industry Partner. The IMCs are given financial as well as administrative powers to run these ITI's
A skill gap survey has been undertaken in the state with the help of CII & another survey is being conducted with the help of National Skill Development Corporation (NSDC) GoI.
- The State has also roped in major industrial houses like Tata, Maruti-Suzuki, L&T, Toyota, LG, M&M and Godrej etc for adoption and continual support in skill development activities across the state.
- The industry partner is the chairman of the Institute Management Committee. The IMC has been given full autonomy in terms of financial and administrative decisions.
- **APPRENTICESHIP PROGRAMME**

The state is utilizing maximum seats assessed under Apprenticeship and also conducted a survey for new vacancies in the industry for apprenticeship training.

Punjab has a Capacity of 8166 seats under Apprenticeship scheme. Already 3702 no of seats have been filled. The State has located 726 new seats with 171 new establishments during 2012-13.

- **Opening of Multi Skill Development Centres**

Four Multi skill development centres are to be established at Amritsar, Ludhiana, Bathinda and Hoshiarpur with a capacity of 25000 trainees for each centre. These MSDCs shall act as hubs and provide necessary support to nearby ITI's as spokes for inclusive growth as industrial clusters.

MSDC's in Health, Construction, Manufacturing and Automobile centres are being setup in the state.

- Under MES – Scheme, the States have devised the targets and action plan in line with the population and availability of funds. An increase of 25 per cent per annum is envisioned under the scheme.
- Implementation of all National Skill Development schemes through various departments is also planned.

TERTIARY EDUCATION

Punjab has a number of universities imparting higher education in general, professional and technical courses.

Higher education institutions are rapidly expanding. Ensuring quality in the context of growth of higher education is a major challenge

There are supply constraints with reference to college availability index (C-PI) inspite of a phenomenal expansion. In most of the old and reputed colleges the classrooms are crowded. On the other hand, there are colleges that have fewer students enrolled, and some may not even be equipped well as viable centres of higher education. Funding constrains have effected the number of teachers and quality of education imparted.

The higher education sector is facing a serious resource crunch with a small budgeting allocation in state funds. As a result, the state-funded universities, government colleges and government-aided-private colleges are not able to fill-up their vacant positions and have introduced many self-financing courses. These charge exorbitant fees making higher education out of peoples reach.

GOAL 4: QUALITY EDUCATION: ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

Target 2030: 4.1 Ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Primary and secondary completion rates of boys and girls					See SDG-5
<ul style="list-style-type: none"> Functional skills in primary in reading 	249 Below mean value on scale of (0-500) (2015)	Improve to 75 percentile of national average	Improve to 90 percentile of national average	Improve to 100 percentile of national average	<ul style="list-style-type: none"> Girls fared slightly better than boys but no R-U difference. However, learning remained stagnant from 2012 No significant difference among M-F or R-U, but there dropped significantly lower from 2012.
<ul style="list-style-type: none"> Males Females 	246 253	Improve to 75 percentile of national average	Improve to 90 percentile of national average	Improve to 100 percentile of national average	<ul style="list-style-type: none"> Rural scores slightly better than urban.
<ul style="list-style-type: none"> In mathematics 					
<ul style="list-style-type: none"> Males Females 	237 239	Improve to 75 percentile of national average	Improve to 90 percentile of national average	Improve to 100 percentile of national average	<ul style="list-style-type: none"> Put in place an integrated and strengthened teacher training programme to improve quality of teachers, improve school infrastructure, learning resources, accountability and no detention policy to be replaced with regular assessments against national developed learning benchmarking Subject teachers to be specialized, teacher clusters to be evolved for sharing and training.
<ul style="list-style-type: none"> Functional skills in secondary 					
<ul style="list-style-type: none"> In reading in modern Indian language (males) In reading in modern Indian language (females) 	216 225	Improve to 75 percentile of national average	Improve to 90 percentile of national average	Improve to 100 percentile of national average	<ul style="list-style-type: none"> Consolidate school levels to help transition of students from pre-primary to higher education. A scheme for after school tuition to improve subject performance levels to be started. Some additional amount to be paid to teachers to conduct these extra classes.
<ul style="list-style-type: none"> In mathematics (males) 	226	Improve to 75	Improve to	Improve to	<ul style="list-style-type: none"> Map and track student attendance, performance and delivery of support to eligible children from vulnerable

Target 2030: 4.1 Ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> In mathematics (females) No. of children out of school Total (6-10 years) Total (Punjab) Total Rural Total Urban Male (Total) Male Rural Male Urban Female (Total) Female Rural Female Urban 	225 6% 6 6 7 5 6 4 7 6 10	 percentile of national average	 90 percentile of national average	 100 percentile of national average	groups. <ul style="list-style-type: none"> Links to vocational and technical from school itself. Improve gender safety to check girl dropouts.
Source: National Achievement Survey NCERT, 2015					

Target 2030: 4.2 Ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Percentage of children receiving at least 1 years of a quality pre-primary education programme					A very low of percentage of Punjab's children access preschool, well below the Indian average of 52%. Lack of early educative institution and concepts are a major factor in poor learning performance of children in Punjab. ICDS pre-school service to be strengthened. To include all children not going to school rather than only from lower income groups. Common school system to also enrol children from pre-school classes to boost ECCE.
<ul style="list-style-type: none"> • Total • Male • Female 	19.9 24.8 14.4	Improve by 5% of baseline	Improve by 15% of baseline	Improve by 35% of baseline	
Source: NSSO 71 st Round 2014					

Target 2030: 4.3 Ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Tertiary enrolment rates for					Strengthen public school infrastructure, teacher capacities and accountability to enable population from the margins to acquire an education. Promote gender safety in school, during transit from home to school and link vocational and technical skill transition from schools streams to motivate populations to avail education and livelihood skills.
<ul style="list-style-type: none"> • Total • Men • Women 	25.4 23.6 27.4 (2014)	Improve by 2% from baseline	Improve by 5% of baseline	Improve by 10% of baseline	
Source: NSSO 71 st Round 2014					

Target 2030: 4.4 Substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> • Literacy rate (15.24) • Men • Women • Pupil to computer ratio in primary and secondary education 	89.75 90.44 88.94	Improve by 2%	Improve by 5%	100% literacy	<p>The technical and ITI training, Punjab is promoting central government flagship schemes to upgrade skills in craftsmanship, apprenticeship training and modular employable skills. At present, seating capacity is 102541 this is to be raised to 2.5% by 2022. This would be achieved by strengthening institutional mechanisms for providing skills. A sector skill council in the state would be developed to provide linkages to modern manufacturing. Agro and cottage industry requirements which are being envisaged as thrust areas for growth in the state. State council for vocational education will coordinate, assess skills and create trainers and also testing youth with functional level skills to allow entry into higher level education programmes. The state will also open 73 new ITIs and 2500 Skill Development Centres in the un-serviced blocks of the state. Multi-Skill Development Centres will be established at Amritsar, Ludhiana, Bathinda and Hoshiarpur with a capacity of 25000 trainers each. They each act as hubs to provide support to ITIs as spokes for inclusive growth through industrial clusters. MSDCs health, construction, manufacturing and automobile centres are being settled in the state.</p> <p>Incubation centres, career counselling and industrial tracking centres would be opened in government schools covering each villages and municipal wards. Career counselling and placement cells will be opened in training provider units which are ICT and Aadhar enabled.</p> <p>Children joining vocational streams to be given a monthly employability allowance (Rs.1000/-) for a maximum period of three years or duration of the course whichever is less.</p>
<ul style="list-style-type: none"> • Youth with vocational skills and ITI skills (15-19) - Total - Male - Female 	1.6 1.8 1.4	Improve by 2%	Improve by 5%	Improve by 10% of baseline	
Source: NSSO 71 st Round 2014					

Target 2030: 4.5 Eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> • Presence of legal frame works that guarantee the right to education for all children from <ul style="list-style-type: none"> - Early childhood - RTE Act - Minimum age of entry to employment not below the years of basic education • Education support for vulnerable populations <ul style="list-style-type: none"> - SC - Girls - Disabilities • Vocational Education <ul style="list-style-type: none"> - SC - Girls - Disabilities 	<p>Being proposed in NPE Enacted 2009 Child Labour Act (1986)</p>	-	-	-	<p>The new education policy is being lobbied to include ECCE as part of the RTE. A comprehensive schooling framework such as SSA and RMSA and support to be extended to higher education also.</p>
<p>Source: Government of India, Ministry of HRD, 2016 Government of India, Ministry of HRD, 2009 Government of India, 1986, the Child Labour (Prohibition and Regulation Act) (Act No. 61 of 1986)</p>					

Target 2030: 4.6 Ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
See 4.4					
Source: See SDG-4					

Target 2030: 4.7 Ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
School programmes on sustainable development, lifestyles, human rights, gender equality, peace and cultural diversity	To be collated	Initiate in all schools	Maintain in all schools	Maintain in all schools	Include in school curriculum of secondary and higher secondary school, strengthen in ongoing NSS programs.

Target 2030: 4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
School Infrastructure					
<ul style="list-style-type: none"> • Percentage primary schools with drinking water • Toilets <ul style="list-style-type: none"> - Boys - Girls • Percentage of secondary schools with drinking water • Toilets <ul style="list-style-type: none"> - Boys - Girls 	84.8 95.3 86.7 90.87 93.63 96.53	100% coverage	Maintain 100% coverage	Maintain 100% coverage	All schools are being provided basic hygiene/toilet facilities and safe drinking water. The ongoing efforts to be completed by 2018.
Source: U-DISE, 2014-15					

SDG STRATEGY

1. School Consolidation

The idea of school consolidation is to bring effective structural integration so that every school has adequate number of teachers and educational facilities that allows children to develop their intellectual and physical potentials. Stand alone primary schools with limited physical infrastructure and teachers posits a serious obstacle in this direction. School consolidation enables pooling together of teaching, learning and other physical resources from being more dispersed and thinly distributed across stand alone primary and upper schools (including more than two in a village) to getting effectively meaningful, efficient and productive in terms of learning outcomes. But, consolidation will have to be carried out carefully and in phased out manner and certainly not at the cost of equity considerations. The following may form considered framework for school consolidation:

- a. It must also be noted that proximate access in the early years is critical.
- b. Schools must be economically and pedagogically viable with a certain number of students, adequate teachers and learning resources that enable meaningful pedagogy.
- c. Schools be consolidated and rationalized based on population, geographical terrain and safety. Norms for physical access must be locally determined.

SDG Education goals:

- a. Phase out introduction of pre-primary classes under the ECCE in all composite schools up to Class 12.
- b. Upgrade all stand alone primary schools to upper primary with pre-primary classes and simultaneously add pre-primary and primary classes to all stand alone upper primary schools. Wherever necessary, as the case may arise where a primary and upper primary school is located in the same village, such two establishments should be integrated into one single administration.
- c. All upper primary schools with secondary classes or secondary schools with upper primary classes should either be converted into full fledged elementary schools or primary classes with pre-primary sections added. So structurally one is suggesting that there would gradually remain only three kinds of schools:
 - i) Schools from ECCE to class 8;
 - ii) Schools from Class 9 to Class 12 (the norms may be divergent for geographically difficult areas and isolated populations/communities), and

- iii) Composite schools from ECCE to Class 12. One in each panchayat in the rural areas and/or a composite school complex with a higher secondary and secondary school located at one place and multiple feeder elementary schools in the neighbourhood - all are together seen as one unit in terms of leadership and resources.
- d. Provision for transport (e.g. cycles) and transport allowances must continue.
- e. Provision of full complement of teachers in every school (including those for all the arts and sports), high quality learning infrastructure and resources;
- f. Include +2 levels/higher secondary educations within the ambit of RMSA.

Higher secondary classes and children are left in the absence of any proper schemes like SSA for elementary, RAMSA for secondary and RUSA for higher education. Higher secondary education needs to be strengthened as this stage contributes to the tertiary education and provides the basis for subject and trade; and professional diversification.

2 Right To Education - Redefining the Scope

- a. Make Early Childhood Education (from 3 to 6 years of age) part of the Right to Education Act. Link Early Childhood Education to Ministry of Human Resource Development (MHRD) - to converge with the Ministry of Women and Child Development (WCD) and delineate responsibilities for each department.
- b. Link structure, curriculum, teacher development and child tracking in line with ECCE.
- c. Make the National Early Childhood Care and Education (ECCE) Policy including the National Curriculum Framework and Quality Standards for ECCE applicable to government and private institutions.
- d. Ensure that all ECCE teachers are professionally-qualified and treated at par with other Government school teachers.
- e. Strengthen and universalize elementary education and the Beti Bachao Beti Padhao (BBBP) programme. Incentive Schemes for girl child education to provide a percentage as monthly cash transfers to parents for meeting ECCE health and education milestones for girls. This will invest parents to allow the state to take the burden to educate and care for girls in lower income and marginalized population groups.
- f. Make Secondary Education and Higher Secondary Education part of the Right to Education Act. Expand science teaching facilities at the secondary and higher secondary levels with the support of the department of science and technology and ministry of Earth Sciences.

3. School Infrastructure and Learning Resources

Every school must have appropriate infrastructure and learning material in accordance with the Right to Education Act.

- a. Provide safe and adequate physical infrastructure in all schools as per prescribed norms.
- b. Ensure buildings and equipment meet safety standards as per the law.
- c. Provide one classroom for each grade and functioning, usable toilets for girls, boys and staff.
- d. Provide barrier-free safe access so that all students/teachers/others may function independently.
- e. Make available adequate spaces for sports, music, art, drama and other activities.
- f. Build vibrant libraries in all schools. Add relevant material for children and teachers & ensure access for all. Design activities to encourage the use of the library as a learning space – book reviews, discussions around readings, reading corners/discussion corners.
- g. Ensure availability of well-equipped laboratories from the upper primary level onwards. Provide separate laboratories for sciences, geography, languages mathematics and computers- ensure access to all. Provide qualified technical staff.
- h. Provide students with adequate, age-appropriate, high quality teaching-learning materials
- i. Ensure availability of adequate number of computers (upper primary onwards) in a ratio of 1:15 at primary and upper primary; 1:10 at secondary and higher secondary stages.
- j. Provide safe and nutritious mid-day meals (as per committed norms), health support (focus on early childhood and adolescence), safe drinking water and a clean environment for all children
- k. Ensure adequate budgets and utilization for infrastructure development, infrastructure maintenance and teaching-learning material
- l. Support staff be provided for infrastructural upkeep and safety - School Chowkidars and Gardeners need to be catered for to keep school infrastructure safe and environment friendly. Chowkidars may be provided housing within the school premises.
- m. Urgent need for behavioral and career counsellors in schools from elementary to higher secondary levels of education. It should be noted that children also tend to suffer from learning issues besides facing behavioural stresses either as a consequence of peer

relationships and/or due to tensions within the family. At the stage of puberty both boys and girls need to be assisted by a councillor to thrash out personal mental and social difficulties and develop informed understanding about physical and psychological transition at various stages of development.

4. Assessment of Student Learning

Continuous and Comprehensive Evaluation (CCE) is integral to good pedagogy. Implemented properly, CCE can empower both students and teachers to perform better. For any system of assessments to be meaningful it must be aligned to curricular goals - these goals and expectations must be clearly understood by teachers and learners.

- a. Develop comprehensive benchmarks of student learning for each stage of education and subjects. The benchmarks must be based on the national and state curriculum frameworks which build on aims of education articulated in the national policy on education. Ensure syllabus, text books and teaching learning materials are aligned to these benchmarks.
- b. Insofar as identifying learning benchmarks for different subject is concerned this will require a much disaggregated analysis than that which is available in the reports. One may however consider the average state score at 75th percentile for the two classes, e.g. Class V and Class X as the medium term goal to be achieved in the next three years. For the long term goal to be achieved in another 7 years one could consider the mean state score plus the range of score between 90th and 100th percentiles at the national level or the best performing state or board of examinations. The later will not be relevant for class V as there is no board level assessment carried out in the survey for obvious reasons.
- c. In order to build teacher capability in the area of assessment (Assessment Literacy), pre-service training and in-service training incorporating understanding of assessment, connection to the nature of subjects, its aim and perspective, pedagogy – talking about assessment outside of subjects reaffirms the myth that assessment is divorced from teaching-learning.
- d. Reconsider “no detention” policy: It should be noted that the ‘no detention’ policy adopted in the light of RTE 2009 has proven to be counterproductive. It has led to decline in academic rigour both in teaching and learning standards.

- e. Introduce school board examinations for class 5th and/or 8th standards: As part of examination reforms it is recommended to have board examinations in the terminal year of primary and elementary school education. In case the child fails to clear the examination he/she should be given some more time to prepare and reappear for the same class in a supplementary mode.

It may be further added that out of school children or children who are absent for an extended period of time may not be subject to alternative schooling up to the age of 14. Alternative schools such as those available in the distance or open modes are antithetical to the very idea of education. At the younger stages of life as children under the age of 14 are, they need conducive learning environment which is less likely to be provided in an open school mode.

5. School Curriculum and Pedagogy

Learning experiences continue to focus primarily on ‘covering the syllabus’ rather than on designing authentic and holistic learning experiences that meet the individual needs of students. In this context the following goals are imperative:

- a. **Develop National and State Curriculum Frameworks for School Education (from Early Childhood to Higher Secondary) and periodically subject the same to revision.**
- b. Align curricular frameworks to the values of the Constitution – democracy, equality, justice, secularism, humanism, tolerance, pluralism.
- c. Curriculum should be flexible and inclusive, reflective of diverse local culture and knowledge.
- d. Incorporate creative arts, crafts and oral expression, especially those rooted in indigenous knowledge and skill systems into the curriculum.
- e. **Ensure that students are offered a variety of learning experiences that help them meet their curricular goals.** Encourage active learning through school and classroom processes that facilitate dialogue, thinking and expression in an environment that is physically and emotionally safe and intellectually stimulating.
- f. Focus on the arts, drama, music and sports as an integral part of the curriculum – ensure that there is no ‘hierarchy’ of subjects (e.g. music is as important as mathematics).

Use the home languages in the early years of school education.

6. School Culture, School Processes and Inclusion

Schools must demonstrate inclusive academic and operational processes based on the values of the Constitution and in line with principles of child development. Evidence shows that schools often reproduce and reinforce socio-economic stratification along the lines of caste, class, religion, gender and ability. Children with special needs are rarely able to access regular schools due to both physical and pedagogical barriers. Links between school, home and community are often weak and this translates into teaching processes that are neither contextual nor effective for learning. The following goals may be considered:

- a. Ensure all children learn in a safe and stimulating environment. Ensure that children feel safe enough to take intellectual risks, to make mistakes, experiment and freely express their opinions without the anxiety of being ridiculed, reprimanded or punished
- b. Remove barriers created by admission procedures (screening, identification, parental interaction, selection and evaluation).
- c. Classroom processes are flexible and inclusive reflective of diverse needs. Heterogeneity in seating arrangement should be encouraged- discourage seating arrangements on the lines of, caste, class, religion or learning levels
- d. Develop guidelines and processes for ensuring physical and emotional safety in schools including prevention of sexual abuse. Similarly bullying, harassing, intimidating and use of derogatory or demeaning language with or by children should be strongly discouraged. Integrate education for sexual and reproductive health into the curriculum, and help adolescents and young adults develop understanding, confidence and the ability to protect themselves.
- e. Confidentiality of sensitive information (regarding a student's background and circumstances) should be maintained.
- f. Support inclusion of students with special needs:
 - i) Ensure barrier-free environment and access to curricular resources for all students with special education needs.
 - ii) Make support services available in the form of technology (including ICT), teaching-learning materials and specialists.

- iii) Make sign language the language of instruction for the hearing impaired and Braille for the visually impaired – ensure resources are available for every child in need.
- iv) Strengthen the inclusive education program at the Block level with adequate people and resources.
- v) Include education for students with special needs as a focus area in pre-service teacher education.
- vi) Adapt the regular curriculum for students with special needs.

7. Build teacher capacity to supplement realigned school infrastructural parameters

- a. Reform Teacher Education Programs –
 - i) Move towards a four-year teacher preparation program which would include specialization in subjects and stages of education: early childhood, elementary and secondary education over the next ten years
 - ii) Scrap all Diploma programs in pre-service teacher education such as D.El.Ed. Advanced diploma programs could be offered for specialized courses after the initial teaching degree/teaching experience
- b. In-Service Continuous Teacher Professional Development
 - i) Put in place a rigorous and integrated teacher education system for schools from State to Cluster - the reporting structure should be CRC to BRC to DIET to SCERT
 - ii) Develop teacher learning communities by establishing voluntary professional networks of teachers (E.g. Subject teacher forums in every Block)
- c. Developing Teacher Educators: The current average quality of teacher educators is poor with a limitation in further professional development. Few institutions offer the M.Ed. programme – where they do, mostly, the quality/usefulness is poor. The much needed fundamental reform of the teacher education system will happen only on the basis of adequate numbers of good teacher educators being available.
 - i. Identify and prepare at least one institution (including Schools of Education which need to be set up in Universities) in each district to deliver high quality teacher educator preparation programs.
 - ii. Offer a range of opportunities for professional development of teacher educators such as sabbaticals for research/advanced studies; seminars,

exposure visits, access to professional journals and e-learning communities etc.

- iii. Facilitate voluntary professional networks of teacher educators forums for professional interaction and development
- iv. Identify and develop 40-75 outstanding teacher educators per district

8. Goals for Building School And Teacher Accountability

- a. Use the standards developed by NUEPA's Shala Siddhi to track school development.
- b. Assess institutional performance based on standards once in five years.
- c. Develop re-certification system for teachers – this will take care of professional accountability

9. Teacher Planning, Recruitment & Management

Over the next two decades, we need conducive environment to improve expertise of our existing teachers with urgency to build pool of teachers expert for all stages of education (subject specialised, early childhood education specialist etc)

Our service conditions for teachers must reflect that. There is a need to end the current approach of teachers of 'higher' classes being better paid or 'senior' to others. We cannot treat teachers of so-called core subjects like mathematics better than those who teach sports or drama. All these should be included in the proposed four year pre-service programme with rigorous system of teacher licensing and certification. The requirement process of teachers should be fair and transparent enough. The following processes are required to be put in place:

- a. **Plan for teacher requirements once every ten years**
- b. Make an assessment of demand based on stages of education and subject requirements
- c. Rationalize teacher placements to ensure school-level PTR and availability of a full complement of teachers in every school.
- d. Treat the Teacher Eligibility Test (TET) as the initial licensure test - map it to the national standard.
- e. Ensure rigorous and transparent recruitment processes with equivalence in service condition and a three year probation period of all teachers/teacher educators across all stages of education.

- f. Teachers should have the opportunity to grow (their salary structure, promotions etc.) while remaining as teachers in the same stage of education (e.g. primary). This would help develop specialist teachers for particular stages.
- g. Stop all 'para teacher' systems by 2018 (i.e. teachers without the necessary qualifications/not gone through in-service professional development). These could be treated as a dying cadre for a condensed course to be deployed under a converged ECCE primary education programme.

10. School leadership

Leadership of a school is central to school quality. Therefore there is a urgent need of professional preparation, support and mentorship of school leaders before and after they take the role. Teacher professional development with affirmation, recognition and support for exceptional work through strong in-school processes and development of a supportive school culture are key responsibilities of the school leader. The following steps in this regard would be necessary:

- a. NUEPA's National Centre for School Leadership (NCLD) framework to develop criteria for selection of school leaders.
- b. Revamp selection process for those in school leadership positions
- c. Design pre-service/induction programs for new school leaders
- d. Develop rigorous continuous professional development programs for all school leaders

APPENDICES

Appendix 1

Currently out of school, never attended and ever attended children in 6-10 yrs age by districts, Census 2011

Districts	CURRENTLY OUT OF SCHOOL			% never attended			% attended before		
	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
PUNJAB	17.13	16.65	17.72	15.20	14.77	15.73	1.83	1.78	1.88
Gurdaspur	15.24	14.94	15.63	13.27	13.01	13.60	1.88	1.84	1.94
Kapurthala	15.21	15.02	15.43	13.37	13.22	13.56	1.70	1.64	1.77
Jalandhar	15.64	15.28	16.06	13.45	13.11	13.86	2.10	2.08	2.12
Hoshiarpur	15.08	14.79	15.43	13.65	13.40	13.96	1.35	1.30	1.40
S B S Nagar	13.84	13.46	14.30	12.21	11.89	12.60	1.54	1.47	1.63
Fatehgarh Sb	15.35	14.95	15.86	13.89	13.56	14.30	1.39	1.31	1.49
Ludhiana	18.45	17.99	19.01	15.97	15.53	16.51	2.38	2.36	2.40
Moga	20.63	20.19	21.16	18.28	17.88	18.77	2.23	2.19	2.27
Firozpur	19.06	18.47	19.79	17.57	17.00	18.27	1.39	1.37	1.42
Muktsar	19.62	19.00	20.40	18.08	17.56	18.74	1.44	1.35	1.56
Faridkot	16.60	16.01	17.33	14.76	14.19	15.45	1.68	1.67	1.69
Bathinda	18.38	17.70	19.22	16.60	15.99	17.36	1.68	1.61	1.77
Mansa	16.69	15.95	17.60	15.00	14.34	15.81	1.57	1.49	1.67
Patiala	15.05	14.63	15.58	13.37	12.99	13.84	1.56	1.51	1.62
Amritsar	18.53	17.85	19.39	16.15	15.55	16.90	2.29	2.20	2.40
Tarn Taran	18.66	18.07	19.42	16.45	15.94	17.10	2.09	1.99	2.21
Rupnagar	15.62	15.28	16.03	13.59	13.32	13.91	1.91	1.86	1.98
S A S Nagar	16.40	15.86	17.08	14.35	13.87	14.97	1.93	1.89	1.97
Sangrur	17.24	16.80	17.81	15.81	15.37	16.36	1.34	1.32	1.35
Barnala	16.07	15.78	16.43	14.65	14.37	14.99	1.34	1.34	1.34

Appendix 2

Percent Schools by types and Facilities in Punjab, 2014-15

Management Categories	Primary only(1-5)	Primary with Upper Primary(1-8)	Primary with upper primary and secondary and higher secondary(1-12)	Upper Primary only(6-8)	Upper Primary with secondary and higher secondary(6-12)	Primary with upper primary and secondary(1-10)	Upper Primary with secondary(6-10)	Secondary only(9 & 10)	Secondary with Hr. Secondary(9-12)	Hr. Secondary only/Jr. College(11 & 12)	All Schools
Selected Facilities											
Ramp	89.4	71.6	72.6	90.5	92.2	68.8	92.9	0.0	68.4	60.0	85.3
Playgrounds	96.4	85.8	96.5	98.8	99.4	90.2	98.3	100	96.1	94.1	95.4
Library	95.1	84	98.6	98.4	99.7	94.4	99.8	80	96.2	92.2	95.6
Computer	10.3	84.9	98.1	95.4	99.8	96.5	99.8	80	78.9	73.5	52.5
Boundary	98.1	97.8	99.2	97.8	98.4	98.5	97.6	100	96.2	99.02	98.2
Headmaster office	44.8	92.5	97.8	70.3	88.8	96.8	85.3	100	100	100	66.6

Source: U-DISE, 2014-15

SKILL DEVELOPMENT

STRENGTHENING THE INSTITUTIONAL MECHANISM FOR DELIVERY OF SKILLS

- **Strengthening of Directorate of Industrial Training, State Skill Development Missions (SSDM) and State Council for Vocational Training (SCVT)**

The manpower as well as functionality at the Directorate may be suitably increased and trained to effectively implement the skill development initiatives for achieving the targets in the context of increased demand to train due to implementation of several skill development schemes in near future. In this context, SSDM is facing resource constrained both in terms of financial and human resources. Therefore, it was felt that it is necessary to strengthen the SSDMs, to enhance their capacities and role.

The State Council for Vocational Training (SCVT) the counterpart of NCVT may be strengthened and empowered to coordinate, assess skills, and create a pool of assessor and trainers in diversified skill areas which are not covered under Craft Instructor Training scheme of NCVT.

- All the stake holders should have special capabilities/facilities to train physically challenged.

- **Opening of Sector Skill Council (SSC) and NSDC Chapters in State**

Open Sector Skill Council (SSC) Chapter in state, based on sectoral priority of the State, for better industry linkages and to ensure that skills imparted in State are recognized even outside the State. The NSDC chapter may be opened at the State level for better coordination.

- **Establishment of National Skill Testing Authority and National Career Service Centre**

A National Skill Testing Authority with representation from Central and State governments, besides the industry should be set up to facilitate recognition of skilled youth having foundation level skills and their entry into higher level skill education programs. With this, there is a need to set up National Career Service Centre to make available career guidance for informed choices.

IMPROVING ACCESS AND OUTREACH

- **Opening of New ITIs and Skill Development Centres with Industry/private partner**

73 new ITIs & 2500 Skill development Centres shall be opened in the un-served blocks of the state. The target for first phase is 43 ITIs & 250 SDCs.

43 new ITIs with 400-500 students shall increase the capacity by 20000. And 250 new SDCs with 200 students shall add 50,000 trainees per annum. This shall increase the seating capacity by 70000 in one year.

- **Opening of Multi Skill Development Centres (MSDC)**

Four Multi skill development centres to be established at Amritsar, Ludhiana, Bathinda & Hoshiarpur with a capacity of 25000 trainees for each centre. These MSDCs shall act as hubs & provide the necessary support to nearby ITIs as spokes for inclusive growth as industrial clusters.

MSDCs in Health, Construction, Manufacturing and Automobile centres are being setup in the state.

- **Opening of Skill University and Skill Development Centres**

The role of Skill Universities in the State should also to be explored particularly for developing large numbers of qualified trainers and for conducting research in curricula and pedagogy. A panel of trainers can also be prepared for each module/trade through trainer's competency evaluation test like that of assessors.

NITI Aayog may make a budget provision to set up Skill University

Setting up skill development centres (SDCs) with hostel facilities. Central assistance may be provided to equip these SDCs with the required tools and equipment to make it fully dedicated.

- **Incubation centres, career counselling and skill tracking centres**

Incubation centres, career counselling and skill tracking centres in every village and municipal ward may be opened. These would liaise and coordinate with schools and colleges.

- **Entrepreneurship Development Program**

Industrial motivational campaign /EDP may be conducted in educational institutions with provision for bank linkages to motivate students to go for start-up/ entrepreneurial ventures.

QUALITY AND RELEVENCE

TRAINERS/ASSESSORS/ INSTRUCTORS POOL FOR IMPROVING QUALITY

There is an urgent need to improve the standards of vocational education with an orientation towards market demands/needs. Involving of higher technical institutions like IITs, IIITs, IIMs, Medical colleges and PSUs in skill development process is necessary.

- The Government of India has established Advanced Training Institutes to provide trained instructors to Industrial Training Institutes. One year course is being provided in these Advanced Training Institutes. After getting the certificate of one year, trainees are eligible for the post of instructor in the ITIs. Presently, the sitting capacity of Advance Training Institute is less in comparison to the demand of instructional staff in Government as well as Private. ITIs. Therefore there is a proposal to start Craftsman Instructor Courses in three main ITIs of the state

- **Institute for Training of Trainers (ITOT):-**

The optimum utilization of human resource can also promote the performance and productivity of any organization, provided every employee's knowledge and proficiency is upgraded and updated, continuously.

An Institute for Training of Trainers (ITOT) is being established at Lalru near Chandigarh for training of trainers of the six neighboring states.

Private industry should be incentivized to offer staff as instructors and go into creation of institutions

- **Standardization of Norms**

Common norms for cost, standards, curriculum of the vocational trades, its assessment and certification under National Council of Vocational Training (NCVT)/State Council of Vocational Training Modular Employable Scheme (MES) for wider acceptance in industry across the country leading to the gainful employment.

All the schemes for skill development need to adhere to these common norms.

- **National Skill Testing Authority**

Presently, Assessment and Certification is done under the framework of both, NCVT and Sector Skill Councils. However, it is desirable that there is a Single Statutory Body with branches in all the States that will have a panel of certified assessors for each sector and will issue certificates aligned with NSQF levels to trainees who have successfully completed

the training. Assessment should be handled by DGT, NCVT and MoSDE who have the experience of conducting assessment for several years. They have a network of assessing bodies and certified assessors with a robust mechanism to conduct tests and issuing NCVT certificates. All trainees will thus have a nationally recognized Certificate. Overseas recruiters will also be able to relate better to such Certification. The issue of joint certificates by industry bodies like Sector Skill Councils NCVT and SCVT etc may be explored.

- There should be competence building for assessors. The entire process of assessment should be revamped to make it more flexible and responsive to state specific issues. It should be ensured that untrained personnel are not deputed for assessment.
- While there is supply of potential assessor with good industry experience, there is need to strengthen assessing bodies with the capabilities and resources to train individuals appropriately.
- **Regional centres of RDAT**

The regional centres of RDAT need to be opened in the State to facilitate better coordination for assessment and certification of trainees.

PRIVATE SECTOR PARTICIPATION

The involvement of private sector needs to be scaled up in different sectors to address the capacity constraints for achieving the target of skilling 119 million by 2022 in 24 sectors and up skilling- re-skilling existing 460 million as projected by the NSDC based on its skill gap studies across states.

- Subsidy may be provided to trained persons to start the start up.
- It is important to ensure faster, easier and cheaper loan for skill Development by financial institutions. The Model Loan Scheme for Vocational Education and Training should be widely publicized so that maximum advantage may be derived out of it.

CAREER GUIDANCE & POST TRAINING PLACEMENT TRACKING

There should be a clear and strong focus on placement with particular emphasis on local requirement and absorption potential. All skill development activity should be closely linked with opportunities for earning livelihood, be it through placement, self-employment or linkage with government schemes.

- **Career Counselling and Placement Cells**

All the Training Providers must have Career Counselling and Placement Cells which are ICT and Aadhar enabled. Each training provider can set up a dedicated help-desk to provide post placement support. Post placement support is critical to prevent drop-outs, the trainees are much in need of mentoring in the matter of how to open a bank account, on ways to remit money to families etc access to markets, micro credit and finance for self-employment. Tracking needs to be done for post training placement levels of earning etc. up to block level.

INDUSTRY INSTITUTE INTERACTION

- As all the ITIs are managed by the Institute Management Committee (IMC) chaired by Industry partner, the IMC can start any course as per the requirement of the industry after approval of the institute development plan & subject to the availability of funds.

ACTION PLAN TO ACHIEVE THE CAPACITY TARGETS

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The role of Skill Universities in the State should also to be explored particularly for developing large numbers of qualified trainers and for conducting research in curricula and pedagogy. A panel of trainers can also be prepared for each module/trade through trainer's competency evaluation test like that of assessors.

NITI Aayog may make a budget provision to set up Skill University

TERTIARY EDUCATION:

- The share of education budget in state budget needs to be increased.
- The institutions must make efforts to mobilize resources from sources other than that of students particularly in professional education with sufficient funding from state

government. Provisions for free ships, fellowship and stipends to admit students from the economically weaker, SC and women to be made.

- Special financial help with reimbursement of institute fees and hostel charges from government is urgent need for students from the weaker sections of society that pass out from the rural schools, and gain admission in higher education. The new institutions of higher education should be established within the framework of man-power planning in view of the emerging scenario at the local, national and global levels.
- The curricula of higher education to be periodically updated keeping in view the changing requirements at local, national and international levels.
- The functioning of all the education departments in the government dealing with higher education needs to be reviewed regularly so as to re-determine their role and priorities from time to time.

