GOA 2035
VISION AND ROAD MAP

This illustration, 'Parashurama', by Mel D'Souza, a Canada-based Goan, in Fr. Nascimento Mascarenhas' book on a quaint Goan village, Saligao, catches the essence of this report prepared by the *Goa Golden Jubilee Development Council, Government of Goa:* Goans – known for their multicultural, peaceful, contented-yet-adventurous spirit – are in an eminent position to aim high and far during the next quarter of a century to create a land that strikes a balance between their traditional values and modern opportunities.

GOA 2035:
VISION AND ROAD MAP

Report of

Goa Golden Jubilee Development Council
Government of Goa

submitted to

Honourable Chief Minister,
State of Goa

on

11 July 2012

GOA 2035: VISION AND ROAD MAP

Contents

Formation of
Goa Golden Jubilee Development Council

1. Goa Golden Jubilee Development Council (GGJDC) was formed by the sanction of the Government of Goa (No. 9/292/2010/HE) conveyed by the Directorate of Higher Education of Government of Goa on 26 July 2010. The composition of GGJDC was as follows:

1.	Dr. Raghunath Mashelkar, Pune	Chairman
2.	Dr. Vijay Bhatkar, Pune	Member
3.	Dr. Anil Kakodkar, Mumbai	Member
4.	Mr. Ashank Desai, Mumbai	Member
5.	Dr. Vijay Kelkar, Pune	Member
6.	Prof. Madhav Gadgil, Pune	Member
7.	Arch. Charles Correia, Mumbai	Member
8.	Dr. Satish Shetye, Panaji	Member
9.	Prof. Dilip Deobagkar, Panaji	Member
10.	Mr. Raj Paroda, New Delhi	Member
11.	Dr. P. S. Ramani, Mumbai	Member
12.	Dr. Ligia Noronha, New Delhi	Member
13.	Prof. Vithal Sukhtankar, Panaji	Member
14.	Prof. Errol D'Souza, Ahmedabad	Member
15.	The Chairman, Goa Chamber of Commerce & Industries, Panaji	Member
16.	Secretary, Planning & Statistics	Convenor
17.	Director, Higher Education	Nodal Officer

2. The committee was expected to form sub-groups, with each sub-group being headed by a member of the Council. Accordingly, the following sub-groups were formed to examine in depth in the following areas:

    1. Education

    2. Environment & Sustainable Development

    3. Art & Culture

    4. Trade & Industry

5. e-Governance
6. Tourism
7. Agriculture
8. Science, Technology, and Innovations
9. Health
10. Governance and Finance

Composition of the sub-groups can be found in the documents available at the website of the GGJDC, www.goa2035.in.

3.   The council followed a broad-based consultative approach by connecting and dialoguing with diverse sections of society, especially the young. The details of the consultative process followed can be found at the website of the GGJDC. It also contains reports that were prepared by each Sub-Committee and other documents that were found useful by the GGJDC and its Sub-Committees.

4.   An interim abridged report of GGJDC was submitted to the Hon'ble Chief Minister of Goa on 19th December, 2011, a copy of which is available at the GGJDC website. The purpose of the report was to share with the citizens of Goa the direction in which the GGJDC was heading, create a public sensitivity about its vision of Goa 2035, and also seek initial reactions and suggestions. The insights, inputs and suggestions, wherever appropriate and feasible, have been accommodated in this draft final report 'Goa 2035: Vision and Roadmap'.

Preface

- Goa is a modern and forward-looking State. Ranked at the top among the States and the Union Territories on 12 key indicators relating to the quality of life in the Report of the National Commission on Population (2002), Goa was selected as the 'State of the States' in a survey conducted by the leading newsmagazine, India Today (May 2003), and ranked to be the best amongst all the States in India in the categories of Education, Health, Infrastructure and Investment. In terms of social indicators such as literacy and infant mortality rate, Goa is among the top three States in the country. The Eleventh Finance Commission ranked Goa as the Best Placed State in the country in terms of infrastructure facilities.

- More important than the ranking is the fact that Goa is a unique multicultural state. The people of Goa are nice, peace loving and friendly. Different communities in Goa co-exist in complete harmony. This, combined with Goa's extraordinary natural beauty, makes it a very popular destination to visit. No wonder, 12% of the foreign tourists that visited India last year were visitors to Goa.

> The people of Goa are nice, peace loving and friendly. Different communities in Goa co-exist in complete harmony.

- Goa is one of India's smallest states. Nonetheless its per capita income is amongst the highest in India. Goa has a high rate of economic growth, one of the highest in the country. Goa's population is well distributed geographically through a town-village continuum. It is well connected to metropolitan cities and centres of trade and commerce in the country through road, rail, and sea-routes as well as by air.

- When we started celebrating the Golden Jubilee of the freedom of Goa, we looked back at its past with pride but also began to think about its future. What could Goa be when it celebrates its

platinum jubilee in the year 2035? How can we create a knowledge driven, diversified and cosmopolitan Goa built on its unique social, cultural and ecological values? Let us recall here a popular legend about the birth of Goa.

- According to a legend, Parashurama, the sixth reincarnation of lord Vishnu, faced an order of banishment from the lands he had once conquered. He let seven arrows fly from the Sahyadris to push back the sea and created a stretch of land, which he could claim for himself, and that was Goa, the Parshuram Kshetra. One may not believe in mythology, but one can certainly draw some inspiration from it, just as Indian society continues to be inspired by the learnings from the epics of Ramayana and Mahabharata. What would be the seven arrows to create the Goa of our dreams in 2035?

- Here are those seven arrows, which will create Goa 2035, as not only the best state in India but also one of the best globally:

  1. सुरम्य गोवा (*Suramya* or Serene and Beautiful Goa)

  2. सुसंस्कृत गोवा (*Susanskrit* or Cultured Goa)

  3. संतुलित गोवा (*Santulit* or Balanced and Sustainable Goa)

  4. सुविद्य गोवा (*Suvidya* or Knowledge Centric, Enlightened Goa)

  5. समृध्द गोवा (*Samruddha* or Affluent Goa)

  6. सुशासित गोवा (*Sushasit* or Well Governed Goa)

  7. स्वानंदी गोवा (*Swanandi* or Happy Goa)

- These seven arrows do not fly in isolation. They reinforce each other. For instance, mere affluence (समृध्दी) without sustainability (संतुलन) will not work. For affluence (समृध्दी) to be attained through knowledge and creative industries, knowledge centric (सुविद्य) Goa is a must. A happy (स्वानंदी) Goa will only be one which is cultured (सुसंस्कृत), well governed (सुशासित), balanced (संतुलित), etc. Serenity and beauty, rich culture, careful balance, knowledge-centricity, affluence, good governance and happiness for every citizen are eternal values for any society. They will be as valuable in this century as they will be in the next. In what follows, we create a compelling vision for Goa 2035. We also provide a roadmap to achieve that vision. This roadmap will include some 'here and now' steps as well as a grand vision for its future as we begin the journey towards building Goa 2035 of our dreams.

- Parashurama in the legend is represented today by the collective wisdom of the people of Goa. Thanks to the democracy of India, Goans have over the years shown a healthy growth in maturity in deciding who should govern the state and how. We hand this document to the people of Goa in the sincere hope that the collection of ideas assembled here will be of help in decision-making on governance of the state during the next twenty-five years to fulfill the aspiration behind Parashurama's seven arrows.

Chapter 1

सुरम्य गोवा (*Suramya* or Serene and Beautiful Goa)

1.1   We dream about *Suramya* Goa - that means a serene and beautiful Goa. Goa is God's gift to India. Its natural beauty must be preserved in every possible way. Beauty is something to be seen but serenity is something to be experienced. People visit Goa not just to see it, but to 'experience' it. We must do everything possible to make sure that Goa 2035 continues to provide that very special 'experience' for everyone.

> People visit Goa not just to see it, but to 'experience' it. We must do everything possible to make sure that Goa 2035 continues to provide that very special 'experience' for everyone.

1.2   Goa is a beautiful tropical emerald island. Nestled between the Arabian Sea and the Sahayadri ranges, Goa is crossed by a number of rivers flowing westwards, which provide it with a lush, fertile soil. It has rich flora and fauna owing to its location in the Western Ghats, which is classified as a biodiversity hotspot. The coast is made up of bays, creeks, and estuaries and fringed with mangroves.

1.3   It is well known for its beaches, places of worship and heritage architecture. In the February 1999 issue of National Geographic Magazine, Goa was compared with Amazon and Congo for its rich tropical biodiversity. Goa's wildlife sanctuaries have more than 1512 documented species of plants, 275 species of birds, over 48 kinds of animals, and 60 genera of reptiles.

> Goa's wildlife sanctuaries have more than 1512 documented species of plants, 275 species of birds, over 48 kinds of animals, and 60 genera of reptiles.

1.4   One seldom-noticed aspect of Goa's serene beauty is the even distribution of its population. There is remarkable absence of the kind of milling crowds and overwhelming densities we see elsewhere in India, This is because Goa has no single primate city that preempts all economic activities in its hinterland. Instead we have a number of various-sized human settlements, towns and villages, all working together in a harmoniously balanced poly-centric system. This evenly distributed population is an essential part of the DNA that has generated the beauty of Goa. This polycentric pattern has not been created by any far-sighted planning. No, it is the result of a centuries-old system of feudal land-ownership – a system that has its downside as well.   For when land is the only source of wealth, there are no jobs for much of the population. You live in a place only because you own land there, or you till the land for someone else who owns it. If not, then you move on.

> . . . we have a number of various-sized human settlements, towns and villages, all working together in a harmoniously balanced poly-centric system. This evenly distributed population is an essential part of the DNA that has generated the beauty of Goa.

1.5   Our vision for beautiful Goa should be multi-faceted: on the one hand, we must preserve the fragile ecology and extraordinary beauty of this very special place, At the same time, we must bring about greater economic progress, more education, better health facilities: in short, a more vibrant future for everyone in Goa. How can we achieve these seemingly contradictory sets of objectives? These objectives are linked to a host of policies, from power generation, to electricity and water distribution, to industry, agriculture, transport, and so forth. To identify a coherent set of policies that work together with cohesion and synergy, is what this GGJDC Report is about.

1.6   Goa should learn from others. Mangalore had much the same beauty and the same feudal land-owning pattern right until the 19th century, when it founded the tile industry. This generated the jobs

that Mangalore so desperately needed, but it also started the process of urban centralization that created the humungous primate city we know today. In the process, its intrinsic beauty was destroyed. We cannot let this happen to Goa.

1.7   Today Goa is on the cusp of change. Migrants are coming for many diverse tasks, from construction workers to industrial labour to vegetable sellers in the bazaar, all jobs that Goans themselves are unwilling to do. So we need these people, and we should understand this. And we also have other people from Delhi, Mumbai, and other parts of India, who come to Goa to retire. Bangalore used to be like this. In fact, it was known as a "pensioners' paradise". It was only in the 1990s that Bangalore began to attract young dot.com engineers who have contributed immeasurably to the energy and diversity of that place.

1.8   Life in Goa today has an urbanity and cosmopolitanism that is truly refreshing - and which is an extension of the traditional tolerance and broad-mindedness of the people. There is a stimulating increase in the variety of cultural events, the quality of newspapers, the diversity of goods and services available, and so forth. In many ways life in Goa is becoming as sophisticated, as cosmopolitan, as urbane, as that in Bangalore or Mumbai, but without the pollution, without the traffic jams, without the urban tensions. And that is the essence of सुरम्य Goa, the serene and beautiful Goa of our dreams.

> In many ways life in Goa is becoming as sophisticated, as cosmopolitan, as urbane, as that in Bangalore or Mumbai, but without the pollution, without the traffic jams, without the urban tensions. And that is the essence of सुरम्य Goa, the serene and beautiful Goa of our dreams.

Chapter 2

सुसंस्कृत गोवा (Susanskrit or Cultured Goa)

2.1   संस्कृती (Sanskruti) means culture. Susanskruti means good culture. Goa is endowed with good culture that represents a rich and diverse mosaic of cultures that has evolved over time and is today well known for its multi-religion, multi-nation, and multi-language background. The wellspring of Goa's culture is in the religious observances that have been an integral part of the people's life in the state. The impact of these observances is visible in the state's arts, social systems, habits, and customs. Goa, though small in geographical area and population, has over 50 distinct folk forms that embody rich imagination and assert the artistic heritage of the state.