**SDG 5:
ACHIEVE GENDER EQUALITY AND EMPOWER
ALL WOMEN AND GIRLS**

Gender equality is intrinsic to human rights and critical to sustainable development. It enables universal access to health, education, livelihood, credit, ownership of resources to protect human life and build human capability. Women's empowerment, a core dimension of gender equality has been identified as one of the most effective development investments that helps to reduce poverty, hunger, maternal mortality, infant and child mortality/malnutrition, early and forced marriage, while it boosts economic productivity and GDP. As such Goal-5 on gender equality has far reaching implications on other SDG's, directly effecting 51 of the 169 SDG targets. Social change for gender equality however means creation of alternative social relations of wealth generation. The father son cycle of inheritance and support through male networks and kinships that places responsibility to earn and safeguard the family as a male domain while care for home and family part of female tasks are gender discriminatory, making inheritance and care activities a function of gender typed roles. The challenge is to deliver not only equal rights but equal responsibilities within the family and community structures.

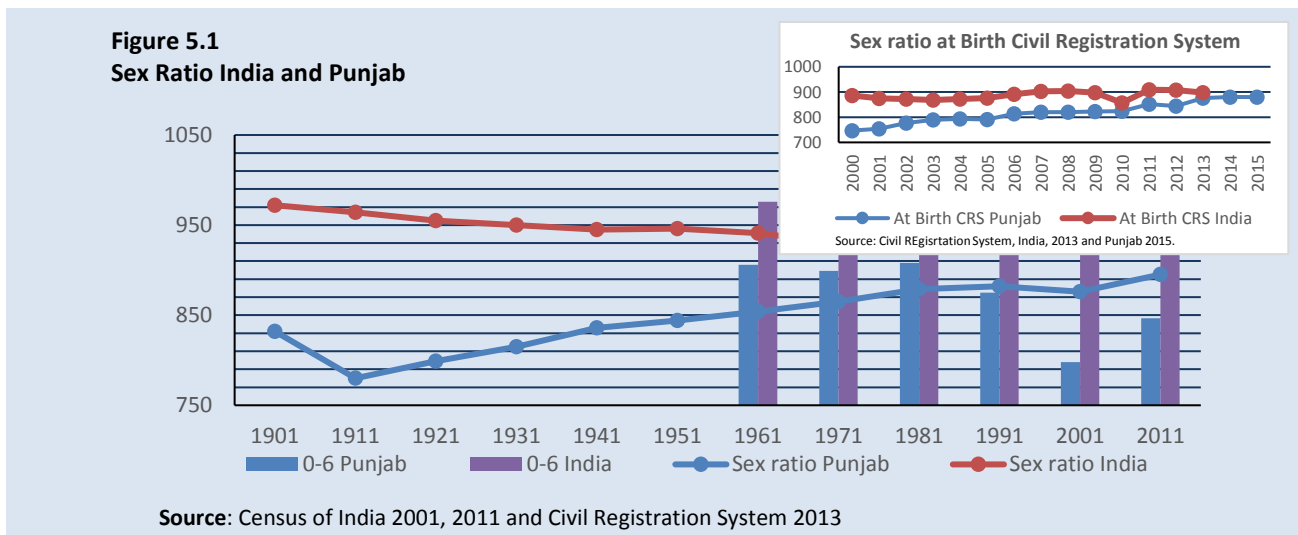
The unit on Goal-5 is organized into four sections. The first provides an overview and identifies Punjab specific gender challenges. The second outlines the perspective and approach to address these. The third details the milestones and target based interventions. The fourth section deals with the framework linking the target specific strategies promoting institutional change.

I. PUNJAB SPECIFIC GENDER ISSUES

Gender inequalities are a major impediment to rights based sustainable development in Punjab. The right to life itself remains uncertain for the female gender in Punjab and captures the widespread discrimination prevalent in the state. Historically there have been lesser numbers of women than men in Punjab, contrary to the biological pattern. While there are some states in India which have recorded lesser numbers of women in different age groups over the century, Punjab has been consistent in this imbalance since the first census in 1881, with a sex ratio of 844. In 2011, it remains among the lowest at 895 with the Indian average at 943. The 0-6 age Child Sex Ratios (CSR) is taken as a consolidated reflection of mortality in the most vulnerable age group, when medical access and child care affect survival the most. In Punjab, girl child discrimination is reflected with a CSR of 846 in contrast to 919 in India in 2011, with 952 being the ideal. In recent decades the campaign for girl child protection, social security schemes and improved health facilities have boosted survival of the infant girl child as attested by better birth

SR's (BSR), a decreasing gap in Infant Mortality Rates (IMR) and higher female immunization rates. However, malnutrition, anemia and health care continue to be a concern even though there is no doubt that the reach of medical facilities has enhanced the life chances of females not just of girls. Maternal mortality in Punjab has dropped to 141 in 2011 – 13, (Census of India, 2011-13) from 178 in 2001 – 03 (167 from 301 for India in the same period) (Gol: 2006).

In Punjab, the gender specific issues present the following challenges:



Development benefits have spread to living conditions and education, enhancing women’s wellbeing. Punjab remains at rank 2nd in safe drinking water facilities with 99.6 percent of households covered. The number of households with sanitation facilities has also increased, however, at a slower pace with other states improving more rapidly. While 84.4 households have toilet facilities ranking Punjab as 16th in India (NSSO, 2013), it has dropped from rank 14 in 2008-09. The lack of access to basic facilities for these households effects women since household chores of collecting water remain women’s traditional responsibilities and the burden of disease, many caused by lack of sanitation/clean drinking water), its care and loss of income to the household is also borne by women. It is the poorer households that are vulnerable and which remain deprived.

Levels of female literacy have steadily improved with Gender Parity Index (GPI) at 0.98 in the 15-24 year age group for 2014-15. The access however, remains uneven with Gender Parity Index value (GPI) for Gross Enrolment Ratios (GER) at pre-primary being, 0.58 (NSSO, 2016), 1.04 in primary, the ideal 1 at secondary, 1.03 at higher secondary and 0.97 in tertiary education. Enrolment may not lead to completion of education with the out of school students in the 6-10 and 11-13 years (corresponding to primary and upper primary) being higher among girls than boys (6.3 and 6.1 for girls and 4.3 and 5.2 for boys).

The male as the primary earner is expected to earn rather than learn, especially when human capital formation does not occur with income generating skills not accessible. The trend of poor female work participation rate (FWPR) continues in Punjab, which remains among the lowest in the country at 13.9, much below the Indian average of 25.51 (Punjab was ranked 29 in 1971, 22 in 2001 and 33 in 2011), while male work participation rate (MWPR) at 55.15 are higher than the Indian rate of 53.26 (Census of India 2011). Gender presence in politics also remains wanting. While women representation has improved to 12 per cent in 2012 from 5.1 in 1992 for woman, gender gaps continue to emerge. For instance more female candidates are available per constituency in Punjab to choose from (from 0.19 (1992) to 0.79 (2012, Election Commission Reports 1992-2012)) but remain comparatively fewer than male candidates, with a gender gap rising from 7.5 to 4.5/constituency in the last two decades.

Differential access to well being and economic parameters is more significant among the marginal populations. The gender gap in health and education is higher among the Scheduled Castes. If 38 per cent of Punjab's women are anemic, then this number rises to 42.6 per cent for SC women (IIPS 2007:90). Fifty-one per cent of the deliveries in the state were within health facilities, but this figure drops to 34 per cent for SCs (IIPS 2007: 67). In 2011, GPI for education completion rate was lower among SC females - 1.01 in secondary and 0.93 in tertiary education in comparison to general females 1.04 and 1.03 (Census, 2011). Yet, the SCs have historically evinced healthier CSRs than others in the State. The issue being that prevalence of public facilities of education, health, subsidized food, and developmental schemes are disproportionately accessed or appropriated within the social positions to affect life chances.

The state governments commitment to gender equality also needs to be reflected in the gender budget. Forty-two percent of the state planned schemes budget was allocated to gender in 2014. Expenditure of the allocated budget was 77 percent. However, about 48.17 (in 2014–15) (GoP, 2014) of this budget was spent on basic needs, which are necessary survival needs of all citizens. Construction of new hospitals, expenditure under national rural/urban health mission, allocation for adult education programmes, strengthening of science laboratories, were all counted under the woman component of the budget. The next largest allocation of 17.2 per cent was for social support, which includes old age pension (for both men and women) assistance to disabled persons, dependent children, widows, and destitute women and setting up of beggar homes.

Both basic needs and welfare provisions cut across all sections of population, including gender. Another 14.99 was spent on facilities for SC women. The remaining budget of 16.39 percent was

spent to promote gender based rights and needs to be hugely enhanced for change to be regularized.

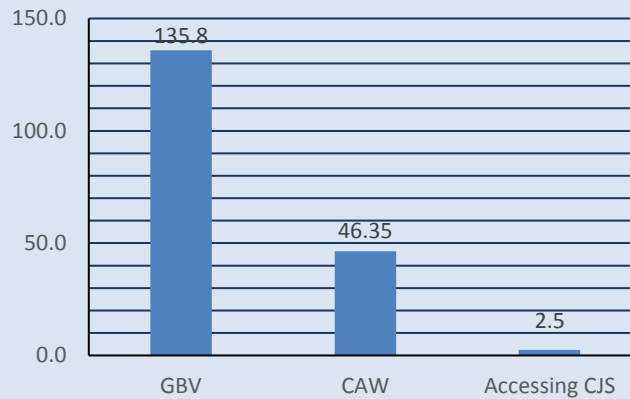
- i. The number and extent of culturally acceptable forms of discriminations/gender based violence (GBV) are high with a large proportion of violence not perceived as crime. This broadens the strategy of change from state governance structures to the community and social relations.**

The practice of male child preference manifests as cultural neglect of the girl child and female foeticide/infanticide, and together these effect the child sex ratio (CSR), labelled as the missing girl numbers. In Punjab, the missing girl child rate is 11084, in comparison to India's 3328 (GoI 2011). In spite of improvements, Punjab's CSR remains at 846, in contrast to India's 919 (GoI 2011). Two of the acts – infanticide and prenatal sex selection, are crimes under different laws. While the third, cultural neglect of the girl child cannot be pinpointed as an act of wilful negligence and therefore crime – it is built into cultural rites, rituals and customary discrimination of health and maternal care for the girl child. The culture of male child preference provides social acceptability and justifications for the practice of female infanticide/foeticide and the crimes are grossly under reported.

Honour killing is another violent practice in Punjab that has social sanction. In spite of high visibility and state efforts to check this crime, these continue to occur. Honour killings target the couple – both male and female for marrying against family considerations. Contrary to popular belief GBV is directed at both men and women, to exercise control over 'acceptable' behaviour within the given social order, which is patriarchy. Punjab accounts for 17 percent of these reported incidents in the country (GoI 2015) but these are concentrated in one population group – the *Jat* Sikhs requiring a focused strategy. (According to a study 92 percent of honour killings involved the *Jat* Sikhs (Deol 2014). Another form of GBV is NRI bride desertions that is more particular to Punjab, accounting for 24 percent share of India's overseas harassment/desertion of spouses.) (GoI 2012) The urge to settle abroad, includes family expectations to help immigration of other members, particularly of males. Legal inaccessibility to other countries criminal justice systems makes remedial provisions difficult, placing the onus of safeguards on the community itself. Other forms of discrimination emanating from the socio-cultural relations include dowry exchange, caste based sexual exploitation and wife beating which make invisible all but the most brutal incidents of GBV.

The high cultural acceptance of GBV is not reflected in the crime against women (CAW) rates. Punjab is ranked at a low 22 vis-a-vis CAW with a rate of 46.35, but captured as a composite GBV the rate is 135.8 ranked at number 8 in India. (Dagar 2015) (GBV includes missing girls and social acceptance of VAWG).

Figure 5.2
Gender Based Violence (GBV), Crime Against Women (CAW) and Accessing Criminal Justice System (CJS): Punjab, 2012

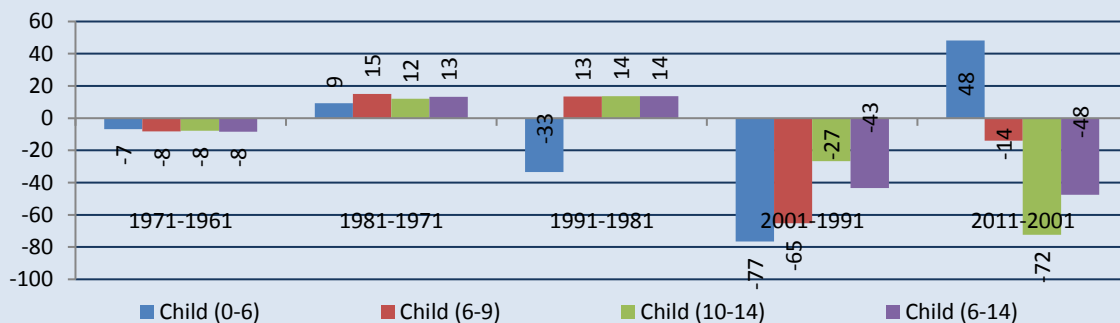


Source: Computed from Crime in India, 2012-2013 and Census of India, 2011

ii. There is a shift in the forms of discrimination/GBV which are not on the radar of intervention.

The social invisibility to GBV is compounded by newer forms of discrimination and violence, where the target population or site is different, requiring legal protocols, administrative mechanisms and public focus on the issues. For instance, while the CSRs in Punjab are improving, the 6-9 and 9-14 SRs have been declining in the past two decades (by as much as 77 and 97 points)

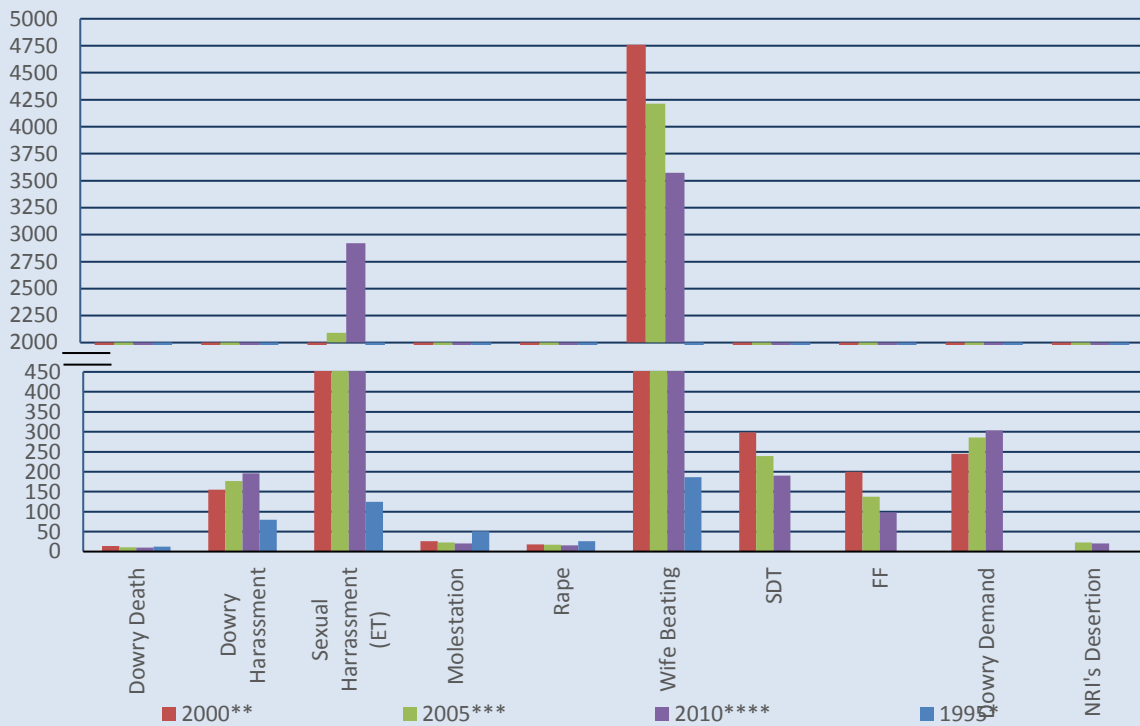
Figure 5.3
Changes in age specific CSRs over time



Source: Census of India, Socio Cultural Tables 1961-2011

Sexual harassment at the workplace has legal recognition in recent years, but harassment in public spaces to which women have increasing access, is rising phenomenally, creating unsafe conditions, hampering travel, education and public mobility of women. The reported rate of sexual harassment is only 0.2, the unreported rate is 2920. (Dagar 2014) Reporting of VAWG remains low, though it is found to be improving in certain domains such as dowry harassment, rape and molestation.

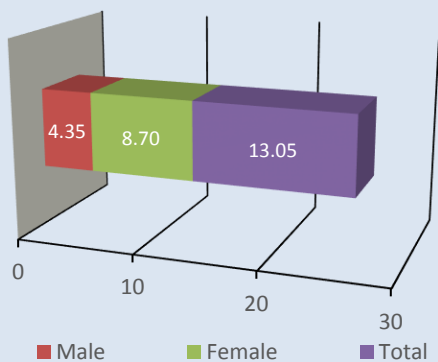
Figure 5.4
Rate of violence against women for different forms in Punjab in 1995, 2000, 2005 and 2010



Source: Dagar Rainuka, 2014, Gender Identity and Violence, Female Deselection in India, Routledge,

Neglect and abuse faced by older parents is also becoming brutal but is yet to be a focus of intervention in Punjab.

Figure 5.5
Domestic Violence faced by older parents in Punjab



Source: Field Survey, Culturally Sensitive Gender Responsive Indicators on Gender Based Violence, Dagar Rainuka 2015

Addressing the range of forms of violence (cultural neglect-female foeticide; sexual harassment - rape) is critical since the extent of these 'non-brutal' forms of violence is wide spread, frequent and many times considered acceptable conduct in contrast to the more physically brutal forms of violence like rape and dowry death. A focus on individual and brutal violence also does not capture the diverse and new types of gender discrimination and violence. As a result there is insufficient information to guide policy and to develop effective measures to combat gender

discriminations. Punjab needs to generate data to map the changing range of violations and subsequent intervention to tackle these.

iii. In spite of development, outcomes may be gender unequal .

Punjab's economic and developmental benefits have not percolated to improve the conditions of women, contrary to expectations. For instance, the spread of medical technology, family planning and the two child norm, witnessed sharp falls in CSRs. Educated mothers, aware of health care benefits, have been found to prioritize attention to male children, widening gender gaps in infant and child mortality.

In another domain - female undernourishment is significant, in spite of high food consumption in the State. Infact, Punjab has the lowest score on the Hunger Index in India. Rural Punjab is ranked 1st in calorie consumption and urban Punjab at 3 (GoI 2014), yet large number of women are anaemic (52.7 falling to 14 rank in India, (IIPS 2014)); with a significant gender gap in malnourishment of girls. (Gender gap for weight to age and falls at a low rank 17 out of 18 states, as also the gender disparity in height for weight which is 0.9 and ranked 13/18 states (IIPS 2014)). Also 47 percent of adolescent girls are underweight in Punjab. This figure is higher in rural areas (49 percent) and among the scheduled castes (61 percent)(GoI 2013).

Another gap pertains to education and livelihood outcomes. The state ranks relatively high on female education rates in the country 7th with 37.78 percent female completion rates in secondary education and 9th with 10.24 percent female completion rates for graduates. However, this capacity is not reflected in livelihood generation with the female work participation rates only 13.9 percent ranked among the last in India, at 33.(GoI 2011) The gender gap is stark not only in extent of participation, but also in nature of participation (quantum of participation — principal or subsidiary) and work (regular, self-employed or casual). The National Sample Survey Organization (NSSO) provides a disaggregate analysis. Female work participation percent is 8.6, below the Indian average of 22.5 (NSSO 2011-12). For the poor, livelihood generation is largely drawn from subsidiary status, indicating shorter engagement with livelihood opportunities: rural female labour force participation rate is 6.5 in principal and 26.4 in subsidiary status; for urban, principal status is 12.2, and subsidiary status is 5.5 (NSSO 2011-12). Regular employment for the female labour force is exceedingly low in rural areas, where 62.5 per cent (Census of India 2011) of the population lives — it is 36.24 per cent, 75.47 per cent in urban areas. In rural areas, 43.03 per cent of women are labelled under the self-employed category, signalling work in family-owned farms. Also noteworthy here is the distribution of female workforce along the social categories. In the marginally-positioned SCs, the female labour force is largely subsidiary (shorter employment), with regular employment opportunities being availed by non-SC i.e. 'others'.

The gains in female work participation rate have been largely in highly educated or in the lower income illiterate educated females. Education and livelihood remain outside the bounds of those who need to earn a survival wage. Moreover, women are involved in unpaid work which does not reflect in the work participation rates. They spend about the same time in unpaid work as men spend in paid work.(OECD 2015) Women spend 7.6 hours (and males 0.5 hours) in unpaid work and 2.5 hours (and male 7 hours) in paid work. Work without recognition is also reflected in ownership patterns. Though women are engaged in agricultural operations with 10,000 female farmers, they operate only 1 percent of the total area.(Gol 2010-11)

Further, institutional capacity of the State may need to be tuned to overcome the social bias towards women. The state's overall performance of criminal justice infrastructure, capacities and delivery is ranked at 10 in India yet its justice delivery in crimes against women falls to rank 19.

In spite of availability of resources in the state and women's participation in productive economic processes, they have lower access to food, health, income, assets and justice.

iv. Variations in population based gender gaps are uneven and remain hidden.

Some forms of discrimination and gender violence are peculiar to population groups (caste, religion, strata) and are location specific (urban-rural or *majha, doaba, malwa*). As the discriminations are uneven across spheres or confined to pockets, these go unnoticed. For instance, female political representation in proportion to SC population has been higher than for non SC (2.4 percent for SC and 1.6 for total women (Gol 2012) but malnourishment in SC adolescent girls is significantly higher than the State average; female foeticide and honour killings predominate among the *Jat* Sikhs, rather than in the marginalized SCs making anemia, malnourishment, cultural neglect more prone among the SCs invisible. Conviction rates for rapes against SCs are higher than for others, yet majority of these incidents may not access the Criminal Justice System (CJS) (see reported vs. Unreported cases) with 27 percent citizens (31 among SCs) even preferring to approach informal justice mechanism and their community leadership for GBV. (Dagar 2015) With no consistent pattern of discrimination emerging in groups, the disadvantages remain hidden. A layered and targeted intervention strategy is required that responds to the population based needs.

II. PERSPECTIVE AND APPROACH

To promote gender inclusive and rights based development the document suggests strategies based on the following considerations:

i. Gender not women

Social expectations, roles and norms demarcate access to resources, facilities and responsibilities on the basis of gender. While the male is positioned dominantly, and female restricted to domestic spheres and under more social controls, both male and female are subject to different obligations, curtailing rights, distribution of resources and being targeted for violence. Men are expected to provide for the family and inherit family assets – land ownership is with men as are the farmer suicides; both fathers and mothers face violence from children; both partners male and females are targeted in honour killings. No doubt the large majority of discriminations – higher proportionate of malnourished, underpaid, abused gender is that of the female (95.6 per cent of GBV is targeted at women in Punjab), but males also face gender discrimination.(Dagar 2015) It is gender violence that is addressed here rather than violence against women and girls (VAWG). Data for VAWG is recorded by the State under Crimes Against Women (CAW) and children. However, not all VAWG is listed – for instance cultural neglect is not captured, nor honour killings as a separate form. GBV has been captured as violence against either gender from field based time series studies by IDC. (For details refer to IDRC and Routledge)

Gender affects men and women differently, impacting on separate dimensions of educational and livelihood access. Gender role expectations that boys need to earn and contribute to the family income care for parents lies with sons and not daughters. The male as the protector and decision maker has different responsibilities, while girls are expected to perform domestic chores. With safety codes of conduct, guiding in choice of education and livelihood. For instance, care related subjects such as nursing or teaching tend to be the choices for girls. Gender equity as equal outcomes for men and women means that policy planning and strategic intervention cannot be gender neutral. For achieving inclusive education for all, the specific positioning of boys and girls in different settings such as rural-urban, SC/ST populations need to be reflected in policy agendas. While many considerations are common for all, safety nets, provision of toilets for girls and vocational education needs for boys to check dropout are specific to gender. Both need to be addressed, through targeted inter-sectionality and multi-sectoral strategies.

ii. Change in institutions and individuals

In this report, it is the gender social relations that are targeted for change rather than only making provisions for giving women the same rights or share as men. Without a role change, women's income becomes a monthly dowry as also inheritance of parental property while responsibility to care for parents remains with the son – albeit through half the family resources.

Social relations that revolve around the cycle of father-son interdependencies insure sons to inherit and daughters are provided a dowry and life term support through ritual and customary transfer of 'gifts'. For girls to inherit, both dowry and gift transfers alongwith responsibility for parental care and alternative governance structures to male kinship streams need to be constructed. With public space as exclusive to males, networks, information, channels of communication, procedures to access governance (bribes, status, kinship connections) remain a male domain and thus performance of males to deliver on services in public spheres or involving state structures remains better than of women. The male/sons go to police stations, take the sick to hospitals, get *Atta-Dal* paper work, and help relatives in times of crisis with a range of support such as finance, connectivity, administrative certification. Improved public dealings based on citizen rights according safety and dignity to all, particularly to women rather than on male kinship or status will help women to undertake responsibilities.

The practices of dowry, unpaid care of home and children, concept of honour, acceptance of women bodies as sexual objects, marriage within prescribed social groups – need to be a focus of change rather than only providing relief or resources to individuals. In the short term, the focus needs to be an individual inclusion to resources and safety, while in the long term strategy, it should target the processes and prevention of GBV/discriminations.

iii. Integrate schemes into reform

The provision of infrastructure and services has made modest contributions to gender rights in Punjab. Safety nets, subsidies and women targeted schemes have reflected state commitment to women rights, in providing visibility to women's unfair conditions, even in building trust to approach and use facilities such as in CPRCs (Community Policing Centres). However, equal pay for equal work has not brought parity in wage differentials, inheritance laws have not lead many women to own assets; health facilities and nutrition schemes continue to record differences in malnourishment in boys and girls; CSRs continue to be poor, even though they have improved, with differences now shifting to 6-9 and 9-14 age

groups. The point being that even when facilities are available, they may not be equally accessed due to the highly gender unequal society. Survival and livelihood issues may take precedence over gender rights, customary practices may hinder people from seeking justice or even perceiving inequality. The need is to provide a gender responsive infrastructure and services but whose outreach is bridged through community structures, appealing to cultural sensibilities. This approach needs to be institutionalized in administrative structures and community-state partnership. There are three aspects to institutionalize the gender intervention. One, building capacity on gender – which includes provision /strengthening of infrastructure, facilities and services such as responsive police stations/community police centres, flagship programmes like make in India, skill India, digital India. Gender to be mainstreamed in departments with capacities of staff (representation, training), women allocations in fair price shops; systems built for coordination across departments, creation of gender data base, evolving of sensitive procedures, mechanisms and administrative rules. A second aspect pertains to building a partnership between citizen and state - of community institutions such as civil society groups, local leadership, community – kinship groups and media establishments to work in collaboration with state resources/services to sustain change, advance equitable access and engineer effective systems of service-delivery. Third, engage citizens as stakeholders to access services and schemes – include citizen participation as a mechanism to promote *swachh bharat*, clean drinking water, housing for all, effective delivery of *Atta-Dal* schemes and PDs, banking networks, to debate legislative rights and outreach to women. It is through a participatory engagement that mechanisms to protect, secure and integrate women into recognized productive processes will be created. It is at the point of delivery that relations of accountability and citizen confidence in state services will generate ownership of change and create institutional legitimacy for improved delivery.

III. MILESTONES AND TARGET BASED INTERVENTIONS

The nine SDG-5 targets with Punjab specific gender indicators are presented in a log frame with accompanying time specific milestones and assumptions for change. Broadly, the strategies form three bands. One, that map, track and monitor indicators demarcated on gender to target the gaps in service delivery (health, shelter, nutrition, education-livelihood etc.). Two, addressing the gender specificities such as safety, missing girls, care related services. Three, strengthening gender responsive infrastructure, facilities and strategic interests (credit, land, livelihood skills) through an institutional framework. The institutional structures incorporate not only the SDG targets but relevant gender components from all other SDGs.

Target 2030: 5.1 End all forms of discrimination against women and girls everywhere					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Social Protection Schemes					
1. Percentage of women with effective financial protection					
- Women BPL with old age pension	100%	100% coverage of eligible	To maintain total coverage	To maintain total coverage	Ongoing schemes (<i>Atta Dal</i> /Family Pension/Old Age/Widow-Destitute pension/support to disabled) to be strengthened in their delivery. - Death registration service to include handing over death certificate to widows and provision for duplicate/re-issuing death certificates - Institutionalize gender capacities through as a registered society (Gender hubs) partnered by stakeholders, departments and community to make effective and accountable delivery of services.
- Of eligible women with widow/destitute financial support	88%	100% coverage of eligible	To maintain total coverage	To maintain total coverage	
- Percentage of women headed households eligible for <i>Atta Dal</i> schemes	100%	100% coverage of eligible	To maintain total coverage	To maintain total coverage	
- <i>Shagun</i> scheme					
o SC population	88.5%	100% coverage to eligible	To maintain total coverage	To maintain total coverage	Relevant ongoing schemes: <i>Atta-Dal</i> Family Pension/Old Age/Widow Destitute Pension/support to disabled.
o EWS	64.3%	100% coverage to eligible	To maintain total coverage	To maintain total coverage	New: Institutionalizing and creating gender capital. The State Mission for Empowerment under the National Mission for Empowerment of Women can be revamped to meet Punjab's approach to interventions on gender.
Source: Department of Planning, Punjab Annual Plan Punjab 2015-16, 2016-17 Baseline data to be generated from Punjab					

Target 2030: 5.1 End all forms of discrimination against women and girls everywhere					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
2. Percentage of women suffering poor health - Anaemia <ul style="list-style-type: none"> • women • Adolescent girls (rural 49%) (rural SC) - Gender gap in child malnourishment <ul style="list-style-type: none"> • Reduce maternal mortality ratio to <70/100000 live births by 2030 - Maternal Mortality ratio - Adolescent Reproductive health	52.7% 47% 61% 1.7% 141	Reduce to 42% Reduce to 37% Reduce to 50% Reduce to 1% 130	Reduce to 20% Reduce to 20% Reduce to 30% Reduce to 0 85	Reduce to 0 Reduce to 0% Reduce to 0% Maintain to 0 60	Identify anaemic women and provide diet supplements through primary health care and <i>anganwadis</i> . Increase consumption of fruit and vegetables. Promote hygienic conditions of sanitation including distribution of sanitary napkins. Track and monitor all women health through PHCs Undertake state-wise campaigns to spread awareness on anaemia and programme on supplementary diet. Identify underweight children with focus on girls through <i>anganwadis</i> . This includes coverage of all children, even outside <i>anganwadis</i> . Track and monitor them under ICDS. Improve quality of maternity care (ANC, INC and PNC) Promote medical consultations in each pregnancy under PMSMS - Strengthen <i>Kishori Shakti and Sabla</i> , targeting the vulnerable and SC (Also refer to SDG-3) - Institutionalize gender capacities through as a registered society (Gender hubs) partnered by stakeholders, departments and community to make effective and accountable delivery of services. Relevant ongoing schemes: Dietary Supplementation for pregnant and lactating women/ IGMSY/ children covered under ICDS (to be expanded to identify all anaemic and malnourishment children) / <i>Kishori Shakti</i> / PMSA/ Distribution of sanitary pads New: Institutionalizing and creating gender capital under SEM.
Source: For Anaemia among women NFHS-III, 2005-06 For Malnourishment, DHLS-IV, 2012-13 For MMR, SRS 2014					

Target 2030 : 5.1 End all forms of discrimination against women and girls everywhere					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
3. Percentage of women with livelihood					<p>By improving skill base, ensure flagship program reach poor women (in families availing <i>Atta-Dal</i> scheme) especially women headed households.</p> <p>Livelihood generation within 'home' industries to give push to income and asset formation. Punjab advantage in agro-based cottage industries to be promoted among poor and SC women.</p> <p>By redistributing of public land to SC and poor, women headed households in this bracket will secure property. Link this asset to cultivate and livelihood in rural areas.</p> <p>Include SC presence in gender hubs.</p> <p>Another initiative is aimed at operationalizing legislative rights regarding womens inheritance by mobilizing for son and daughters shared responsibilities towards parents, curtail dowry by rationalized inheritance through stakeholder and citizen engagement with an institutionalized programme on gender.</p> <p>New: Land Redistribution</p> <p>Institutionalizing and creating gender capital under SEM.</p>
- Work participation rate	13.9%	Improve by 3%	Improve by 5%	Improve by 10% to 32%	
- Female operating land holdings 10,000	Unit coverage of 1%	Expand to 2%	Expand to 3%	Expand to 5%	
Documented secure rights to property					
• Total	Average of 16.56 percent in Punjab	Improve by 3%	Improve by 10%	Improve by 30%	
• Rural	Rural average is 15 percent				
• Urban	Urban average is 25 percent				
Source: Director Land Record, Punjab, 2010					
WORKING WOMEN Gender gap in wages, by sector of economic activity	Baseline to be collated	-	-	-	<p>- Strengthen no wage differentials in skilled-semi skilled work by incorporating in due diligence reporting.</p> <p>- Casual/daily wage earning to be work/job work defined rather than by male or female wage. To be promoted through institutionalized gender capacities (GCC), organized at and inclusive of workplace and local bodies.</p>
Casual wage work					
Source : NSSO 66 th Round 2010-11					

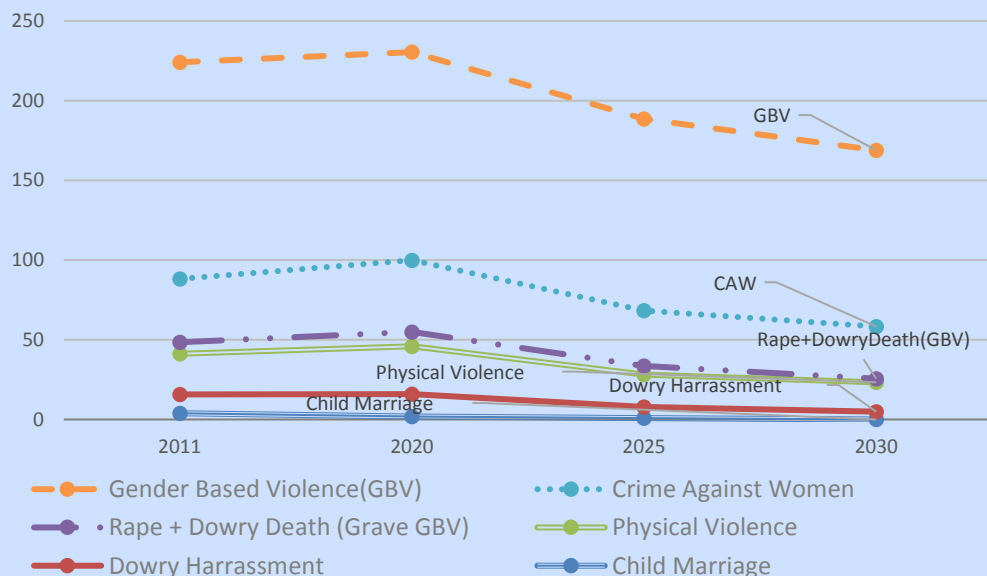
Target 2030 : 5.1 End all forms of discrimination against women and girls everywhere					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
EDUCATION Primary completion rates for girls and boys measured as:	Higher girl completion rates				<ul style="list-style-type: none"> - By merging early child care education (ECCE) to primary/secondary education gains made in ECCE will be sustained in child learning capacities and decrease 'never attended' and completion rates in schools. - It is assumed that organizational continuity will help to pull in dropouts bridging ECCE – schooling, increasing enrolment in AWC and streamline cash benefits and subsidies for girl children. - Further institutionalized gender capacities under the gender capital program with coalition of stakeholders will drive education reforms and service delivery to be gender responsive, target SC/OBC and be accountable and legitimate. <p>New:</p> <ul style="list-style-type: none"> • (ICDS and SSA (<i>Sarv Shiksha Abhiyan</i>)) • Incentive cash transfer to parents within existing schemes - <i>Sukanya Samridhi</i> • Institutionalizing and creating Gender Capital <p>Relevant Ongoing</p> <p>Strengthen access and delivery of attendance scholarship to SC, BC and EWS primary girls students and handicapped girls students (rural areas)</p>
• Male	90.63	Improve by 3% of baseline	Improve by 7% of baseline	100%	
• Female	93.25	Improve by 3% of baseline	Improve by 7% of baseline	100%	
• Gender gap	-2.62	Achieve GPI 1	Maintain GPI 1	Maintain GPI 1	
• Gap in universal completion of primary education	8.15	Decrease by atleast 4%	Achieve universal completion rates	Maintain universal completion rates	
• Female gap in universal completion	15.38	Decrease by atleast 5%			
Source: NSSO 71 st Round, 2014					

Target 2030 : 5.1 End all forms of discrimination against women and girls everywhere					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Secondary completion rates for girls and boys	Higher male completion rates				<ul style="list-style-type: none"> - Incentivize monthly cash transfer to parents within existing schemes - Build gender safe communities to ensure girl students protection by launching a multi sectoral gender protection program. - Continue with transport aid of cycles under <i>Mai Bhago Vidya</i> Scheme - Provide mechanisms in schools to link with capacity building and livelihood options. - Children joining vocational streams to be given a monthly employability allowance (Rs.1000/-) for a maximum period of three years or duration of the course whichever is less. <ul style="list-style-type: none"> o It is assumed that cash transfer incentive to parents in ongoing girl child schemes, provision of safety and viable employment options will encourage both boys and girls, albeit differently to complete secondary education. <p>New: Gender safe communities program (education, women social security & women police, Police, local bodies, transport) Incentive cash transfer to parents within existing schemes.</p> <p>Relevant Ongoing: Post-Metric Scholarships for SC and Minorities/<i>Mai Bhago Vidya</i> strengthen links of secondary education to employment/ as already recommended children joining vocational streams to be given a monthly employability allowance of Rs.1000/- for a maximum period of three years or duration of course whichever is less.</p>
• Male	66.37	Improve by over 10% of baseline	Improve to above 20% of baseline	Universal completion	
• Female	67.27	Improve upto 10% of baseline	Improve to above 20% of baseline	Universal completion	
• Gender gap	-0.9	Decrease to 1	Maintain GPI 1	Maintain GPI 1	
• Gap in universal completion of secondary education	33.31	Decrease to 30	Decrease to 15	Universal completion	
• Female gap in universal completion	32.73	Decrease to 30	Decrease to 15	Universal Completion	
Source: NSSO 71 st Round, 2014 Calculated on MDG Formula					
<p>Completion Rates GPI Targets</p> <p>The radar chart displays the GPI targets for four years: 2016 (blue), 2020 (red), 2025 (green), and 2030 (purple). The axes represent different education levels: Pre Primary, Primary, Upper Primary, Secondary, and Higher Secondary. The scale ranges from 15 at the top to -15 at the bottom. The 2016 GPI values are positive (around 10-12), while the 2020, 2025, and 2030 values are negative, indicating a shift from positive to negative GPI across all levels.</p>					

Target 2030 : 5.2 Eliminate all forms of violence against all women and girls in public and private spheres, including trafficking and sexual and other types of exploitation					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Prevalence of girls and women 15-49 who have experienced physical or sexual violence [by an intimate partner] in the last 12 months	Physical violence 25.4 Rate of wife beating: 3573 (2010) Dowry harassment rate (11.9)	Rate will increase with reporting access.	Decrease by 5 percent of baseline	Decrease by 7 percent of baseline	<p>A baseline rate from the IDC studies will form the basis of a median as the indicator of performance reflected in the milestones.</p> <p>A four layered multi sectoral strategy of building individual women capacities (economical independence and decision making/workplace) capacities of institutions related to safety (police, <i>panchayats</i>, SH committees), including counselling services (for sex education, gender equality, women rights in education institutions), making marriage counselling a requirement of marriage registration and mobilization of community for women safety in private spheres to drive reform for safeguards for women in domestic life</p> <p>New:</p> <ul style="list-style-type: none"> • Make marriage counselling necessary for registration of marriages (all marriages to be registered by law) and part of all family planning services. • Sex education part of school and higher education curriculum; to be made mandatory at workplace. • Schools to seek parents as volunteers to participate in sex education sessions. • Build women capacities economically (asset generation, employment women cooperatives) • Under institutionalizing gender capacities shared prevalence rates of D.V, D.H. legal rights, avenues under CPRC, campaigns against gender violence its justifications. <p>Ongoing:</p> <ul style="list-style-type: none"> • CPRCs: Strengthen Gender Responsive Policing • Revise D.V. campaigns under protection for DV Act, 2005.

Source: NHFS-III, 2005-06 : Crime in India-2015
Gender discrimination and Violence, IDC five yearly study, 2010

Gender Based Violence and Forms : Targets



Target 2030 : 5.2 Eliminate all forms of violence against all women and girls in public and private spheres, including trafficking and sexual and other types of exploitation					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Percentage of referred cases of sexual and gender-based violence against women and girls that are investigated and sentenced measured as					<p>It is assumed that making the CJS gender responsive will improve investigation and sentencing of GBV cases. At present the disparity in Punjab in responsiveness to gender to other cases is ranked at a low -19 among Indian states, with a better overall efficiency rate (10) of the CJS.</p> <ul style="list-style-type: none"> Strengthen confidence in criminal justice system by making it gender responsive. Measured as a proportion of CAW to minimum rates of gender based violence. At present it is 2.5 in Punjab. (Gender-based violence includes rates of CAW, missing girl child rate and social acceptability to GBV) Forms of GBV are population group and site specific. Disaggregate data on forms to include population groups (caste, religion, clans) and sites (conflict/post-conflict) (92% honour killings involve <i>Jat Sikhs</i>) Prevalence and intensity of GBV to be captured through disaggregates of forms, roles, age, population groups sites. In Punjab 13.04% DV is targeted to older parents. Justice delivery for gender based violence to be measured as a composite performance of the criminal justice system. An index of responsiveness to GBV has been constructed. This to be shared in <i>Saanj Kendras</i>, with media and in Gender hubs. Strengthen family courts, women/gender cells (CPRC) special courts, rape compensation services and delivery of provisions for SC/ST by building associated institutions capacities. Different measures responding to different forms of GBV to be strategically standardized under a composite response to GBV. It is assumed by targeting only some forms of GBV will not challenge the gender roles, hierarchies that manifest in particular forms. Include informal support networks in formal Justice delivery systems. 27.2% of citizens and 31% SC citizens in Punjab reported trust in stakeholders for help in GBV (leaders of religion/caste). <p>Relevant ongoing: CPRC to be strengthened and made gender responsive/one stop centre to be integrated under CPRC/ <i>'Himmat'</i> Police alert App for women's safety</p>
Rape					
- Charge sheeting rate	94.81	Increase to 95%	Maintain 95%	Maintain 95%	
- Conviction rate	33.11	Increase by 15%	Increase by 30%	Above 80%	
CAW					
- Charge sheeting rate	86.48	Increase by 5%	Increase by 7%	Increase to 100%	
- Conviction rate	29.17	Increase 15%	Increase by 30%	Above 80%	
	53.1% contacted police for GBV complaints but only in 17% FIRs registered				
	Source: NCRB, 2012 Culturally sensitive gender responsive indicator in GBV, IDC 2015				

Target 2030 : 5.2 Eliminate all forms of violence against all women and girls in public and private spheres, including trafficking and sexual and other types of exploitation					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Violent injuries and deaths per 100,000 population (measured as rape and dowry death rates)	7.3	Increase rate with increase reporting	Decrease by 2% of baseline	Decrease by 5% of baseline	<p>Social acceptance to GBV needs be challenged to reduce grievous and death resulting practices and incidents of rape, dowry death. If values and norms accept or ignore harassment and abuse (eve teasing, dowry exchange, justify wife control) then their extreme forms - rape, dowry death will continue</p> <ul style="list-style-type: none"> • Gap in reporting of non-physical and death/grave violence to capture social acceptance to gender-based violence. • Social acceptability ratio can rank state performance and track change in citizen confidence to seek access to formal justice. Punjab's rank has been calculated to 10 and falls in red zone third quartile. <p>This is expected to reduce gap between reported and unreported deaths/rapes which is high. In Punjab, the ratio is rape 9 and dowry death 24 (IDC, Study 2010)</p> <p>Social acceptability, composite GBV and gaps in reported-unreported GBV to be shared on police, administrative, social media sites to engage with the issue holistically.</p> <p>- Provide Fast track courts for all molestation/rape/dowry death cases.</p>
Source: NCRB, 2015					
Percentage of women and men who report feeling safe walking alone at night in the city or area where they live Male Female (Citizens who feel safe in their cities) Males Female	57.5 42.3	Improve to 10% of baseline	Improve to 25% of baseline	Improve to 35% of baseline	<p>To drive gender safety, a three tiered strategy to protect the vulnerable (hot spot mapping of sites, identification of population specific groups victims); provision of safety mechanisms for all in public institutions and a community engaged prevention programme is suggested. A multisectoral campaign like the BBBP to be initiated cutting across departments including social security, police, education, rural development, districts to be indentified on basis of high, medium and low on GBV on the basis of a gender based index computed from NCRB, Crime in India macro data to target the strategy.</p> <ul style="list-style-type: none"> • Criminal justice system to link justice delivery with gender safety and prevention for GBV strategies. • Programmes and services including community networks/civil society/<i>panchayats</i> to be part of safety mechanisms. <p>New:</p> <ul style="list-style-type: none"> • Gender safe communities • Institutionalizing and creating gender capital under SEM: State Mission for Empowerment under the National Mission for Empowerment of Women.
Source: IDC Survey, 2013					

Target 2030 : 5.3 Eliminate all harmful practices, such as child, early and forced marriage and missing girl child					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Percentage of women aged 20-24 who were married or in a union before age 18 (Child Marriage)	3.9 percent	Reduce upto 2 percent	Reduce upto 1 percent	Reduce to 0 percent	It is assumed that girls completing secondary education will cross 18 years. Strengthening completion of secondary education and links to livelihood will help cross this indicator. <ul style="list-style-type: none"> • Monthly cash incentive to parents in ongoing schemes. • Village/wards to track girls in and out of school via the gender hubs. • Strengthen ongoing awareness of marriageable age and legality of registered marriage
Source : DHLS IV, 2012-13					
Percentage of missing girls in					Improve ongoing services/scheme delivery (<i>Bebe Nanki/Sukanya Samridhi</i>) Cultural neglect is prone in poorer families. By providing monthly cash transfer incentives to parents meeting girl child health and education safeguards deaths can be prevented in the short terms. Linking parental family wealth generation to girls care (meeting care milestones) by increasing share of subsidies/welfare funds (productive bonuses on land MSP, loans) to health, education, capacity building. Map and track girls in low income families upto puberty (age 14) for malnourishment and to provide them diet supplements under PHCs and <i>anganwadis</i> . Create age group-wise data base on SRs. Engage stakeholders and citizens to review gender based roles, norms and values and their contribution to the social relational cycle to asset and wealth generation by sons only and dependence on males. <p>Ongoing Scheme: Additional cash incentives to parents under the BBBP program. Add on in productive bonuses on land, crop subsidies for meeting girl child care milestones.</p> <p>New:</p> <ul style="list-style-type: none"> • Award gender credits (like carbon credits to trade) based on performance nurturing to help map, track, and incentivize girl child families to give them bonus points for available schemes. The achievement of villages/wards/districts, schools, police can mark a collective stakeholding in which responsiveness to GBV and measures for empowering women can be included and compared. • Institutionalizing and creating gender capital under SEM: State Mission for Empowerment under the National Mission for Empowerment of Women
- BSR	851 846	890	910	920	
- CSR (0-6)	11084 missing girls, 2011 23% missing due to cultural	880	890	920	
- CSR (6-9)	818 Decreased by 79 points in two decades	Improve to 830	Improve to 850	Improve to 885	
- CSR (9-14)	787 Decreased by 97 points in two decades	Improve to 815	Improve to 830	Improve to 870	
- Gender Gap-10 CMR	10 (2011)	Reduce to 5	Reduce to 2	Reduce to NIL	
- SR	895	915	925	935	
Source: Census of India, 2011					
<p style="text-align: center;">Age Specific Sex Ratios and Targets</p> <p>Legend: 2011 (Blue), 2020 (Red), 2025 (Green), 2030 (Purple)</p>					

Target 2030 : 5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies, and the promotion of shared responsibility within the household and the family as nationally appropriate					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Percentage of eligible (women headed households and primary care givers in BPL families) population covered by State social protection programs <ul style="list-style-type: none"> • <i>Atta Da</i>% • Widow-Destitute Pension % • Family Pension % 	100% 88%	100% coverage of eligible	100% Maintain full coverage	100% Maintain full coverage	Improve service delivery by mapping, tracking and monitoring women headed households and primary care givers in BPL families. Provision of rations to primary care givers and destitute women as a safety net. These women to be covered under livelihood generation thrust under the flagship programs. Institutionalize gender capacities through as a registered society partnered by stakeholders, departments and community to make effective and accountable delivery of services
Source: Annual Plan Punjab, 2015-16, 2016-17					
Average number of hours spent on paid and unpaid work combined (total work burden), by sex <ul style="list-style-type: none"> • Paid work <ul style="list-style-type: none"> - Males 7 hrs - Females 2.5 hrs • Unpaid Work <ul style="list-style-type: none"> - Males 0.5 hrs - Females 7.6 hrs 		Decrease gender gap in paid and unpaid work	Decrease gender gap in paid and unpaid work	Decrease gender gap in paid and unpaid work	Integrate care related services with social/state institution. Support in care services will allow women to engage in paid work. Sensitize community to unpaid care performed by women and initiate alternatives care from state and home. <ul style="list-style-type: none"> - Spread crèche services - Gender centres at residence/walk/NGO to generate services for care of family members (old/children) Direct subsidies/cash transfers for children/old to main carer in family (mostly woman)
Source: OECD Paper, 2014					

Target 2030 : 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
POLITICAL PARTICIPATION Percentage of seats held by women and minorities in Vidhan Sabha and/or sub-national elected office according to their respective share of the population	<ul style="list-style-type: none"> Percentage of women MLAs (11.9 percent) Proportion of women MLAs to women 1.6 Proportion of SC women MLAs to SC 2.4 	Improve to 2% of baseline	Improve to 5% of baseline	Improve to 15% of baseline	<ul style="list-style-type: none"> Change is dependent on election reforms/nominations of women leadership to assembly in a revived upper house. Strengthen women participation and leadership through GCC at local body levels/workplace/<i>saanj kendras</i>/educational institutions Mobilize for women representation in Vidhan Sabha in panchayats, educational institutions, media and workplace through GCC.
	Source: Election Commission of India, 2012				
Share of women on corporate boards of national / multinational corporations (MNCs)					<ul style="list-style-type: none"> Due diligence reporting in establishments governed by factories act and in public companies to include gender diversity for staff. Subsidies and rebates to make female representation mandatory. Recognize and award gender sensitive market committees and boards.
	<ul style="list-style-type: none"> Board/Corporation Market Committees 	9.77%	10	12	
Source: Census of Punjab, Government and Semi Government Employees as on 31.03.2014, Government of Punjab					

Target 2030 : 5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the ICPD and the Beijing Platform for Action and the outcome documents of their review conferences					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Contraceptive prevalence rate (unmet family planning needs)	84.8%	Improve to 88.5%	Improve to 92%	Improve to 95%	(See SDG-3)
Source: DHLS, 2012-13					
Percentage of young people receiving comprehensive sex education	Data to be generated	Initiate in higher secondary level schools	Compulsory in all schools	Compulsory in all schools	<ul style="list-style-type: none"> - Make sex education compulsory in higher school/education institutions. - Provide counselling prior to marriage, use of contraceptive services.

Target 2030 : 5.6 (a) Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance, and natural resources in accordance with national laws					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Percentage of population using banking services					Bank accounts for all is part of state plans to improve delivery of services.
Male ownership of bank account	61%	Increase by 25%	Both to increase to 80%	Universal	
Female ownership of bank account	30%				
Source: Basic Statistical Returns of Schedule Commercial Bank of India, Vol.44, 2015					

Target 2030 : 5.6 (b) Enhance the use of enabling technologies, in particular ICT, to promote women's empowerment					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Mobile broadband subscriptions per 100 inhabitants, by urban/rural	104.02	Increase to 120	150	Universal coverage	State density of net connectivity to be increased to over 150% bank accounts to be made operative through mobile broadband ensuring universal banking and mobile access.
Source: Telecom Regulatory Authority of India, 1st September 2015, Press release no 47/2015					

Target 2030 : 5.6 (c) Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels	Institutionalize gender structures and gender hubs	These to be operative at all districts	To be operative all unit levels	To be strengthened	<ul style="list-style-type: none"> Build institutional capacities to provide safety, livelihood, access to resources (assets, credit, services, rights) Create and institutionalize gender capital – register societies, represented by Panchayats, institutions and community, to manage gender funds; mainstream and make gender responsive public institutions/departments; engage community and stakeholders to operationalise legislative changes in personal law, inheritance, dowry, care of parents and home, surrogacy; map, track and deliver gender credits through e-data banks. Gender credits like carbon credits to be accumulated and traded by parents, public institutions (Schools, Panchayats) districts, by meeting care milestones for applicable schemes (cash transfers to parents extra MNREGA days, higher percentage of credit on <i>Kisan</i> cards)

IV INSTITUTIONALIZE GENDER CENTRES

i. Gender hubs

To institutionalize change the strategy suggests creation of gender hubs as centres of community engagement, oversights and coordination mechanism for service/schemes delivery advancing gender safety and creating a network of gender 'capital'. The gender hubs at the unit level will flow from a collaborative venture between the state administration/departments and community stakeholders. The hubs will coordinate and draw services from gender strengthened infrastructure and services in respective departments. These gender hubs to be made operative at four spaces – One, in the citizen residences – in villages and wards; two, in education institutions (higher secondary and above); three, work places with factory law applicability and corporations; and four in select urban based NGOs. These are to be registered as societies to collaboratively mainstream gender in the State and social institutions, help deliver gender schemes and generate a gender data bank. The specific functions, capacities, resource management and institutional mechanisms to be worked out for the hubs as a whole and for specific units (work/education/NGO/residential).

ii. Gender capital

To engage with cultural specificities, building community accountability and collaborative delivery of gender services (State functionaries and citizens stakeholders) – the creation of gender capital is suggested. Gender capital is an interactive set of four resources to generate culturally-sensitive gender just outcomes. The four resources of gender capital are the gender stakeholders, gender-specific capacities within state system, gender oversights and the community. The gender stakeholders in the community to include gender rights groups, local community leadership, local media representatives and political support from state to local sites at respective levels. Stakeholders are part of an integrated perspective to communicate, negotiate and manage relationships to promote gender rights and safety. The stakeholders ownership of state services provides legitimacy and is a bridge to deliver gender-responsive initiatives. The second resource refers to the gender capacities of the state departments. It includes gender rights established and protected by law, gender capacities created in institutions (women department, AWC, gender desk in CPC, PC-PNDT committees), multi-sectoral linkages across the state departments, such as, health, education, women ministries, etc. While state capacities are committed to gender rights and gender-based violence, implementation in terms of gender just legislation, policy and

practice vary in stages of enactment with a range of local variations and issues. Gender-sensitive mechanisms and protocols within each of the departments have to be in place, with processes from the planning stage to a multi-sectoral response. These have to be put in place to culminate as part of the gender capital. For outreach to the community both gender stakeholders and community itself must be attuned to the unacceptance of GBV.

Social control mechanisms are essential for accountability as this pertains to the third resource. These oversights could include internal controls within the police, *panchayats/wards*, educational institutions, factories and corporations. These also to include external bodies layered from the state executive to the grassroots police stations, civil society organisations, women rights commissions. This resource is perhaps the weakest in evolution.

The community itself is the fourth layer of the gender capital. Gender sensitivities and claim to rights has to occur within the societies before they venture to seek rights and justice for violations. If the community perceives (correctly or incorrectly) that male child preference is a parental prerogative, girl child discriminations will continue or the police to be a combative law enforcement agency with a violent and hegemonic masculine imagery, vulnerable groups, such as, minorities and women may avoid contact with the police not only as victims, but also as a career option.

Thus, the role of each of these resources has to be located within the local site which may vary from a rights-oriented community and sensitized such as a university campus, to one that shuns state-public interactions which may be a *Bihari basti* in Ludhiana. Initiatives would need to vary from a participatory exchange to confidence-building measures in building safe and gender secure societies. (*see chart*)

A framework taking the gender positioning in society as a base suggests the nature of support from stakeholders, gender capacities within the state departments, gender oversights and community to be inter-linked and components strengthened where weak, to safeguard gender rights.

iii. Linking the strategies: Thrust for change

The target specific strategies have been organized into five clusters. Cluster one deals with institutional structuring; two with girl child discriminations under a revamped BBBP programme; three on gender safety; four on equal and accountable sharing and five on engendering livelihood. Strategies would cut across domains but the clusters provide the lead responsibility:

a. Institutional structures

- Build institutional capacities to provide safety, livelihood, access to resources (assets, credit, services, rights)
- Create gender hubs to mainstream gender initiatives within governmental departments/schemes and engage community in its operative aspects. Register societies, represented by Panchayats, state functionaries and community stakeholders to collaboratively generate 'gender capital' and social and institutional responsiveness to gender. These will advance, improve service delivery of ongoing schemes.

b. Strengthen BBBP

- Incentivize parents to access girl oriented initiatives by providing them monthly cash transfer as part of applicable schemes. Building girl child capacity does not benefit the family and it is the support of her birth home that is crucial for her survival. Investment in the girl child should generate wealth for parents.
- Map, track and deliver gender credits through e-data banks. These to include data generation on a range of variable – health, education, inheritance transfer, marriage certificates, subsidies, cash transfers etc. Data on health indices for different age groups to identify neglect and gaps in health outcomes with a focus on pre puberty and adolescent girls. Age group sex ratios to be monitored.
- Provide girl child support/schemes to main family care giver (mothers), and girl child related subsidies/incentives for wealth generation to primary earners.

c. Gender credits

- Award gender credits like carbon credits, to be accumulated by parents, public institutions (schools, *panchayats*, police stations), districts, for meeting care milestones for applicable schemes (cash transfers to parents, extra MNREGA days, productive bonuses on land, crop subsidies etc).

d. Gender safety

- Building gender safe communities with a three tiered strategy to protect, secure and prevent GBV. Map districts according to prevalence of GBV. An index, computed at the district level from macro data (Crime in India and Census) can be the basis of mapping. The districts with the highest GBV should have a comprehensive programme of protection, safety mechanisms in public institutions and prevention initiatives initiated as community based programs for safeguarding girls. The district with mid-range GBV can focus on safety and prevention, while relatively safe

districts to address prevention programmes only. A multi-sectoral thrust like the BBBP with departments of WCD, education, police, rural development, local bodies, transport etc.

- Strengthen community police centres and police stations to be gender responsive, adopt GBV index to map, track and intervene to improve access, service effectiveness and accountability.
- GBV data to be collated by population groups, forms of violence and by age. This data to be made publicly available in real-time.
- Make marriage counselling compulsory to receive marriage registration certificate.
- Introduce sex education and counselling in education institutes of higher education.

e. Equal and accountable sharing

- Operationalise gender related legislative changes through dialogue and community participation. To draw links between rights and responsibilities, reframe mechanism or revise procedures and rules. For instance, debate access to inheritance rights, and doing away with dowry and the practice of lifelong gifts to daughters and the care of parents; citizens to create a safe atmosphere and promote codes that are non-sexist rather than giving social approval to projection of women bodies as a commodity or violent masculinity as a symbol of male stature.

f. Engendering livelihood

- Improve skill base of women headed households under beneficiaries and dedicate a proportion of flagship programme funds for them. These can be used in Punjab advantageous industries like agro and cottage industries.
- Incentivize industry for due diligence reporting on gender diversity in staff and wage parity.
- Merging early child care education (ECCE) management to primary/secondary education to sustain gains made in ECCE in child learning capacities and decrease 'never attended' and completion rates in schools.
- Strengthen options and mechanisms for livelihood skills for boys and girls in higher secondary school. Children joining vocational streams to be given a monthly employability allowance (Rs.1000/-) for a maximum period of three years or duration of the course whichever is less.

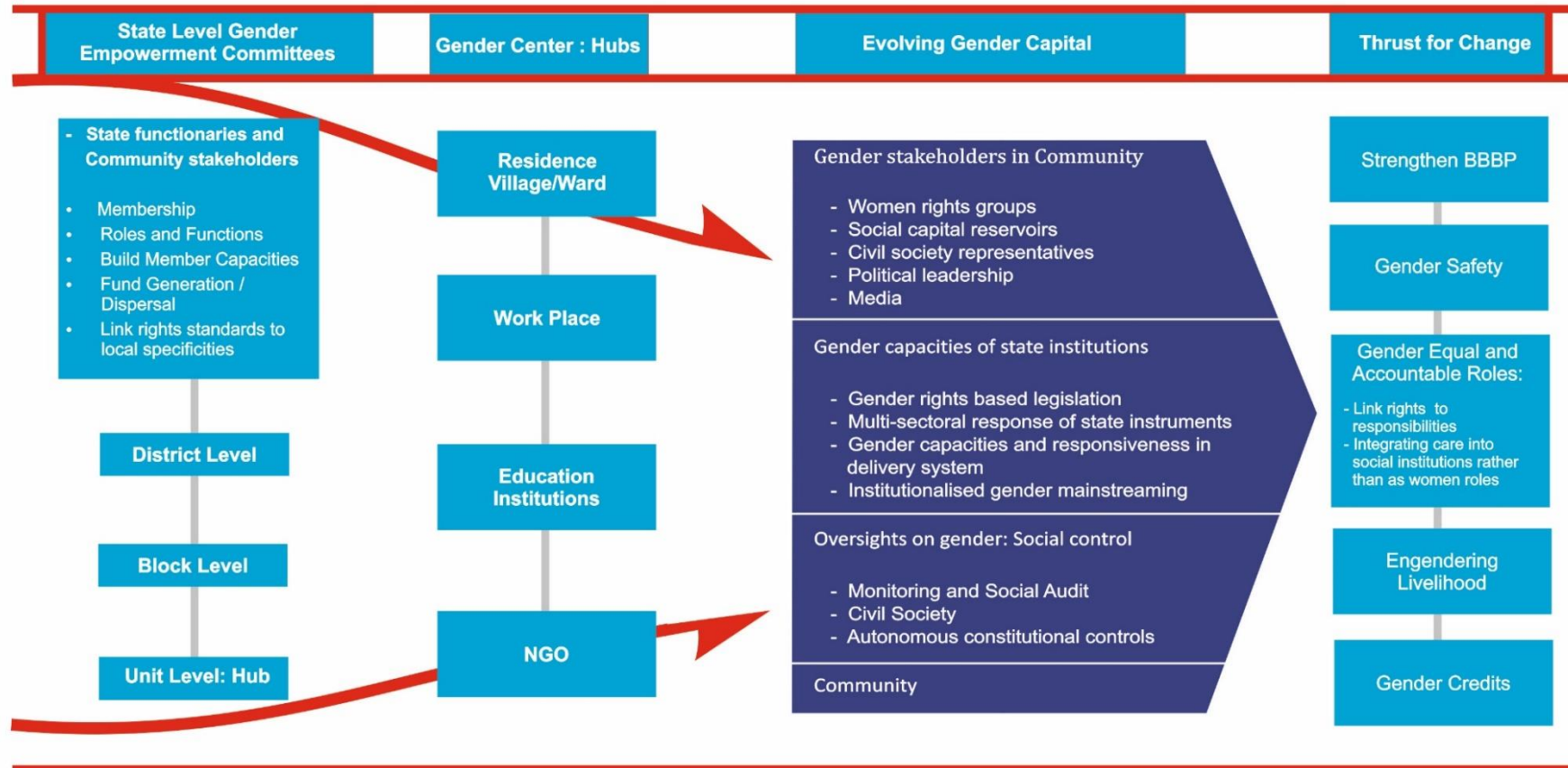
Coordinate across SDGs

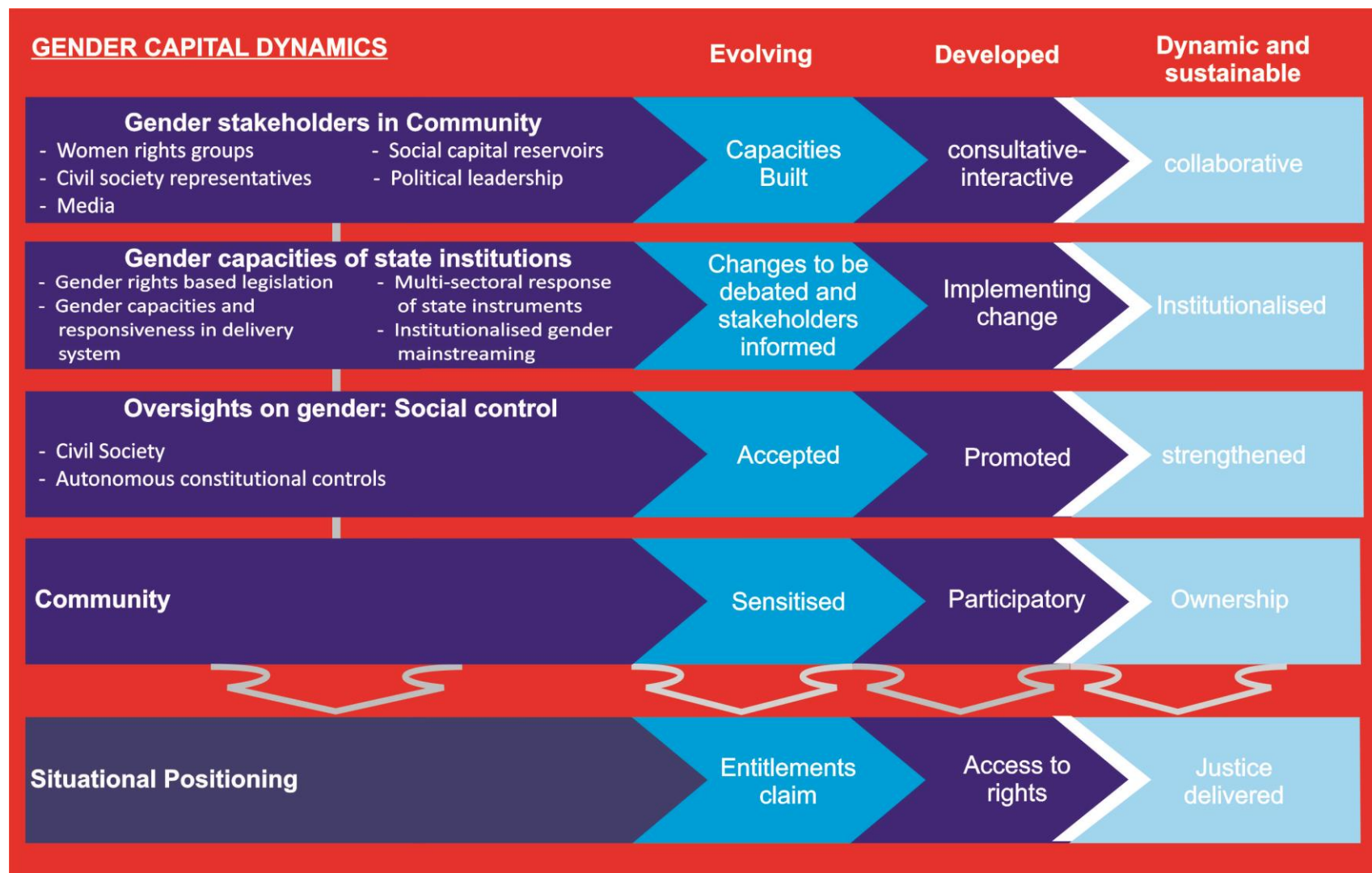
- Mainstream gender interventions from other SDG into gender hubs.

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INSTITUTIONALIZING GENDER REFORMS





**SDG 10 :
REDUCED INEQUALITIES: REDUCE INEQUALITY
WITHIN AND AMONG COUNTRIES**

SC INCLUSION IN PUNJAB

With Scheduled Castes constituting about 32 percent of the total population of 27.7 million in Punjab (2011), a significant population of Punjab has to be mainstreamed. It also happens to be the largest percentage concentration of Scheduled caste population in the country. Moreover, the state also ranks amongst the top ten states for the highest population of Scheduled Castes (in absolute numbers) in the country. The spatial caste division in Punjab is stark where the SC population constitutes 37.5 per cent of the rural population and 22.3 per cent of the urban. The population of Scheduled Castes has also steadily been increasing for the past two decades with the population growth rate higher than that of the Non Scheduled Caste population. From 1981 to 2011 the Scheduled Caste population has increased at the rate of 2.3 per cent per annum whereas the non Scheduled Caste population grew at 1.4 percent.

Sixty percent of the SC population are followers of Sikhism while the remaining 40 percent are Hindus. This trend remains constant in rural areas however in urban areas Scheduled Caste Hindus include a higher proportion with 60 per cent being Hindus. Further, there are more than 12 Scheduled Caste sub castes in Punjab and out of those the Mazhabis, Chamars, Ad-dharmis and Balmikis comprise more than 80 per cent of the total Scheduled Caste population. Despite being economically and socially in a better position compared to Scheduled Castes in other states, they remain a marginalised community in the state. The unit is organized into two sections. Part-I maps the SC resource inequalities in subsections (poverty, asset ownership, economic conditions and well being parameters of housing, water, sanitation, health, education and safety). For each sub section corresponding strategies to advance equality are identified. Part II consists of the logframe detailing the indicator specific baseline, milestones and intervention plan.

A comparative mapping of the conditions of SCs in Punjab with strategies for advancing equality

• **Poverty**

Poverty is one of the most important indicators for human development and identifies the level of deprivation in a society. As on 2011-12, poverty in Punjab is substantially low where 8.2 per cent of the population is under the poverty line. There has been a remarkable reduction from the year 2004-05 where the incidence of poverty in Punjab was noted at 21 per cent. The state's poverty ratio, which was 22.1 per cent in rural areas in 2004-05 has also come down drastically to 7.7 per

cent. Further, in urban areas poverty declined to 9.24 per cent from 18.7 per cent at the rate of 3.5 per cent per annum from 1993-94.