2.2   The cultural identity of Goa is an integral and inseparable part of the great Indian tradition. The culture of Goa, together with its Latin flavor, expresses the hues and shades of rich and diverse Indian culture.

> The culture of Goa, together with its Latin flavor, expresses the hues and shades of rich and diverse Indian culture.

Many talented artists with their roots in the state have contributed to the development of this culture and have received laurels for their contributions in their chosen fields of creativity.

2.3   A distinct advantage that Goa has to develop its culture is derived from empowerment of its women. Central to this empowerment is

> A distinct advantage that Goa has to develop its culture is derived from empowerment of its women. Central to this empowerment is the Uniform Civil Code which touches all aspects of personal laws in the state.

the Uniform Civil Code which touches all aspects of personal laws in the state. An important aspect of the code is its equal treatment of both sexes and its applicability to all religions and communities

across the state. National Family Health Surveys (see www.nfhsindia.org)show that over half the women in Goa have control over use of their money and slightly less than half have their own bank or savings account. That makes Goa a leader in India in women empowerment. This empowerment is a great contributor to creating a cultured Goa.

2.4   A second advantage that the state enjoys is that there is a tradition in the state of support of the government to cultural activities. The state's Directorate of Art & Culture, an ISO-9001-2008 certified department of Government of Goa, was specially set up for preservation, promotion, and development of the rich traditional cultural wealth and legacy of the state across a vast domain: folk songs, folk tales, folk dances, folk theatric forms, dance, music, drama, theatre, literature, arts and crafts, painting, architecture, sculpture, costume design, etc. It is with the active intervention of the state that the International Film Festival of India is now held in Goa every year.

> A second advantage that the state enjoys is that there is a tradition in the state of support of the government to cultural activities.

2.5   Yet another advantage is that the state has institutions such as Goa Kala Academy at Panaji, Rajiv Gandhi Kala Mandir at Ponda, Ravindra Bhavans at Margao and Curchorem, Goa Tiatr Academy at Panaji, etc. that foster, develop and promote dance, drama, music, literature and other arts. The Government is in the process of establishing Ravindra Bhavans at Sankhali, and Baina-Vasco. The government has established Goa Konkani Academy and Goa Marathi Academy for development of these languages in the state.

2.6   Recognizing that "cultural rights are human rights" Goa formulated a 'State Cultural Policy' in 2007. The cultural policy aims at achieving individual creativity for the citizens, ensuring equality of access to cultural life, safeguarding the freedom of expression, promoting a flourishing cultural life, supporting cultural renewal

and quality. The aim is to make it possible for culture to be a dynamic, independent, and challenging force, to preserve and use the cultural heritage and to promote interstate and international cultural exchange.

2.7   Although the state has strengths derived from the above legal, educational, and social institutions, there are impending challenges in charting a path of progress for cultural growth in the state. There is concern over lack of enthusiasm amongst the young in taking up the vocation of music, dance, theatre, etc. There is the feeling that not enough new high quality artists are emerging from the state. There is a dearth of good teachers in our educational institutions dedicated to arts and culture. There is concern that artists often shun local languages. Many age old art forms in the state are on the verge of extinction. There is also the feeling that the state needs to do more to showcase its artists outside the state of Goa.

2.8   Vision 2035 aims at making Goa a unique state in the field of arts and culture: Goa should emerge as a state that gives its people the opportunity to experience art and culture personally. This needs to be achieved with a special focus on the common man of the state who can identify with the art and culture of the state. The initiatives listed below are proposed with this goal in mind.

> Vision 2035 aims at making Goa a unique state in the field of arts and culture: Goa should emerge as a state that gives its people the opportunity to experience art and culture personally.

2.9   Goa will need to ensure distribution of cultural activities uniformly across the state. Geographical areas that need new infrastructure to support cultural activities need to be identified, with special attention given to rural areas and tribal settlements. Decision-making regarding support to cultural activities should be decentralized and distributed across the state.

2.10 There is a need for setting up an institution to impart education in film making in the state. This will provide the Goan youth with opportunities in the growing field related to film-making, including new technologies that have evolved in animation. Such an institution will compliment the growing interest in Goa as a location for film shooting.

2.11 What applies to film-making applies to making of television content. There is need to have an institution in the state that provides education in generation of TV content. This too will create opportunities for the Goan youth. A step in this direction would be to have a permanent dedicated Television Centre for Goa under Doordarshan. This will be of great benefit to Goan artists.

2.12 We must provide opportunities for Goan artists to perform outside the state of Goa. Activities of Goan artists are at present primarily limited to Goa.

2.13 One way to achieve the above is to create opportunities for Goan artists to interact with artists from other states. This could be achieved by encouraging the setting up of regional offices of national organizations like Lalit Kala Academy, Sangeet Natak Academy, Sahitya Academy, National Book Trust etc. Such regional offices will pave the way for improving exposure of Goan artists in other states. In turn, it will create opportunities for artists from other states to perform in Goa through camps and workshops.

2.14 The infrastructure for cultural activities needs improvement across the state. Quite a bit of the present infrastructure - theatres,

multiplexes, art galleries, museums, libraries, exhibition halls, auditoria, halls, stages, etc. - is in the public sector. Incentives need to be provided to this sector in the form of grants and loans for creating new infrastructure, and for maintenance of the existing infrastructure.

2.15   Taluka and village level festivals dedicated to arts, crafts, dance, music, drama, literature, films help in creating an ambience supportive of culture. Also helpful in this endeavour is encouragement to generate products of Goan culture: books, audios, videos, etc. Encouragement needs to be provided to Goan artists to express their talent in the local languages.

> Taluka and village level festivals dedicated to arts, crafts, dance, music, drama, literarature, films help in creating an ambience supportive of culture.

2.16   There is a need to review Goa's Tourism Policy and evaluate its impact on the Goan culture and heritage. Goa is surely a land of sun and sand. It is also a place with a rich mosaic of culture blended with religious and communal harmony. This mosaic needs to be made known vigorously in India and abroad. Goa needs to project an image of a progressive and socially responsive society with a growing economy and rich cultural heritage.

> There is a need to review Goa's Tourism Policy and evaluate its impact on the Goan culture and heritage.

2.17   Goa needs to have a state of the art museum to showcase its art, crafts, sculpture and related heritage. Such a step will be consistent with the tourism policy proposed above.

2.18   The state should encourage its achievers in various areas of art, culture, dance, music, literature, theatre, etc. through awards respected in the state and across the country. This can only be achieved by sustained efforts to reward those with a proven record for creativity and excellence.

2.19   Goa has musical instruments (for example, Banko, Surta or Soor, Surpanvo, etc.) that have a rich tradition but have fallen on bad times. Often used in the past during wedding ceremonies and traditional cultural events, their exponents are dwindling in number. Concerted efforts are needed to revitalize use of the instruments to highlight this magnificent heritage of Goan music. Such support can also complement a progressive policy for tourism mentioned above.

2.20   Goa has over 50 distinct folk forms. A majority - for example folklore such as Banvad, Dholki Bhajan, Dandlam Khel, etc. - are on the verge of extinction. These folk performing arts need to be revived. Regular programmes dedicated to folklore in different parts of the state may well help to revive interest in these arts. The artists who practice these art forms deserve to get adequate infrastructural support and generous financial assistance.

> Goa has over 50 distinct folk forms. A majority - for example folklore such as Banvad, Dholki Bhajan, Dandlam Khel, etc. - are on the verge of extinction. These folk performing arts need to be revived.

2.21   The state should create a digital archive of its cultural heritage. Besides serving as an aid to access historical records regarding the state's art and culture it would encourage inquisitiveness and awareness of our past, particularly amongst students. Such an archive will also help in maintaining historical records in possession of state institutions.

2.22   A major festival, which may well be called *Goa Bienale*, should be held every two years to highlight Goa's special history. Goa has an extraordinary opportunity to bring the West and the East together. This could be a bienale that the world will not want to miss. Goa Bienale could focus on a

> A major festival, which may well be called Goa Bienale, should be held every two years to highlight Goa's special history. Goa has an extraordinary opportunity to bring the West and the East together.

couple of areas at a time: literature and music, architecture and sculpture, films and music, and so forth. Keeping in view Goa's unique power to draw tourists from across the world, this would be a step in the right direction to project Goa as a state with extraordinary natural beauty and rich cultural heritage.

Chapter 3

संतुलित गोवा (Santulit or Balanced and Sustainable Goa)

3.1   संतुलन **(Santulan)** means balance. Goa 2035 should stand out globally as a model of development without destruction. Goa must pay utmost attention to its ecosystems, as these are central to the development and wellbeing of its people. Addressing the dynamic interdependency that exists between economy and ecology is fundamental to creating green growth and maintaining sustainability. Maintaining unity amongst the diverse religions and languages, achieving the objective of a healthy body, mind and spirit for every Goan will create a truly balanced and sustainable Goa 2035. How could we achieve all this? Here is the agenda for a sustainable and balanced Goa 2035.

> Addressing the dynamic interdependency that exists between economy and ecology is fundamental to creating green growth and maintaining sustainability.

3.2   The main sustainability issues in Goa are centred around agricultural land conversions, loss of forests and biodiversity, solid waste management, water depletion, coastal area degradation and urban congestion. Some major problems also exist around the practice of mining.

3.3   The key challenge arising in the context of sustainability is to ensure that we are not trading off long term wellbeing of people for short term profits. While there is much to celebrate about the development of urban Goa, there are many deficits that need to be recognized. These relate to traffic congestion, garbage problems, loss of open

> The key challenge arising in the context of sustainability is to ensure that we are not trading off long term wellbeing of people for short term profits.

spaces, etc. In focusing on urban Goa, the strengths of Goan villages should not be ignored. They are vital to ensure the local populace's sense of wellbeing. The recognition and preservation of these strengths is development itself. Goa's charm lies in its polycentric spatial spread. This must be preserved.

3.4   In this chapter we first focus on the issues connected with environment and sustainability. We will then deal with the issues connected with health for all. The chapter is divided into the following five sections

- *Empowering the stakeholder* discusses existing regulations that could be used effectively by the citizens of Goa to implement good practices towards environmental conservation and sustainable development.
- *Responsible mining*: After providing an overview of the existing situation in the state with regard to mining, a contentious issue, the section recommends a number of steps that the state should implement.
- *Tourism*: This activity has grown rapidly in the state during the last few decades. This section discusses the steps that the state should implement to achieve sustainable tourism.
- *Land-use, urbanization, and associated issues*: Economic development and growth in tourism has changed the use of land in the state; the section discusses the problems associated with this development and possible solutions.
- *Health for all* deals with issues of management of sustained healthcare for the people of the state.

Empowering the stakeholder for management of environment

3.5   People at the grass-roots, especially those whose livelihoods are linked to the health of the environment, such as farmers or fisher folk or herders, have an integrated

> People at the grass-roots, especially those whose livelihoods are linked to the health of the environment, such as farmers or fisher folk or herders, have an integrated view of the environment.

view of the environment. These are also people who have a far greater, more direct stake in maintaining a healthy environment. Engaging them in environmental management is, therefore, essential, indeed vital, and over the years many steps have been taken to engage and empower the broader masses of Goa's people into prudent and sustainable management of the environment.

3.6   Such measures have included the following:

(a) 73rd and 74th constitutional amendments empowering Panchayati Raj Institutions to participate in deciding upon and managing the natural resources within their jurisdiction.

(b) Environmental Protection Act 1986, under which Public Hearings are organized in connection with environmental clearance procedures.

(c) Protection of Plant Varieties and Farmers Rights Act 2001, under which Panchayats will be funded through National Gene Fund to build capacity of farmers to participate in on-farm conservation of crop genetic resources.

(d) Biological Diversity Act 2002 under which Biodiversity Management Committees need to be set up at all Gram Panchayats, Taluk Panchayats, Zilla Parishads, and Nagarpalikas, as well as at state level. The Biodiversity Management Committees are expected to document and regularly monitor local biodiversity resources, regulate their use, and levy collection fees.

(e) Scheduled Tribes and other Traditional Forest Dwellers (Rights Over Forest) Act 2006, that (i) assigns ownership over forest land that is already under cultivation (ii) assigns rights over nontimber forest produce, grazing, water resources and (iii) authority to manage Community Forest Resources.

(f) Other legislation of relevance includes Coastal Zone Regulation and Right to Information Act.

3.7   A very positive development in Goa has been the engagement of people down to Gram Sabhas in deciding on the issue of land use

in connection with Goa Regional Plan 2021. This is a step in the right direction in terms of devolution of powers to Panchayati Raj Institutions. However, the suggestions of Gram Sabhas should be taken far more seriously than they have been so far. The process of empowering grass-roots level democratic institutions would go much, much further if a genuine decision making power is bestowed on gram sabhas and ward sabhas. Specifically, the decisions of gram sabhas in connection with issues like environmental clearances for real estate development and mining should be duly honoured.

> A very positive development in Goa has been the engagement of people down to Gram Sabhas in deciding on the issue of land use in connection with Goa Regional Plan 2021. This is a step in the right direction in terms of devolution of powers to Panchayati Raj Institutions. However, the suggestions of Gram Sabhas should be taken far more seriously than they have been so far.

3.8   The Biological Diversity Act provides major opportunities for engaging people in regular monitoring and management of environment through Biodiversity Management Committees that have to be established at the level of all local bodies. Goa has only a state level Biodiversity Board, and no Biodiversity Management Committees at any other level. GGJDC recommends activation of the Biodiversity Management Committees at all levels, with not only urgency but with full powers for environmental monitoring, regulating local biodiversity use, and for levying appropriate collection fees.

3.9   The Biological Diversity Act specifies that the Biodiversity Management Committees will engage in environmental monitoring by developing "People's Biodiversity Registers". These exercises could be intimately linked first to mandatory Environmental Education activities of students in local educational institutions, as also to any pertinent studies by NGOs and citizen groups. In turn,

all this information could be uploaded on the web for public scrutiny, correction and augmentation. Goa could thus generate a lively, informed, and productive debate on environment and sustainable development issues using full powers of modern information and communication technologies. GGJDC urges that the rich spatial database prepared for RPG 2021 should be immediately put in the public domain to kick start this process. This should be done irrespective of the schedule of finalization of land use prescriptions under RPG2021. Such an open, transparent, participatory web-based information resource could be most fruitfully linked to the web-based learning systems discussed later in the contexts of Education, Science and Technology.

3.10   The Biodiversity Management Committees are also expected to deal with the genetic diversity of crop cultivars and domesticated animals. This function would be strengthened by the implementation of the Protection of Plant Varieties and Farmers' Rights (PPVFR) Act. This Act emphasizes the need to promote on-farm conservation of crop genetic diversity. There is substantial interest in conservation of Goa's indigenous crop varieties, and citizens of Goa should be made aware of the provisions of this 2001 Act. In coming years a vigorous programme of conservation of Goa's agrobiodiversity should be promoted in conjunction with implementation of Biological Diversity and PPVFR Acts.

> A vigorous programme of conservation of Goa's agrobiodiversity should be promoted in conjunction with implementation of Biological Diversity and PPVFR Acts.

3.11   These activities may also be linked to promotion of organic agriculture throughout Goa on the models of Sikkim and Uttarakhand. An interesting model to consider in this connection is Australia's Farm and Ranch level Soil Carbon Sequestration programme (see, for example, www.comet2.colostate.edu). In its efforts to fix carbon to combat global warming, Australia pays farmers and ranchers to adopt organic practices and enhance carbon stocks

in farm soils. Goa could launch similar programmes for positive impacts.

3.12   The state should encourage the Panchayats to undertake documentation of its biodiversity. In addition, research projects to document the biodiversity of the State should be encouraged through creation of a 'Small Grants Fund' to support individuals and institutions for carrying out documentation or conservation projects. The selection for award of such grants should be through submission of proposals which should be scrutinized by a panel of experts.

3.13   A number of 'citizen science' initiatives should be launched. Schools should be used to document the surroundings: NGO/Voluntary organizations should use the existing platforms of GEEPS (Goa Environment Education Programme in Schools), National Green Corps (NGC), etc., to help students document their surroundings. This would not only create awareness, but would also create a bank of future scientists.

> Schools should be used to document the surroundings.

> This would not only create awareness, but would also create a bank of future scientists.

3.14   Yet another pro-people act that Goa should implement is the Forest Rights Act. This Act gives many individual as well as community rights not only to Scheduled Tribe communities, but also to other traditional forest dwellers (see http://www.fra.org.in/new/). In particular, all 'comunidad' land of Goa under forest cover fully qualifies for recognition as "Community Forest Resource" under this Act. Such land will remain under Government control, and cannot be alienated at all, but will be assigned to local communities for sustainable management. The local level Forest

> Yet another pro-people act that Goa should implement is the Forest Rights Act.

Rights Committees set up for this purpose could be linked to or themselves serve as local Biodiversity Management Committees and participate in monitoring, sustainable use, as well as eco-restoration activities. If this is achieved, then Goa in the coming decades would turn into a model forested land with vigorous community based sustainable management.

3.15   Several measures should be taken for law enforcement regarding forests:

- Demarcate clearly 'Protected Area' boundaries and demystify laws for the general public. A serious involvement of the public and communities in law enforcement can aid in proper implementation of law. This may be linked to citizens "Paryavaran Vahini" programmes.
- Strengthen the field staff by providing resources and technical training. The Forest Department should use state-of-the-art equipment and tools. For example, new technologies such as wireless communication devices, Global Positioning Systems, digital cameras, etc., should be accessible to the field staff.
- Specific studies in relation to the ecosystem services provided by Goa's forests need to be undertaken through collaborative efforts driven by the government to understand the value of our forests.
- Restart the Honorary Wildlife Warden Scheme (see http://www.moef.nic.in/legis/wildlife/wildlife8.html). In addition, encourage individual citizens to use social networking platforms and the digital revolution to make public any offences that they come across.
- Plantation of economically important species for the benefit of local people is important. Include economically important species, especially fruit species for plantation around villages for the benefit of the local people.

3.16   Joint Protected Area Management systems should be promoted in all

> Joint Protected Area Management systems should be promoted in all Protected Areas.

Protected Areas. Here are some steps that could be taken in that direction:

- Salim Ali Bird Sanctuary which is located on the Chorao Island, should be made a community conservation area, providing positive incentives to people for conservation.
- There are more than 100 Sacred Groves in Sattari and Sanguem. These need to be demarcated and given appropriate status for their protection. This may be accorded with the help of the provision of Biodiversity Heritage Sites under the Biological Diversity Act. They should be preserved using scientific and traditional knowledge. People should be involved in conservation decisions regarding the groves.
- Areas of unique vegetation like Myristica swamp forest in Maloli and Brahmakarmali of Sattari, Bhati and Neturli in Sanguem need to be demarcated and given the status of Ecologically Sensitive Areas (ESA), or Biodiversity Heritage Sites under the Biological Diversity Act.
- There are reasons to believe that Goa has a significant tiger population that has been ignored in the Tiger Census. Efforts are needed to protect the tiger habitats of Goa by properly documenting their presence.

Responsible mining

3.17   Mining is an economic activity with many long term impacts. When mining leases were granted in Goa, people not only lost the land on which they lived, but also land which formed the basis of their livelihoods. Once mining operations began, they affected the land around the mines; there was loss of agrobiodiversity; and, there was reduction in land for agriculture. While mining and allied activities provided employment opportunities to men, there are almost no women working in them. Agriculture went into decline with increasing number of people choosing not to farm or

> Apart from livelihood, mining has considerable impact on the health of communities.

unable to farm, resulting in loss of this skill. Apart from livelihood, mining has considerable impact on the health of communities. Exposure to air pollution (especially inhaled suspended particulate matter) is relatively high in the mining clusters and transport corridors of Goa leading to respiratory diseases. Road accidents increase because of increase in movement of trucks and spilling of ore by the wayside.

3.18 The interaction by GGJDC sub-group on Environment and Sustainability with the people in the mining belt led to many findings. It was clear that the social carrying capacity for mining in the region has been crossed. Environmental carrying capacity also seems to be crossed. The Ministry of Environment and Forests, Government of India, has requested the Indian School of Mines, Dhanbad, to study this afresh.

> It was clear that the social carrying capacity for mining in the region has been crossed. Environmental carrying capacity also seems to be crossed.

3.19 Some of the questions that GGJDC sub-group was asked during its interactions were:
- Why should mining not be banned to arrest the further loss of cultural and biological diversity and destruction of the ecology of the Western Ghats?
- For how long should mining continue given that it has been going on since 1945?
- How have communities been factored into the planning of projects?
- Why do people in the mining region feel so helpless that they are unable to ensure that their ground water access is not adversely affected by mining?
- What has the region actually gained from all of this mining activity?
- How has industry compensated for the heavy use of the waterways and the consequent silting?

3.20 The GGJDC sub-group did discuss these questions with the mining industry, both with the owners and with Managing Directors or Chief Executive Officers of the main mining companies of Goa as well as through a special meeting organized by the Goa Mineral Ore Exporter's Association (GMOEA) at which most companies were present. The companies acknowledged that there was considerable social disaffection and that the mining industry could and should do much more for the local people. Many of them reiterated that the social fabric is stressed. Some saw the disaffection as emerging from the lack of infrastructure to address the commodity boom in recent years and the inability of the government machinery to cope with this. Many suggested that the social stress could be reduced if a new dedicated road is built which will help to reduce the congestion and dust pollution on public roads.

3.21 Both the people and the companies that GGJDC sub-group interacted with showed a concern about a serious regulatory and governance deficit in the

> Both the people and the companies showed a concern about a serious regulatory and governance deficit in the state.

state. This was perceived to be both at the level of clearances and of monitoring projects. It was felt that the Ministry of Environment and Forests, Government of India, should be clearing projects only after obtaining full knowledge of the ground realities in villages, where several mineral developments were ongoing. Environmental Impact Assessments (EIAs) regarding mining projects were often found to be questionable; in many cases discrepancies occurred between what the Goa State Board for Pollution Control reported and what the Department of Mines, Government of Goa, had recorded. The Government, while acknowledging the presence of illegal mining, seemed to be struggling to find viable and effective solutions. The Government machinery also seemed to be rather inadequately equipped to cope with the boom in mining.

3.22   The Western Ghats Ecology Expert Panel (WGEEP) recommended the adoption of a graded or layered approach to address ecological sensitivities and reduce the development footprint (Western Ghats Ecology Expert Panel Report, Parts I & II, submitted to MoEF in August 2011). The Panel in its report suggested that the entire Western Ghats be characterized as an Ecologically Sensitive Area (ESA), but comprising (1) Regions of highest sensitivity or Ecologically Sensitive Zone 1 (ESZ1), (2) Regions of high sensitivity (ESZ2), and the remaining (3) Regions of moderate sensitivity (ESZ3). These will be complementary to areas already declared as Protected Areas, which will continue to be managed under regulations prescribed by pertinent acts such as the Wildlife Protection Act. A spatial database for the Western Ghats was prepared by the WGEEP and was used to score the various grids with respect to their sensitivity.

3.23   The fragility of Goa's Environment is corroborated by the fact that the State Pollution Control Board's Environmental Atlas of Goa, 2007, had over 50% of Goa's land area (1853.45 sq. km.) under Environmentally Sensitive Zones(ESZs). Goa's Draft Regional Plan 2021 had 54% of Goa classified as ESZ-1; 26% as ESZ-2.

3.24   The question is: does Goa have the instruments in place to deal with the current and the future challenges on the issue of the fragility of Goa's environment? The answer is in the affirmative. Goa has many laws that strive to empower people to meaningfully participate in the prudent management of environmental resources. These were summarized in the first section of this chapter. Such laws are desirable on several grounds. The natural world is a highly complex system of manifold interactions of land, air, water, biosphere, and a variety of human interventions. It is, therefore, essential that environmental implications of all human activities are viewed from a holistic perspective, and local communities which

> Does Goa have the instruments in place to deal with the current and the future challenges on the issue of the fragility of Goa's environment? The answer is in the affirmative.

naturally have such an understanding be fully engaged in environmental management.

3.25 GGJDC, having noted that there is a bitter debate raging concerning mining in Goa, makes the following recommendations to make mining contribute better to Goa's sustainable development through improved environmental and mineral governance:

- The Government should recognize and incentivise good corporate behaviour. The Government should make available in a proactive manner all the information pertaining to proposed mining to the concerned stakeholders and villagers affected by the mining operation well in advance. The websites of all the concerned government departments should be updated regularly, at least once in three months.

> The Government should recognize and incentivise good corporate behaviour.

- The institutional coordination should be strengthened before giving environmental clearance. Specifically, the decisions of gram sabhas in connection with issues like environmental clearances for mining activities should be duly honoured.

- There should be a thorough reform of the whole Environmental Impact Assessment, Environmental Clearance and Monitoring of Environmental Management. An important focus of such reform will be to make it into a fully transparent and participatory process.