This improvement has been a result of a steady economic growth, and government intervention which has benefited most of the social and economic groups in varying degrees. Poverty however remains the most conspicuous among the marginalised, including the SCs.

- About 8.2 per cent of the population of Punjab is below the poverty line (9.2 per cent in rural areas and 7.7 per cent in urban areas) and needs to be uplifted.
- About 17.2 per cent farm and 16.1 per cent non-farm labor in rural areas and 24.5 per cent in urban areas have to be taken out of poverty
- 15.6 per cent of the Scheduled Caste population falls below the poverty line and incidence of poverty remains higher in urban areas for the Scheduled Caste where 18.3 per cent are poverty stricken.
- Poverty for Scheduled Caste self-employed in agriculture is as high as 7.6 per cent and 6.5 per cent for Scheduled Caste self-employed in non-agriculture in rural area and 36 per cent for Scheduled Caste self employed in urban areas.

Persistence of poverty among the Scheduled Castes factored on the following:

- Illiteracy; leading to limited employment opportunities (especially among casual laborers);
- Lack of productive assets: agriculture land, financial capital, institutional credit etc;
- Discrimination in labour market and other markets;
- Limited access to social security - be it promotional or protective measures.

- **Ownership of Assets**

The number of operational holdings with Scheduled Castes' is 63,480 spreading over an area of 126966 hectares which comprises only 6.02 per cent of the total land holdings against a share of 31.94 per cent of SC population in total population (See Table 10.1).

Table 10.1
Number and Area of Operational Holdings in Scheduled Castes

Sr. No	Size Class (in hac)		No. of Operational Holdings				Area Operated (in hac)			
			Individual	Joint	Institutional	Total	Individual	Joint	Institutional	Total
1	2		3	4	5	6	7	8	9	10
1	Below (0.5)	M	13533	0	0	13533	4260.15	0	0	4260.15
		F	289	0	0	289	87.38	0	0	87.38
		T	13822	0	0	13822	4347.53	0	0	4347.53
2	(0.5-1.0)	M	12019	15	0	12034	8855.61	10.99	0	8866.60
		F	189	0	0	189	148.69	0	0	148.69
		T	12208	15	0	12223	9004.30	10.99	0	9015.29
Marginal		M	25552	15	0	25567	13115.76	10.99	0	13126.75
		F	478	0	0	478	236.07	0	0	236.07
		T	26030	15	0	26045	13351.83	10.99	0	13362.82
3	(1.0-2.0)	M	14065	15	0	14080	18870.57	20.10	0	18890.67
		F	160	0	0	160	222.66	0	0	222.66
		T	14225	15	0	14240	19093.23	20.10	0	19113.33
Small		M	14065	15	0	14080	18870.57	20.10	0	18890.67
		F	160	0	0	160	222.66	0	0	222.66
		T	14225	15	0	14240	19093.23	20.10	0	19113.33
4	(2.0-3.0)	M	10547	30	0	10577	23750.69	66.64	0	23817.33
		F	178	0	0	178	397.49	0	0	397.49
		T	10725	30	0	10755	24148.18	66.64	0	24214.82
5	(3.0-4.0)	M	3232	5	0	3237	10858.73	18.20	0	10876.93
		F	25	0	0	25	84.62	0	0	84.62
		T	3257	5	0	3262	10943.35	18.20	0	10961.55
Semi Medium		M	13779	35	0	13814	34609.42	84.84	0	34694.26
		F	203	0	0	203	482.11	0	0	482.11
		T	13982	35	0	14017	35091.53	84.84	0	35176.37
6	(4.0-5.0)	M	3625	0	0	3625	15527.99	0	0	15527.99
		F	34	0	0	34	140.71	0	0	140.71
		T	3659	0	0	3659	15668.70	0	0	15668.70
7	(5.0-7.5)	M	3426	10	0	3436	20949.15	63.18	0	21012.33
		F	43	0	0	43	252.37	0	0	252.37
		T	3469	10	0	3479	21201.52	63.18	0	21264.70
8	(7.5-10)	M	986	0	0	986	8270.01	0	0	8270.01
		F	15	0	0	15	120.53	0	0	120.53
		T	1001	0	0	1001	8390.54	0	0	8390.54
Medium		M	8037	10	0	8047	44747.15	63.18	0	44810.33
		F	92	0	0	92	513.61	0	0	513.61
		T	8129	10	0	8139	45260.76	63.18	0	45323.94
9	(10-20)	M	895	5	0	900	10742.38	70.80	0	10813.18
		F	15	0	0	15	200.88	0	0	200.88
		T	910	5	0	915	10943.26	70.80	0	11014.06
10	(20.0 and above)	M	124	0	0	124	2975.46	0	0	2975.46
		F	0	0	0	0	0	0	0	0
		T	124	0	0	124	2975.46	0	0	2975.46
Large		M	1019	5	0	1024	13717.84	70.80	0	13788.64
		F	15	0	0	15	200.88	0	0	200.88
		T	1034	5	0	1039	13918.72	70.80	0	13989.52
All Classes		M	62452	80	0	62532	125060.74	249.91	0	125310.65
		F	948	0	0	948	1655.33	0	0	1655.33
		T	63400	80	0	63480	126716.07	249.91	0	126965.98

Source: Agricultural Census, 2010-11

- The gender division of SC farmers suggests that 99 per cent of area have been operated by male scheduled caste farmers. The female SC farmers operate only 1 per cent of the area. The state with a view to improve ownership rights of the poor and women should distribute surplus land to women belonging to Scheduled Castes, Backward Castes and poor families. Panchayats in rural areas own sizeable land and also villages have common land popularly known as Shaamlaat land. In Punjab as per the Punjab Village Common Lands (Regulation) Rules, 1964, at least one third (i.e. 33.3 per cent) of Panchayat Land should be leased out to Scheduled castes. In Sangrur district, in approximately 37 villages the socially disadvantageous households have secured their legal rights on Panchayat Land. This experiment should be emulated in all the villages in Punjab. Implementing the legal rights of Scheduled Castes on Panchayat would immensely help in expanding productive base of poor thus lifting the poor households above poverty line.
- The share of Scheduled Caste enterprise in total private enterprise should increase from present 17 per cent to 32 per cent

ECONOMIC CONDITIONS

- **Per capita income** is the most important primary indicator of the standard of living for a population. But since data on income is not available for social groups, Monthly Capital Consumption Expenditure (MPCE) is taken as a proxy indicator to examine living standards. In 2012, the average MPCEs at the state level was Rs. 665 (constant at 1993–94 prices) with Rs. 582 in rural areas and Rs. 813 in urban areas in 2012, indicating high rural- urban disparity. The average MPCE among Scheduled Caste is substantially low in Punjab as compared other social group and OBCs. The average MPCE was noted as 477; while OBCs and Others were recorded as Rs. 614 and Rs. 833, respectively. This pattern is equally true in rural and urban areas but more stark in urban areas where the average SC MPCE was 581 and the average total urban MPCE as 813.

Table 10.2
Sector wise unemployment according to castes

	SC		OBC		General		Punjab	
	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10
Agriculture	45.6	41.2	47.1	33.1	54.6	49.9	49.9	44.2
Manufacturing	14.9	13.6	17.8	21.8	11.1	11.1	13.7	13.7
Construction	14.4	19.5	8.6	14.9	3.3	6.5	8.2	12.6
Service	25.1	25.7	26.6	30.1	31	32.4	28.1	29.6
	100	100	100	100	100	100	100	100

Source: NSSO Employment and Unemployment Survey, 2005 and 2010

- **Structural changes in employment** are often seen as the process of development. The uniformity or difference in the structure of employment for different social groups can be attributed to the participatory nature of that growth process and the relationship that a particular social group holds with the overall economic structure of the state. The trend of changes in the employment structure for social groups in the state displays a considerable variation. For instance, the shift to non agricultural sectors has paved the way for construction jobs for the Scheduled Caste. Manufacturing and service sector together constitute about 40 per cent share of employment in this group and the trend continues to be the same in the last 5 years. It is only the construction sector which compensates the decline in the share of agricultural sector. For OBCs the situation is quite different where around 70 per cent of the OBCs have shifted to non agricultural sectors of employment. Within those sectors manufacturing and service are the main sectors. The general caste group is still tied up with agriculture as the predominant source of employment. This caste group has fully bypassed both manufacturing and construction sectors in diversifying from agriculture to service in sourcing employment.

Table 10.3
Employment status according to caste

	SC		OBC		General		Punjab	
	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10	2004-05	2009-10
Self-Employment	39.4	33.1	59.5	55	74	67.7	58.8	52.7
Regular	23	20.9	18.9	20.7	21.5	23.2	21.7	22
Casual	37.6	46	21.6	24.3	4.5	9.1	19.5	25.2
	100	100	100	100	100	100	100	100

Source: : NSSO Employment and Unemployment Survey, 2005 and 2010

Following the trend in the sources of employment there has been a massive **casualisation of employment for Scheduled Caste**. Scheduled Caste continues to be landless agricultural labourers in rural Punjab and work as construction labourers in urban Punjab. The diversification has taken the route of construction sector for this group, and it becomes clear now that the shift to non-farm employment is largely from constructions sector in the form of casual employment. In fact the share of regular salaried employment has marginally come down in the last 5 years.

- **Generating Employment**

- The proportion of Scheduled Caste without assets is large and their dependence on wage labour is high. Therefore, there is need to give access of assets to Scheduled castes
- In 2012, unemployment rate was 5.1 per cent in rural areas and 4.3 per cent in urban areas;
- The unemployment in age group of 15–24 has been 13 per cent and particularly high for higher secondary education and graduate and above;

- Scheduled Castes lack access to quality primary education and vocational skills to make them gainfully employed..
- There have been schemes to look into the entrepreneurship opportunities of the SCs. In most circumstances, source of funding is through Punjab Scheduled Caste Funding Corporation (PSCFC). SC families are provided with soft term loans for purchasing of plots and setting up of independent ventures. Along with this, development of poultry, daily farming by setting up of 54 units of Broiler of 2000 have been carried out. In order to do away with the existing system of middle men and their exploitation, district artisan haat centres with permanent structures are proposed to be constructed in Amritsar, Jalandhar, Ludhiana, Ferozpur, Patiala and Mohali.

Housing conditions are analysed with respect to five major housing facilities: (a) no facility of drinking water in the house; (b) no latrine facility in the house; (c) no electricity use for domestic purposes; (d) *katcha* roof type in the house; and (e) open, *katcha*, and no drainage arrangement in the house.

- The facility of **drinking water** is considered essential for better health conditions. The facility of drinking water at home has improved during 2001 to 2011. In rural areas, despite improvements in 2011, the households not having drinking water within the premise (near the premise and away) was about 18.35 per cent, equivalent to about 0.61 million households. In rural areas, percentage of household without drinking water facility was high among Scheduled Caste (26.2 per cent), compared to the Non-Scheduled Caste (13.3 per cent). During 2001 and 2011, the share of household without drinking facilities has increased at a per annum rate of 0.19 per cent at over all levels, but it increased at a rate 0.49 per cent among Scheduled Caste and declined among Non-Scheduled Caste to 0.48 per cent. In urban areas, percentage of houses without drinking water was 7.3 per cent, which was much lower than rural areas. However, the proportion was relatively high for Scheduled Caste at 12.2 per cent compared to Non-Scheduled Caste which was at 19 per cent. Between 2001 and 2011, the percentage of households reduced at 0.8 per cent at an aggregate level with relatively high rate for Scheduled Caste than Non-Scheduled Caste
- In 2011 in rural areas about 29.6 per cent of the household did not have **latrine facilities**, the percentage being quite high for Scheduled Caste (42.8 per cent) and Non-Scheduled Caste (21.1 per cent). Between 2001 and 2011, the percentage had declined at 6.7 per cent per annum, but again at a lower rate for Scheduled Caste (5.3 per cent) as compared to others (8.34 per cent). In urban areas the ratio of latrine-less households was 6.6 per cent (much lower than in rural

areas), but the ratio was higher for Scheduled Caste (about 15 per cent), and only 3.6 per cent for Non-Scheduled Caste. Between 2001 and 2011, the ratio had declined but again at a lower rate for Scheduled Caste as compared to others.

- In rural areas, the proportion households without **electricity** were 4.5 per cent at over all levels, but much higher among Scheduled Caste (7.1 per cent), as compared to others (2.8 per cent). Similarly, between 2001 and 2011, the proportion of such households had reduced for Scheduled Caste at 8.47 per cent and for others at 8.18 per cent and the overall average of 8.16 per cent. In urban areas, the proportion of households without electricity was only 1.7 per cent, with a relatively higher rate for Scheduled Caste (3.36per cent) than 1 per cent for Non-Scheduled Caste. In case of the rate of decline, it is higher for Scheduled Caste as compared to Non-Scheduled Caste. . Provision of basic facilities for SC and OBC need to be made on a priority basis by mapping the gaps and delivery to be targeted through the ongoing schemes.

There have been 8 major schemes under housing and amenities in Punjab for the welfare of SCs and BCs. These schemes, in particular, focus on the SCs living below poverty line (BPL) and backward classes. The provisions have been mostly made are: houses for houseless, construction of toilets in rural areas, and also provision of basic infrastructural facilities like pucca streets, phirnees, solar street lights, hand pumps etc.

Education Development

In 2011, the literacy rate (percentage of literate population 7 year plus to total population) at the State level was 76 per cent, 71 per cent in rural and 83 per cent in urban areas. Across social groups, the literacy rate is 64.8 per cent for Scheduled Caste and 81 per cent for Non-Scheduled Caste. The literacy rate for women is 71 per cent, which is lower than men - 80.4 per cent .In the case of Scheduled Caste also literacy was lower for women compared to men. The literacy rate for women was 58.4per cent for Scheduled Caste and 76.4 per cent for Non-Scheduled Caste.

Between 1991 and 2011 the literacy rate increased at a per annum rate of 2.1 per cent. The rate of increase has been much higher for women at 2 per cent than men which was 1.1 per cent. This is also true for Scheduled Caste and others. Literacy rate has increased at a higher rate for Scheduled Caste as compared to others. Further, the disparities in the literacy rate between Scheduled Caste and Non-Scheduled Caste increased between 1991 and 2011.

Access to the higher and professional education of Scheduled Caste is lower than higher castes and others. In 2008, enrolment rate for higher education was 4.2 per cent for Scheduled Caste and 9.5 per cent for OBCs as compared to 24 per cent for Others. In Punjab, access to professional education offered by private self-financing institutions is relatively higher among Scheduled Caste as compared

to Others; but it is substantially lower than OBCs. The percentage of students in private self-finance institution in 2008 is 17 per cent for Scheduled Caste, 45.4 per cent for OBCs compared to 16.7 per cent for the Non – SC/STs.

With low access to higher education, particularly professional education, the human capital of Scheduled Caste is poor, and as a result the employability is low, which results into higher rates of unemployment.

As is evident, access to quality education is deficient amongst Scheduled Caste and, therefore, 17 major schemes have been implemented during the annual plan periods from 2007-08 to 2012-13 to improve their education status. The schemes provide infrastructure, scholarship, vocational training and study aides to SCs. Under the infrastructure component, hostels for both SC and OBC boys and girls had been proposed to construct. This scheme had undergone changes and was put under the Babu Jagjivan Ram Chhatrawas Yojana and was allocated a onetime fund for construction of hostels. This scheme however has been transferred to the non-plan budget from the 12th Plan onwards and no outlay has been proposed further. Various benefits for pursuing education were available to SC students especially girls in the form of encouragement awards, fee concessions forgetting admission to polytechnic institutes, nursing institutions, free coaching for SC students who would appear for competitive examinations. However, all the schemes have been transferred to non-plan budget from 2007- 08 onwards and no outlay has been made. The schemes, that have still been effective, have been attendance scholarship to SC primary girl students as well as BC/EWS Primary Girl students. SC students excelling in sports are awarded.

There are a number of schemes which cater to the vocational training of the SCs like training to become driver cum mechanic, vocational training in ITIs, career development training, self - employment training, for commercial flight training. However , career development training and self-employment scheme do not have any outlay since 2011 onwards. There has been a special scheme for SC women under the Swawbalamban Scheme to enable their employment or self-employment in traditional and non-traditional trades. Women victims of riot affected areas and natural calamities are given preference.

In addition to these, there are a number of schemes, which are implemented to provide free text books, kits especially to SC girl students in classes XI and XII (i.e., higher secondary) and grant-in-aid to SC students from below poverty line for purchasing school uniform, shoes, and schoolbags. Schemes to provide free text books and kits did not incur any expenditure.

Health

There is a conspicuous disparity in health conditions between the SC and non SC Population in Punjab. Mortality is a universal indicator of health status of any population, therefore, considering the infant, child and under five mortality we can clearly ascertain that the health status of the SC population is the poorest since the mortality rates amongst the SC population are higher than the non SC population. This can further be attributed to poor antenatal and post natal care. It was noted that a higher proportion of SC women rely on non institutional methods for antenatal care and deliveries as compared to other non SC women, which also resulted in higher cases of termination and still pregnancies for SC women. Post natal check up amongst Sc women is also lower as compared to the others .

Nutritional assessment is an important indicator of an individual's overall health and the strength of their immunity. Nutritional assessment becomes particularly significant in case of women in the child bearing age (15-49) and in Punjab a sizeable segment of SC women in this age group are underweight compared to non SC women. It was also found that anaemia amongst children (6-35 months) was widespread in Punjab but higher for the SC children. Additionally, incidences of anaemia are found more amongst women than in men but in both the gender groups the SC population is worse off. Further, Iodine has been identified as another vital micronutrient and iodine-deficiency disorder has been declared as a public health issue. The National Iodine Deficiency Disorders Control Programme has concentrated on ensuring the consumption of iodised salt especially amongst Scheduled Castes and persons with a low standard of living who do not use iodised salt. The level of chronic under nutrition is substantially high in the state and more so amongst the SCs. The share of underweight, stunting and wasting children as result of malnourishment is also the highest among SCs and OBCs

The rate of both hospitalisation and out patient care is more for the Non SC population as compared to the SC population in Punjab. This does not reflect as better health for the SC population since the life expectancy for the SCs is disappointing. Over the years one has also noted that due to inadequate government healthcare the SC population are more prone to seeking medical aid from private hospitals which is expensive and leaves them more vulnerable. Also, the proportion of SC population not getting treatment due to financial reasons is considerably more than the others in both urban and rural areas. The cashless health insurance schemes has been implemented to provide quality access to health facilities to poorer and Scheduled Caste population.

Atrocities against SCs

Despite higher economic development as compared to many other states, the local caste hierarchies still govern the relations between social groups, making Dalits vulnerable to caste-based atrocities despite preventive measures in the form of constitutional provisions regarding enforcement of civil rights and specific measures through the enactment of the Protection of Civil Rights (PCR) Act, 1976 and the Scheduled caste and Scheduled Tribes Prevention of Atrocity (PoA) Act, 1989 to deal with discriminatory practices and violence against the weaker sections of society. A larger proportion of Dalits in the rural areas therefore silently suffers the dominance of upper caste and experience human rights violations. The atrocities of various kinds against Dalits therefore become a regular feature of society. Understanding the patterns of atrocities against Dalits in the state remains critical. Here, we draw on evidence primarily from macro level data provided by National Crime Record Bureau (NCRB) to reflect upon the patterns of caste based discriminations and atrocities in Punjab. Some critical issues related to caste atrocities are also discussed to draw implications for protecting Dalits from oppression.

The NCRB data on crimes showed that 557 crimes were registered against the Dalits during 2011-2015, with an average of more 111.4 cases every year. This is obviously a gross under-estimation. Many times only severe cases of crimes are usually registered.

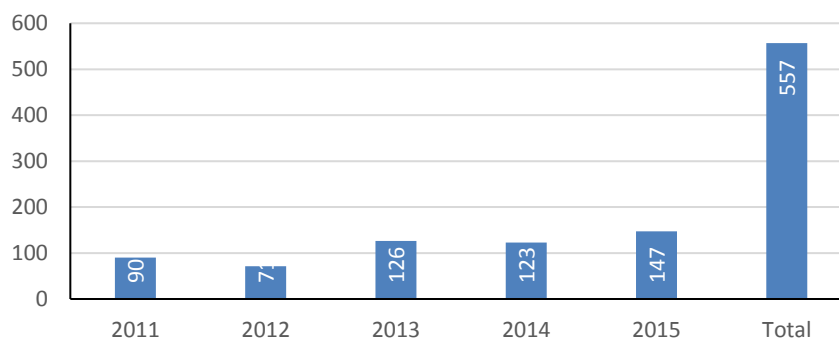
Punjab recorded 147 incidences crime against SCs in 2015 at the rate of 1.7 incidences of crime committed against 100,000 SCs .The crime against the Scheduled Caste population has increased by 19.5 per cent from 2014 to 2015 and 63 per cent from the year 2011 to 2015. A special provision of free legal aid to SCs as well as cash compensation to victims of atrocities *has been made*.

Table 10.4
Crime Against SCs 2015

States/Uts	Incidence	Population of SCs	Rate of Total Cognizable Crimes
Punjab	147	88.6	1.7
TOTAL (ALL INDIA)	45003	2013.8	22.3

Source: Crime in India, 2015

Figure 10.5
Total Crime against Scheduled Castes in Punjab



Source: Crime in India, 2015

GOAL 10: REDUCED INEQUALITIES: REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES

Target 2030: 10.1 Progressively achieve and sustain income growth of the bottom 40 percent of the population at a rate higher than the national average					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Poverty Alleviation					
• Percentage of SC poor	15.6%	Reduce to 10%	Reduce to 6%	Reduce to zero	<ul style="list-style-type: none"> - Regular employment for SC wage labourers, who are the most poor with poverty rate varying from (17.9%) to (21.7%) in farm and non-farm sector; - In urban areas (25.0%) SC casual labourers and (27.6) OBCs need to be taken out of poverty - In order to pull the wage labours out of poverty – provide skill and vocational education to them as well as their children, who are eligible - Improve SC ownership of agriculture land through distribution of public land and ownership of right land being cultivated by SC over many years. - Similar programme of improve productivity of SC small farmers and small non-farm private enterprises in rural and urban areas. - Put in place a procurement policy for SC farmers particularly in vegetables, fruits, milk and similar commodities where government would purchase at least 24 per cent of their requirement from SC farmers. - Enhance the low income of 18% poor SC farmers by providing them: adequate credit, irrigation facilities, improved seeds, fertilizers, modern equipments and access to various markets - Use MNREGA for land and water resource development and for increasing productivity and agriculture growth.
- Percentage of SC poor in rural	14.7%	Reduce to 10%	Reduce to 5%	Reduce to zero	
- Percentage of SC poor in urban	18.3%	Reduce to 14%	Reduce to 7%	Reduce to zero	
Employment					
• Disparity ratio	0.7				
- Rural	1	Reduce to 0.5	Reduce to 0.25	Reduce to Nil	
o Male	1.3				
o Female	0.2				
- Urban	0.5	Reduce by at least 25% of baseline	Reduce at least 75% of baseline	Reduce to Nil	
o Male	0.4				
o Female	1				
Source:					
<ul style="list-style-type: none"> - NSSO Consumption Expenditure Survey 2011-12 - NSS 66th Round Employment and Unemployment 2009-10 					

Target 2030: 10.2 Empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Malnourishment <ul style="list-style-type: none"> Percentage of SC children malnourished <ul style="list-style-type: none"> - Rural (SC) 32.4% - Urban (SC) 22% 					Map, track and prioritize delivery to Dalit malnourished children under the ICDS program
Social protection schemes <ul style="list-style-type: none"> Percentage of SC access <ul style="list-style-type: none"> - Atta-Dal - Old age - Destitute 		Reduce by 10% of baseline	Reduce by 20% of baseline	Reduce to Nil	
Education <ul style="list-style-type: none"> Percentage of SC illiterates <ul style="list-style-type: none"> - Rural (SC) 29% - Urban (SC) 17% Percentage of higher education 14.2% 		Full coverage	Full Coverage	Full coverage	<p>Atta Dal, pensions, disability and women headed household schemes to be strengthened and their distributed to be on a priority to Dalit households.</p> <p>There are 17 major schemes to improve their education status. The schemes provide infrastructure, scholarship, vocational training and study aides to SCs. These need to be strengthened in delivery and made part of a tracking system: Parents continuing children education can be incentivized with additional MNREGA and cash prizes.</p>
		Reduce by 10% from baseline	Reduce to 18% from baseline	Reduce to Nil	
		Improve to 16	Improve to 20	Improve to 25	
Source: <ul style="list-style-type: none"> - NFHS-III, 2005-06 - NSS 64th Round, Participation and Expenditure in Education, 2007-08 					

Target 2030: 10.3/10.4 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard / Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Political Representations - Percentage share of SC in Vidhan Sabha Electricity in Dalit households - Rural - Urban Safe drinking water access in Dalit households - Urban - Rural Toilet facilities in Dalit households - Urban - Rural Crime against Dalits - Rate of crime/lakh	40% reserved SC constituencies 93% 96.6% 87.9% 73.8% 88% 57% 1.4	Improve coverage to 100% Improve coverage to 100% Improve coverage to 98% To significantly reduce incidents of crime	Full coverage Improve to 95% Full coverage To significantly reduce incidents of crime	Full coverage Full coverage Full coverage To significantly reduce incidents of crime	34 constituencies are reserved for SC candidates For Assembly elections in Punjab. In 2012, 286 SC candidates contested The gap related to civic amenities specifically for Scheduled castes needs to be addressed in a state wide extensive programme on a priority basis. -147 cases reported -The police response time to investigation and charge sheeting of crimes against Scheduled castes needs to be improved -Special training for the police and other stakeholders to deal with such crimes with more sensitivity -Video recording of statements to avoid hostility of witnesses , and to avoid coercion of afflicted victims to withdraw cases
Source:					
- Census of India, 2011					
- Crime in India, NCRB, 2015					

INTRODUCTION: STRATEGY FOR GOVERNANCE AND PEACE: PILLAR III

Governance! For whom and why? This legitimate question normally gets lost in the processes, procedures and application of technology. These rules of exchange in many spheres do not protect the rights and the entitlements of the people on the margins besides treating a fairly large section of the citizenry in an undignified manner. Rules of governance have become so overtly obstructionist that the system has been rendered non-functional.

This is more pronounced in developing societies specifically post-colonial, where the norms and procedures continue to function as colonial constructs causing a visible disconnect between the people and the State. The political and constitutional changes could not transform the activated into a participating civil society. At the same time, the State conferred citizenship on the colonial subjects and the poor in a formal sense, but its substance in many ways provided continuity to some of the retrograde practices.

In other words, the substance of citizenship is related to the evolution of the State. The developing and the post-colonial States continued to rely on the processes and procedures treating citizens as subjects. The perpetuation of these practices reduced the whole conception of citizenship as 'deficient'.

For realisation of a full citizenship, 'activated nation' is yet to be fully transformed into a civil society. Therefore, the legal rights conferred on the citizens could not be fully realised in actual practice. However, there are certain 'practical values' that have come to be associated with the idea of citizenship. In this sense, there are two sets of values through which people connect as citizens with the State:

1. Value of welfare as reflected in the dole-giver and dole-receiver interaction.
2. The value of political power and material wealth. The value of power position and possession of material wealth enable them to realise their claims.

However, intense explorations with a cross section of people have uncovered certain commonalities in their experience of interactions with the State. It is in this context, governance programme addresses concerns of all citizens irrespective of their class, ethnic, or religious position.

Institutionalising citizen-centric rights based governance advances inclusive, secure and peaceful societies essential for sustainable development. In post-colonial societies the rules of state-citizen

engagement need to be redrawn to make the system capable for justice and effective delivery of rights and accordingly mechanisms, processes and procedures reframed. The first section of SDG 16 deals with challenges and strategies of governance, specific to the conditions of Punjab. The second section details processes and initiatives flowing from this perspective to the criminal justice system, the enforcement wing of the colonial administration. Road accidents and drug problems have been taken under this section since these issues involve a wider spectrum of delivery structures rather than a sectoral revamping. For instance, 21 departments are involved in different aspects of road safety, transport management and maintenance. Similarly, the police, health, administration and management are involved too. The third section delineates the milestone based indicator projection.

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Co-ordinator and
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SDG 16

PEACE JUSTICE AND STRONG INSTITUTIONS: PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS

Governance Reform to Meet Trust Deficit

The premier condition was to engage the citizens into governance. Engaged governance means 'politically more engaging and developmentally more equitable'. Enabling conditions to achieve this was to empower citizens. To put in the words of Hannah Arendt, 'Right to have Rights. The post-colonial State has failed to transform the status of people from colonial subjects to citizens'. The focus, therefore, was to reduce the mistrust between the citizens and the government. In other words, to eliminate all those procedures that make right to identity citizen-restrictive. This colonial legacy is pervasive in almost every interaction of the citizens with the government initiative taken by the latter all along these years.

To illustrate: the extent to which this mistrust prevails can be seen from the fact that even to prove their name, they have to seek affirmation from a gazetted officer. For declarations relating to their profession, income, caste, residence proof, etc., the particulars are given on legal papers sworn before a Magistrate or Public Notary. Even to procure ration card, electricity, sewerage, water connection, birth and death certificates, admission to educational institutions, etc., affidavit attested by the gazetted officer, public notary or Magistrate is to be given.

Meeting Dignity Deficit

Second, to protect the dignity of the citizens by identifying spaces, policies, processes and practices which perpetuate undignified exchange between the citizens and the State. Through regular interaction, it was observed that the citizens value their dignity over and above even efficiency. For instance, a majority of citizens referred their exchange with the police (58 per cent), revenue (44 per cent) and district collector (42 per cent) as undignified and corrupt. This exchange was termed as undignified and corrupt. Whereas, the exchange with health (36 per cent), education (35 per cent), bank (34 per cent), electricity board (37 per cent) was termed as *dignified*, even though corrupt as per PGRC data 2010.

PRODUCTIVE ENGAGEMENT

A third set of the prerequisites relates to the productivity, i.e. to engage people with the system in a productive manner and provide conducive conditions to nurture people's capacity to be productive and their ability to exercise some degree of control over their lives. Instead of productive engagement of the citizen, a culture of sharing of spoils has been in vogue.

For benefits of social security schemes to reach the poor and deserving, special attention is required. There is need to restructure Social Welfare, Women and Child and other related departments to introduce efficiency and accountability.

BUILDING PARTNERSHIP

The fourth boundary condition was to transform these claims relating to exchange between the citizens and the public functionaries from patron-client or *Ria Mai Baap* to public servants–citizen partnership. An important dimension is to create forums to redress citizens grievances. Presently, the system is not fully equipped to be responsive through institutional framework.

Figure 16.1
Existence of effective complaint redressal system against working of Government/Public agencies



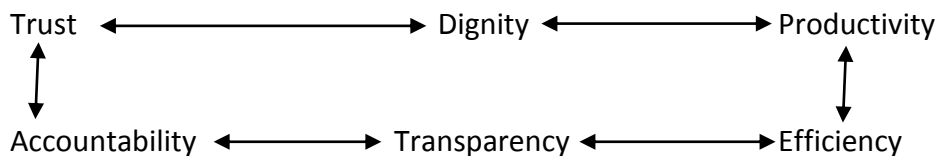
Source: PGRC Survey, 2010

Most of the respondents were of the view that there was no system of redressing complaints. Around one-third did mention the multiple grievance redressal available ranging from political leaders to judiciary to consumer forum, etc. (See Figure 16.1).

CONVERGENCE OF ENGAGED GOVERNANCE WITH E-GOVERNANCE

The convergence of engaged and e-governance has been central to the approach followed in bringing about reforms in governance. Engaged governance means ‘politically more participatory and developmentally more equitable’ and this cannot be achieved without making the system accountable, transparent and efficient.

Figure 16.2
Engaged Governance Convergence with E-Governance



The processes, procedures and rules are suited to meet trust, dignity, productivity deficits and, simultaneously, capacity of the system is to build around core elements of e-governance, i.e. efficiency, accountability and transparency. The main focus remained:

- a) To make systems more accountable in terms of costs, conduct and performance.
- b) To enhance efficiency to make it more accessible through availability of equal services to the people in equal needs (supply side). And, also to ensure quality and reduce transactions costs through checking perverse incentives, non-statutory and discretionary powers, amending inappropriate rules leading to inefficiency and corruption.
- c) To make interaction between the citizens and the government more participatory leading to transparency.

To meet these challenges, the institution system must be geared to function within the following broad principles.

Integrated Delivery System

Since administration is compartmentalised in departments and each department has its own priorities, if a particular department's priorities take precedence over the other, that is likely to lead to dissonance within the system. There is no dearth of examples to demonstrate this point. In 2004-05, the then Punjab Department of Finance in its overactive commitment to impose fiscal management came out with a scheme to contract untrained 'teachers' from the same village to cut government expenditure. As a result, the quality of teaching further deteriorated and, later, all the contractual 'teachers' launched a protest and demanded that they should be trained as teachers and that their services be regularised. The process of delivery of services is segmented that each institution is performing its own assigned role with no accountability towards the end result. It is imperative to put in place co-ordination mechanisms against various line departments to prioritise resource allocation as per citizens' needs.

Multicultural Cultural: Diversity Sensitivity

In India, for instance, equality of citizens is a constitutional guarantee, but social differences and hierarchies place some citizens unfavourably in comparisons to the others. Unfavourably placed

groups, such as, the Scheduled Castes and tribes, migrants, minority and most women have relatively poor access to the services and facilities as compared to the average population. To presume that the prism of equality sees no differences may, in fact, discriminate against the minority and unfavourable groups by being insensitive to their concerns. For instance, if the policy of gender equality treats both male and female on parity, then the special needs of women, for instance, privacy to report domestic disputes, of bodily violence like rape or molestation would not be included as part of a neutral initiative to treat each citizen alike. Further, in a multicultural context, the recognition of difference may not be able to prioritise what difference or whose difference needs to be accorded primacy. To accord primacy each difference, within the broad constitutional framework, and short and long term public policy imperatives have to institutionalise.

Bridging the Local with the Global

International standards, however, have to be related to a cultural context to provide meaningful justice. For instance, issues pertaining to gender, Scheduled Castes, collectivity rights or the relevance of traditional systems may not be enstated in the international framework, which is to be analysed in accordance with local considerations.

It is in this context, the global standards have to act as normative filters for local needs for delivery of justice.

STRATEGY

- **Strengthening Internal Controls Rather Than Multiplying External Oversights**

Easy solution to check distortions and violations is found in adding on external oversights rather than eliminating process distorting procedures and strengthening internal controls to check perverse incentives and discretions. The assumption is that these external oversights shall not be engulfed by systemic dys-functionality.

- **Discretion Reduction Procedural Changes**

The core element of governance is trust deficit between citizens and the government. This gives a pretext to the regulatory State functionaries to become arbitrators between the government and the citizens and draw perverse incentives on account of trust deficit. To eliminate perverse incentives, inefficiencies and citizens harassment, the need is to change over to those procedures that are incentive compatible.

To illustrate, for a dignified interaction with the Revenue Department, easy access to revenue services, online copies of jamabandis, simplified process for settlement of contested mutations,

withdrawal of discretionary powers of *tehsildar* regarding calculation of construction cost and its replacement with flat rate have to be strengthened.