> There should be a thorough reform of the whole Environmental Impact Assessment, Environmental Clearance and Monitoring of Environmental Management. An important focus of such reform will be to make it into a fully transparent and participatory process.

- No mine infrastructure should be allowed to continue if the environmental rules are flouted. The Government should

consider opening of additional mines only after the worked out mines are exhausted and backfilled after necessary reclamation work under the mine's closure is done.

- An effective complaint redressal mechanism should be adopted. A single window system for this purpose may be operationalized.

- Effective implementation of the Environmental (Protection) Act, 1986, Forest Conservation Act of Acts, 1980, Biological Diversity Act 2002 and Forest Rights Act 2006, as also the Coastal Regulation Zone notifications is the need of the hour. Of course, the Government departments should act in a timely fashion and give clearances in time wherever such applications have been filed in time in compliance with all laws etc.

> The Government departments should act in a timely fashion and give clearances in time wherever such applications have been filed in time in compliance with all laws.

- It is necessary to ensure that the disaster management plan is in place and training is imparted to all the concerned stakeholders.
- The Government should activate local Environmental Vahinies (see http://www. envfor.nic.in/ citizen/envedu/ vahini.html). Locals should be involved in monitoring and reporting any illegalities.
- A suitable scheme needs to be designed so that investments could be made to improve social infrastructure in the region affected by mining. For example, a share of state mining royalty could be shared with the districts and villages where mining takes place. This amount could be put into a "District Development Fund" that could be used to build skills, capacities, and alternative employment programs for local people.
- Measures need to be taken to strengthen local panchayat capacity in environmental governance. In this context a measure like empowering the local panchayats in mining

regions financially by sharing royalty with them may be considered.

- The legacy of abandoned (orphaned) mines should be dealt with within definite time frames. Possibility of converting them into productive economic assets either for tourism or for horticulture should be examined.
- There is need to raise funds in order to reduce the impact of mining. Organizations such as Goa Minerals Foundation in partnership with local panchayats and the state government should work out a plan to invest in the region affected by mining to compensate the people living there for the hardships they have to put up with. Such investment should be used to create educational facilities to improve skills of the young; and to improve health facilities (surveillance and monitoring of diseases and disorders; Increased education about health disorders, etc.) The proposal in the budget 2011 to share royalty with mining villages is a good step forward.
- A registered Society in the name and style of 'Environment Protection Fund for Goa' may be created to collect, manage and use grants attracted from big Non-Government Organizations (NGOs), private firms, multinationals, international aid agencies, etc., for the purposes of environmental safeguards, upgradation, restoration, etc.
- Steps should be taken to reduce the environmental footprint through use of green technologies and improved practices.

3.26 One of the most adverse footprints of mining in Goa is evident in its impact on surface and ground water resources. There is a woeful

lack of studies and data on both surface and ground water stocks and fluxes, quality and problems such as drying of streams, floods, siltation and lowering of ground water table. More

studies and more data need to be generated on surface and groundwater in the mining areas, both from an anthropocentric and an ecological point of view. It is necessary to study the present practices regarding mining water discharge and suggest corrective measures to stop adverse impacts of such discharges. There is also a need for cooperation and collaboration between Indian Bureau of Mines, Government of India, and the Department of Water Resources, Government of Goa, to study this problem. Lack of water in the mining region and increasing dependence on tankers is affecting people's lives, especially of women. Dumping occurring very close to the water bodies and settlements and at times outside leased areas has a negative effect, particularly on those who are dependent on agricultural income. There is evidence of desiccation of orchards. Rivers seem to be impacted due to the runoff or due to the movement of barges that carry mineral ore. In view of the severity of the impact, GGJDC recommends the following with regard to management of ground water in areas where mining occurs:

- For mines currently operating below the water table, it should be mandatory for the company to have plans in place for ground water management and use that will not affect local wells and water supply.
- The groundwater should be pumped out before it comes to the open mine pit and cooperatives set up that deliver the water for use where geology permits.
- Offsets should be made mandatory and rain water harvesting should be promoted.
- No mining should be allowed below the water table level of the area if geologic or other factors do not allow improved practices. Ground water management in mining areas is essential.

- One way to alleviate the problem of water supply to households in areas affected by mining is to create a Public-Private Partnership (PPP) to ensure piped water supply to all villages in mining regions.
- The suitability of abandoned or exhausted pits as water storage sites could be evaluated.

3.27 In recent months, the Government has already taken some important steps to curb illegal mining in the State. GGJDC, while appreciating these initiatives, recommends that an Implementation Committee be set up to deal with all the mining related activities, with a focus on those that are violating the law of the land. In particular, the implementation committee should deal with the following:

> - Close mines that have been extracting ore beyond limits allowed by the given environmental clearances.
> - Close mines, if any, operating within the sanctuaries and protected areas.
> - Cancel mining leases in Wild Life Sanctuaries and National Parks.
> - Terminate mining leases in the buffer of dams.

- Closure of mines that have been extracting ore beyond limits allowed by the given environmental clearances.
- Closure of mines, if any, operating within the sanctuaries and protected areas.
- Cancellation of mining leases in Wild Life Sanctuaries and National Parks.
- Termination of mining leases in the buffer of dams.

3.28 For improved governance of mining in Goa, the GGJDC recommends that a High Powered Committee (HPC) comprising eminent experts from fields such as technology, environment and ecology, agriculture, social science, economics, law, trade and commerce as well as social activists be set up with a strict timeline (preferably within 2012 itself) with the following mandate.

- The Western Ghats Ecology Expert Panel set up by the Ministry of Environment and Forests (MoEF) has in its report made a number of proposals for protecting the ecosystems

> . . . examine the contents of these proposals along with the scientific reasoning and rationale provided therein for protection of Ecologically Sensitive Zones (ESZs) in the Western Ghats in Goa.

of the Western Ghats. The report has been released by MoEF. The high-powered committee should examine the contents of these proposals along with the scientific reasoning and rationale provided therein for protection of Ecologically Sensitive Zones (ESZs) in the Western Ghats in Goa. In particular, the high-powered committee should advise on cancellation of mining leases in the ESZ1s.

- Goa cannot have unlimited mining given its ecological sensitivity. The Committee recommends that there should be a cap on the mining. This cap should be such that it will protect the environment and social wellbeing of the state without affecting the citizens who are dependent on mining for their livelihood. The HPC should advise on what the cap should be after examining evolution of mining in Goa and identifying the stresses that have existed from time to time due to enhanced mining. While arriving at the final figures, the recommendation of the subgroup of GGJDC that the cap be between 20-25 MMT per year (exclusive of dump mining) during 2012-2017 to reduce the ecosystem and social stress in the region and the rigorous analysis

> . . . there should be a cap on the mining. This cap should be such that it will protect the environment and social wellbeing of the state without affecting the citizens who are dependent on mining for their livelihood.

that went behind this deduction may be taken into consideration.

Sustainable tourism

3.29   The success of the tourism business has enticed many who had no stake in

tourism to participate in this business. As a result of this, over a time, supply of touristic goods and services has surpassed the demand. Tourist landscapes have become sites of intense contests between tourists and locals, old residents and new migrants, big and small players, organized and non-organized sectors, and traditional and tourist use of resources. As more and more players use them, an additional demand is exerted on coastal resources. Thus tourism has emerged as a powerful driver impacting the land use and land cover for coastal regions and has especially impacted coconut cultivation (land use) and coconut groves (land cover). It has also adversely impacted coastal and ground water resources, particularly through pollution related to sewage and plastic waste. Apart from the land use and land cover change, tourism has also had major impacts on the social structure of Goa with the advent of a new class of people who have moved out of primary occupation to the tertiary sector, as the former was considered a social stigma associated with menial work.

3.30   Studies have shown that tourism opened alternative avenues to fishermen, toddy-tappers, and farmers, who rented out rooms to tourists or migrants, who came to service the tourism industry, or put up shacks on beaches, or let out rooms for shops selling curios and souvenirs to the tourists. Thus, tourism provided an opportunity for locals to alienate land profitably as well as to attain new social status. Intense competition within the tourism sector has led to undercutting of prices. As a result, profits generated from tourism are relatively low with very little being invested in social, human and physical capital. Apart from environmental and social

. . . the state should develop its tourism sites as "Sustainable Production Consumption Systems".

impacts, tourism has brought with it serious issues for the state: drugs, crime and child abuse, HIV/AIDs, and women trafficking.

3.31 In view of the above, GGJDC recommends that the state develop its tourism sites as "Sustainable Production Consumption Systems". The following are some of the steps that could be taken in this direction.

- Development of tourism at a location should be linked with notions of the carrying capacity of the location. Small scale tourism should be encouraged adopting benefit sharing with local communities, such as small getaways, spice farms, homestead tourism, etc.
- Tourism infrastructure, particularly accommodation, should be encouraged to be eco-friendly, with careful use of locally available materials. Incentives for the same need to be given in the form of subsidies.
- Concretization around springs, lakes and other perennial water bodies should be discouraged.
- Site specific control of tourism infrastructure in buffers of Protected Areas should be undertaken.

> Diversify away from "sun, sea, and sand" type of tourism to reduce oversupply of tourism infrastructure in the coastal belt.

- Provision for rainwater harvesting should be made compulsory for all new large and medium tourist infrastructure.

3.32 GGJDC further recommends that the government adopt the following as principles of responsible tourism:
- Diversify away from "sun, sea, and sand" type of tourism to reduce oversupply of tourism infrastructure in the coastal belt.
- Ecotourism needs to be organized very responsibly to avoid further impacts on sensitive ecosystems of the Western Ghats.
- Decide on a cap on the issue of licenses for construction of any new tourist resort or expansion of existing facilities in North Goa where far too many such establishments already exist (for

example the Baga– Nerul watershed).

- Cess should be levied to account for externalities from tourism with the proceeds to be used for remediation and repair of social infrastructure

Land-use, urbanization, and associated issues

3.33 Goa's economy is very much tied to land. When we think of incomes generated from mining, real-estate, tourism and agriculture it is apparent that land has been a major source of wealth in Goa. However, there are serious concerns about the implications of the economic exploitation of land on the environment and the people of Goa. Land-development seems to be a double edged sword: creating wealth but also disrupting the environment and people's lives.

> The Regional Plan 2021 for Goa has been a path-breaking exercise, but it should be taken forward with a genuine commitment to the citizens of Goa on the part of the Government.

3.34 The Regional Plan 2021 for Goa has been a path-breaking exercise, but it should be taken forward with a genuine commitment to the citizens of Goa on the part of the Government. For instance, in a deviation from draft RPG -21, the final RPG -21 has provided for a massive 20,000 m^2 of built-up space in plots of a minimum of 20.00 hectares for 'eco-tourism' outside the settlement areas. Two projects in Pernem Taluka and three in Cancona taluka have resurfaced and many more could emerge as RPG-21 unfolds through plot amalgamation or otherwise. These will become guzzlers of basic services like water and electricity, largely purchased from the neighbouring States or the grid or subject to uneven ground water withdrawal. Such changes did not find favour with the framers of the draft RPG -21, which opted for development within Goa's eco-sensitive context. It is important to refer back to the Gram Sabhas for reconsideration of all such changes in the recommendations contemplated by the Government.

3.35 Determine the carrying capacities of our cities to plan for their growth. In fact, the carrying capacity for an area in the RPG2021 should be assessed based on FAR (floor to area ratio) allotted in plan. The infrastructure required for the area should then be estimated based on this assessment. Do not increase the FAR or developable zones until infrastructure needs for existing carrying-capacity are met.

3.36 Re-connect urban life with nature**:** Cities and towns need to have a certain percentage of open green spaces; these green spaces should be rich and diverse ecosystems that will harbour a variety of flora and fauna. Citizens should have easy access to these spaces including beaches.

> Address the problem of slums. Current policies seem to have bypassed the needs of the poor.

3.37 Address the problem of slums. Current policies seem to have bypassed the needs of the poor. The market rate for acquiring housing is beyond the reach of the poor in urban areas. This has led to slums. Encourage low-income housing by relaxing bye-laws regarding minimum room sizes, minimum unit sizes, etc. This should enable the private sector to build smaller units targeted at lower income groups.

3.38 Make Goa's urban spaces pedestrian and bicycle-friendly by having better footpaths, bicycle lanes etc. Discourage the excessive use of cars through pay parking, parking nodes, etc. Invest in fast, efficient, clean, Rapid Bus Transit systems for inter-city and intra-city travel. Goa should also think about higher use of its waterways for transport, a mode that was quite popular in the first half of the last century.

> Spread the word about nature-friendly and sustainable urban living through environmental education. While students and teachers in educational institutions should be an important target for such campaigns, other means to reach a wider audience need to be encouraged.

3.39 Spread the word about nature-friendly and sustainable urban living through environmental education. While students and teachers in educational institutions should be an important target for such campaigns, other means to reach a wider audience need to be encouraged. These include open-air lectures, encouragement to establishing of nature clubs, hiking, etc. Newspapers, television , radio, internet, social networking sites, etc. form yet another avenue for spreading the message regarding green living in urban areas.

> The existing sewage treatment capacity is 35.5 MLD as against generation of about 157 MLD of sewage from the domestic sector. This has grave implications for the environmental quality of estuaries and ground water wells.

3.40 According to an ongoing study by The Energy Research Institute (TERI), only 13% of Goa's urban population is served with sewerage system as against the India average of 28%. Most of the population is still dependent on traditional septic tank and soak pit for wastewater disposal. The existing sewage treatment capacity is 35.5 MLD as against generation of about 157 MLD of sewage from the domestic sector. This has grave implications for the environmental quality of estuaries and ground water wells.

3.41 The State, at first instance, should cover all the cities, towns and coastal villages under the centralized Sewage Treatment System, which subsequently may be extended to other villages eventually covering the entire State. Setting up of Sewage Treatment Plants should be made compulsory for all the new housing complexes and multistoried buildings proposed in the State, as it is found that the septic tank-soak pit system does not work effectively during monsoon and especially in areas with soil consisting of hard lateritic rock. This has resulted in overflowing of septic tanks and contamination of groundwater and surface water.

> Management of solid waste is a major problem in Goa. In particular, disposing of plastic materials is of serious concern.

3.42 Management of solid waste is a major problem in Goa. In particular, disposing of plastic materials is of serious concern. The following steps are recommended to address this problem:

(1) The State should impose complete ban on manufacture of plastic bags below the thickness of 50μ within the State.

(2) Import of plastic bags below 50μ thickness including packings, from other states should be banned.

(3) Plastic recycling units should be set up in various parts of the State and should be subsidized by the State.

(4) The General public should be sensitized about the ill effects of plastics.

(5) Local Bodies (Village Panchayats, Municipalities, etc.) should be made responsible for collection, baling and disposal of plastics at designated disposal sites.

(6) Tailors and manufacturers of ready-made clothing may be encouraged to produce cloth bags at competitive rates to substitute plastic bags at retail outlets.

(7) Disposal bins for plastic bottles must be set up at strategic places at all tourist sites.

3.43 GGJDC recommends that a "Waste Management Authority" be formed under the Goa State Pollution Control Board, which would deal exclusively with waste management. This Authority in no way should take over the function of the local bodies but it should only assist and monitor their functioning with respect to waste management.

> A comprehensive integrated solid waste management site in each district needs to be developed on an urgent basis.

3.44 A comprehensive integrated solid waste management site in each district needs to be developed on an urgent basis. These sites should have scientifically designed landfills, composting yards, as well as recyclable waste segregation stations. The sites will have to be linked to all municipal areas as well as panchayats through a transfer station system.

3.45 It is generally the case that villagers object to setting up of waste

management sites in their villages. This is more out of fear of indiscriminate dumping of solid waste, an activity which has gone on throughout Goa till date. Goa lacks the experience of a well managed waste disposal site. The GGJDC proposes that villages where integrated solid waste management sites are proposed be compensated by means of yearly financial incentives duly budgeted for in the state budget. For example, an incentive of one crore per village per year could be started with. Also capping of integrated landfill sites and converting them into village parks should be an integral and important part of the proposal.

3.46 The biomedical waste needs to be handled at District level facilities which should be set up in consonance with the Biomedical Waste (Management and Handling) Rules, 1998. The Government should work on the system and the infrastructure for disposal of biomedical waste which currently finds its way into public lakes, streams and also wells. While laws exist, the enforcement needs to be improved substantially.

3.47 Sustainable development requires efficient use of energy. The following are some of the steps that need serious consideration:
- Improve energy efficiency by promoting energy efficient devices:
- LED lights, co-generation of heat and electricity wherever feasible, large-scale promotion of solar water heaters and other solar heating devices, etc.
- Industrial establishments should be motivated to supplement their energy requirement by producing power through roof-top solar photovoltaic units, availing of the provisions of National Solar Mission.

The state of Goa, with its good literacy rate, high per-capita income, and good environmental awareness should encourage experimenting with models for sustainable energy use.

3.48 The state of Goa, with its good literacy rate, high per-capita income, and

good environmental awareness should encourage experimenting with models for sustainable energy use. Here are two models, one at village level and the other at the level of a smaller community that are worth serious consideration:

- Ralegan Siddhi (राळेगण सिध्दी) a village in Parner taluka of Ahmednagar District, Maharashtra, has emerged as a model of environmental conservation (see en.wikipedia.org/wiki/Ralegan_Siddhi).

- TERI RETREAT (edugreen.teri.res.in/explore/renew/retreat.htm) at Gurgaon, a residential training facility designed to be self sufficient and independent of external power supply, is a fine example which Goa can adopt for educational campuses, convention centres, tourist facilities, etc. The complex has harnessed both traditional and modern means of tapping renewable sources of energy to offer modern amenities such as lighting, air conditioning, cooking, laundry, etc. at substantially reduced costs.

3.49   Given that Goa has a large and growing construction sector, greening of buildings should be a must, including retrofitting of residential buildings through more energy efficient lighting, improved space cooling and use of BEE (Bureau of Energy Efficiency, Government of India) labeled air conditioners and the use of solar water heaters.

3.50   In Goa (and India at large) the sea constitutes an integral part of our existence. However, there still exists a duality in the way the terrestrial environment is looked at vis-a-vis the management of our oceans. While large portions of the country's landscape are either owned or managed in some way, the sea has largely open access. Ecosystem based management, rather than species centric management of the marine

> Ecosystem based management, rather than species centric management of the marine realm should be encouraged - this would not just take into account the target species, but also the non-target species and the ecosystems as a whole.

realm should be encouraged - this would not just take into account the target species, but also the non-target species and the ecosystems as a whole. Legislation such as the Marine Fisheries Regulation Act and the Monsoon Ban must be strictly observed and enforced.

3.51 Wave climate is a primary factor that determines the characteristics of erosion and deposition along a coast. In Goa, where beach tourism is a major economic activity, changes in coastline have economic implications. Such changes are not always possible to predict. One can, however, learn a lot by studying the history of coastline change. Goa is particularly well suited for this exercise. Because of its importance as a port, good hydrographic maps have existed here, at least around the port areas of Panaji and Marmagao, for the last couple of hundred years. These maps are a valuable resource as the state gears up to face the next fifty years of coastline changes. The loss of beach habitat should be addressed through regulation of sand mining and the conservation of native beach vegetation.

3.52 The profile of land use in the state has been changing. However, it is not clear that there is adequate data on present profile of land use. Data on the land-use pattern of Goa needs to be revised and updated in order facilitate planning.

3.53 The planning process also requires adequate data on the hydrology of the state. There is need for reliable data on distribution and utilization of surface and groundwater resources of the state, covering even the small hill streams that are a lifeline of many Goan villages. Suitable administrative framework should also be in place for judicious use of the groundwater resource.

Health for all

3.54 The state of Goa is considered one of the leaders in the country from the point of view of infrastructure for delivering healthcare to its people. The state has succeeded in drastically reducing infant

and maternal mortality. The state has also succeeded in controlling infectious and chronic degenerative diseases in good measure, barring a few diseases such as

Malaria. Our vision is that by 2035 Goa should pole vault from its present position to become a model state for its achievements in health for all Goans.

3.55 Following through on the adage that 'prevention is better than cure,' the tenor and locus of the healthcare system in Goa has to be focused on preventive aspects, rather than the conventional reliance on allopathic medicines and varied 'post-occurrence' treatment methodologies.

3.56 Wellness Programmes, targeted at the workplace where many sedentary jobs are contributing to an erosion of employees' health, could help to reduce the rising incidence of lifestyle diseases.

3.57 Goa needs at least two hospitals with centres of excellence in super-specialities like cardiac surgery, neurosurgery, spinal surgery, joint replacement surgery, retinal surgery, laparoscopic surgery, cancer surgery etc. The departments could be divided between two hospitals (Panaji and

Margaon) so that once the patient's diagnosis is made he or she can then be referred to the respective department.

3.58 Goa does not have a single hospital with NABH (National Accreditation Board for Hospitals & Healthcare Providers)

Accreditation. Having such a hospital will attract good doctors and will lead to an overall improvement in the quality of healthcare in the state.

3.59   To reduce the infant mortality in Goa, a movement should be started at grass roots level by establishing NICUs (Neonatal Intensive Care Units) in peripheral hospitals. This project should be undertaken on a priority basis.

> Goa must create a centre of excellence in education, research, and conduct of academic activities related to healthcare.

3.60   Goa must create a centre of excellence in education, research, and conduct of academic activities related to healthcare. Such a centre will attract national and international attention at a time when Goa is recognized as a tourist spot on the world map.

3.61   Good sanitation is absolutely essential for promoting good health. These activities are not satisfactory in the state (see 3.40 and 3.41). It is important to sensitize people regarding this problem.

3.62   In most hospitals in Goa today information is recorded in illegible hand writing on papers which are filed in cabinets in the record rooms mostly in the basement. The access to this information is inadequate. There is a need to introduce paperless records. The information is then directly transferable to a computer anywhere, anytime, by anyone. This will permit easy transfer of data much to the benefit of a patient. Goa definitely can take a step forward in this direction. Alternatively a Smartcard with all the information can be provided to each patient.

3.63   Since occupational health (including industrial medicine) is an emerging branch of preventive and promotive health, Government of Goa should join hands with suitable organizations and institutions to launch initiatives to provide better facilities for

occupational health. More specifically, the following can be taken up:

- Offer Certificate courses in occupational health and industrial medicine for nurses and compounders .
- Frame guidelines for conducting medical check up of industrial workers.
- Set up Occupational Disease Board to identify occupational health hazards and other issues related to work environment.
- Provide subsidy to private occupational health centres to upgrade existing facilities. Such schemes are available with World Health Organisation (WHO)/International Labour Organisation (ILO)/United Nations Development Projects (UNDP)
- Undertake regular inspections and monitoring of Occupational Health Services by the Occupational Disease Board.
- Set up an Occupational Rehabilitation Board to help, guide, and provide alternative placement for the employees suffering from occupational injuries and diseases.
- Standardize the occupational health in Goa to match the best practices in the world.

> Disposal of biomedical waste is a major concern for the doctors in Goa in hospitals, nursing homes, diagnostic centers, health clinics, private dispensaries and other institutions.

3.64 Disposal of biomedical waste is a major concern for the doctors in Goa in hospitals, nursing homes, diagnostic centers, health clinics, private dispensaries and other institutions. It is mandatory to segregate biomedical waste into different categories, and also separate bio-degradable and non-bio-degradable waste. Although the law has been enforced by the Goa State Pollution Control Board (GSPCB), there is no proper implementation nor awareness created amongst the doctor community. Concrete steps are required to address this issue (see 3.46). GGJDC suggests the following in this regard:

- Government should set up a committee consisting of representatives from GSPCB, Goa Medical College, Directorate of Health Services, and Indian Medical Association to formulate

guidelines for proper transportation, treatment, and disposal of waste.

> Nominate a specific agency which can do the job of transportation, treatment and disposal of biomedical waste.

- Programs to bring about awareness regarding the hazards of biomedical waste should be undertaken.
- Nominate a specific agency which can do the job of transportation, treatment and disposal of biomedical waste.

3.65 The Indian Medical Association (IMA) is the largest Non Government Organization of medical professionals in India. It has over two lakh members scattered in all the states in India and abroad. It is recommended that:
- IMA along with other professional organizations should try to have a common platform for programs.
- There is a need for a centralized office of IMA for all its associations, preferably with a convention centre.
- Such a centre should become a hub for conducting Continuing Medical Education courses that are recognized by the Goa Medical Council.

3.66 Public and private sector organizations and trusts can play a big role in providing health care to those who cannot afford it. It is recommended that:
- Industrial estates (there are more than 10 in Goa), trusts and corporate groups should provide medical facilities to the needy in the villages in their neighbourhood.
- Religious trusts, temples, and churches should come forward and start tertiary care hospitals, as they exist in other states of the country.
- Companies can adopt one or two wards in Goa Medical College or a small Primary Health Centre.