- **Incentive Compatible Procedural Change**

To bring about those changes in procedures and processes that can act as incentives per se. This will lead to check in delays and prevalence of perverse incentives. To illustrate, for Birth and Death Registration and Certificates, at present, approval of the District Registrar-CMO is needed for a delay beyond one month and citizens missing the registration deadline may be kept waiting for 5 to 10 years. An incentive compatible procedural amendment has been introduced in which the 'Asha' worker has been made the Notifier instead of the family and ANM has been made the local registrar, authorised to issue birth certificates.

- **Disaggregate Delivery Mechanism**

The main thrust of these reforms is to deliver a particular service through multiple agencies and each one to act as an oversight for the other to fix accountability. In Transport, a disaggregate delivery mechanism is being implemented in which registration of vehicles was transferred to the authorised dealers, issuing of learner driving license to the principals of government colleges, and procurement of fitness certificate of vehicles from a service station. For sustainable and replicable model of governance, i.e. flexible enough to evolve as per citizen's need following right based approach, a set of institutions have to be built.

INSTITUTION BUILDING

Department of Governance Reforms

Department of Governance Reforms has been set up for the Implementation of governance reforms. The mandate of the department is inter-departmental coordination, technology support, policy on capacity-building, and convergence of engaged governance with the e-governance.

For Citizen-Centric Delivery of Services an institutional forum is developed: to ensure citizens' empowerment and their participation in governance, to make dignified interaction with government and time-bound delivery of services and to provide complaint registration and response system and grievance redressal mechanism.

Civic Services

To provide dignified and easy access front end institutional forums have been built.

Sewa Kendras: Institutionalised Unified Civic Service-Delivery System

- From rural-urban dichotomy to rural-urban continuum.
- Equitable access to services irrespective of the volumes.

- From multiple accountability forums to unified complaint Redressal.
- From multiple oversights to single oversight for delivery of services.
- One rural centre for 8,000 to 10,000 population.
- Urban center to be established at the radius of 1.5 to 2.5 Square Kilometer.
- These centres will deliver 308 services.

Image 16.1
Sewa Kendra's Building



To implement this, an act has been legislated to deliver services to citizens as a matter of their right and for its smooth functioning an independent oversight, i.e. Right to Service Commission has been constituted.

Right to Service Act–Right to Service Commission

Why Right to Service Act?

Sixty-four years after Independence citizens were not trusted by the government. Services were provided as doles or kherat and citizens were treated like Ria and administration as Mai Baap. Bribes and corruption became rampant and blatant and there was no institutional system of complaint redressal.

What is the purpose of the Act?

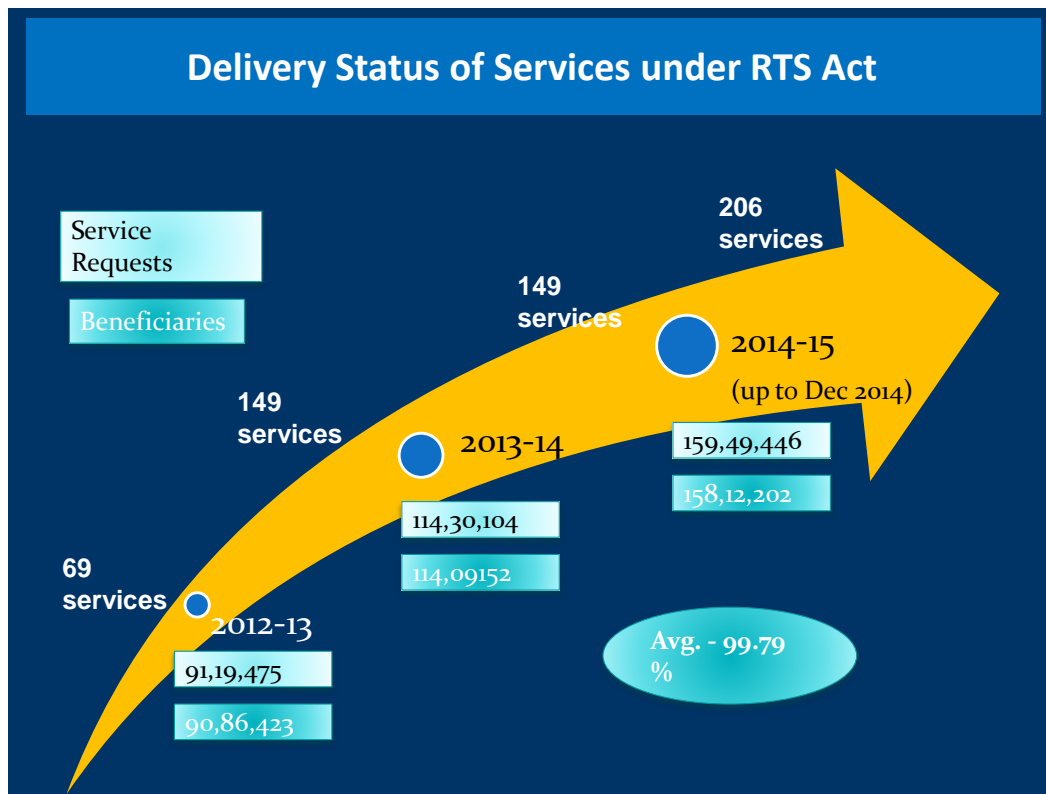
The objective of the Act was to empower the citizens to claim government services as a matter of Right and to restore dignity of the citizens. It is meant to repose trust in citizens through procedural changes and technology application, to initiate the process of democratic governance by making administration accountable to the citizens and to put in place institutional mechanism to perform

the function of Lok Pal for lower rung of the bureaucracy by taking suo-motto notice of any corrupt practices and harassment in the delivery of these services.

Main Features of the Act

- The Act has provided statutory backing for ensuring delivery of services within stipulated time limits.
- It is a dynamic Act. It has sufficient scope to include new services, amend time schedules and adopt new technology innovations without long administrative procedures.
- Main thrust is to provide services first and then start proceedings against erring officials.
- Easy complaint mechanism for grievance redressal without much time and material costs.
- Transparent and accountable administration. Even those services which are yet to be included in the Act, it has been made obligatory on the part of the concerned departments to make public stipulated time limits for their delivery.
- Punjab is the only state which has included twenty police services in this Act.
- Empowered the citizens to claim services as a Right.
- Reposing Trust in citizens through procedural changes and technology.

Figure 16.3



Source: Punjab Governance Reforms Commission Report, 2016

PROCEDURES, PROCESS AND PROFORMA SIMPLIFICATION: SOME ILLUSTRATIONS

Abolition of Affidavits: Self Attestation

Historically, governance has been a prisoner of the colonial non-faith citizen government exchange. The interaction of state vis-à-vis citizens continues to remain divergent, even antagonistic, in terms of realisation of the claims, entitlements and the basic rights. In this case, they remain deficient citizens. Affidavits are required in support of facts given by the applicants for issue of various certificates (residence etc.). Affidavits are affirmations by the applicants (supported in some cases by third parties). Affidavits impose their own cost on the citizens – buying stamp paper, locating a deed writer, payment to the notary for attestation and, of course, the time and efforts consumed in these processes.

- Requirement of attestation by gazetted officer from School students seeking admissions in various colleges should be discontinued and replaced with self attestation.
- The requirement of giving certified copies of documents at the time of admission in colleges or submitting application for recruitment to various posts in the government/ PSU's may be dispensed with.
- The same may be collected at the time of admission/ selection of the candidate with self certification/attestation.

Table 16.1
Results of abolition of affidavit reform

S No.	Year	Total no. of services disbursed by the Suwidha Centres	Total no. of services relating to affidavits in (lacs)	Total services relating to affidavits in (% age)
1	2009-10	22,68,439	14.8	65.60%
2	2012-13	32,70,715	3.20	9.81%

Source: Punjab Governance Reforms Commission Report, 2014

Results of Abolition of Affidavit Reform

- This amounts to a whopping annual saving of Rs. 600 crore.
- This includes the monetary cost of getting the affidavits and the opportunity cost of loss of productivity and wages.

Ease of Doing Business

Punjab Bureau of Investment Promotion

- Single office
- Single Common Application Form (CAF)
- Single time document submission
- Single communication channel
- Single level of approval

Table 16.2
Regulatory Authorities and Power Vested with PBIP

Regulatory Authority	Power vested with PBIP
Punjab Pollution Control Board	<ul style="list-style-type: none"> • Consent to establish • Consent to operate (under Water Act and Air Act) • Authorisation under Hazardous Waste Rules • Registration for Recycling of Hazardous Waste Rules. • CSA Clearance • Authorisation under E-waste Rules, 2011 • Registration under Plastic Rules • Authorisation for Bio Medial Waste Disposal • Site appraisal/approval
Excise & Taxation	<ul style="list-style-type: none"> • VAT incentives
Labour	<ul style="list-style-type: none"> • Shop registration • Permission for engaging contractor for labour • Annual returns under Labour Laws
Factories	<ul style="list-style-type: none"> • Factories License • Annual Filling under Factories Act • Factory Building Plan approval.
Industries	<ul style="list-style-type: none"> • Registration under Boilers Act
Town and Country Planning Department	<ul style="list-style-type: none"> • Change of land use and approvals of building plans
Local Government	<ul style="list-style-type: none"> • Change of land use • Approval of building plans and their completion. • Waiver of Property and other local taxes if any. • NoC from Fire Services.
Forest Department	<ul style="list-style-type: none"> • Grant of NOCs/approval when approach/entry/exit involves forest land; • Diversion of forest land (less than one hectare)
Department of Power	<ul style="list-style-type: none"> • Load sanctioning • Issue of new electricity connection • Agreement for High Tension/ Extra High Tension (>100 KV) wires • Certification of electrical infrastructure by Chief Electrical Inspector. • Electricity Duty Exemption
Department of Revenue	<ul style="list-style-type: none"> • Stamp Duty Exemption/Refund

Procedural Reforms for Ease of Doing Business

- Labour reforms – From 47 registers to 2
- Third Party approval of Building Plans and Stability Certificate
- Enabling women employees to work during nightshift
- Simplification and standardisation of forms
- Elimination of arbitrary and redundant inspections
- Self certification for certain classes of Factories
- Increased validity of Consent to Establish
- Online approval for Power connections >100 KVA

Outcomes of Reforms made for Ease of Doing Business

Before the procedural reforms, the burden of regulations in Punjab on starting a business with transaction cost of Rs. 30 lakhs investment, 1 percent of investment was the formal cost (which included fees prescribed for approvals, registrations/licensing of central and states all agencies). Informal costs was 2-3 percent of total investment which were under the table payments for getting approvals, etc. (based on personal interviews and assessments).

To reduce transaction costs both formal and informal procedural and process changes were introduced. The main thrust was to eliminate cumbersome procedures and move towards self-regulation and productive enforcement.

Expected Out Comes

- Ensure efficient social outcomes by relying on labour (second party) to assert their rights- where mutual accommodation not feasible.
- Reduce huge transaction costs including corruption linked to inspections/ maintenance of registers which have no nexus with objectives.
- Tremendous improvement in costs of a time for starting business – through abrogation of licencing/approval, at no additional social cost.

Table 16.3
Regulatory Reforms

Sr. No.	Major areas of reform	Status/problems in Punjab	Recommendations
I.	VAT Registration.	Corruption/delay	On line as under Companies law.
II.	Construction-permissions and approvals (a) ULB/ Regional planning authority.	Complicated rules, lack of expertise of competent authorities; unnecessary stages of inspection.	Self regulation. Owner has no interest in setting up unsafe/unstable buildings. Approvals based on 3 rd party certification by empanelled architects/ structural engineers
III.	(a) Approval of construction under Factories Act (submission and approval of plans). (b) Licensing.	<u>Semi-legal</u> practice of approving plans/licencing extended to <u>all factories</u> . Department not fully equipped technically and numerically.	Discontinued practices. Submission of site & construction plans. Prior approval/Licencing under Section 6. Most of industries covered under specific laws – e.g. Drug Act.
IV.	Environmental clearances (a) Consent to establish under environment regulations (water, air hazardous substances). (b) Factories Act-Site Inspection for hazardous industries.	Delay and redtape. Site inspection committee required for hazardous industry.	In view of elaborate environment law, relevant Provisions under Industries Act be treated a dead letter-duplication to be avoided
V.	Indian Boilers Act - Certification of Boilers	Prior clearance/inspection required. Third party inspection system not functional.	Provide exemption under section 34 subject to third party/ manufacturer – certificate.
VI.	Indian Electricity Act (a) Connection. (b) Clearance by Chief Electrical Inspector.	Procedure simplified by PSEB; Service standards defined. Inspection - a formality of law completed after deposit of fees and speed money.	Discontinue inspections/approval by Chief Electrical Inspector; in limited cases necessary, authorise to Punjab Transmission Corporation, a professional outfit.

Institutionalised Police-Community Engaged Governance

SAANJH Kendras: Community-Police Interface: Institutional, Spatial and Service-Delivery System

A comprehensive plan for institutionalising community policing in Punjab by setting up Community Police Resource Centres (CPRC) was conceptualised by Dr. Pramod Kumar in 2002 and submitted to the Government of Punjab for approval after a thorough review of the existing schemes and professional inputs from experts in the field. The Government of Punjab notified its approval vide Memo No. 16/163/2002-4H(5)/415 dated 28.01.2003. It was further backed by provisions of Punjab Police Act, 2007 which makes it obligatory on the part of the state/police to promote community policing projects and in this regard "Section 14 of Punjab Police Act, 2007 stipulates.

Thus concept of Community Policing in the State was reinvented and provided as an institutional framework in the year 2011 with a view to provide basic police services through a single window system for the convenience of general public and in order to meet aforementioned objectives. A Community Policing Project namely 'SAANJH' was launched by the Government of

Punjab and the main purpose of this project was to improve the Police image by efficient delivery of police services and collaboration of the community in handling complaints, disputes and other issues concerning the society.

WHAT IS A COMMUNITY POLICING CENTRE

- Community policing centres are autonomous registered societies collectively managed by representatives of the community and police functionaries. It provides citizens dignified access to police related services and a forum to implement community oriented programmes.
- It provides space for police-community partnership in crime prevention, grievance redress, victim assistance and information related to law, rules and procedures, civic rights and duties.
- It is an institutionalised effort to integrate community policing with the existing policing system.
- It has a built-in mechanism of coordination with civil, judicial and non-government organisations
- It is a six-tier system of policing in partnership with the community, managed through committees having representatives of the civil society, specialists, NGOs, police functionaries and the civil administration.

PRINCIPLE FEATURES OF 'SAANJH'

'Saanjh' project is an institutionalised set up for the management of 27 Community Police Resource Centres (District Saanjh Kendras'), 114 Community Policing Suvidha Centres (Sub Division Saanjh Kendras) and 363 Police Station Outreach Centres (Police Station Saanjh Kendras) in the State.

A Community Affairs Division at State level has been created and an ADGP rank officer has been posted as incharge of this division at the Police Headquarters alongwith Inspector General of Police who supervises, monitors, evaluate and look after administrative & office work concerning the functioning of the 'Saanjh Kendras' across the State. District Community Police Officers (SPs/DSPs) are the supervisory officers at District level.

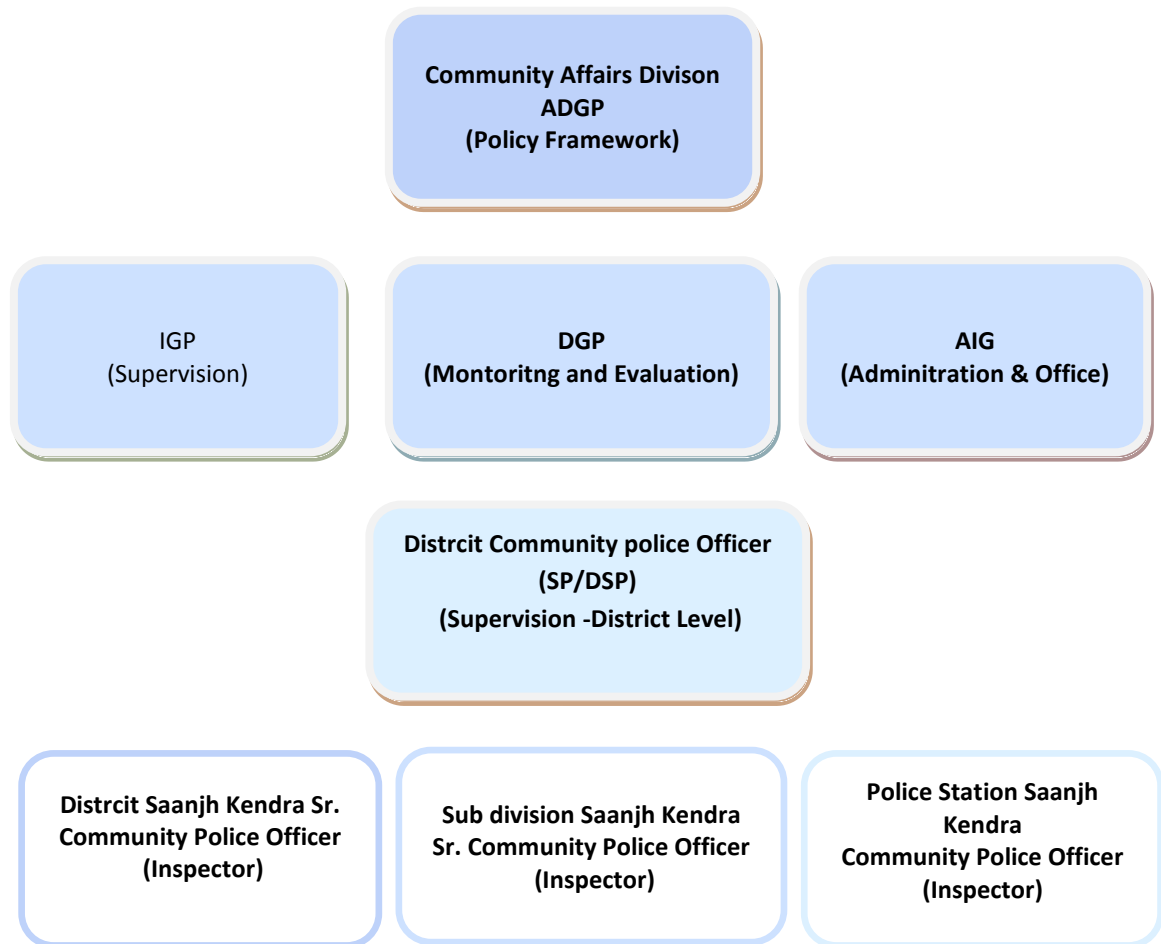
THIS COMMUNITY PROGRAMME SAANJH HAS THE FOLLOWING SALIENT FEATURES WHICH MAKE IT UNIQUE:

- This programme is well institutionalised and mandatory given its statutory provision in The Punjab Police Act, 2007; immunised from adhocism.
- Being meticulously designed, these centres cannot be "individually" reshaped or restructured.
- It has 'backbone activities' leading to standardisation, but has a provision to initiate activities in response to the local requirements.
- Participation of the community has been made integral at all levels from Committees to Community liaison groups at each level of its administrative unit.
- These centres are registered under the Societies Act and the police and public representatives are the members of this society.
- Majority of the members of community policing are ex-officio, reduces scope of political interference.

INTEGRATIVE STRUCTURE OF 'SAANJH'

As mentioned above, Community affairs division has been established at Police Headquarter for planning and implementation of the Community Policing projects in the entire State. It is headed by ADGP/Community Policing and includes academicians and Police practitioners as its members. The following administrative structure has been put in place for implementing the Community Policing Project at different levels in the state:

Figure 16.4
Institutional Structure of the Saanjh Programme



Each Saanjh Kendra is managed by a registered society. -There are 27 such registered societies for District Saanjh Kendras, 114 registered societies for sub division Saanjh Kendras' and 363 registered societies for police station Saanjh Kendras.

SINGLE WINDOW POLICE SERVICES' DELIVERY

Saanjh Kendras are providing 41 Police related services in the jurisdiction of three Police Commissionerates and 27 police related services in jurisdiction of other districts as per the provisions of Punjab Right to Service Act, 2011 and all these services have to be provided within a time frame defined in the act. The details of services provided through these Saanjh Kendras are placed at Annexure-'A'.

A State wide IT platform with centralised server at Ludhiana linked to every Saanjh Kendra enables centralised data uploading and access which helps in providing citizens with services such as copies of FIRs, untraced reports of cases especially those relating to theft and accident cases, no objection certificates, etc., at a click of a button in a time bound manner.

The citizen from any part of the State can approach the nearest Saanjh Kendra for obtaining information/services from any Police Station in the State.

FUNCTIONS AND SERVICES OF SAANJH

- These centres provide services which include delivery of copies of FIRs and untraced reports, no-objection certificates for armed licences, permission for religious and political processions, verification of tenants, registration of servants etc.
- These centres also provide counselling services to resolve disputes relating to domestic violence, dowry and various other crimes against women. It will also have police on call facility for women in distress due to domestic violence, social atrocities, other violations and criminal offences.
- These have facility for lodging complaints against the working of the police personnel and transparent disposal of complaints so lodged.
- There is victim relief centre which shall include first-aid facility and free legal aid for the poor.
- These centres are to be run in partnership with the representatives of the community.

SERVICES PROVIDED AT 'SAANJH KENDRAS'

Following services on a single window mode and on a modern & comprehensive IT platform is provided to people.

Figure 16.5

Services Provided at Saanjh Kendras

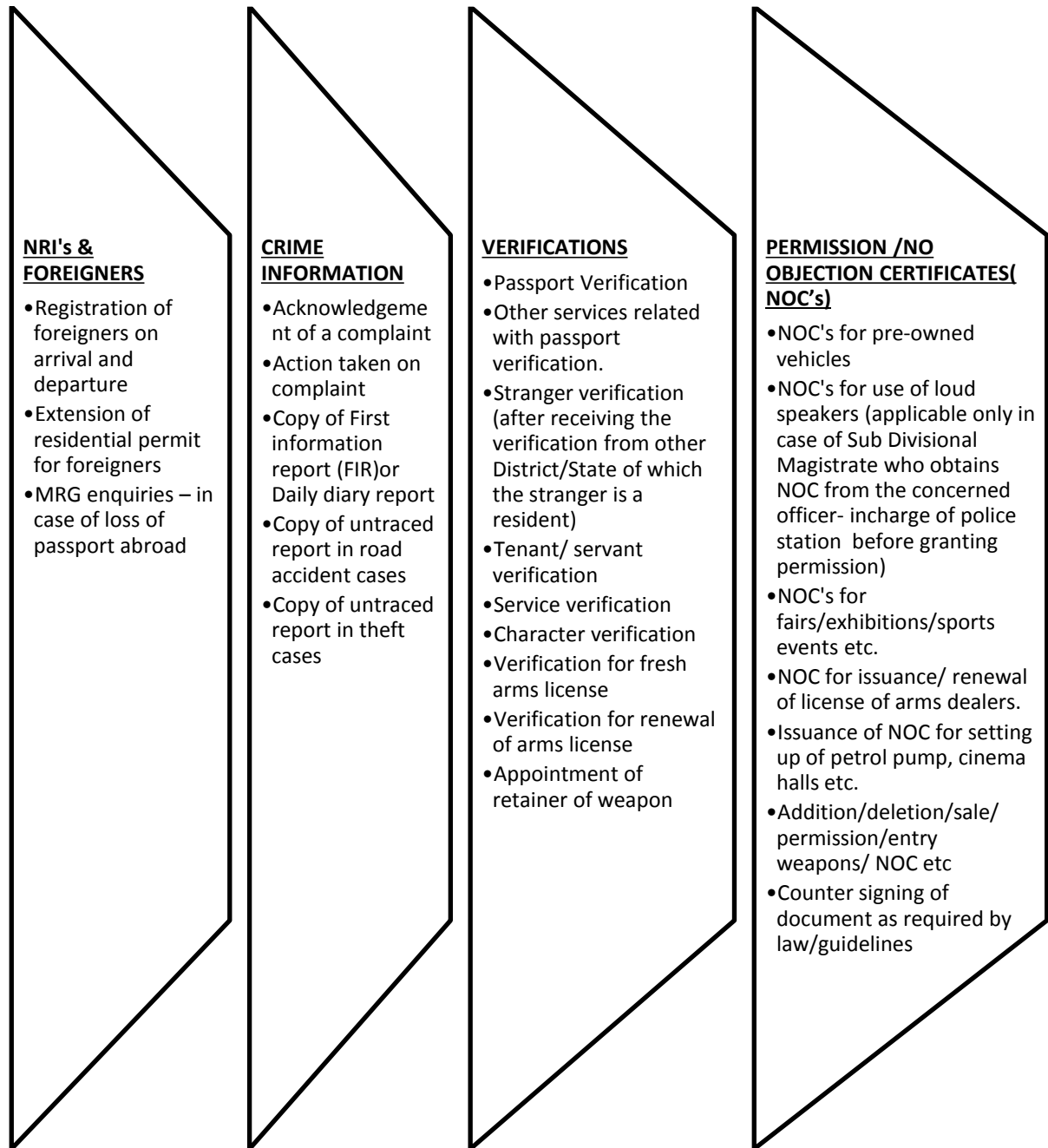
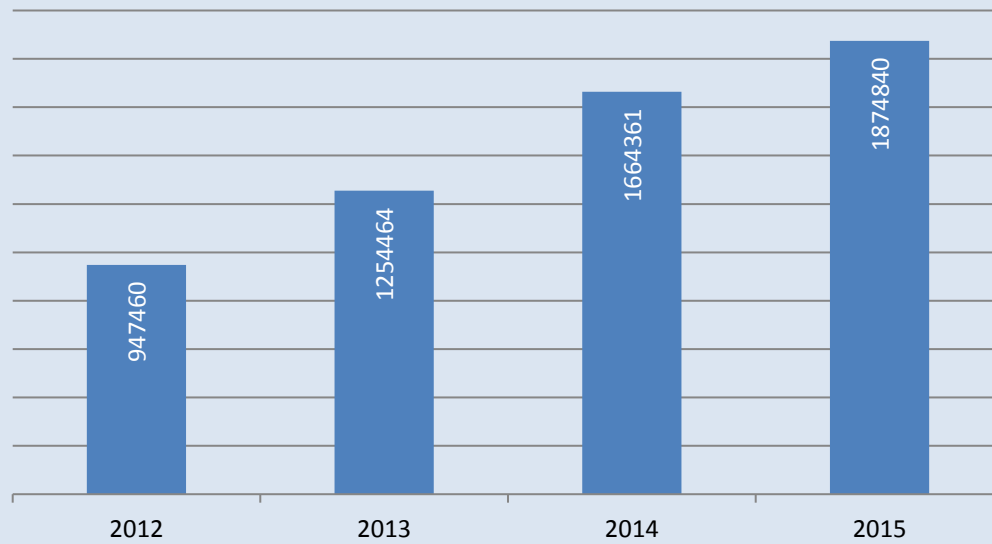


Figure 16.6
SAANJH- Year-wise Service Delivery (Jan. '12 to Dec, '15)



Source: Community Affairs Division, Punjab Police Headquarters, 2016

Outcome

Service delivery in Saanjh Kendras registered increasing trend as from 2012 to 2013 and from 2013 to 2014 there was increase of 32.16 and 32.68 percent respectively.

Infrastructure of SAANJH

Ninety-four new buildings of Sub division level 'Saanjh Kendras' and 160 buildings of police station level 'Saanjh Kendras' have been constructed. 27 district level 'Saanjh Kendras', 4 Sub division level 'Saanjh Kendras' and 203 police station level 'Saanjh Kendras' are functioning in existing police buildings.

Staffing

The staff for this wing has been selected from the existing wings of Police Department, having an educational background which prepares them for this special task. After selection, the staff has been transferred to this wing on a deputation basis for a period of 3 years. The proposed designation and their requirement in various ranks has been worked out on the basis of present posted strength of police officials, which is as under :-

Table 16.4
Rank wise proposed strength of community policing wing

Designation	Abbreviation	Equivalent rank in Police Department	Total number of Post
District Community Police Officer	DCPO	SP/ DSP	28
Senior Community Police Officer	SCPO	Inspector	143
Community Police Officer	CPO	SI/ASI	515
Assistant Community Police Officer	ACPO	HC/CT	1193
Assistant Community Police Officer (Ladies)	ACPO	HC/CT	1206
	Total		3085

Source: Community Affairs Division, Punjab Police Headquarters, 2016.

Table 16.5
Posted strength in Saanjh

ADGP	IGP	SP	DSP	Insp.	SI/ASI	HC/CT	HC/CT	Total
						Male	Female	
1	1	1	-	41	275	654	537	1510

Source: Community Affairs Division, Punjab Police Headquarters, 2016.

Central Server and other IT paraphernalia:

Saanjh service delivery part is an online system which interconnects all the police stations and their data. Central server placed at Ludhiana is main fulcrum of this system. All the computers placed in Police stations, subdivision and district level Saanjh Kendras are connected to this server through a 20mbps internet leased lines of Tata Communications along with the required protection in terms of firewalls and adequate storage etc.

Funds provided by the Government to establish Saanjh Kendras

The Punjab government allotted regular budget as per following details for construction of these Saanjh Kendras:

Table 16.6
Government funds spent for Saanjh Kendras

Year	Total Amount Spent (INR)
2010-2011	27,86,70,228
2011-2012	1,29,95,709
2012-2013	4,30,91,310
2013-2014	8,50,00,000

Source: Community Affairs Division, Punjab Police Headquarters, 2016.

Total expenditures incurred on construction of buildings and other infrastructure is as follows:

Table 16.7
Expenditures incurred on construction of buildings and other infrastructure

Year	Fund Allocation	SAANJH kendras built
2010-11	INR 30 Crores	Sub-division level 82
		Police station level 35
2013-14	INR 15.5 Crores	Sub-division level 12
		Police station level 125

Source: Community Affairs Division, Punjab Police Headquarters, 2016.

Speedy Disposal of Passport Verifications

- For expediting verification of passports, the process for verification has been re-engineered on following lines:-
 - In this re-engineering process, on receipt of verification request from passport office, the passport branch in CPRC (District level) send reference to the police officer earmarked, state intelligence wing and intimation to the applicant will also be sent via 'SMS'.
 - The verifier at the Police Station level 'SAANJH kendra' will check the record regarding the antecedents of the applicant from police station and also carry out the physical verification. In physical verification process, the verifier will ring up the applicant for fixing date of visit to his/her residence and will also inform him about references mentioned in the verification. The verifier will also send two "SMS's" one regarding confirmation and other about facilitation charges.
 - At the time of physical visit, the verifier will verify the identity, address, period of stay, general reputation, get appraisal from neighbourhood and click photographs of the applicant, the verifier, the references & local respectable.
 - After receiving report about verification from state intelligence wing regarding the details of the applicant, the verification report will be submitted to the passport office by the District level saanjh kendra. One more 'SMS' will be sent at this stage regarding final outcome of verification process whether passport is recommended or otherwise.
 - After 24 hours of dispatch of the final report / after recommendation to the Regional Passport Officer, district saanjh kendra sends one 'SMS' to the applicant regarding this.
 - This step apart from bringing lot of transparency & objectivity in passport verification process has also speeded up the entire process and it has also obviated possibility of any corruption by police officials. This has also eliminated any possibility of procuring passport by antinational & antisocial elements by manipulations or by furnishing false address.



Salient features:

- System generated automatic SMS alerts to the applicant at various stages
- The police official informs the applicant about date and time of his visit to his place for verification purpose
- The verifier clicks the geo tagged photographs of applicant, place of residence and his witnesses
- This has almost eliminated scope of issuances of passport to anti national /anti social elements on fake addresses
- The aforementioned re-engineering has led to verification of more than 99% of passports within 21 days (60% of these passports are sent back to RPO after verifications within a week.



REGISTRATION OF COMPLAINTS WITH 'SAANJH'

In order to ensure proper & systematic grievance redressal system, a new module for handling of complaints has been devised whose salient features are as given below:

- All 'Saanjh Kendras' have been authorised to register complaints.
- The complaint can be registered in any 'Saanjh Kendra' irrespective of the jurisdiction.
- The complainant will be given a unique ID number as an acknowledgement receipt to ensure delivery of justice.
- For ensuring action on complaint registered, it has been included in the Right to Service Act, 2011. If a designated officer is unable to take proper action on this complaint within stipulated time, he will be held accountable and penalised.
- The final outcome enquiry report may be in the shape of :
 - Registration of first information report (FIR)
 - Complaint is found false, hence filed.
 - Matter is of civil nature
 - Complaint relates to other authority, etc.
- Action taken on complaint shall be immediately reported to the complainant by the designated Officer
- If the complainant is not satisfied with the final report of his complaint then he is at liberty to give fresh complaint to the higher authorities.

This system of handling complaints will not only help in monitoring status of complaints but it will also ensure transparent and accountable system of grievance redressal.

People friendly Mobile 'Apps'

Under the Saanjh Project, Punjab Police have launched people friendly mobile applications in order to ensure delivery of various citizen centric services to people in an efficient, timely and hassle free manner to common citizens. The following 'Apps' have been developed and made functional by 'Saanjh' wing of Punjab Police :-

- **Untraced report 'App'**
 - **Verification 'App'**
 - **No objection certificate 'App'**
 - **Police Clearance Certificate 'App'**
 - **Passport verification Status 'App'**
 - **Lost articles/equipment/documents registration 'App'**
 - **Complaint registration 'App'**
 - **Know my complaint 'App'**
 - **Know your police 'App'**
 - **Police verification 'App'**
-

SIMPLIFIED PROFORMA FOR SERVICES UNDER PUNJAB RIGHT TO SERVICE ACT

The proforma has been devised keeping in view the range of services and varied requirements to avail these services. The first and the foremost requirement is nature of the service required and which agency/department has been authorised to provide this service. The proforma designed has been simplified and backend information gathered to identify the service-provider department online as well as manual.

Second, the proforma has been designed to capture identity of applicant. It will include applicants personal details like name, husband's/father's/mother's name, address – both permanent and correspondence and Aadhar Card number along with a copy of Aadhar Card, if available with the candidate.

If applicant is other than the beneficiary then name of the beneficiary along with the Adhaar Number of the beneficiary is required to be filled.

Third, all the mandatory information and document which are specific to the service are required to be filled without which it will not be possible to provide the service as these documents or information will be required to verify the eligibility of the applicant.

For each of the services, forms have been made which have a list of mandatory document/information required specific to the service applied for as in part-III of the proforma.

Proforma has been made I.T. enabled. As soon as the applicant puts in the name of the service through an IT device, to name of the department from the pre filled data in the system will emerge in part-I and simultaneously in part-III mandatory information/document required specific to the service applied for will emerge . A print out can be taken of this if the applicant desires to procure the document required for the service as indicated in part-III. The proforma can be filled at that time only online or later as per the convenience of the applicant.

If there is no I.T. enablement then proforma of the service which is required can be printed manually and kept with the authority/public interface. After filling up these proforma the same can be submitted to the appropriate authority.

At the time of the submission of the application as per this proforma the acknowledgement receipt will be given to the applicant.