> The state government in cooperation with NGOs and insurance agencies can play an important role in deciding health cost benefit ratio in tertiary health care.

3.67   The state government in cooperation with NGOs and insurance
        agencies can play an important role in deciding health cost benefit
        ratio in tertiary health care. In view of this it is recommended that:

- The Government should prepare an inventory of the existing
  medical facilities available in Government and private sectors.
- The corporate hospitals with capabilities to provide tertiary care
  should be identified.
- Private nursing homes should be encouraged to upgrade their
  facilities from secondary to tertiary care.
- Essential commodities such as electricity, water, cooking gas
  should be subsidized and tax-benefits granted by local
  administration.
- Indoor dispensing of medicines and drugs at reduced costs
  should be encouraged.
- Special wards or centers for tertiary ill patients, disorder
  victims, and victims of trauma should be set up.
- Group practice system should be encouraged. Two or more
  consultants of the same specialty could provide expert services
  under one roof.

3.68.   There is a high incidence of road traffic accidents in Goa. The
        mortality rate is also high and morbidity is a major health
        challenge. Converting major roads in Goa into dual carriageways will bring down the rate of accidents drastically. Urgent action needs to be initiated on this.

> Converting major roads in Goa into dual carriageways will bring down the rate of traffic accidents drastically.

3.69.   Care of the physically and mentally challenged is an important
        aspect of healthcare. Due attention, as it is given elsewhere in the
        world, is much needed in Goa. Except for some facilities available
        at the Goa Medical College, Bambolim, there is hardly any other support available in Goa. The state

> The state needs at least five centres to look after its citizens with physical and mental disabilities.

48

needs at least five centres to look after its citizens with physical and mental disabilities.

3.70 With advances in technology, the demands on the nursing profession have changed. To prepare for the "Nexgen" nursing staff, it is recommended that Goa take the following steps:

- Establish a Nursing Directorate.
- Establish a continuing nursing education and research cell in the state to promote nursing education at basic, specialty and super specialty level.
- Ensure adequate support for providing education at graduate, post-graduate, and doctorate level.
- Promote interaction with other institutions and organizations of advanced learning in nursing.
- Encourage training programs that reflect latest developments in education, technology, and research in nursing.
- Strive to attract talented students to the profession.

Chapter 4

सुविद्य गोवा (Suvidya or Knowledge Centric, Enlightened Goa)

4.1 The 21st century is going to be a century of knowledge, a century of mind. We must build Goa 2035 as सुविद्य गोवा (Suvidya Goa), which will mean not only well educated but also knowledge centric and enlightened Goa. We should strive to see that every single Goan citizen is a knowledge worker, with a capacity to absorb knowledge and use knowledge to improve not only one's own but also the quality of the entire state.

> We should strive to see that every single Goan citizen is a knowledge worker, with a capacity to absorb knowledge and use knowledge to improve not only one's own but also the quality of the entire state.

4.2 We need to recognize the concept of a knowledge worker in the broadest possible sense. It is not scientists and technologists alone, who can be knowledge workers. Even a farmer can be a knowledge worker, provided he understands the soil that he is sowing his seeds in, he understands the why and how of the micro nutrient and pesticide addition that he makes, he lives in an information village, where he has the benefit of short and medium range weather forecasting to plan his farming activity and so on. If he does so, then he will be a continuous user of knowledge and he will be a knowledge worker. It is in this sense that every Goan must become a knowledge worker.

4.3 Enlightened Goans empowered with knowledge will be able to see the crucial link between the 5 Es, namely environment, ecology, economics, equity and ethics. They will not be guided by misinformation, but will use their knowledge to decide on

> Enlightened Goans empowered with knowledge will be able to see the crucial link between the 5 Es, namely environment, ecology, economics, equity and ethics.

their own as to what is wrong and what is right. They will not stop projects that lead to economic development, but will stop those that lead to destruction. Goa's economic development will crucially depend on Goan society's understanding of the new knowledge and its ability to use it for social and economic good.

4.4   In a knowledge society, the knowledge workers will perform different tasks: some will generate knowledge, some will acquire and absorb knowledge, and some will communicate knowledge. For building a Goa 2035 as a true knowledge society, access to the best of education will be crucial, from primary to secondary to tertiary stage. 'Education for all' will be the byline for Goa 2035. 'Inclusive education', which means education to include all those once excluded - poor people, girls and other disadvantaged citizens - will be crucial. In that sense, Goa should be proud that it has attained 87% literacy and that it has an outstanding record of providing primary education across the state.

> For building a Goa 2035 as a true knowledge society, access to the best of education will be crucial, from primary to secondary to tertiary stage. 'Education for all' will be the byline for Goa 2035.

4.5   Education is all about knowing, doing and being. The teachers develop a capacity amongst the students by which they are able to assimilate the 'known' - knowledge that already exists in the world. But it is through research that 'new' knowledge is created. And it is innovation through which knowledge is converted into wealth and social good. So there is a seamless linkage between education, research and innovation. Goa should build that linkage, which is presently missing.

> Education is all about knowing, doing and being.

4.6   Goa should be proud of its record in providing outstanding primary education, which got specific impetus due to its first Chief Minister's personal efforts. Education at the primary level became

available in all corners of the State. This was indeed a major achievement.

> Goa should be proud of its record in providing outstanding primary education, which got specific impetus due to its first Chief Minister's personal efforts.

4.7   GGJDC recommends that such successes be followed with initiatives to encourage creativity and scientific temper in the society at large. One step in this direction would be to attract children to careers in science, technology, music, arts, and other avenues of human creativity. We will need to catch them young to create enthusiasm to take up research that meets the challenges set out by the society.

4.8   With such goals in mind, today there is cause for concern. In the elementary education sector, 15% to 20% students drop out after the eighth standard. In the higher secondary and higher education sector, the number of girl students exceeds 65% implying that boys drop out more often than the girls. There is a shortage of qualified teachers. This leads to posts of teachers being occupied by teachers 'on contract' whose careers in the long run are uncertain; this is not a desirable situation and needs immediate attention.

> In the higher secondary and higher education sector, the number of girl students exceeds 65% implying that boys drop out more often than the girls.

4.9   GGJDC notes the following with regard to schools in Goa.

- Currently there is a distinct impression in the minds of parents that private schools impart better education than government schools. Therefore, there is a need for a face lift of the primary and secondary government schools.
- There should be a provision of primary, secondary, and higher secondary education being imparted at the same location. This means 'Integrated Education Complexes' should be promoted. This will lead to merging of schools that have far too small a number of students to sustain as independent schools.

- The transport system of Bal Rath should be strengthened to facilitate access to education.

4.10 GGJDC notes that a key handicap of the educational system in India is absence of hands-on training in schools. For example, while students in schools are exposed to the idea of chemical reactions or direct currents (DC) motors, it is very rarely they get to experiment by themselves with chemicals or with DC motors. This reality defeats the goal "catch them Young". There is a need to change this situation and create an environment that nurtures curiosity among children by encouraging them to do things with their own hands. This requires enhancing laboratory facilities in schools and creating a system whereby each student gets to participate in the excitement of doing science by themselves.

4.11 Another possibility is strengthening and enlarging the scheme of 'Science Centres' in the country. At present there is only one such centre it Goa which is located in Panaji. The state should have a network of such centres both in urban and rural areas to provide opportunities to students to have hands on experience with what they are taught in schools. The present Goa Science Centre could be the hub for all such "science outreach activity". A similar centre should be set up at a suitable location in the South Goa District.

4.12 To inculcate enthusiasm towards science careers, high performers among young Goans need to be rewarded and provided with attractive career opportunities.

4.13 The data over the last ten years show that the number of students

appearing for the Goa State Board Examinations (XII Standard) has remained around 13,000. The number of students who take admissions to professional colleges (engineering, medical, architecture, etc.) is around 1500. About 8,000 join other colleges and institutes (mainly arts, sciences, and commerce) affiliated to Goa University. A small number prefers to leave Goa in search of education. In recent years some of the seats in engineering colleges in Goa have remained vacant. Certain departments in social sciences, natural sciences, and arts faculties in Goa University did not get enough students to fill their quota. It should be noted that in Goa University in almost all post graduate programmes 80% of the available seats are earmarked for the students qualifying from Goa colleges. Hence there is need to create an environment in which more students from Goa seek admission to post-graduate departments in the university. It is also desirable to keep open the option to admit students coming from outside of Goa. This will lay the ground for Goa to become an education hub.

> Hence there is need to create an environment in which more students from Goa seek admission to post-graduate departments in the university.

4.14 Goa at present has considerable capacity to create knowledge workers, especially in engineering disciplines, with the presence of the following institutions in the state: Birla Institute of Technology and Science, Goa Campus; Goa College of Engineering, Farmagudi; National Institute of Technology; Shri Rayeshwar Institute of Engineering & Information Technology, Shiroda; Agnel Charities (Agnel Seva Sangh) Padre Conceicao College of Engineering, Verna; Don Bosco College Of Engineering, Navelim; Goa Institute of Management (GIM), Sanquelim; etc. These institutions give us the confidence that the state can generate enough number of seats for students from Goa who want to enter these fields.

4.15 In addition to the numbers, it is important to promote quality in

education. Keeping in view the national policy that each state should have a high quality institution of learning, GGJDC recommends that the state pursue setting up an Indian Institute of Science Education and Research (IISER), an Indian Institute of Technology (IIT), and an Indian Institute of Management (IIM) in Goa. Such institutions will help to evolve Goa into an educational hub.

> Keeping in view the national policy that each state should have a high quality institution of learning, the state should pursue setting up an Indian Institute of Science Education and Research (IISER), an Indian Institute of Technology (IIT), and an Indian Institute of Management (IIM) in Goa. Such institutions will help to evolve Goa into an educational hub.

4.16 There is need to help the state's network of colleges that are affiliated to Goa University. These colleges carry the burden of providing support to the system of higher education in Goa. GGJDC recommends that these colleges be supported as follows:
- The autonomy available to the colleges should be increased as per the guidelines laid down by the University Grants Commission.
- Integrated and truly interdisciplinary syllabi should be introduced with appropriate credits assigned to each of them.
- A student should get multiple choices of colleges for any given course. In essence, a student who registers for a degree course with the university should have the ability take courses prescribed for the degree from more than one college.

4.17 Goa has had a long history of maritime seafaring and should become a leading provider of education in this area. Education in ship building is another area that the state should support. GGJDC recommends that the state examine the possibility of setting up of a campus of the National Maritime University in Goa during the next decade.

4.18   Goa also has a long tradition in arts. GGJDC encourages the Goa University to develop programmes for advanced education and research in fine arts, performing arts, music, etc., keeping in mind the aspirations of the state's talent. The university should be provided with adequate resources to build infrastructure for such programmes. The university may delink such programmes from conventional programmes and treat them differently.

> Goa has had a long history of maritime seafaring and should become a leading provider of education in this area. Education in ship building is another area that the state should support . . . the state should examine the possibility of setting up of a campus of the National Maritime University in Goa during the next decade.

4.19   In 2035 Goa should take pride in having its own university, Goa University, elevated to a high standing both in the country and abroad. Some of the steps that will help to meet this aspiration are:

> In 2035 Goa should take pride in having its own university, Goa University, elevated to a high standing both in the country and abroad.

- The University should be given complete autonomy as envisaged in the original plans for setting up of the university.
- The structure for governing the university needs to be revamped to allow the flexibility that is needed to make the university a centre of education at par with the respected universities of the world.
- The financial allocations to the university by the government should be compatible with those that are received by other national institutes of repute such as the IITs.
- The University should establish on its campus a "Research & Innovation Park" with involvement of local and national industries.

- In addition to the existing training programmes (which are in the process of integration through already initiated choice-based credit system), the university should establish new schools and institutions. Some of the possibilities in this regard are: integrated schools for media and media Research; an interdisciplinary school for design and planning; national facilities. The university should open new centres whose facilities should be accessible to all colleges from the state. Possible centres of this nature are: Marine Microbial Resource Centre; Oceanographic Studies; Centre for Strategic and Maritime Studies; and, Bio-Medical Research Centre.
- A modern school of education should be established to train a new cadre of teachers for primary, secondary, higher secondary, and higher education.