PROMOTE THE RULE OF LAW AT THE NATIONAL AND INTERNATIONAL LEVEL, AND ENSURE EQUAL ACCESS TO JUSTICE FOR ALL

INTRODUCTION

For safety and security the prerequisite condition is how far the system of justice is accessible and perceived to be accessible by the common citizens? The availability of justice mechanisms may not be sufficient to provide accessibility to legal remedies. Social placement and norms influence the access to and use of infrastructure and services. It is, therefore, essential to address the fear of police and social stigma, safeguard rights of vulnerable groups and elimination of social exclusion. A wide range of social and cultural factors affects the accessibility to justice system. For instance, there are number of violations which may not be seen as violative even by the victim, the perpetrator or the larger society. Further, stigma attached to a particular crime also act as a hindrance to its reporting. For example, transgression on the female body may not be reported as rape or molestation targets the victims. Even suicides of farmers in Punjab are also underreported as these are seen by some as act of cowardice in a patriarchal and martial society. Additionally, farmers' suicides are largely attributed to indebtedness. If this becomes known, it adversely affects matrimonial alliance. Therefore, there is a need to initiate societal reforms to check these distortions and reduce the gap between reporting and non-reporting of crimes.

Table 16.8
Factors for Non-Report and Non-Registration of Crimes

Fear of harassment	Citizens resist visiting the police due to fear of harassment victimisation by the police and perception of being unjustly treated.
Complicated procedures	Lack of awareness and poor service delivery make public hesitant to visit police stations.
Corruption	Fear of having to pay bribes to the police.
Lack of faith in police	Inattention, lack of responsiveness.
Social stigma	Concerns that the image will be affected if they visit the police station and publicly acknowledge being victimised.
Less serious offences	Petty crime, which is not felt worth the trouble of visiting the police station.
Registration of cases related to performance of police	Low registration of cases is taken as less crime

Effectivity and Accessibility of Justice has to be mapped on three broad categories i.e. to be heard rightfully (fearless reporting of complaints); just action (case registration, efficient investigation and charge-sheeting); and, Justice Delivery (conviction by court).

To assess the justice reach and effectivity the indicators like reporting of complaints, registration of cases out of complaints, annual investigation rate followed by the charge-sheeting and conviction by the courts are to be used.

Existing

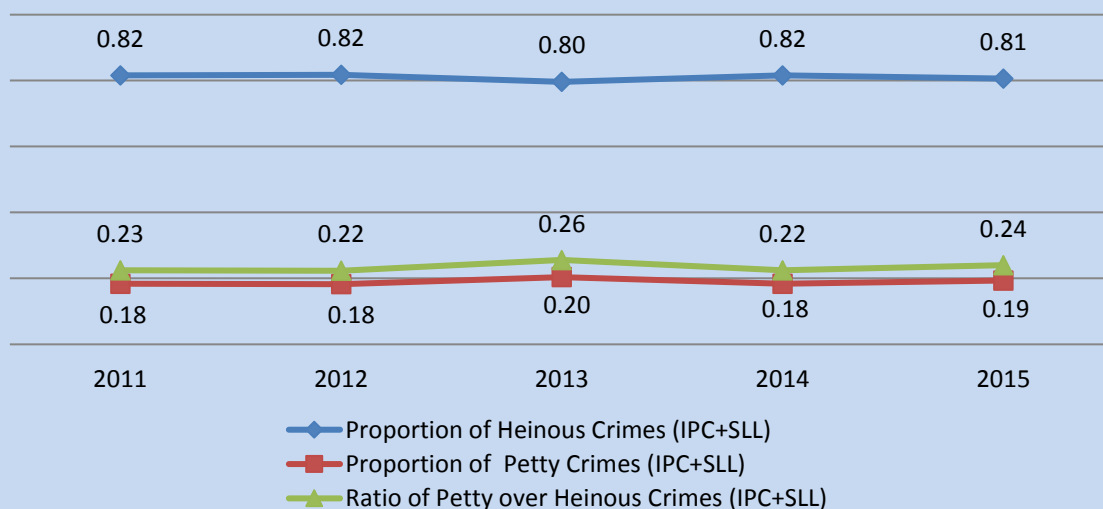
I. Gaps between Reporting and Registration

As the system of justice-delivery is segmented within the police registration, investigation, chargesheeting are processed by different departments without accountability for the end results. For the police, the assumption is that lower the reported crime rate (even if the occurrence of crime may be high) more efficient the policing. So the strategy have been to reduce the gap between crime reporting and crime registered.

In Punjab, the percentage of crime registered to crime reported ranged between 22 to 12 per cent for the years 2011 and 2015 respectively. One of the reasons for low registration of crime is that less crime is considered as better performance of a police station which induces police personnel for low registration of crimes.

The first priority, therefore, is to ensure that all the police stations and the officials deployed there follow uniform standards and comply with the law in recording FIRs. The incidences of petty crimes are on the increase, whereas it is not finding reflection in the registration of crimes. The reason behind this non-reflection is that the performance of a police stations' Station House Officer (SHO) is presently appraised on the basis of less number of crime incidences in police station's jurisdiction. This induces stations in-charge to keep registration of crime less in number, for which they avoid registration of petty crimes and register only those crimes which they cannot ignore, mostly heinous in nature. There is need to develop a some alternate metric for the performance appraisal of the stations' in-charge, may be, measured by petty over heinous crime ratio where high ratio suggests fearless reporting of complainants.

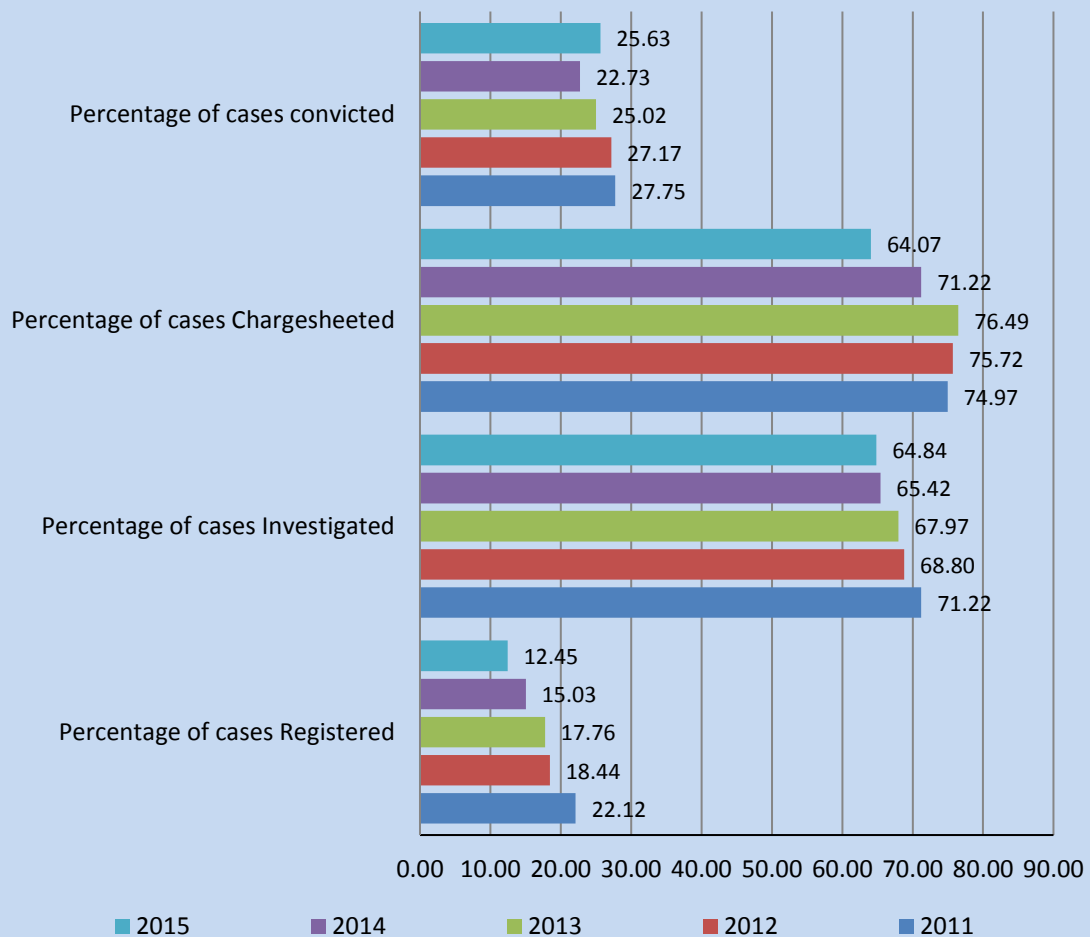
Figure 16.7
Proportion and Ratio of Petty over Heinous Crime Under IPC and SLL since Last Five Years in Punjab



Source: Punjab Police Headquarters, 2016

Around four-hundred centres shall provide counselling services to resolve disputes related to domestic violence, dowry-related and various other crimes related to women. Another step has been taken to encourage citizens' to report crime is to create facility of reporting of crimes in Saanjh Kendras (Community-Police Resource Centres). These new spaces will facilitate women and other vulnerable sections to report crimes without stigma attached and fearlessly. I.T. application has enabled citizens to report crimes in any of these centres irrespective of place of occurrence of crime. They will be provided with electronic receipt and unique identity number for follow up. This will reduce the gap between non-reporting – reporting and reporting registration.

Figure 16.8
Percentage of cases Registered, Investigated, Charge-sheeted and Convicted in last five years from 2011 to 2015



Source: Punjab Police Headquarters, 2016

II. Gap between Registration and Investigation of Complaints

The gap between cases registered and investigated is also significant. In the year 2015, 65 per cent of the cases registered were investigated. The reasons cited in Crime in India report

included cases withdrawn by the government during investigation, not investigated due to insufficient evidences, final report is declared as false, or it is submitted as a non-cognizable offense.

There are other reasons also like corrupt police practices, ranging from corrupt monetary benefits to compromise and reconciliation. There is also lack of capacity with the police in terms of skills, technology and time for investigation.

Separate Investigation Wing

- The strategy being followed is to separate investigation wing equipped with skilled and trained human resource and technology at the police station level. Each district is to have an Advance Investigation Wing to investigate heinous crimes in a professional and scientific manner. This will enhance the quality of justice-delivery and leading to high conviction rate.
- All police districts have access to well-equipped and well-staffed forensic laboratories where scientific evidence can be quickly analysed and results conveyed to the investigators in shortest possible time. The investigation wing to recruit more women at the Assistant Sub-Inspector level for gender balance and sensitised to women and Scheduled Caste issues.

III. Gap between Investigation and Chargesheet Rate

It has been noticed that the chargesheet rate is very low. In 2011, chargesheets were filed only in 75 per cent cases investigated and in 2015 it was reduced to 64 per cent. A monitoring system to be set up to ensure time-bound filling of chargesheet in the courts.

IV. Poor Conviction Rate

The quality of investigation and scientifically prepared chargesheet can help to improve the quality as well as increase the conviction rate. The conviction rate was 27 per cent in 2011 and 26 per cent in 2015.

- **Strengthening Prosecution Wing:** It is imperative to strengthen the prosecution wing and also develop mechanisms for better coordination between the investigation and prosecution. Prosecution of cases will be strengthened by improving the service conditions, upgradation of their skill levels through proper training in National Judicial Academy and State Judicial Academies. They will be imparted I.T. skills.
- **Accountability for the outcome** The head of prosecution department will be responsible and accountable for falling conviction rates. At present no one takes the blame if the prosecution does not end in conviction. Gaps in the existing formal criminal justice system have been attempted to be filled with certain local-specific initiatives.

SIGNIFICANTLY REDUCE ALL FORMS OF VIOLENCE AND RELATED DEATH RATES EVERYWHERE

INTRODUCTION

During the last 30 years, about a dozen commissions and committees have been constituted to study the police functioning and to give suggestions for bringing the much needed reforms with the objective of making the police functioning more professional, transparent and accountable. These commissions have given a plethora of recommendations for improving the police functioning at micro as well as macro level. Some of these recommendations are extremely relevant even in the present context. The recommendations of Justice Malimath Committee, Ribeiro Committee and Padmanabhaiya Committee also delve on these issues at length. The historic judgement delivered by Honourable Supreme Court in PIL filed by Retd. DGP Prakash Singh and others was the culminating point which set in motion the process of reforms and redrafting of the Police Acts by the States. The Model Police Act prepared by an expert committee which was circulated by the Govt of India became the basic format for the States to prepare their Police Acts to implement the changes suggested in the various court verdicts.

The State of Punjab also prepared its Police Act to replace the century-and-half-old Police Act of 1861. This Act came into operation in February 2008. It vividly specifies the structural, functional, operational and regulatory aspects of the Police working as also the much debated subjects such as police accountability (Section 54), welfare and grievances redressal mechanism for the police personnel (Section 55 to 57) and social responsibilities of police (Section 41), besides the role, functions and duties of Police. The Act also specifies provisions with regard to the creation of Police Zones, Police Ranges, Special Cells; Sub-divisions and Police Stations. Section 13 of the Police Act relates to the creation of police stations and qualifications for the appointment of Police Station House officer.

From these provisions, it is quite evident that comprehensive changes have been proposed from the traditional policing given in the Police Act of 1861 drafted under the shadow of the colonial mind-set and the futuristic expectations from the police. Police station, being the first rung of the ladder to provide policing, will have to undergo the changes at every step with new roles, and service delivery methodologies.

Existing

Safe and secure community is one of the main objectives of institution of police. To instil feeling of the safety and security among the community; police presence in optimum number is the prerequisite. Responsive and accountable police institution effective in combating and preventing

crime is the second most required element for safe community. To gauge this empirically some indicators may be used so that target may be set for the future.

The indicators such as police station–population ratio, police personnel- population ratio and police presence per sq km etcetera are to be used to determine police presence. Similarly to know how safe is the community, indicators like over all crime rate, violent crime rate, increase decrease in a particular form of crime incidences/ rates and crime related deaths are to be applied to evaluate security and safety of community.

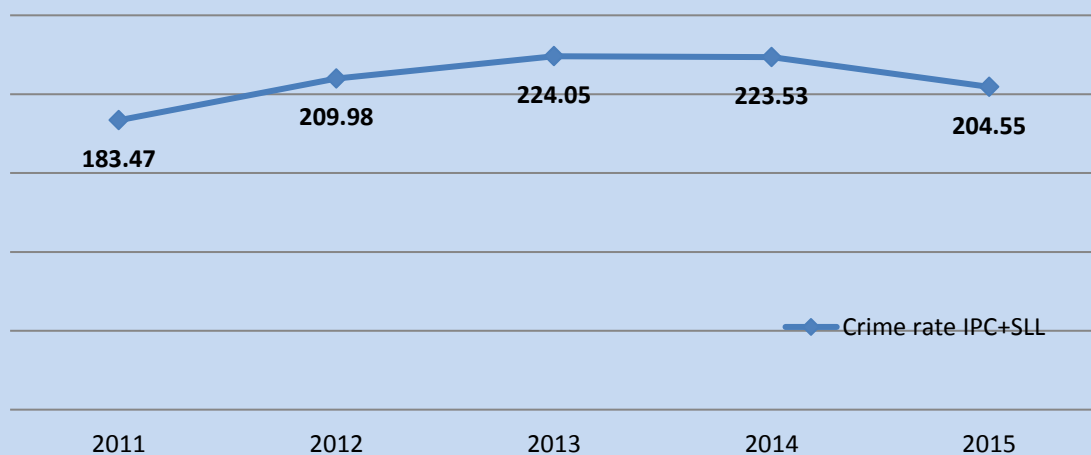
Police Strength:

The number of police personnel in 2015 were 75,671. It comes to 389 police personnel per lakh population which is much better than the worldwide recommended figure of 222 (BPRD, 2015).

Total Crime- Crime Rate

As per data provided by Punjab Police, the state faced 60236 incidences of crime under IPC and Special and Local Laws. In 2015 there were 204.55 incidences of crime after per 100,000 population.

Figure 16.9
Total Crime Rate (IPC+SLL) of Last five Years in Punjab



Source: Punjab Police Headquarters, 2016

NRI Crimes:

A total of 5734 complaints were received for crimes committed by and against NRIs in Punjab in 2015; out of which 1899 complaints received regarding crimes committed by NRIs and 3835 complaints received regarding crimes committed against NRIs.

Table 16.9
Crimes By/Against NRIs in Punjab 2015

	Complaints received	Cases registered	Cases in which charge sheeting
TOTAL CRIME COMMITTED by NRIs and AGAINST NRIs in 2015	5734	195	99
% age		3.4	50.8
TOTAL CRIME COMMITTED by NRIs in 2015	1899	113	61
% age		6.0	54.0
TOTAL CRIME COMMITTED AGAINST NRIs in 2015	3835	82	38
% age		2.1	46.3

Source: RW BRANCH, Office of IGP/NRI & Women Wing, Phase-7, SAS Nagar, Punjab (19.8.2016)

Out of 5734 total complaints received related to NRIs, 195 cases were registered. Out of 1899 complaints received regarding crime committed by NRIs, 113 cases were registered (6 percent) and out of 3835 complaints of crime against NRIs, 82 cases were registered (2.1 percent). Charge-sheeting was 51 per cent out of registered cases of crime relating to NRIs. In case of crime committed by NRIs, the charge-sheeting was 54 percent while it was 46.3 percent of registered cases of crime committed against NRIs.

Violent Crimes:

A total of 4938 incidences of violent crimes were reported in Punjab in 2015 with a rate of 16.8.

Table 16.10
Incidence and Rate of Violent Crimes

Year	Total Cognizable IPC crimes	Mid Year Population	Crime rate
2011	3792	27954679	13.6
2012	4309	28320729	15.2
2013	4507	28691573	15.7
2014	4938	29067273	17.0
2015	4938	29447892	16.8

Source: Punjab Police Headquarter 2016

Rate of violent crime is defined as incidence of violent crimes per one lakh Population

In the last five years there is a surge in some crime incidences under the category of attempt to commit culpable homicide, attempt to commit rape, kidnapping and abduction, assault on women with intent to outrage her modesty, unnatural offence.

Level of physical security

An interstate comparison on the level of physical security enjoyed by the citizens, shows that the total IPC crime rate (per lakh population) is highest in Delhi, Punjab ranks 28th in overall IPC crime rate and on crime against body Punjab ranked 27th. It registered high rate of economic crimes ranked

at 9th among the states and union territories. The registered crime against women and the Dalits is comparatively lower as it is positioned at 21st and 24th (Crime In India 2015).

Key concerns emerge from this fact file;

- (a) Reporting of crime against women and dalits is low
- (b) Reporting of economic crimes are comparatively on the higher side.

It would be relevant to evolve strategies to make invisible crime against women and dalits visible. In addition, institutionalise informal justice mechanisms to resolve economic disputes and activate community policing to reduce crime against body.

Rights of population affected by crime

This is an important dimension to measure the nature of the functioning of criminal justice system towards the creation of a sense of entitlement in justice delivery among the victims of crime. The affectivity and fairness of the criminal justice system can be viewed cross-sectional by analysing how the rights of people affected by crime are provided for by the state. Two types of population groups are focused i.e. the accused and the victims. What kind of safeguards does the system provide for the rights of the accused and the convicted? The rights of the accused and victims are gauged as a process. These include, if the accused are arrested according to certain procedures (arrest warrant, police custody procedures), and if their remand is sanctioned by a judicial decree. There are provisions of right to counsel extending to free legal aid where the case may demand. These rights are further captured in prisons where basic rights of food, hygiene, medical provisions, space and protection are warranted. The average time in police remand and the rights maintained in prisons are yet to be reflected in crime and prison statistics published by the state. The average remand time in the prisons is one of the factors that have been listed in state documents. The pre-trial detention is another area that requires urgent attention. In Punjab, out of 26,007 prisoners there were 15467 (59.47 per cent) were under trial (Prison Statistics India 2014).

Strategies To Prevent Crime, Causalities And Injuries

Crime Management to Crime Prevention

Crime activity mapping pertains to identifying the nature and rate of crime. It also notes places vulnerable to crime and susceptible to criminals.

Mapping for crime prevention includes attributes of the perpetrators, spatial and targets along with the factors that contribute to the occurrence of the crime.

Institutional Alternatives and Total Crime

These institutional alternatives function within the demarcated domains of the three institutions of the police, the judiciary and prisons. For instance, in police, community policing programmes, which have been adopted by the police in most states in India with an effort to involve the community as a participant in policing activities.

The most widespread alternative that has been institutionalised in Punjab is the community policing programme SAANJH.

Community policing in Punjab has been initiated with improved programmes seeking citizen participation in crime prevention. *Lok Adalats* have been instituted to help relieve the pressure of cases in courts and to provide quick relief to the people. These alternatives subsidise formal structures and improve public perception of safety in their areas.

Physical Infrastructure of Police stations: For Crime Prevention and Management

As per data provided by Police Headquarter Punjab had 362 police stations in 2015 which were staffed by 16864 personnel. To maintain ideal ratio of 1 police station against 100,000 population, 4 police stations in Gurdaspur and 1 police station each at Hoshiarpur and Fazilka were lacking. In all other districts, police station – population ratio was favourable.

(i) Equipping Police Stations

- One-third of the police stations are located in rented buildings while a large number of the police stations are situated in the government buildings not owned by the department. Immediate plans need to be worked out to provide buildings for the police stations and equip them as per the current requirements. As a first step in this direction, the police stations in the dilapidated conditions will be repaired immediately.
- Most of the police stations to be located in new buildings. The police station space will be re-engineered to give them community orientation, provide space for efficient management systems, victim relief centres, dignified detention cells and accessible police service delivery.
- Facilities for the visitors like respectable sitting arrangement, drinking water, waiting rooms for the visitors, communication rooms, separate washrooms for women, and parking to be ensured.
- More humane conditions for the detainees are ensured which are in tune with the recommendations of National Human Rights Commission and verdicts of the courts.

- Proper space allocation for the staff and office infrastructure, living and working conditions for the staff at the police station level need comprehensive attention as these affect their morale and efficiency directly.
- Computerization of record-keeping-Initiatives undertaken in this direction needs fine-tuning and integration with the national network grids and State network grids. Inter-departmental communication issues are being addressed comprehensively. The National Crime Record Bureau-supplied packages such as CIPA and CCTNS be integrated for intra and interdepartmental operations to be in tune with the E-Governance Policy of the department.
- Vehicles for SHO and staff for daily duties. In order to face the hi-tech criminals and e-offenders, the mobility, communication, forensic kits and weaponry of the policemen at the police station level is being implemented.
- Forensic Kits: Future of the police in the country lies in extensive forensic applications as the tech-criminals are far ahead of the policemen in the use and abuse of technology. Police station being a base unit will accordingly have to be equipped with the gadgets and devices for effective sealing and coverage of the scenes of crime, lifting, preserving and transmitting evidence for expert reports.

(ii) Setting up of new and re-demarcation of the Police Stations

- In the Punjab Police Act, Section 13 stipulates that the State Government may, on recommendation of the Director General of Police, create, by notification in the Official Gazette, as many police stations and outposts as may be deemed necessary in a police district, duly keeping in view the population, area, crime situation and the workload in terms of law and order and the distance to be covered by the inhabitants to reach the police station.

If population coverage of one lakh is taken as one of the basis to set up police stations, Punjab would need 10 more police stations by 2021.

- The conventional criteria may not suffice to meet the citizen needs like tourism, migration, traffic density and/or locational specificities like historical place, heritage site, national and state highways and other strategic locations, and/or nature of crime like terrorism, ethnic conflicts, and social violence. It may be more appropriate to set up police stations that would be commensurate with the citizen needs, locational specificities and nature of crime.

Safety Audit of Public Spaces

Safety audits of public spaces are planned to identify and categorise public spaces on the basis of their crime proneness and type of crime to which those areas are prone. On the basis of these audits

all the safety measures will be taken as per the suggestion of public and intelligence input. These audits would be conducted with the help of beat officers of the police stations and information technology would be utilised.

Standard Operating Procedures for Victim Care

Immediate care of victim of crime need to be prioritised to reduce the trauma related to physical or psychological injuries to reduce fatality after crime. Standard Operating Procedures to be developed for post crime victim care. These SOPs will be designed specific to gender and extent of causality for every point of contact for the victim. A comprehensive end to end procedure for victim care by pooling resources of police and medical emergencies would be drafted and staff stationed in victim relief centres of SAANJH Kendras will play an important role in providing care to victim of crime.

Victim Relief Centers

Victim relief centers have been started in all Saanjh Kendras, especially 363 Police Station level Saanjh Kendras in the State. Police Station Level ‘Saanjh Kendras’, subdivision level Saanjh Kendras and district level Saanjh Kendras act as nodal points in Punjab Police for relief to victims of crime in the following areas :

1. Counseling of victims of crime especially children/minor, victims of sexual/crime, victims of matrimonial/domestic violence, etc.
2. There are numerous provisions in various laws/rules which stipulates awarding of compensations to victims of crime by various authorities like District Legal Services Authorities, President Motor Accident Claims Tribunals, Deputy Commissioners of concerned district etc. and details of cases in which compensation is to be mandatorily provided by such authorities are as given below :

Table 16.11
Type of Cases and Authorities for Sanctioning Compensation

Sno	Nature of Case	Authority for sanctioning compensation
1	Untraced accident cases	National Solatium Fund scheme / Deputy Commissioner of district
2	SC/ST (Prevention of Atrocities) Act, 1989	Deputy Commissioner of district / District Social Welfare Officer
3	Acid Attack victims	Deputy Commissioner of district / District Legal Services Authorities
4	Victims of general crime like rape, murder etc.	District Legal Services Authorities

Violent Conflict Management:

Conflict can be managed by studying and capturing the nature and level of interaction between various religious/caste/ethnic groups and also correctly gauging the role of various actors in terms of their ideological positioning, material stakes and political affiliations. Another level of intervention would be mobilisation of the larger community and initiation of communication with the parties involved in the conflict.

Violent Conflict Defence:

At the time of eruption of a conflict in a locality, the police and the locality shall act as a defence group and provide protection to the member of locality by setting up check-points, patrolling the locality and insulating one locality from the other through social fencing with the help of volunteers and youth members. This would greatly check penetration by criminals or anti-social elements and control the spread of conflict in their locality.

Containing Violence:**Specific Tasks**

Reducing hostilities by dispelling insecurity among the clashing groups, generated by rumours, stereotypes and generalisations, etc.

To provide protection to sensitive point which have experienced recurrence of conflicts and also to targets by forming neighborhood vigilance committees.

To collaborate a network with the security system; youth workers can provide able and sensitive manpower to the security agencies of the state.

Mobilising the authority system to control the outbreak and escalation of antagonism, hostilities and violence.

Patrolling by defense groups in sensitive localities where anti-social elements exist. People of the locality, irrespective of their religion/ethnicity/caste should be protected from these anti-social elements.

Disputes Resolution Units at SAANJH Kendras: Saanjh committees and Saanjh advisory boards constituted under SAANJH Programme at the district, sub division and Thana level are to be involved in identification of such areas which are prone to any riots due to some ongoing dispute. In such areas parties in conflict be called into dispute resolution units of Saanjh Kendras so that the preventive and precautionary measures could be taken to avoid any major conflict/riots.

SAFER ROADS: TRAFFIC MANAGEMENT AND REDUCING ACCIDENTS AND CASUALTIES

INTRODUCTION

Road Safety/Accidents

In the past 20-30 years, road accident fatalities and injuries are increasing at an alarming rate in India including Punjab. The main reasons are phenomenal increase in vehicle population, along with lack of matching initiatives for improvements in road infrastructure/environment and application of modern traffic control and management tools to tackle such problems effectively and efficiently. Economy of Punjab is based on agriculture. State is spread in the area of about 50,362 square kilometer and very well connection with the means of Surface Transport to fulfill state's own domestic demand. Primary state's transportation need is divided into three parts, intercity connectivity, intra city connectivity and rural connectivity. Majority of the passenger trip start and end within the state and only 3-4 per cent of the total traffic is through traffic. One of the goals of the Government of Punjab is for the transportation sector to move to an integrated and sustainable transportation system supporting Punjab's social and economic development and enhancing Punjab's competitiveness in the Indian and global markets. All this cannot be achieved without improving the road safety conditions in the state.

Further Road Safety is a multi-sectoral and multi-dimensional issue. It incorporates the development and management of road infrastructure, provision of safer vehicles, legislation and law enforcement, mobility planning, provision of health and hospital services, child safety, urban land use planning etc. In other words, its ambit spans engineering aspects of both, roads and vehicles on one hand and the provision of health and hospital services for trauma cases (in post-crash scenario) on the other. Road safety is a shared, multi-sectoral, responsibility of the government and a range of civil society stakeholders.

Table 16.12
Data on Accidental Deaths

Year	Mid Year Population	Road Accidents	Injured	Deaths	Rate of Road Accidents per lakh Population	Rate of Injured in Road Accidents per lakh Population	Rate of Deaths in Road Accidents per lakh Population	Injured per Road Accident	Deaths per Road Accident
2013	283.79	6323	4383	4588	22.28	15.44	16.17	0.7	0.7
2014	286.7	6391	4127	4621	22.29	14.39	16.12	0.6	0.7

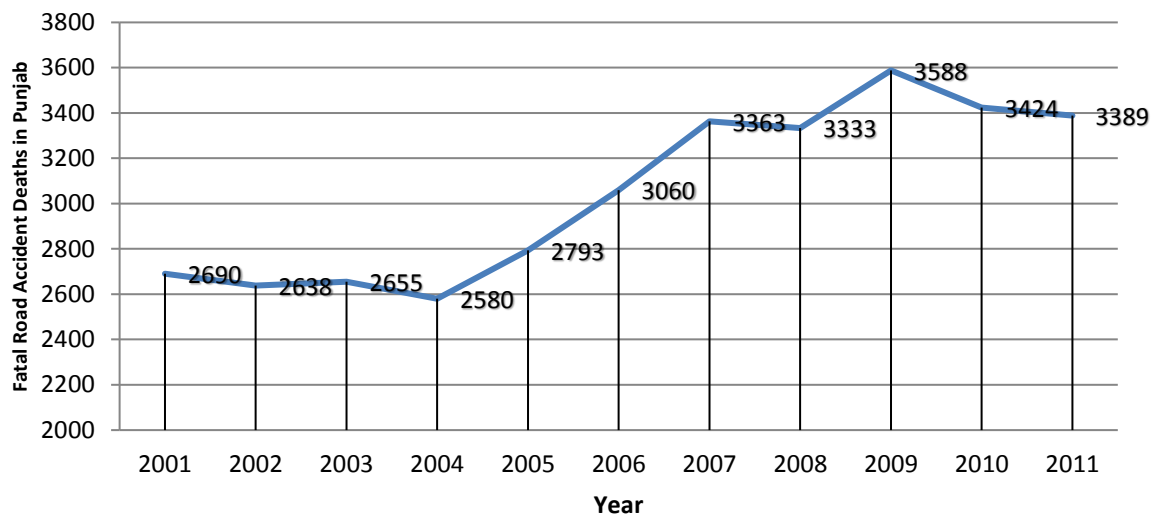
Source: Accidental Deaths and Suicides in India 2014

As per NCRB report on Accidental Deaths and Suicides in India 2013 and 2014 Punjab registered an increase of 1.1 percent of road accidents from 2013 (6323 incidences) to 2014 (6391 incidences).

Persons who got injured in 2013 and 2014 were 4383 and 4127 whereas persons who died were 4588 and 4621 respectively. Number of injured has decreased but fatality was comparatively high. In the last two years that is 2013 and 2014 per lakh population accidents were 22, injured were 15 and deaths due to road accidents were 16.

Whereas 32.07 percent of fatal casualties were on national highways, on state highways it was 25.84. Punjab has about 62,298 km of road network comprises 1739 km of National Highways and 1503 km of State Highways.

Figure 16.10
Road Fatalities Trend in Punjab (2001-11)

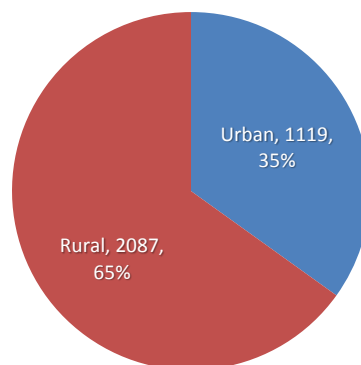


Source: Punjab Governance Reforms Commission Report 2013

Road Crash Trends in Rural and Urban Areas

As per Punjab Road Safety Assessment Report 2008, the ratio of rural: urban accidents are 65: 35 in Punjab.

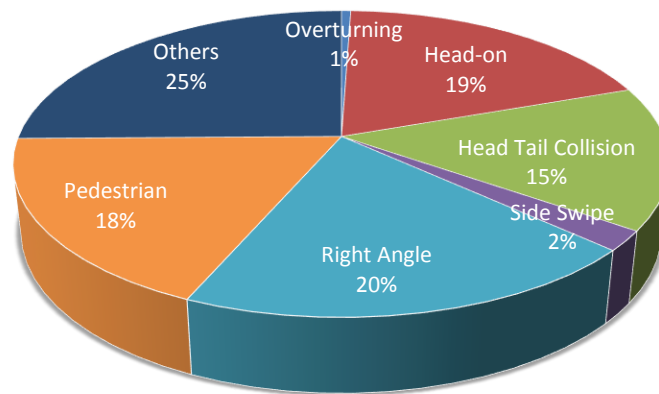
Figure 16.11
Rural Vs Urban Area Road Fatality Ratio



Source: Punjab Governance Reforms Commission Report 2013

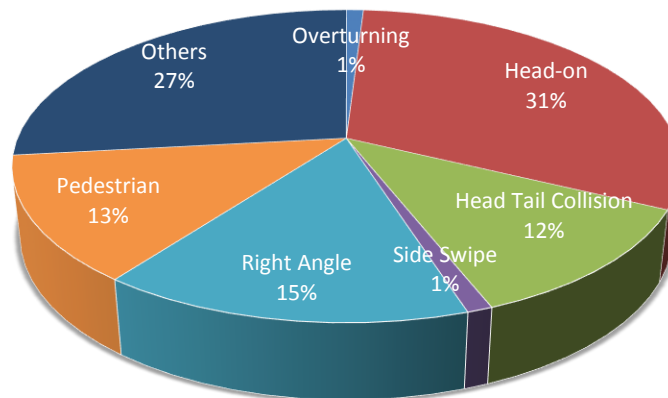
In urban and rural scenario, the percentage of pedestrian deaths is 18 per cent and 13 per cent respectively, which is very high. They are the people at no fault. Lack of infrastructure for non motor transport vehicle and pedestrian is not adequate in the state. The share of tractors in the total vehicle population of Punjab is 9 per cent, but responsible for 20 per cent road fatalities, same is the case of trucks and auto rickshaw.