4.20   Some years ago Goa took important initiatives to promote scholarship in the state by launching a unique scheme known as the Goa Scholar Scheme. The scheme provides an interest free education loan to take up higher studies. In 2011, the government created another scheme to encourage and assist students who secure admissions to premier Institutes in the country like, IITs, IIMs, BITS, etc. The Goa Education Development Corporation and the proposed Goa Institute of Career Development are positive initiatives by the Government. In addition to these, attractive scholarships need to be provided to those who take up research in pure sciences.

4.21   Innovation is transforming what are today's norms for imparting education. Internet, 'digital learning', etc. are creating new opportunities for improving learning, including acquiring of new skills. A favourable economic standing, high literacy rate, strong capability

> A favourable economic standing, high literacy rate, strong capability in use of English, access to broadband, etc., make Goa eminently suitable to tap the new resources for imparting education.

in use of English, access to broadband, etc., make Goa eminently suitable to tap the new resources for imparting education. Goa should use a combination of the new 'digital' approach with the older 'physical' learning to impart education. The citizens of Goa must tap this opportunity to achieve the vision of an enlightened Goa.

4.22 While the investment in the field of education that has been proposed above can make Goa knowledgeable, it is important to translate this capability to the benefit of the people of Goa. Goa has many issues that need to be addressed through

> ... a network of learned people with commitment to social wellbeing should grow in Goa as a "Knowledge Resource Centre" dedicated to the application of science, technology and innovation for solutions to the problems of the people.

science and technology interventions: providing for rejuvenation of agrarian land in mining areas; water potability and quality assessment; technology for waste management; sanitation; agro-food processing; wine making and fermentation; etc. Application of knowledge to solve the problems of the society requires the creation of an enlightened and learned community dedicated to the well being of the society at large. GGJDC sincerely hopes that a network of learned people with commitment to social wellbeing will grow in Goa as a "Knowledge Resource Centre" dedicated to the application of science, technology and innovation for solutions to the problems of the people. Its small size, awareness of social issues, and well developed infrastructure make Goa a state of the country where such a network is most likely to succeed.

4.23 Different countries have followed different strategies for climbing the limitless ladder of excellence in research. Countries such as Israel have done this by capitalizing on the dual citizenship of many bright scientists of Jewish origin living and working in the United States of America and Europe who could do sabbaticals or visiting professorships after attaining tenure in their own universities. Singapore has preferred to recruit globally capable

researchers directly into research centres and research focused companies, often set up by the government. China too has adopted a similar approach, but in a typically parochial fashion, since only Chinese are targeted.

4.24 Goa 2035 should be seen as leader, keen to climb the limitless ladder of excellence in research. Goa can take a lead in creating an international university of global caliber. The key to success will be to make sure that one does not get restricted to Indian nationals but is agnostic to nationality. This in turn requires that the university be located in an area that has the quality of life that satisfies global citizens of distinguished merit. Goa can take a lead in creating an international university of global caliber, ensuring the establishment of strong capabilities of an international order for prospective faculty. This factor underlies the success of US research (and Singapore has learnt that lesson early, given its manpower shortage). Goa is one of the few locations that meet this multi-faceted criterion that engulfs:

- a high quality of life (housing, climate, environment, entertainment opportunities, education for children, etc.) ,
- good global air connectivity,
- receptiveness to other Indians of a suitable calibre,
- a cosmopolitan atmosphere that does not socially stifle faculty and their families, etc.

4.25 Given the direction of current global research, the university needs to have mutli-disciplinary centres rather than traditional single-discipline

departments. Examples abound internationally. The Whitehead Institute for Biomedical Research at MIT, the MIT-Harvard Medical School Department of Health Sciences and Technology and the McGovern Institute for Brain Research at MIT are examples. Moreover the university needs to be nimble and dynamic in setting up new labs of contemporary relevance in rapidly evolving fields.

4.26   A substantial corpus needs to be put together to enable such a university to take off. A sum of $ 1 billion seems to be a good initial target. This would enable 10 interdisciplinary centres to be set up with five laboratories each and some 250 research faculty. The total research staff, including Ph.D. candidates and post-doctoral fellows, would be say 2500. The university should seek 100% recurring funding by way of research grants from private and non-governmental sectors.

Chapter 5

समृध्द गोवा (Samruddha or Affluent Goa)

5.1   Goa 2035 has to be an affluent (samruddha) state. If the Indian growth story continues, then India itself will be an affluent country within a generation. Currently Goa's per capita GDP is twice that of India. In the next 25 years Goa should aspire to retain this ratio or move a notch higher than that. Over the next 25 years, this would mean for Goa an Annual GDP growth of just around 0.5 to 1 percent higher than that of the whole country.

5.2   As per the Economic Survey 2010-2011, Gross State Domestic Product (GSDP) at constant 2004-05 prices registered an increase in its growth rate from 9.46% in 2008-09 to 13.03% in 2009-10, which is higher than the corresponding National growth rate of 7.9%. The Sectoral composition of GSDP in 2009/10 was 11% primary, 38% secondary and 51% tertiary. It is one of the important contributors to India's foreign earnings because of mineral exports, tourism and Non-Resident Indian (NRI) remittances. The manufacturing sector's proportion in Goa's GSDP is about twice that of Indian Economy, 35% versus 16%. In addition, the mining sector's proportion in GSDP is about four times that of Indian economy, 9.5% versus 2.6%).

5.3   The future of Goa lies in successfully transforming itself from a rent seeking to a skill intensive hub of economic and cultural activity, where the systems of production are enmeshed with ecological protection to produce a quality of life that is sustainable and fulfilling for all who participate in the

> The future of Goa lies in successfully transforming itself from a rent seeking to a skill intensive hub of economic and cultural activity, where the systems of production are enmeshed with ecological protection to produce a quality of life that is sustainable and fulfilling for all who participate in the life of the state.

life of the state. The only way to deal with the negative economic effects of emigration of skilled and highly skilled manpower in the development of diverse industries is to create attractive opportunities for talented Goans to remain in Goa and participate in the state's progress.

5.4 Industries like tourism, mining, and pharmaceuticals have been a great success for the state in the past. It is important to focus and capitalize on this success. However, of late, there has been a substantial challenge of availability of land for industrial expansion.

5.5 High cost of living can make Goa potentially uncompetitive for any business when compared to other tier II cities of India. In addition, Goa needs to fight against the perception of governance deficit, lack of political stability, substantial dependence on exhaustible natural resources, etc. An affluent Goa 2035 can only be created by redoubling the effort to improve the growth rate in the emerging knowledge and creative economy.

> Goa needs to fight against the perception of governance deficit, lack of political stability, substantial dependence on exhaustible natural resources, etc.

5.6 We must be aware of the profound changes that are taking place all around us (see, for example, 'Economics of Knowledge', C.D. Deshmukh Memorial Lecture, reproduced in *Reinventing India*, R.A. Mashelkar, Sahyadri Publications, 2011). Increasingly the traditional factors of production – land, labour, and capital – have become less important compared to technology; the economists have termed this as the

> Emerging industries are knowledge industries. The emphasis will not be on physical or tangible assets, but on intangible knowledge assets. The value of the intellectual capital of an industry will determine its rank and competitiveness.

'expansion of the production frontier'. The source of technology is in science that is rooted in knowledge. Emerging industries are knowledge industries. The emphasis will not be on physical or tangible assets, but on intangible knowledge assets. The value of the intellectual capital of an industry will determine its rank and competitiveness. In such industries, there is a major shift from people who handled information and did routine and unthinking work, to those who will use knowledge at every stage. For knowledge workers information and knowledge are both the raw material of their labour as well as its product.

5.7   The world's major growth industries – such as microelectronics, biotechnology, designer-made materials, and telecommunications – are already brainpower industries. These knowledge industries stimulate other industries in turn to become knowledge-based.

5.8   In the future, physical assets, such as machinery in a factory, will become less important. Plant and machinery are tradable commodities today. Even capital was a scarce commodity until recently and was used as a competitive advantage. But with globalised markets the companies around the world have access to finances at inexpensive rates. So even capital is no longer a scarce commodity. It is the intangible assets which are knowledge-based, and that are non-replicable, unique, and proprietary, that are providing companies with a competitive edge. Goa 2035 should be one where such knowledge-based assets will get produced indigenously.

> It is the intangible assets which are knowledge-based, and that are non- replicable, unique, and proprietary, that are providing companies with a competitive edge. Goa 2035 should be one where such knowledge-based assets will get produced indigenously.

5.9   Harnessing the full potential of the knowledge industry will require an aggressive and visionary policy framework. Knowledge

industries such as software development, pharmaceutical industry, biotechnology, engineering services, etc., operate in a highly competitive environment with great demand on the speed of response in dynamic market conditions. A high operational efficiency and functional flexibility is crucial for such industries. The Goa Government policies, therefore, have to be conducive to help provide these.

5.10   The shift to the creative economy is already evident throughout the region. Worldwide, Singapore has the highest creative class share – the percentage of workers in technology, science, academia, medicine and the arts whose jobs require them to think and innovate – is 47.3%. Australia is close behind, with 44.5%, Canada has 40.8%, New Zealand 40.1% and the United States America just over 35%. Malaysia is at 25% and the Philippines are 20%. This is a good start for Asian economies. But the key is to extend the creative economy across manufacturing, service work, and even agriculture. We should have a dream of Goa 2035 being amongst the leaders in creative economy.

5.11   At the time of liberation in 1961, there were hardly any industrial activities in Goa with the exception of mining. Goa today has established 20 industrial estates; some of which are among the best in the country. The industrial activities encompass about 50 sub sectors which include tourism, pharmaceuticals, electrical and automobile accessories, etc.

With a well-spread network of financial institutions, the State is in an   ideal position to attract investments. In fact, Goa has one of the best deposit-to-credit ratios, which means that there is ample money with financial institutions to advance for economic development.

5.12   Samruddh Goa will be built by leveraging the "virtuous knowledge

> Samruddh Goa will be built by leveraging the "virtuous knowledge cycle". This is about creation of "high value addition jobs of tomorrow" in the industry and services sector.

cycle". This is about creation of "high value addition jobs of tomorrow" in the industry and services sector. This will sustain the desired higher growth rate of the state's economy. Such jobs would generally be knowledge and service driven jobs with very minimal environmental side effects, hence in turn retaining and enhancing the "pleasant environment" image of Goa. A positive brand image for Goa clubbed with the huge opportunity India presents for growth would strengthen the proposition of industries (tourism, services, manufacturing, etc.) to take advantage of Goa's tranquil, vibrant, friendly environment to "meet, think, and create".

5.13   Creation of high value addition jobs of tomorrow in the industry and service sector will not only reduce the emigration of knowledge workers from Goa, but also would attract Goans who are already out to return and settle in Goa. Above all, it will sustain the expected higher growth rate of the economy.

5.14   The four value chains that will be the keys to success of Goa are:
1. Natural resources and related logistic industries.
2. Tourism and related services value chain.
3. Healthcare and pharma industry value chain.
4. Knowledge, education, research and entertainment value chain.
While these value chains will dominate the growth of urban Goa, it is agriculture that will need to sustain growth in rural areas. This chapter examines what is needed to sustain growth in these two sectors, industry and agriculture, to meet our vision for 2035.

The rest of this chapter is divided into four sections. The first section (5.15 to 5.18) discusses each of the *four value chains* listed above. The second, third, and fourth sections discuss, respectively, the bottlenecks arising from deficits in *governance* (5.19 to 5.20), in *physical infrastructure* (5.21 to 5.27), and in *social infrastructure* (5.28 to 5.32). The fifth section (5.33 to 5.51) first examines the agriculture sector of the state and then suggests some key steps that the state will need to implement to achieve the dream of a समृध्द गोवा (affluent Goa).

Value chains for Goa's economic success

5.15 *Natural Resource and Related Logistic Industries*: Responsible mining is the need of the hour. The Mining industry must adhere to the strict global environment standards. In fact, the mining industry should be incentivized to develop cutting edge examples of environmental sustainability so that it becomes an example for the emerging large mining industry in India to emulate.

> Responsible mining is the need of the hour. The Mining industry must adhere to the strict global environment standards.

Mining industry is heavily dependent on logistical infrastructure and thus it creates downstream jobs in that sector. Encouraging and enhancing the existing marine transport industry can not only help Goa's natural resources industry, it can also have a side benefit of creating an infrastructure for tourism. Ship building and repair industry which is the downstream part of this value chain should be promoted. Goa can become one of the important centers in India for this activity. Mormugoa Port capacity and infrastructure need to be expanded. It needs to acquire sophisticated technology and equipment to cater to not only mining, but other industries like pharma and services like warehousing. In view of this important value chain, GGJDC makes the following recommendations:

> Mormugoa Port capacity and infrastructure need to be expanded. . . . acquire sophisticated technology and equipment to cater to not only mining, but other industries like pharma and services like warehousing.