Figure 16.12
Road Crash Trend Urban Area



Source: Punjab Governance Reforms Commission Report 2013

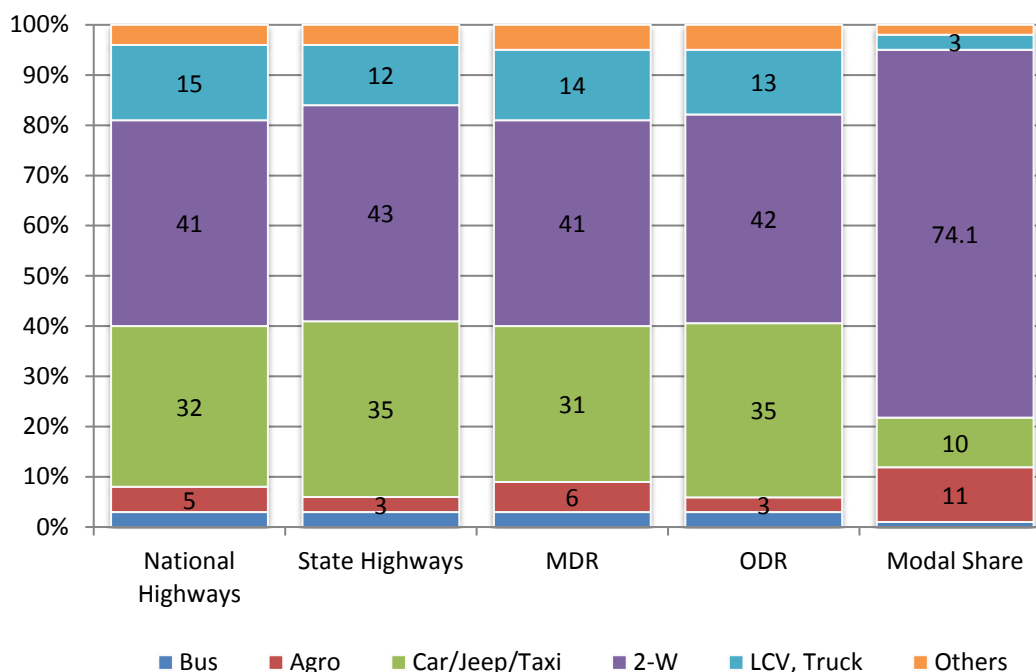
Figure 16.13
Road Crash Trend Rural Area



Source: Punjab Governance Reforms Commission Report 2013

Majority of the traffic on the core network of highways comprises of two wheelers (40 per cent) and cars (30 per cent), and over the period of time, modal share of car showing declining trend and it has also been found that bus occupancy is going up. This is a positive indication as how people are moving towards public transport and leaving personal transport on intercity routes.

Figure 16.14
Traffic on different types of roads and fleet composition in Punjab (2010)



Source: Punjab Governance Reforms Commission Report 2013

Analysis of accidents reveals that six major cities of Punjab – Patiala, SAS Nagar, Ludhiana, Amritsar, Jalandhar and Bathinda account for roughly 50 per cent of the total accidents in the state.

Table 16.13
Road Accident Cases, Injuries and Deaths by Classification of Road during 2014 (State/UT & City wise)

	Cases	Injured	Died
National Highways	1791	1203	1482
	28.02	29.15	32.07
State Highways	1519	1013	1194
	23.77	24.55	25.84
Express Ways	0	0	0
	0.00	0.00	0.00
Other roads	3081	1911	1945
	48.21	46.30	42.09
Total	6391	4127	4621
	100.00	100.00	100.00
Rate per Lakh Population	22	14	16
Per day	18	11	13

Source: Accidental Deaths and Suicides in India 2014

As per 2014 figures in Punjab on an average there are 18 cases of accidents, 11 people got injured and fatal casualties are 13.

Road Safety:

At present scientifically collected road safety related database is missing, which is a must for policy review and its further implementation.

At present non motor transport like cyclist, rickshaw and pedestrians are not given any priority in terms of designing and planning road infrastructure.

- Lack of budgetary support due to weak financial position of the State.
- Lack of institutional framework on integrated road safety.
- Non availability of any institute involved in the road safety related research and development work.
- Scientifically collected road safety related database is missing, which is must for the policy review and its further implementation.
- Bus transport and auto rickshaw transport which serving the great need of state transport for both inter-city and intra city are unorganized and less as per the demand.
- Guidelines to incorporate road safety component in terms of designing and is not being practiced by state government.
- Non motor transport like cyclist, rickshaw and pedestrians are not given any priority in terms of designing and planning road infrastructure.

END ABUSE, EXPLOITATION, TRAFFICKING AND ALL FORMS OF VIOLENCE AND TORTURE AGAINST CHILDREN

INTRODUCTION

Atrocities against Children

Children in general need to be protected from exploitation because they are always dependent on the elders and have little opportunity to raise their voice. Physical and mental immaturity of the children makes them vulnerable to exploitation and abuse. Their inability to seek assistance in a crisis puts an enormous obligation on those who are responsible for their well-being.

Exploitation of children does not occur in a vacuum. It is interplay of multifarious factors. A large number of our children are being subjected to practical and emotional aftermath of various forms of crime and discrimination. Since children represent the most valuable asset of a nation, provision of a state and stimulating environment to them with protection against cruelty, neglect and exploitation should be a matter of serious concern for every society. The trends in crime against children have

rendered them as the most vulnerable targets. Rapid increase in the magnitude of incidents of such crime calls for greater involvement of the community as a whole.¹

In 2014, 1762 incidences of crime against children (20.1 incidences after per 100,000 population of children) were reported to police in Punjab and there were 1810 victims (children).

Table 16.14
Crime Against children 2014

States	Incidence	Victims	Rate	Estimated Mid-Year Children Population# (in lakhs)
Punjab	1762	1810	20.1	87.7
India	89423	92974	20.1	4458

Source: Crime in India 2014

Table 16.15
Crime Against Children under SLL

Year	Protection of Children from Sexual Offences Act	Prohibition of child Marriage Act	Juvenile Justice (Care and Protection of Children) Act	Total
2011	0	1	0	1
2012	4	1	5	10
2013	5	3	10	18
2014	0	2	0	2
2015	18	5	10	33

Source: Punjab Police Headquarter

Atrocities against SCs (Rural-Urban)²

One of the striking aspects of Punjab is that scheduled castes (dalits) in the state constitute the highest percentage among all the Indian states. About 80 per cent of the dalits in Punjab live in rural areas and caste divisions are relatively stronger in rural areas. However, dalits to some extent are economically self-sufficient as compared to dalits in other states.

Despite higher economic development as compared to many other states, the local caste hierarchies still govern the relations between social groups, making Dalits vulnerable to caste-based atrocities despite preventive measures in the form of constitutional provisions regarding enforcement of civil rights and specific measures through the enactment of the Protection of Civil Rights (PCR) Act, 1976 and the Scheduled caste and Scheduled Tribes Prevention of Atrocity (PoA) Act, 1989 to deal with discriminatory practices and violence against the weaker sections of society. A larger proportion of dalits in the rural areas therefore silently suffer the dominance of upper caste and experiences human rights violations. The atrocities of various kinds against dalits therefore become regular feature of society. Understanding the patterns of atrocities against dalits in the state therefore

¹ Child Abuse in Punjab, 2001.

² Status of Dalit Development in Punjab 2015

remains critical. This chapter draws on evidence primarily from macro level data provided by National Crime Record Bureau (NCRB) to reflect upon the patterns of caste based discriminations and atrocities in Punjab. Some critical issues related to caste atrocities are also discussed to draw implications for protecting dalits from oppression.

The NCRB data on crimes showed that 1638 crimes were registered against the dalits during 2001-2013, with an average of more 126 cases every year. This is obviously a gross under-estimation. Many times only severe cases of crimes are usually registered. However, the total registered crimes falling under the PoA Act amount to 718 during the same period, with an annual average of 55 PoA crimes. On an average, the PoA crimes account for about 44 per cent of the total crimes.

Punjab recorded 123 incidences crime against SCs and in 2014 at the rate of 1.4 incidences of crime committed against 100,000 SCs and there were 124 SC victims.

Table 16.16
Crime Against SCs 2014

States/Uts	Incidence	Population of SCs	Rate of Total Cognizable Crimes
Punjab	123	88.6	1.4
TOTAL (ALL INDIA)	47064	2013.8	23.4

Source: Crime in India 2014

CONTROLLING DRUG ABUSE

INTRODUCTION

Drug Abuse

The drug problem is basically a social problem which needs to be tackled by the state and the society. However, it is not easy to know or to study as to what proportion or percentage of the total population in a state is addicted to the psychoactive substances.

There is no scientific data available on the number of addicts in Punjab as most of the studies conducted were on drug addicts. In 2001, the study conducted by Dr. Neerja and Vasudha Goyal of the Institute for Development and Communication, with a sample size of 4,335 addicts, observed that 79 per cent of the drug addicts were youth. Similar studies done by P.S. Verma (2010) with a sample size of 1527 addicts and R.S. Sandhu (2013) with sample size of 600 addicts, mentioned that around 73 per cent of the drug addicts were youth. From these studies, it was erroneously inferred as if 70 per cent of the youth of Punjab were drug addicts. However, it is not to deny the enormity of the problem. Even if less than 10 per cent are affected by drugs, enormity and seriousness of the problem cannot be underplayed as it affects human life.

Drug trade and drug abuse have their own dynamics. Drug trade has international dimensions, regional context and local sites. Punjab is a transit route for international drug trade with 536 kms of border with Pakistan. Heroin is smuggled from across borders as a part of the Golden Crescent Triangle. In other words, it originates from Afghanistan to its final destinations in USA, Europe and Canada. It has its regional context, as drugs like opium, poppy husk, charas and ganja, etc., are traded from the states of Himachal Pradesh, Madhya Pradesh, Rajasthan, etc. For the misuse of prescription drugs, such as, tablets, syrups, injections the same are supplied by some chemists and other peddlers.

In view of these varied sources of drug supply, a composite plan has been launched.

The Central and the States governments have to form a consortium with multi-agencies coordination between Central Bureau of Narcotics, Directorate of Revenue Intelligence, Customs and Central Excise, etc., and state enforcement agencies to effectively intervene to reduce the supply of drugs, at three levels, i.e. international drug trade, to break the cycle of interstate trade from the source to the consumers by crop eradication and control, and misuse of prescription drugs. For the demand side, the prevention and curative institutional framework and activities are to be planned.

Institutional Framework for Policy and Coordination

An apex body has been constituted at the state level headed by the Chief Minister consisting of experts from specialisation in medicinal and socio-psychological fields. This board shall formulate policies, put in place coordination and monitoring mechanisms and initiate evidence-based research on substance abuse.

Punjab State Narcotics Control Bureau

The Punjab State Narcotics Control Bureau has also been established by the Punjab Government in order to effectively deal with the drug issue in an integrated and organic manner so as to ensure better co-ordination of the Punjab Police with other government departments. The Bureau is headed by an IGP rank officer who is assisted by two officers in the rank of DIG and four Zonal AIG's stationed at Amritsar, Jalandhar, Ludhiana and Bathinda. Apart from other duties for controlling smuggling/trafficking of drugs in Punjab, the Bureau will also focus on completely unearthing the multi-model and multi-layered network of smuggling from across the border and other states to its various destinations by working out forward and backward linkages and shall proceed against persons involved in the networks in accordance with law. Responsible for liaison and co-ordination with central and state agencies tasked with controlling of demand and supply of drugs.

Grass-root Level Drug Control Institutions

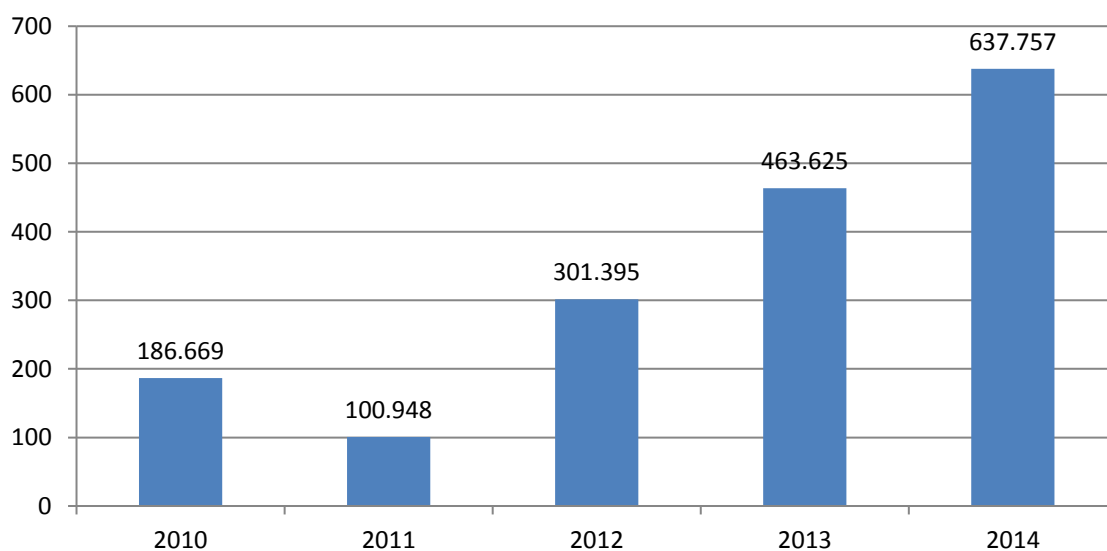
The village level drug control set up consisting of the village Sarpanch, Patwari, Anganwardi workers, community influentials, police post in-charge, school principal be constituted to undertake activities that would curb addiction at the village level: The VDCs would report to the BDCs. Their major activities may include:

- Identify the addicts of the area, as well as the suspected drug suppliers
- To provide referral services to the addicts, organise awareness camps
- Motivate families and addicts to seek treatment and rehabilitation services
- Evaluate the performance of de-addiction centres and PHCs in the village

Supply-Side Initiatives

On the supply-side multipronged enforcement-oriented initiatives have been taken. As a consequence, number of FIR's registered, arrests made and seizures have multiplied manifold. Main focus of enforcement agencies has been to target drug cartels involved in smuggling of drugs especially those dealing in heroin, synthetic drugs and precursor elements. Heavy recoveries of heroin was effected by busting international drug cartels and smuggling network. In 2014, the seizure have increased three-fold since 2010.

Figure 16.15
Seizure of Heroin (In Kgs)



Source: Drug Scenario in Punjab, Shri. Sarvesh Kaushal IAS, Chief Secretary Punjab

Seizures of Synthetic Drugs

Another focus of enforcement is to check inflow of synthetic drugs. The major recoveries of methamphetamine (ICE) and other precursor elements like ephedrine and pseudoephedrine which

are used for manufacturing of 'ICE'. These precursor elements form the raw material for the manufacture of medicines by pharmaceutical firms, but are illegally diverted for the manufacture of synthetic drugs. The year-wise seizures are shown below:

Table 16.17
Seizure of Synthetic Drugs

Year	Methamphetamine (ICE) In Kgs	Pseudoephedrine In Kgs	Ephedrine In Kgs	Mixture to make ICE (pseudoephedrine, ephedrine and others) In Kgs
2002	-	-	-	-
2003	-	-	-	-
2004	-	-	-	-
2005	-	-	-	-
2006	-	-	-	-
2007	-	-	-	-
2008	-	-	-	-
2009	-	-	-	-
2010	-	-	-	-
2011	-	-	-	-
2012	34.12	-	19.00	-
2013	14.25	960.30	84.10	542.40
2014	0.754	250	-	1212.38

Source: Drug Scenario in Punjab, Shri. Sarvesh Kaushal IAS, Chief Secretary Punjab

Special focus and action was taken against persons involved in illegal selling of pharmaceutical origin intoxicants. This used to be a major problem area as far as drug addiction in Punjab is concerned. A record recovery of these intoxicants was made in the last couple of years, whose details are as given below:

Table 16.18
Seizure of Pharmaceutical Origin Intoxicants

Year	Seizure of Injections in Nos.	Seizure of Pills/Capsules in Nos.
2003	4,57,222	11,25,327
2004	34,602	6,08,876
2005	1,35,666	19,36,237
2006	62,595	18,32,299
2007	71,727	2,36,61,506
2008	15,517	52,61,874
2009	55,752	1,07,53,995
2010	40,640	1,05,96,029
2011	30,572	61,39,029
2012	55,145	1,14,61,241
2013	3,23,056	3,06,52,590
2014	17,857	35,78,064

Source: Drug Scenario in Punjab, Shri. Sarvesh Kaushal IAS, Chief Secretary Punjab

Registration of Cases

The enforcement initiatives also led to the registration of more than fourteen thousand FIRs under NDPS Act with eighty per cent conviction rate as compared to the other drug affected States like Goa, Maharashtra, where only nominal cases were registered with low conviction rates.

Figure 16.16
Cases Registered under NDPS Act 2011-2013



Source: Drug Scenario in Punjab, Shri. Sarvesh Kaushal IAS, Chief Secretary Punjab

It is recognised that these initiatives alone may not bring the desired results as seizures of drugs lead to scarcity, increased prices of drugs and bribes and also have 'balloon effect'. As reported in *The Economist* (24 May, 2014), 'the squashing down on illicit activity in one place causes it to pop up somewhere else.' It further adds that the 'balloon effect' also operates amongst consumers— as consumption of synthetic drugs like Methamphetamine, Ketamine and Mephedrone are multiplied. In fact, the seizures of these drugs has already led to the addition of 348 new psychoactive substances. No doubt, there is a need to check illegal supply of drugs, but the prohibitionist drugs policies may prove to be counterproductive if not backed by preventive and curative initiatives.

Preventive and Curative Approach

• Health Systems

- Early detection of high risk individuals would be integral in catering to the health needs of the abusers.
- Given the addicts' level of awareness about detoxification or rehabilitation services especially in the villages, it is necessary to initiate programmes to reach drug abusers to assist them to get treatment. These may be prompted through the existing institutions such

as village Panchayats and Youth Clubs, etc., who not only provide information and create awareness but also motivate abusers so that they avail themselves of treatment.

- Dovetailing health related programmes – it may not be possible for the health system to initiate special clinics or health programmes for substance abusers but it may be possible to link the existing services or services started for other programmes (such as AIDS or for Tuberculosis) to be made available to substance abusers. This may be particularly relevant to crisis centres and awareness campaigns launched to check the spread of AIDS.
- **Treatment Measures: De-addiction and Rehabilitation Centres**
 - Establishing drug de-addiction centres across all districts of Punjab. This could be done under the supervision of civil surgeons to provide free and better medical treatment. These centres could also be opened at places where there exists a density of work-force, migrant workers, labourers and student population. There is also a need to set up a co-ordination mechanism to oversee the functioning of the various de-addiction centres.
 - Provision of required facilities to the de-addiction centres in terms of man power, instruments, medicine and infrastructure. Setting up of help lines accompanied by active back-up by mental health specialists and socio-psychologists would ensure efficiency.
 - Encourage community initiatives like community based rehabilitation centres.
 - Development of proper referral systems so that the rural population knows where to avail of services of drug relief.
 - Establish vocational courses in the de-addiction centres as part of the rehabilitation process.
 - Effective coordination among various support providers such as panchayats, municipalities, social workers, hospitals or health centres, police etc. to restore normal functioning among the abused.
- **De-addiction**

Punjab Government has created infrastructure for de-addiction/de-toxicating of consumers of drugs. Five Model De-addiction Centres under supervision of specialised faculty of various medical colleges are being run as various places whose details are as given below:

Table 16.19
Model Drug De-addiction Centres

Sr. No	Model Drug De-addiction Centres	Present Status
1	Amritsar	DDC at Govt. Medical College, Amritsar
2	Faridkot	DDC at Sri Guru Gobind Singh Medical College, Faridkot
3	Patiala	DDC at Govt. Medical College, Patiala
4	Amritsar	DDC at Jalandhar (Under Govt. Medical College, Amritsar)
5	Faridkot	DDC at Bathinda (Under Sri Guru Gobind Singh Medical College, Faridkot)

Source: Drug Scenario in Punjab, Shri. Sarvesh Kaushal IAS, Chief Secretary Punjab

21 de-addiction centres are functioning in various districts of Punjab. Till date 19,935 IPD and 2,31,284 OPD addicts have been detoxified in these centres.

- **Rehabilitation**

A comprehensive long term rehabilitation policy is being put on ground so that this menace is permanently eradicated. Due to aforementioned enforcement and due to non availability of drugs, the former consumers flooded drug de-addiction centres last year. It was the peak of June, 2014, due to the impact of onslaught on the drug trafficking network since mid-May, 2014. 3,25,000 former consumers have been treated in government run de-addiction centres. Similarly, around 3,00,000 of former consumers were treated in private de-addiction centres.

On the demand side, the State and the society should work together for making **drug detoxification and recovery support system accessible to the victims**. A drug-free zone for the recovery and skill development rehabilitation centres to make youth productive have to be set up. A drug prevention programme with voluntary drug testing camps in schools, colleges, workplaces and factories have to be made functional. A chapter on drug abuse in educational curriculum is to be introduced.

Promoting Prevention of Drug Abuse in Schools

Schools can play an important role in preventing drug abuse as teachers often are the first to detect warning signs of possible drug problems such as poor school attendance or declining academic performance. Effective school programmes teach young people to resist drugs by developing skills – personal and social interaction, conflict resolution and assertiveness. In addition, these programmes can enhance awareness and resistance skills. Students learn to recognise social and peer influences on drug use.

Prevention efforts begin early and continue through adolescence when the pressure to drink, smoke and use drugs greatly increases. Teachers can incorporate awareness on substance abuse through home assignments, conducting painting competitions and mobilising health workers such as the Anganwardi workers to address the students on the harmful effects of substance abuse etc. Some

space should also be provided in the syllabus about substance abuse at the primary school level so that students may be taught the effects of drugs right at the formative stage of their life.

Elements of School Based Drug Prevention Programme

- Help students recognise internal pressures like anxiety and stress and external pressures such as peer attitudes and media that influence them to use drugs
- Develop personal, social and refusal skills to resist these pressures
- Teach that using drugs is not the norm even though there are others doing it
- Provide appropriate material, including information about the short-term effects and long-term consequences of using drugs
- Use interactive teaching techniques such as role plays, discussions, brain storming and cooperative learning
- Involve the family and the community in awareness programmes

Reaching youths outside school

An environment could be created which enables these young people to participate in activities that would help veer them away from drugs. **Recreational activities, youth clubs promoting rural sports are some of the ways in which young people can be kept occupied. Space can be allocated by the village panchayat to build a gym or sporting arena. One particular sport could be promoted among the youth of the village.** Nehru Yuva Kendra Sangathans (NYKSs) have instituted youth clubs at block levels and periodically organise sports activities such as wrestling and other rural sports in the villages with the help of young volunteers. These volunteers could also be trained as peer leaders to further disseminate information on drugs within the community.

Reaching High-Risk Groups

Targeted prevention services can effectively reach people at high risk for drug problems who otherwise may be impervious to universal prevention efforts offered in schools and other community settings. These include children of substance abusers, IDUs, juvenile offenders, young labourers, slum dwellers, etc. This group needs specialised awareness programmes. Family members could prove to be an effective source of awareness about the harmful effects of substance abuse.

Community Approach and Not Political

Creating awareness in the community about the ill-effects of substance abuse is essential from two view points. One, substance abuse being a social problem, can be best tackled by involving the community. This ensures support of the community leaders, opinion-makers, parents and teachers and also creates an environment forcing the authorities to take stringent measures for supply reduction. Two, it helps and contributes in checking the youth and adolescents from experimenting with substances.

GOAL 16: PEACE JUSTICE AND STRONG INSTITUTIONS: PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS

Target 2030: 16.1 Significantly reduce all forms of violence and related death rates everywhere					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Police availability and accessibility					
<ul style="list-style-type: none"> • Police station – population ratio 	362 PS (2015)	371	378	382	Ensuring police station-population ratio at 1:100,000 and for that more police stations would be established in districts with adverse police station-population ratio.
<ul style="list-style-type: none"> - Police per lakh population 	389/Lakh population	To Maintain the existing ratio.	To Maintain the existing ratio.	To Maintain the existing ratio.	Existing ratio of police personnel-population ratio would be maintained and the presence of police among public would be ensured by reducing their deployment in VIP securities.
<ul style="list-style-type: none"> - Patrolling (PCR)/Sq.km. 	Response time to be 7 minutes under Rapid Rural Police Response System	Response time to be 7 minutes under Rapid Rural Police Response System	Response time to be 7 minutes under Rapid Rural Police Response System	Response time to be 7 minutes under Rapid Rural Police Response System	<ul style="list-style-type: none"> • Newly started Rapid Rural Police Response System is a separate structure under the command of SP/DSP, In-charge Control Room. All calls received on 100 number at Control Room requiring police attention in a particular Police Station are transferred to concerned Rapid Rural Police Response Vehicle. • Appropriate per PCR Sq Km area would be calculated and more PCRs would be stationed accordingly to achieve 7 minutes response time. • To control crime and to provide police assistance in the rural areas on the pattern of urban PCRs newly established Rapid Rural Police Response System would be strengthened.

Target 2030: 16.1 Significantly reduce all forms of violence and related death rates everywhere					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> Crime Incidence <ul style="list-style-type: none"> Crime rate 	204.5	166.5	133.2	106.6	<ul style="list-style-type: none"> Role enhancement of beat officers as assessor for the crime and law & order related community needs and for this purpose all beat officers would be provided special community policing and community liaison training. Highway patrolling would be made more effective and day-night patrolling on highways and link roads would be monitored with GPS. Electronic surveillance by drones on highways/crowded/crime prone areas for optimized use of human resource. Installation of CCTV cameras at strategically important locations in the districts. SAANJH Committees and Advisory Boards are to be actively involved in identification of conflict-prone areas, dispute resolution and for restoration of peace. Safety audit of public spaces. Dispute resolution strategies Victim relief centres for victim care have been created Standard operational procedures for victim care Victim relief centres for Saanjh kendras
<ul style="list-style-type: none"> Violent crime rate 	16.8	13.4	10.8	8.6	
<ul style="list-style-type: none"> Riots 	1 incidence in last 5 years	Maintain zero deaths	Maintain zero deaths	Maintain zero deaths	
Source: 1. Crime in India, 2015 2. Punjab Police Headquarter, 2016					

Target 2030: 16.2 End abuse, exploitation, trafficking and all forms of violence and torture against children					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Crime Against Children <ul style="list-style-type: none"> Crime rate 	20.9	16.7	13.4	10.7	<ul style="list-style-type: none"> Particular efforts would be made to improve the police response to the child victims. Hence police personnel would be subjected to special training to deal with Child victims. Victim Relief Centres under SAANJH Project would be capacitated to deal with child victims. There would be following services for victims: <ul style="list-style-type: none"> Child violence victim's statement would be recorded electronically through videography to avoid re-victimization in later stage at the time of prosecution. Victim's medical examination should be conducted by a same gender medical officer. Victim should be provided immediate medical aid for any physical injuries suffered. Victim should also be provided immediate counselling for the psychological trauma suffered.
Source: Crime in India, 2015.					

Target 2030: 16.3 Promote the rule of law at the national and international levels, and ensure equal access to justice for all					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Crime registration, investigation and sentencing <ul style="list-style-type: none"> • Complaint registration <ul style="list-style-type: none"> • Percentage of cases registered from complaints • Performance measurement <ul style="list-style-type: none"> • Ratio between petty crimes and heinous crimes 	12.45% (2015)	Increase to 30%	Increase to 60%	100%	As in practice police performance is measured through the less number of crime incidences in their police station's jurisdiction. The performance of the police station in future to be measured through ratio between petty crimes versus heinous crime. If the ratio is showing increase in favour of petty crime even if crime rate high, the performance will be rated as high.
	To be generated	Improve by 10%	Improve by 25%	All petty crimes to be registered	

Target 2030: 16.3 Promote the rule of law at the national and international levels, and ensure equal access to justice for all					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> Investigation <ul style="list-style-type: none"> Percentage of cases investigated out of registered 	64.84% (2015)	Improve to 70%	Improve to 80%	Improve to 90%	<ul style="list-style-type: none"> Separate law and order and investigation wings in police stations. Separate post of SSP Investigation and subsequent subordinate ranks up to police station level. Additional SHOs (Investigation) with an exclusive subordinate staff should be appointed in each police station. (Dedicated team of 1 SI/ASI, 1 H.C. and 2 constables be deputed for conducting the investigation work in the police station) Procurement of state of art investigation equipments. Capacity building of staff in scientific investigation. <ul style="list-style-type: none"> Efficient investigation should be considered as performance indicator and should be randomly audited
<ul style="list-style-type: none"> Chargesheeting <ul style="list-style-type: none"> Percentage of investigated cases chargesheeted 	64.07% (2015)	90%	Maintain 90%	Maintain 90%	<p>Efficiency Management: IO (Investigation Officer) performance appraisal</p> <ul style="list-style-type: none"> A system would be developed in which a comparative statement of the average time taken by the investigator to complete the investigation (crime category-wise) to be prepared for every police station. There would be performance appraisal on the basis of the percentage of successful chargesheeting out of the cases in investigated by the IO. <p>Monitoring Mechanism</p> <ul style="list-style-type: none"> An Inspecting Officer to prepare for the police station a monthly report on the number of challans submitted in the court and the number out of these that were submitted within the prescribed time.

Target 2030: 16.3 Promote the rule of law at the national and international levels, and ensure equal access to justice for all					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> Conviction rate 	25.63	Improve to 80%	Maintain 90%	Maintain 90%	<ul style="list-style-type: none"> Prosecutor General to be appointed. Vacant posts of judges/sub-judges to be filled up with immediate effect. Online availability of court records. All the pending cases should be heard in fast-track courts. See SDG 5
<ul style="list-style-type: none"> Gender Violence NRI Crimes - Percentage of total complaints - Chargesheet rate 	34%	Reduce to 2%	Maintain below 2%	Maintain below 2%	
	51%				
Source: 1. Crime in India, 2015 2. Punjab Police Headquarter, 2016					
<ul style="list-style-type: none"> SAANJH Kendras for easy, humane and community friendly access to police system have been formed at each police station level. SAANJH Kendras would be propagated and promoted among the masses as an alternative to Police Stations for registration of complaints. Know your Police 'App' : This 'App' will help people in distress situations like accidents, crime situations and will enable common people to ascertain details of Police Stations including its location, telephone numbers of SHO, DSP, SSP including senior officers in office of DGP, Punjab. Individual will have to download this 'App' from 'Google play store'. Individual can access following information through this 'App':- <ul style="list-style-type: none"> Telephone number of any Police Station, SHO, DSP, SSP, DCP/CP in Punjab and senior police officer at Police Headquarters. Location and Map of the area of police station and approximate distance of location of individual from Police Station. It also gives details of location of individual at a particular point of time. Can be used for dissemination of information by Police to persons who have downloaded this 'App'. Contact details of all Police Stations, Sub Divisions including e-mail IDs and maps of all police stations. Know My Complaints 'App': All the complaints which have been registered at SAANJH kendras and Police Stations or any other police station is fed in the SAANJH system and a Unique ID is allotted to each complaint. Complainant can get the status update of the complaint using this UID and their mobile number. 					

Target 2030: 16.3 Promote the rule of law at the national and international levels, and ensure equal access to justice for all					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
					<ul style="list-style-type: none"> • There would be efforts to reduce the spurious / malafied complaints by 100 percent at the very initial level and as deterrent, ID proof of the complainant along with complainant's photograph would be taken and acknowledgement would be issued with a unique Identification Number and instructions on law applicable along with punishment for filing wrong complaint. • The time bound Redressal on complaint would be ensured by mentioning minimum time taken on the acknowledgement slip (covered under Right to Service Act). • There would be proper monitoring of the entries made in the DDR regarding Complaints Received and record of complaints which were converted to FIR and those who were not converted to FIR the reasons for the same would be cited and monitored by the DSP division. • The online registration process would also mention reason for rejection of complaint.

Target 2030: 16.4 Significantly reduce illicit financial and arms flows, strengthen recovery and return of stolen assets, and combat all forms of organized crime					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Narcotic Drug Abuse <ul style="list-style-type: none"> Addicts 	79% addicts are youth (2001) 73% addicts are youth (2010, 2013)	To significantly reduce use of drug	To significantly reduce use of drug	To significantly reduce use of drug	<ul style="list-style-type: none"> Publicity campaigns would be launched to Educate public through: <ul style="list-style-type: none"> Regular advertisements in newspapers. Regular public meetings both in rural and urban areas by officials of Police and Health Department Seminars/workshops organised by officials of these Departments. Reduction of demand: <ul style="list-style-type: none"> De-addiction: Punjab government has created infrastructure for de-addiction/ detoxifying of Consumers of drugs. 5 model de-addiction centres under supervision of specialised faculty of various medical Colleges are being run as various places whose details are as given below: <ul style="list-style-type: none"> 21 de-addiction centres are functioning in various districts of Punjab. till date 19935 IPD & 231284 OPD addicts have been detoxified in these centres. Rehabilitation <ul style="list-style-type: none"> A comprehensive long term rehabilitation policy is being put on ground so that this menace is permanently eradicated. Establishment of Punjab Drug De-addiction and Rehabilitation Board, Punjab Establishment of toll free helpline 181.

Target 2030: 16.4 Significantly reduce illicit financial and arms flows, strengthen recovery and return of stolen assets, and combat all forms of organized crime					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> Drug trade <ul style="list-style-type: none"> Drug smuggling crime rate 	35.1 (2015)	To significantly reduce use of drug	To significantly reduce use of drug	To significantly reduce use of drug	<ul style="list-style-type: none"> Establishment of Punjab State Narcotics Control bureau. Zero tolerance against connivance of government officials: In year 2014, Punjab police dismissed 14 police personnel and initiated departmental Enquiries (DE's) against 14 other personnel. An apex body has been constituted at the state level headed by the Chief Minister consisting of experts from specialisation in medicinal and socio-psychological fields. Punjab State Narcotics Control Bureau Grass-root Level Drug Control Institutions The village level drug control set up consisting of the Village Sarpanch, Patwari, Anganwardi workers, community influentials, police post in-charge, school principal be constituted to undertake activities that would curb addiction at the village level: The VDCs would report to the BDCs. Their major activities may include: <ul style="list-style-type: none"> Government has initiated various programs and strategies to curb the menace of drug in Punjab these programs are as follows would be continuing in future. <ol style="list-style-type: none"> Enforcement Zero tolerance against connivance of government official Breaking supply lines of pharmaceutical Origin intoxicants Reduction of demand Rehabilitation
Source: 1. P.S. Verma. 2010. 2. R.S. Sandhu. 2013. 3. Crime in India, 2015.					

Target 2030: 16.5 Substantially reduce corruption and bribery in all its forms					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Corruption <ul style="list-style-type: none"> Perception of public sector corruption of <ul style="list-style-type: none"> Police department Revenue department District collector office 	58.32% 44.05% 58.32%	30% 25% 30%	20% 15% 20%	0% 0% 0%	<ul style="list-style-type: none"> As per public perception police, revenue, district collector offices are corrupt and exchange with them is undignified. However, electricity board, health, education, bank, irrigation and animal husbandry departments are also corrupt but exchange with them is dignified. e-Governance to minimize the human interface in service delivery would be promoted along with e-payments to discourage bribery. All services would be encompassed under the ambit to RTS Act. Inducing self-certification regime and to minimize affidavits and attestations. The digitization of all records, proformas and information along with simplification of procedures and processes to mitigate the scope of procedural lacunas which promote corruption.
Source: Punjab Governance Reforms Commission (PGRC) Survey, 2010.					

Target 2030: 16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Political representation of <ul style="list-style-type: none"> Women Scheduled Castes 	11.9 % (MLA)				See SDG 5
	40% reserved constituencies				See SDG 10
Source: SDG-5,10					

Target 2030: 16.9 Provide legal identity for all including free birth registrations					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Birth registration of > 5 children		Cover 100%	Maintain 100%	Maintain 100%	Improve service delivery to maintain registration of all children.
	Total	89.8			
	Rural	90.8			
Urban	88.0				
Source: DHLS IV, 2014					

Target 2030: 16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Public access to information <ul style="list-style-type: none"> Percentage provided information 	61.59% (2011)	Improve to 100%	Maintain 100%	Maintain 100%	To popularise RTI Act, institutions and online web-portals (e-interface) where information can be procured.
	Source: Punjab Governance Reforms Commission (PGRC) Survey, 2010				

Target 2030: 16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Combating crime <ul style="list-style-type: none"> Building institutions 					<ul style="list-style-type: none"> To build institutions of governance based on citizen-centric sectoral and theme-based reforms Converge of citizen-centric governance with e-Governance.
Citizen-centric delivery of services <ul style="list-style-type: none"> Institutional set-up of citizen-centric service-delivery 	100%	Proforma, process and procedure simplification of all the services to be initiated. Proforma simplification to be completed and digitised. Upgrade and maintain	Process and procedures simplification of selected citizen services to be completed and digitised. Upgrade and maintain	Process and procedure simplification of all citizen services to be achieved. Upgrade and maintain	
<ul style="list-style-type: none"> Suwidha Kendras at DC Office 					Simplify Procedures, Processes to improve efficiency and make government more responsive to its citizens and digitize all services.
<ul style="list-style-type: none"> Fard Kendras (providing land record services) 	Copy of jamabandi (1)	Upgrade and maintain	Upgrade and maintain	Upgrade and maintain	To bring all the Revenue department services to be delivered through Fard Kendras and simplify proformas, process and procedures.
<ul style="list-style-type: none"> Sewa Kendras (joint departmental services) <ul style="list-style-type: none"> Urban Rural 	424 1750 (for 47 services)	Upgrade and maintain Upgrade to 200 services	Upgrade and maintain Upgrade to 250 services	Upgrade and maintain Upgrade to 308 services	To provide all 308 services notified under RTS Act at Unified Sewa Kendras Currently providing 27 services in police districts and 41 services in commissionerates. 254 buildings have uniform layout.

Target 2030: 16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<ul style="list-style-type: none"> Saanjh Kendras (at district sub-division and thana level to provide police services) <ul style="list-style-type: none"> Police districts Commission-erate Subdivision 	27 services 41 services 27 services	Upgrade and maintain Upgrade and maintain Upgrade and maintain	Upgrade and maintain Upgrade and maintain Upgrade and maintain	Upgrade and maintain Upgrade and maintain Upgrade and maintain	Digitisation of State Service Delivery Gateway (SSDG) <ul style="list-style-type: none"> Create digital environment from primary school onwards for empowering the citizens with knowledge of information and communication technology (ICT) right from childhood. Create digital infrastructure, system and processes to enable all citizens to interact with government electronically. Empower all government employees with digital identity (e.g. e-mail, electronic signatures etc.), a computing device and adequate training for working in fully automated environment. Ensure direct benefits to citizens for all government schemes using digital identity and upcoming modes of payment platforms.
<ul style="list-style-type: none"> Police station 	362	371	378	382	

Target 2030: 16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
					<p>through a common gateway and collect the certificate/ service from the same location. It is envisaged that State Service Delivery Gateway (SSDG) will be developed and implemented so that citizens are provided with outlets where they can access the services under a single interface mechanism in the form of the Portal. Also the project entails delivery of the services through Gram SUWIDHA Kendras by leveraging the common infrastructure (SWAN, SDC etc.) and develops the applications and infrastructure required for deployment of State Portal and State Service Delivery Gateway (SSDG) for the State.</p> <ul style="list-style-type: none"> • Project has been awarded to the Implementing agency to design, develop, test, implement, operate and maintain for 3 years for “e-forms application, State Portals and SSDG” along with installation, commissioning and maintenance of IT infrastructure. 32 services of 8 departments have been planned to be covered under the project. Software Requirement Specifications for 32 services have been frozen. Project Implementing Agency has been finalized and all the 32 services under the scope of the project are planned to Go-live soon. • Transform literate society to digital empowered society by creating avenues for general public to become digital literate.
Source: Punjab Police Headquarters.					

Target 2030: 16.b Promote and enforce non-discriminatory laws and policies for sustainable development					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
<p>Preventive violence</p> <ul style="list-style-type: none"> • Interreligious <ul style="list-style-type: none"> • Build stakeholder coalitions and monitoring • Mechanisms which are to be integrated into Saanjh • Terrorism 	To be piloted	To be integrated in 25% Saanjh	50%	In all Saanjh	<ul style="list-style-type: none"> • Build coalitions of representative leadership of diverse social groups <ul style="list-style-type: none"> - Train community representatives in conflict/dispute resolution strategies in local Saanj Kendras • To dovetail issues of social harmony with development concerns (example – development work on school, roads sanitation is taken up in localities of the Hindus and Sikhs and SC communities) • Monitoring mechanism for community tension and security to be created in Saanj Kendras. At local levels social auditing to be held while monitoring feedback at district levels. • Maintain patrolling of defence groups in sensitive localities where anti-social elements are located. People of the locality, irrespective of their religion, should be protected from these anti-social elements. • For post conflict social integration committees to be in place. • In case of violence identify victims and families affected by the riots/violence (victims include not only those who have been targets of physical violence, but also their dependents, witnesses to violence and those who have lost property in the violence). <ul style="list-style-type: none"> - To deploy relief measures prepared by liaising with health centres and hospitals, education institutions, youth clubs and NGOs for assistance to victims and to maintain calm.

Target 2030: 3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents					
Indicator	Baseline/ Ongoing Program	Milestone 1 2017-2020	Milestone 2 2025	Target 2030	Assumptions Programs for change
Road accidents <ul style="list-style-type: none"> Incidents 	6,391 (2014)	Reduce by 1% of baseline	Reduce by 2% of baseline	Reduce by 5% of baseline	<ul style="list-style-type: none"> Effective implementation of the proposed Road Safety Policy. Immediately Procurement of Road Safety Gadgets for the State Police via money collected from 50% compoundable challan fees like Alcometer and Speed Guns. Revival of Highway Patrolling. Adjustment of Traffic Aid Post identified Black Spot in area. Private Participation in Traffic management – fee under Section 211 of MV Act. Special Emphasis on Moving Violations like Over speeding, Seat Belt, Drink and Drive and Helmet. Strengthening public transport. Every fifth patient in our hospitals is a road accident victim. Appointment of Road Safety Officer in each District of Punjab : Person of Level of XEN and In charge of Min 75km of National Highways, 75km of State Highways and 100 km of Major District Road and 200km of Other District Roads like National Highways Authority of India. Mandatory Road Safety Audit of each Road under consideration for Up gradation, New, Rehabilitation or Periodic Maintenance. Use of NAREGA Labor for the Road Sides and Shoulder Maintenance, Control on Vegetative Growth Obstructing View – Revival of old Beldar System via NAREGA. Black Spot Improvement using Corridor Approach. Monitoring and Evaluation for all NH, SH and ODR on priority basis. Performance Review of BOT/Private Roads for Road Safety. Development of Road Safety Standard to State Specific Conditions Ambulance Service 108 has shown up significant result in the state. Incentivizing people who help road crash victim. By-Stander Care Training programmes for citizens. Setting up and Up gradation of better trauma care centers on the Primary Road Network comprised NH, SH, MDR and ODR at a distance of 60km. Instant financial Help for the people at No Fault, in the case of “Pedestrian and Cyclist”, Hit and Run cases – the sole bread winner of the family. Cashless Medical Treatment at Government Hospital for road accident victims. Declaring ‘Road Crash’ as Public Health problem.
<ul style="list-style-type: none"> Accidental deaths rate – <ul style="list-style-type: none"> On national highways On State highways 	16.12 per Lakh Population				
Source: Accidental Deaths and Suicides in India, 2014					

INTRODUCTION: STRATEGY FOR RESOURCE MOBILISATION AND INVESTMENT: PILLAR IV

The role of the State and the government is to give direction to the growth process to promote people's well-being. In order to achieve this, fiscal indicators and their performance can help prioritise nature of expenditure (distinction between expenditure on asset creation vis-à-vis expenditure of every day nature), or the significance of government expenditure in social sectors to support the marginalised.

Innovative modes have to be evolved to reduce unproductive expenditures, rationalisation of subsidies and pro-people taxation system. Punjab is perhaps the only state which does not have an investment pole. It has no control over its own capital city that could have acted as the driver of growth. The capital cities act as a major source of revenue generation.

In other words, in the absence of its own central business capital, Punjab is at a disadvantage in a neoliberal globalised economy as it has not been given even its legitimate share in the revenue generated in Chandigarh.

This section deals with strategies for mobilisation of resources, investment for productive ventures and prioritisation of government's expenditure.

Pramod Kumar
Co-ordinator and
Director, IDC

**SDG 17:
PARTNERSHIPS FOR THE GOALS - STRENGTHEN THE MEANS
OF IMPLEMENTATION AND REVITALIZE THE GLOBAL
PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT**

Aspect Covered: Finance and Capacity Building

Incorporating and aligning the local challenges for implementing SDGs goals would require Government of Punjab (GoP) to strengthen and prioritise its spending in accordance with the goals and targets described in the State Vision 2030. In addition, Government of Punjab (GoP) will also have to find new and innovative ways of raising additional resources to fund the gaps that will/may arise due to the funds available and funds required to meet the Vision 2030 goals and targets. Further, Government of Punjab (GoP) will also have to reach out to private sector and seek their partnership in accordance with the need and requirement of the Vision 2030 goals and targets.

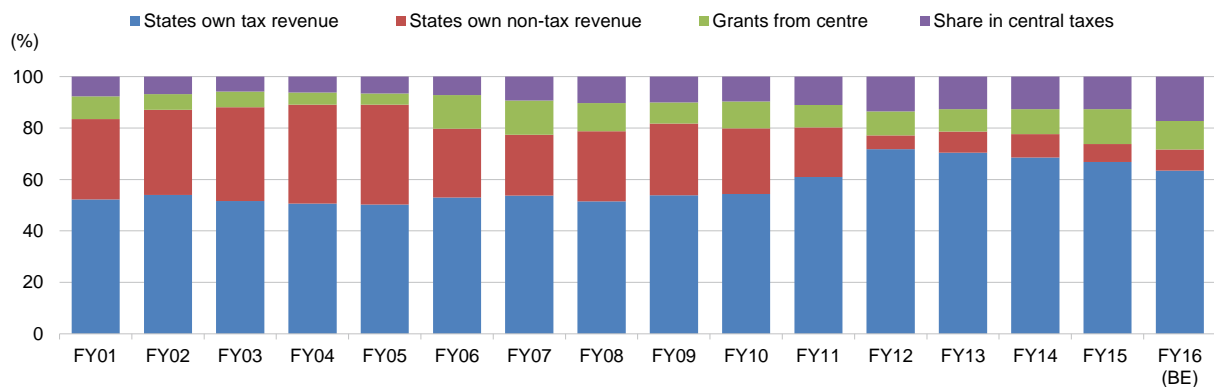
Status of GoP Finances

Although Punjab was the second state to enact the FRBM act in 2003, the state has a weak record in management of its finances. There is no clear trend of a sustained decline in deficit ratios over the years. The state has been facing persistent revenue deficits although it has managed to achieve the fiscal deficit target and reduce the debt/GSDP ratio as laid out in the FRBM act and prescribed by the 13th Finance Commission. There is a large outgo in the form of committed expenditure. The interest burden remains high. Subsidy outgo to the power sector ranged INR33.76bn-INR50.59bn during FY11-FY15.

The liquidity condition in the state remains an area of serious concern as the state has been a frequent user of the WMA and overdraft facilities from the RBI. GoP used the WMA facility of RBI to the tune of INR192bn and INR170bn in FY15 and FY16 respectively and has budgeted to use it to the tune of INR195bn in FY17.

Revenue: During FY01-FY14, Punjab generated more than 80 per cent of its revenue receipts from its own sources. During this period, on average the state's own tax revenue (SOTR) contributed 56.9 per cent and state's own non-tax revenue (SONTR) contributed 25.1 per cent to the total revenue receipts of the state. However, the share of own revenues in total revenue receipts are showing a declining trend lately. As a result the state's dependence on GoI for revenue has increased and the central devolution (share in central taxes + grants) constituted 27.1 per cent and 28.6 per cent of the revenue receipts in FY15 and FY16 respectively and is budgeted at 31.5 per cent for FY17.

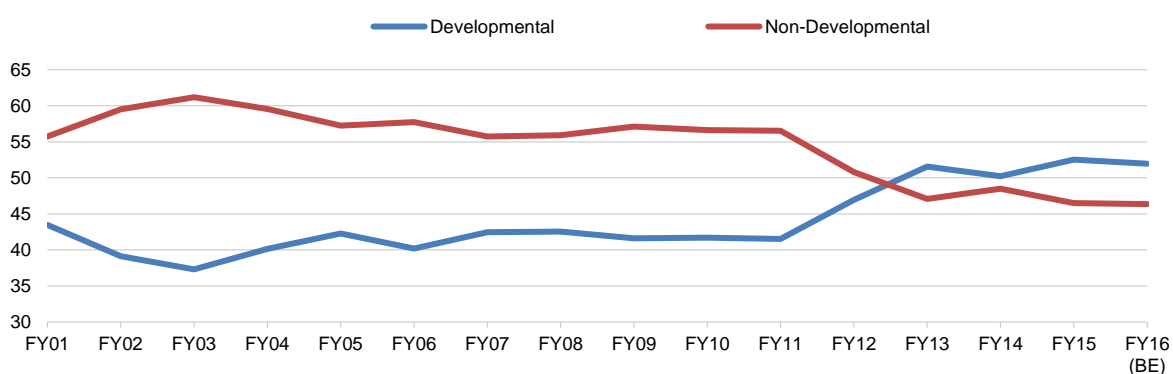
Figure 17.1
Government of Punjab: Distribution of Revenue



Source: GoP Budget and IDC

Expenditure: Revenue expenditure averaged around 91.0 per cent of the total expenditure during FY01-FY16, leaving very little for capital expenditure. Even within revenue expenditure, historically, non-development expenditure had been the major expenditure head for the state of Punjab. However, for the first time development expenditure crossed the 50 per cent mark to become the major expenditure head in the revenue account in FY13. Non-development expenditure growth was primarily driven by interest payments, pension expenses and lottery payments over FY01- FY11. Lottery payment tapered off to 0.3 per cent of non-developmental expenditure in FY12 from a peak of 28.2 per cent in FY03. As a result, non-development expenditure gradually declined to 46.5 per cent of the revenue expenditure in FY15 from 61.2 per cent in FY03.

Figure 17.2
Government of Punjab: Revenue Expenditure Pattern

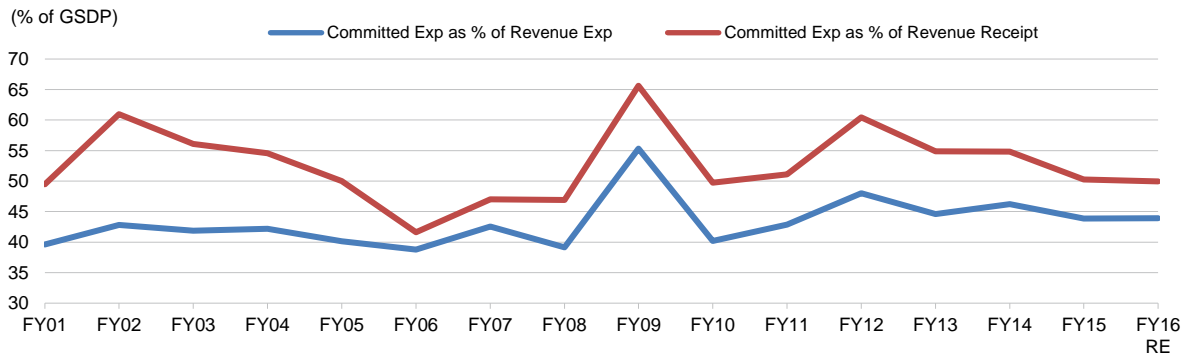


Source: GoP Budget and IDC

Yet, committed expenditure which includes interest payment, salaries and pension is still very high. During FY01-FY16, they together constituted an average 43.3 per cent of the total revenue expenditure and 52.7 per cent of the total revenue receipt of the GoP. Clearly with such a high

committed expenditure, the ability of GoP to spend on other heads as also the room to undertake expenditure reforms is very limited.

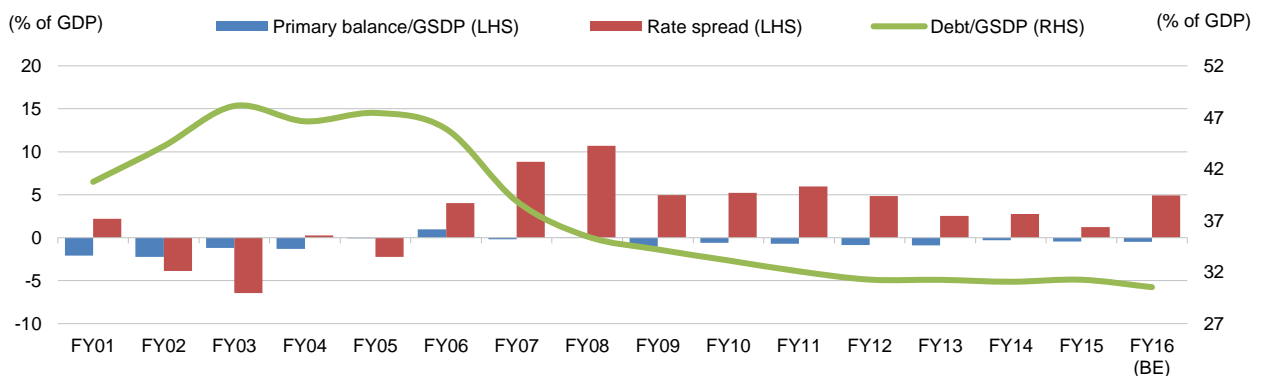
Figure 17.3
Government of Punjab: Committed Exp as % of Revenue Exp and Receipts



Source: GoP Budget and IDC

Deficit and Debt: Performance of the state in the revenue account remained dismal and revenue deficit averaged 2.7 per cent of GSDP during FY01-FY16. The revenue deficit of Punjab was as high as 4.7 per cent of GSDP in FY02 but declined to 1.1 per cent of GSDP in FY06. However, it again rose to 2.06 per cent of GSDP in FY15 and is budgeted at 1.76 per cent of GSDP for FY17. Similarly, the fiscal deficit which was 6.2 per cent of GSDP in FY02 declined to 2.4 per cent in FY06 but gain rose to 2.99 per cent of GSDP in FY16. It is budgeted at 2.88 per cent for FY17. As this is very close to the 3 per cent limit prescribed by the 13th and 14th Finance Commissions, the state runs the risk of overshooting the prescribed limit in case of any adverse shock. Debt as a percentage of GSDP declined to 31.1 per cent in FY14 from a peak of 47.4 per cent in FY05. Though the debt/GSDP ratio of Punjab at 32.1 per cent in FY15 is within the limit of 38.7 per cent specified by the 13th Finance Commission, it is still on the higher side and is way higher than other comparable states.

Figure 17.4
Government of Punjab: Primary Balance/GSDP, Rate Spread and Debt/GSDP



Source: RBI, CSO and Ind-Ra

In addition to the balance sheet debt, GoP has certain off balance liabilities as well which are in the form of guarantees given by the GoP on loans taken by State PSUs. The loan amount was INR490.8bn in FY15 which works out to be 14.01 per cent of GSDP.

GoP Budget Heads and SDG Goals

GoP budget has a number of heads under which the expenditure of the state is allocated and finally spent. A mapping of SDG goals with these heads has been attempted in the following table:

Table 17.1
Mapping of SDG Goals with Concerned/Related Government of Punjab Budget Head

SDG Goals No	SDG Goals Details	Aspects Covered/ Relevant	GoP Budget Head Concerned/Related to SDG Goals
1	No Poverty - End poverty in all its forms everywhere	Poverty, Sustainable agricultural production, food storage and warehousing, food distribution, civil supplies, welfare of SCs, STs and Other BCs	1. Agriculture and Allied Activities 2. Rural Development 3. Civil Supplies 4. Food and Nutrition 5. Welfare of SCs, STs and Other BCs 6. Food Storage and Warehousing
2	Zero Hunger - End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Sustainable agricultural production, food distribution and nutrition, Civil Supplies	1. Civil Supplies 2. Food and Nutrition 3. Agriculture and Allied Activities 4. Food Storage and Warehousing 5. Irrigation and Flood Control
3	Good Health and Well-being - Ensure healthy lives and promote well-being for all at all ages	Health coverage, reduction of IMR, family welfare, enhancement of life expectancy	1. Public Health and Family welfare 2. Water Supply and Sanitation
4	Quality Education - Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	School education, higher education, skill development	1. Education, Sports, Art and Culture
5	Gender Equality - Achieve gender equality and empower all women and girls	Poverty, Health, education, employment, Inclusion, empowerment, gender based violence	1. Agriculture and Allied Activities 2. Welfare of SCs, STs and Other BCs 3. Public Health and Family welfare 4. Industry 5. Social Security and welfare 6. Food and Nutrition 7. Police
6	Clean Water and Sanitation - Ensure availability and sustainable management of water and sanitation for all	Drinking water, sanitation, Urban Development, Local bodies	1. Water Supply and Sanitation 2. Urban Development 3. Compensation to Local Bodies
7	Affordable and Clean Energy - Ensure access to affordable, reliable, sustainable and clean energy for all	Power, Environment	1. Power 2. Science, Technology and Environment
8	Decent Work and Economic Growth - Promote sustained, inclusive and sustainable economic growth, full and	Agri and allied activities, Industry, Services, Employment, Social Security and labour	1. Agriculture and Allied Activities 2. Industry 3. Urban Development 4. Compensation to Local Bodies

SDG Goals No	SDG Goals Details	Aspects Covered/ Relevant	GoP Budget Head Concerned/Related to SDG Goals
	productive employment and decent work for all	welfare, Local bodies	5. Water Supply and Sanitation 6. Housing 7. Roads and Bridges 8. Transport and communications 9. Social Security and welfare 10. Labour and Labour Welfare
9	Industry, Innovation and Infrastructure - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Industry, Science, Technology, transport and communications, Roads and Bridges, Power, Local bodies etc.	1. Industry 2. Transport and communications 3. Power 4. Roads and Bridges 5. Compensation to Local Bodies 6. Science, Technology and Environment
10	Reduced Inequalities - Reduce inequality within and among countries	Reduction of poverty, sustainable agricultural production, food distribution, civil Supplies and food distribution, welfare of SCs, STs and Other BCs Sustainable, Industry, Services, Employment, Social Security and labour welfare	1. Agriculture and Allied Activities 2. Rural Development 3. Civil Supplies 4. Food and Nutrition 5. Food Storage and Warehousing 6. Welfare of SCs, STs and Other BCs 7. Industry 8. Labour and Labour Welfare 9. Social Security and welfare 10. Co-operation
11	Sustainable Cities and Communities - Make cities and human settlements inclusive, safe, resilient and sustainable	Urban Development and Infrastructure services such as water supply, sanitation, housing, communications, Local bodies etc.	1. Urban Development 2. Compensation to Local Bodies 3. Water Supply and Sanitation 4. Housing 5. Roads and Bridges 6. Transport and communications
12	Responsible Consumption and Production - Ensure sustainable consumption and production patterns	Per Capita, Sectoral Growth	1. Agriculture and Allied Activities 2. Industry
13	Climate Action - Take urgent action to combat climate change and its impacts	Air Pollution, Water harvesting and Replenishment, forestation	1. Science, Technology and Environment 2. Electricity 3. Agriculture and Allied Activities 4. Industry
14	Life Below Water - Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Dry port	1. Industries
15	Life on Land - Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Forest, Soil and Water Conservation	1. Forest 2. Soil and Water Conservation
16	Peace, Justice and Strong Institutions - Promote peaceful	Criminal justice system (Police, courts, prisons),	1. General Economic Services 2. Police

SDG Goals No	SDG Goals Details	Aspects Covered/ Relevant	GoP Budget Head Concerned/Related to SDG Goals
	and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	Governance, Peace	3. Administration
17	Partnerships for the Goals - Strengthen the means of implementation and revitalize the global partnership for sustainable development	Finance and Capacity Building	1. GoP Budget

Source: GoP Budget and IDC

Actual spending (revenue + Capital) over the years under various GoP Budget Head concerned /related to SDG Goals is provided in the table below.

Table – 17.2
Spending by Government of Punjab Under Various Budget Head Related to SDG Goals, FY05-FY16BE

(in INR million)

Budget Head	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15RE	FY16BE
Education, Sports, Art and Culture	21293.8	23077.6	23359.7	27277.8	32488.5	38215.2	43395.4	54364.0	68157.0	67796.5	84989.8	94309.1
Public Health and Family welfare	5565.3	6327.7	6316.2	6883.7	7750.8	8835.6	10708.0	13981.0	16225.6	17122.2	24250.5	28798.9
Water Supply and Sanitation	2734.2	3374.3	3645.4	4450.1	4546.3	5335.8	4801.4	5572.2	6253.0	5085.9	7732.7	8272.9
Housing	9.5	322.2	1420.4	348.5	2.0	42.8	2.0	2.0	86.4	2821.4	5090.7	4990.3
Urban Development	158.1	1547.5	1770.0	2552.9	7414.9	2731.0	1873.6	592.9	3116.9	2521.5	7203.2	1172.1
Welfare of SCs, STs and Other BCs	259.9	829.3	833.0	581.3	1616.9	1129.8	2432.8	2857.9	4023.1	6826.1	10739.6	11730.5
Labour and Labour Welfare	540.4	584.5	622.0	678.6	743.5	910.5	1092.9	1434.3	1566.3	1575.2	1909.3	2083.7
Social Security and welfare	1916.9	2371.7	4932.7	2576.9	7757.4	9352.7	10866.6	11563.5	12872.4	13488.4	17202.7	19502.6
Food and Nutrition	0.0	0.0	0.0	0.0	0.0	0.0	777.6	1287.2	1209.1	399.7	1759.9	1720.0
Agriculture and Allied Activities excluding soil & water conservation, forest, food storage & warehousing and cooperation	3059.9	3405.6	3271.1	5144.4	5813.2	5485.4	10186.9	6554.8	9594.4	11924.4	40415.0	39622.6
Soil and Water Conservation	303.2	417.8	480.8	445.9	444.9	460.4	589.8	498.4	1000.7	986.2	1288.4	1812.9
Forest	1082.4	678.3	636.1	575.4	766.8	836.6	636.0	731.9	1373.4	1040.9	1222.6	1058.9
Food Storage and Warehousing	-5.6	0.9	258.9	4.5	80.4	1.6	0.1	0.2	0.0	0.0	0.0	0.0
Co-operation	485.6	475.4	445.8	501.2	597.7	605.2	820.1	862.7	840.4	1160.2	1684.9	1721.2
Rural Development	1834.5	925.2	1982.0	1669.7	2266.9	1955.2	4212.8	3291.3	6572.5	8344.0	10611.0	5721.2
Irrigation and Flood Control	6661.7	8985.8	8779.0	9783.4	11560.3	13361.0	14545.1	12918.7	15784.3	17024.0	20657.0	23979.7
Power	22453.2	15965.9	14474.7	28952.0	27448.0	28986.0	33762.4	32009.0	50602.3	48157.8	25057.9	29922.2
Industry	218.9	769.1	1383.0	1284.3	1526.5	347.9	1282.2	555.4	721.6	578.1	1577.6	2575.9
Roads and Bridges	2751.6	4239.9	7102.3	7357.9	4528.9	7793.4	8237.9	7717.1	6085.2	7490.7	12463.2	15720.4
Other transport and communications	3009.8	3012.3	2575.3	5302.8	3807.6	2387.9	2685.3	3172.7	3228.2	3061.5	3800.1	3599.8
Science, Technology and Environment	100.2	117.5	82.2	112.3	120.5	22.1	34.3	48.6	64.3	65.3	82.5	64.7
General economic services excluding civil supplies	1018.5	8485.4	16976.6	8449.0	2501.9	2765.8	1577.8	1809.1	2619.3	2112.4	4008.3	8770.6
Civil Supplies	489.9	488.6	504.1	866.0	1243.1	592.7	777.3	2508.2	3408.1	4571.1	2777.5	5666.7
Compensation to Local Bodies	745.3	3740.2	3285.5	3567.9	3096.9	4469.1	6396.6	7468.0	5437.3	5296.6	4677.5	8816.0

Source: GoP Budget

Likely funds available under various GoP Budget Head concerned /related to SDG Goals over the 3 years (FY17-FY19), 7 years (FY17-FY23) and 14 years (FY17-FY30) periods are provided in the table below. This has been calculated on the basis of the growth trends available under the each budget head during FY11-FY16 excluding the outliers and correcting for idiosyncrasy in the data.

Table – 17.3
Funds Likely to be Available under Various Government of Punjab Budget
Heads to achieve Vision 2030

(in INR million)

Budget Head	FY17-FY19	FY17-FY23	FY17-FY30
Education, Sports, Art and Culture	389045.9	1288448.4	5108074.9
Public Health and Family welfare	130021.0	480481.5	2400083.8
Water Supply and Sanitation	30974.7	91626.7	287885.1
Housing	27202.0	127912.7	1069218.2
Urban Development	4275.6	12280.7	36365.0
Welfare of SCs, STs and Other BCs	68223.8	349679.4	3513152.6
Labour and Labour Welfare	8137.0	25264.2	87618.0
Social Security and welfare	74266.3	223978.7	731910.2
Food and Nutrition	7148.3	23884.4	96460.9
Agriculture and Allied Activities excluding soil & water conservation, forest, food storage & warehousing and cooperation	209721.6	948850.0	7303020.6
Soil and Water Conservation	8666.3	34397.7	200076.2
Forest	3908.8	11377.9	34606.3
Food Storage and Warehousing	94.7	244.5	588.5
Co-operation	6997.1	22773.2	87067.8
Rural Development	19423.0	51542.7	130656.2
Irrigation and Flood Control	88158.1	255441.7	769804.6
Power	109151.2	313510.1	928350.9
Industry	10281.4	32747.6	119712.1
Roads and Bridges	61412.7	190760.4	662165.4
Other transport and communications	12156.6	32076.4	80425.1
Science, Technology and Environment	251.5	776.9	2666.0
General economic services excluding civil supplies	54327.0	303209.9	3650641.1
Civil Supplies	39637.5	261626.3	4483640.2
Compensation to Local Bodies	30110.5	80426.1	206448.7

Source: IDC and GoP Budget

However, the funds required under various GoP Budget Head concerned /related to SDG Goals to achieve the Vision 2030 over the 3 years (FY17-FY19), 7 years (FY17-FY23) and 14 years (FY17-FY30) periods are provided in the table below. This has been calculated on the basis of where we are presently and the road map described to achieve various SDG goals as per the Vision 2030.

Table – 17.4
Funds Required under Various Government of Punjab Budget Heads to achieve Vision 2030
(in INR million)

Budget Head Relevant for SDG Goals (in INR million)	FY17-FY19	FY17-FY23	FY17-FY30
Education, Sports, Art and Culture	519124.8	2472779.2	11428055.7
Public Health and Family welfare	186485.3	1106027.6	6140482.7
Water Supply and Sanitation	34404.3	115044.3	405391.4
Housing	38925.4	299607.9	2025372.9
Urban Development	5137.9	18309.6	66011.8
Welfare of SCs, STs and Other BCs	117644.1	1302188.0	10164430.2
Labour and Labour Welfare	10372.0	43342.1	195552.6
Social Security and welfare	92650.7	364865.3	1514435.5
Food and Nutrition	9596.5	46536.5	258575.0
Agriculture and Allied Activities excluding soil & water conservation, forest, food storage & warehousing and cooperation	268989.3	1703043.0	9690213.5
Soil and Water Conservation	12987.1	88632.5	591834.3
Forest	4313.8	14075.7	47655.0
Food Storage and Warehousing	104.1	298.5	791.9
Co-operation	9224.4	42419.8	218874.4
Rural Development	21873.5	66270.7	190059.1
Irrigation and Flood Control	97115.4	314671.9	1053304.0
Power	124272.4	414898.8	1412992.3
Industry	13349.0	58755.7	285132.3
Roads and Bridges	72945.8	278905.7	1169217.8
Other transport and communications	13171.6	37962.0	103434.5
Science, Technology and Environment	319.4	1320.7	5871.3
General economic services excluding civil supplies	73869.4	634541.4	4309055.1
Civil Supplies	56234.9	612922.5	5009271.4
Compensation to Local Bodies	36218.5	119362.4	371168.3

Source: IDC and GoP Budget

Based on the calculation of the likely funds available under Government of Punjab Budget and the funds required to achieve 2030 SDG goals/targets the total resources gap works out to be INR24.7trn. The details of resource gap under different budget heads are given in table below.

Table – 17.5
Resource Gap GoP will Face to Achieve 2030 SDG Goals/Targets
(in INR million)

Budget Head Relevant for SDG Goals (in INR million)	FY17-FY19	FY17-FY23	FY17-FY30
Education, Sports, Art and Culture	130079.0	1184330.8	6319980.8
Public Health and Family welfare	56464.3	625546.1	3740398.9
Water Supply and Sanitation	3429.6	23417.6	117506.3
Housing	11723.4	171695.2	956154.7
Urban Development	862.2	6028.9	29646.9
Welfare of SCs, STs and Other BCs	49420.3	952508.6	6651277.7
Labour and Labour Welfare	2235.0	18077.9	107934.6
Social Security and welfare	18384.4	140886.5	782525.3
Food and Nutrition	2448.3	22652.1	162114.1

Budget Head Relevant for SDG Goals (in INR million)	FY17-FY19	FY17-FY23	FY17-FY30
Agriculture and Allied Activities excluding soil & water conservation, forest, food storage & warehousing and cooperation	59267.7	754192.9	2387192.9
Soil and Water Conservation	4320.8	54234.8	391758.1
Forest	405.1	2697.8	13048.7
Food Storage and Warehousing	9.5	54.0	203.4
Co-operation	2227.4	19646.6	131806.6
Rural Development	2450.4	14728.0	59402.9
Irrigation and Flood Control	8957.3	59230.2	283499.4
Power	15121.2	101388.7	484641.3
Industry	3067.6	26008.1	165420.2
Roads and Bridges	11533.1	88145.3	507052.5
Other transport and communications	1015.0	5885.7	23009.5
Science, Technology and Environment	67.9	543.8	3205.3
General economic services excluding civil supplies	19542.4	331331.5	658414.0
Civil Supplies	16597.4	351296.2	525631.2
Compensation to Local Bodies	6108.0	38936.3	164719.6
Total Gap	425737.1	4993463	24666544.8

Source: IDC and GoP Budget

Given the high proportion of committed expenditure in GoP's expenditure mix and limited scope to scale up revenue receipt either through its own resources or from the central government, GoP will have to look for alternative sources of funding to meet the resource gap arising out of what is likely to be available and what is required to achieve 2030 SDG goals/targets.

Some of the alternative sources of funding that GoP can tap are as follows.

- Seek a share in revenue generated in its capital city Chandigarh as per Reorganisation Act.
- Multilateral/External Agencies
- Pension/Insurance Funds
- Public – Private Partnership
- Creation of one or more State level theme-based Special Purpose Vehicles (SPVs) to leverage capital market financing for meeting the funding requirement/resource gap of select and important social/infrastructural schemes /projects of the state
- Capacity building in state government treasury for tapping capital market funding
- Tapping Punjabi diaspora to partner in growth of Punjab