Mining should be limited to a level that is consistent with social and environmental carrying capacity. Earlier studies had recommended 20 million tonnes per annum. However, a call on the exact number can be taken by instituting the High Power Committee that has been recommended in Section 3.28. The

same committee will also need to examine the issue of regulating mining in Ecologically Sensitive Zones (ESZ) in the Western Ghat talukas. The analysis carried out by the Western Ghats Ecology Expert Panel may be used for guidance, where appropriate, as suggested elsewhere in the report.

The mining industry should adopt minimal footprint technologies and practices and improve area-wide environmental quality management. The industry should also share benefits and develop alternative skills and livelihoods in the region affected by mining. Areas where mineral deposits have come close to economic depletion should be rehabilitated with the introduction of new business opportunities such as eco-tourism, agriculture (fruit plantation, for example) and water harvesting for commercial and community use.

Goa needs to progressively reduce its large dependence on mining for GSDP output and jobs from the present 15%-20% to less than 7%-8% within the next 15 to 20 years.

> Goa needs to progressively reduce its large dependence on mining for GSDP output and jobs from the present 15%-20% to less than 7%-8% within the next 15 to 20 years.

5.16 *Tourism and Related Services Value Chain*: Tourism in Goa will continue to be a major contributor to the state's GDP with indications that this contribution will continue to increase and grow. With the discretionary income in India expected to increase manifold by 2035, the tourism sector will grow very fast. Goa's rich European heritage, its "Green Goa" image and other natural attractions, the marine eco-system that is associated with the state, and a vibrant hospitality sector provide a strong foundation for growth in the tourism

> We must create niche areas to attract tourists. These include adventure tourism, mangrove based ecotourism, agrotourism, homestead tourism, etc. A tourist must feel that Goa as a tourist destination gives something that other options do not.

sector. All these will have to be moved to a global-level of excellence to make Goa the most preferred destination for Indian and foreign visitors. We must create niche areas to attract tourists. These include adventure tourism, mangrove based ecotourism, agrotourism, homestead tourism, etc. A tourist must feel that Goa as a tourist destination gives something that other options do not. Goa must come up with innovative ways of creating more value for the customer and creating more revenue for the state. One such opportunity that has been discussed for long is creation of an 'oceanarium', a sophisticated museum focused on marine environment. With a long tradition in maritime industry, and as home to the largest and oldest oceanographic institute in this part of the world (CSIR-National Institute of Oceanography, Dona Paula), Goa is ideally suited to give the tourist an educational, entertaining, and memorable view of the oceans. Another possibility is having large convention and trade fair facilities to make Goa the most preferred centre for national conventions, festivals, seminars, and family functions. This is a huge opportunity of tomorrow in the economy of the size India is going to be. Nobody is better placed than Goa to capture this. As noted earlier in Para. 3.31, we need to develop tourism sites as 'sustainable production consumption systems'. Some of the steps consistent with this approach are:

- Develop a 'tourist experience' with less material and resource usage and host stress; improve sustainability through greater attention to interests and motivations of different kinds of tourists.
- Encourage a participatory tourism by recognizing the role of host communities as both producers and consumers of the tourism product.
- Emphasize on minimal footprint practices to save water, land, and energy.
- Regulate the social footprints like drugs, gambling, HIV/AIDS, violence, etc.

> Such steps will enable tourism to remain a key contributor to the state GSDP with a contribution of 15% to the state GDSP, as of today.

Such steps will enable tourism to remain a key contributor to the state GSDP with a contribution of 15% to the state GDSP, as of today.

5.17 *Health Care & Pharma Industry Value Chain :* Goa is already producing 10% of India's Pharmaceutical products. The Indian pharmaceutical industry should be $ 55 billion by 2020 and maybe more than $100 billion by 2035. Goa should continue to remain a major production centre with around 10% share of the production volume of India. A huge opportunity to leverage the advantage of being a popular tourism destination would be in the healthcare space. Developing Goa as a healthcare tourism destination for Indians and foreigners will need efficient, competent, competitive, and attractive health care services and infrastructure. World class hospitals and facilities along with a vibrant pharmaceutical industry can seed large clinical research centers in Goa.

The Indian pharmaceutical industry should be $ 55 billion by 2020 and maybe more than $100 billion by 2035. Goa should continue to remain a major production centre with around 10% share of the production volume of India.

Health Care and Pharma contributes 1% to the state GDP, we envision its contribution to be more than 5% in 2035.

5.18 *Knowledge , Education , Research and Entertainment Value Chain*: As discussed in Chapter 4, Goa should become a prime centre for higher education and research in India. Goa 2035 can be the educational and research hub with a focus on information and communication technology, biotechnology,

Goa 2035 can be the educational and research hub with a focus on information and communication technology, biotechnology, pharmacology, nanotechnology, public health, new media, maritime studies, green architecture, etc.

pharmacology, nanotechnology, public health, new media, maritime studies, green architecture, etc.

Goa 2035 should be a leader in providing high quality financial and business services such as accountancy, law, advertising, public relations, and management consultancy. The state should strive to develop opportunities for consultancy in design and architecture; fashion and interior design; and in the print and electronic media such as newspapers, magazines, films, television and radio. There is also a vast potential in the cultural and creative industries such as live performing arts.

Taking full advantage of the emergence of creative economy, Goa 2035 should aim to be the next Hi-Tech Mini-Bollywood. This means tomorrow's promising stakeholders of Bollywood industry – producers, actors, and technicians with stake in IT – move to Goa and build Hi-Tech studios of tomorrow. All these industries will build on and enhance the clean environment, hence making Goa an even nicer place to live in.

> The present contribution of the Knowledge Industry is 1% to the GDSP of the state. There lies a huge opportunity to raise it to 10% and more by 2035.

The present contribution of the Knowledge Industry is 1% to the GDSP of the state. There lies a huge opportunity to raise it to 10% and more by 2035.

Bottlenecks arising from deficit in good governance

5.19   GGJDC feels that at present there are bottlenecks that will need to be removed to achieve our vision of Goa 2035. The bottlenecks arise primarily from lack of good governance, lack of good physical infrastructure and lack of good social infrastructure. In this section we discuss the bottlenecks that arise from lack of good governance.

5.20   *Good governance* in the state is going to be the primary motivation for the industry to invest and expand in Goa. Good governance

should be like air, it should be possible to tap it freely anywhere. It should be all pervasive. The seven qualities of good governance that are needed are listed below, often with examples that point directionally to an action plan:

1) **Transparent**: There should well-articulated polices in all the areas of manufacturing and service industries that makes functioning of the government machinery transparent. Transparency is particularly desirable in the areas that impact the industry the most, such as power, environment, and labour.

2) **Accountable**: We need a structure in the government bureaucracy, which makes officers accountable for the development of a specific Industry. For example, the officer-in-charge should ensure single-window clearance by removing all the bottlenecks to make a particular industry, say a biotechnology industry, operational.

3) **Participative**: The industry should be constantly consulted and involved in the entire chain of important decision making that affects it. We need to create an *Empowered Committee* comprising of the government and the industry representatives. The committee should not just recommend steps to the government; it should actually take important decisions.

4) **Fair and Equitable**: We need to create *industry reddressal and arbitration mechanisms* to arrive at quick, fair and equitable solutions in case of conflicts between the industry and the government or other stakeholders.

5) **Responsive:** Industries operate in dynamic situations. Over the next 25 years, with globalization, technological inflexion points, and many other discontinuities, the industry in Goa will need to adapt and readapt itself very quickly. To succeed, the pace of change will need to be fast and keep accelerating. The government processes, regulations, and policies will need to change and adapt to the dynamic environment. We need to create in the government, mechanisms and processes to monitor the changes and then change the regulations and policies quickly to meet the needs of the industry.

6) **Ethical and Honest:** Industry thrives in an environment which is not "rent-seeking". Such environment requires well defined decision processes in the government with minimum (almost zero) level of executive discretion. In addition, quick justice is required when such "rent-seeking behavior" is identified in the government machinery. Such steps will create an environment where honesty and integrity becomes a way of life in the government. Extensive usage of information technology (IT) at all the levels of government can contribute substantially to the transparency required for making this happen.

7) **Effective and Efficient:** By definition the government needs to have a perspective of multiple stakeholders in even the smallest of small decisions. This reduces the effectiveness and efficiency of the government machinery, including the speed of operation. Tomorrow's government of Goa will have to create many innovative mechanisms to address this issue. In addition, as mentioned above, tomorrow's Goa government will have to be driven by the latest innovations in IT to ensure speedy and high-quality decision making within the government.

These seven pillars of governance are the key to good governance. The combination of the first letter of each of these seven gives a symbolic message: **TAP FREE!** Good governance should be tapped freely, like air.

> The combination . . . gives a symbolic message: TAP FREE! Good governance should be tapped freely, like air.

Bottlenecks arising from deficit in physical infrastructure

5.21 Tomorrow's industry would need a 21st century infrastructure with no capacity bottlenecks. The infrastructure should have a high quality and yet be cost-effective. We identify below three critical elements – power, water, and transport – of the physical infrastructure that are needed by the industry.

5.22 **Power:** At present 90% of the power consumed by the state is imported from other states. Goa has limited potential for hydro-

power. The present peak demand of 550 MW is estimated to grow 8 to 9 fold to more than 4000 MW by 2035 due to a 8 %-9% Compound Annual Growth Rate (CAGR). It is worth noting here that for the past 5 years the demand for power has been growing at more than 11% annually.

To be in control of its destiny, government will have to aim at having at least 50% to 60% of power produced locally. Natural gas seems to be a feasible option which can be supplemented with alternative sources like wind and solar energy. The aim of the government should be to produce locally about 2000 MW of power with natural gas, and about 300 MW via solar and wind sources. This can be achieved through a Public-Private-Partnership (PPP) or through an Independent Power Producer (IPP). Such power will also have the additional benefit of maintaining a clean environment, an important pillar of the industry of future Goa.

> The aim of the government should be to produce locally about 2000 MW of power with natural gas, and about 300 MW via solar and wind sources. This can be achieved through a Public-Private-Partnership (PPP) or through an Independent Power Producer (IPP).

5.23 **Water:** The state of water supply in the state at present looks adequate, but only on paper. The estimated supply and demand over the next 25 years also seems comfortable, but again on paper. In real life a large number of households cannot maintain a continuous (24X7) supply of water. The same is true in the industrial sector. This is unfortunate because Goa receives well over 2.5 m of rainfall annually, one of the highest rates of annual precipitation in the country. The state is at present equipped to tap only a

> Goa should have water availability similar to that in the developed world. This is well within the state's capability. It will require tapping of new sources of water and improving the water distribution network.

small percent of this invaluable resource. The rest is lost to the Arabian Sea. Goa needs to take urgent steps to change this situation. Goa should have water availability similar to that in the developed world. This is well within the state's capability. It will require tapping of new sources of water and improving the water distribution network.

5.24 **Transport:** Road, rail, waterways, and air transport need major investments to achieve the vision of Goa 2035. Building of six-lane roads on both the National Highways in Goa should be taken up. The Build-Operate-Transfer (BOT) model used elsewhere in the country could be utilized for financing such projects. The Goan population is well distributed across the villages of the state. This is a desirable characteristic and should be retained. This, in turn, requires creating better access to all centres of population in the state through good roads. High-quality roads, such as concrete roads, connecting these centers would be an attraction for the industry (manufacturing and service) to move to Goa's interior thus reducing congestion in the cities and towns. This will also create jobs near the places where people live.

> The Goan population is well distributed across the villages of the state. This is a desirable characteristic and should be retained. This, in turn, requires creating better access to all centres of population in the state through good roads.

5.25 Converting both the railway lines (Konkan Railway and South Central Railway) from the present single line to a double line needs to be taken up in this decade. This decade should also see steps initiated towards building a network of metro and mono-rail lines for connecting major towns and commercial centers of the state.

5.26 Use of waterways was the most important mode of travel in Goa until motor vehicles became popular in the first few decades of the

last century. Today the waterways are used both by the mining industry and by the tourism industry. As a result, Goa has a sizeable ship-building and ship-repair industry. The cost-effectiveness associated with transport by waterways makes it an attractive option to pursue in Goa. This is particularly so at a time when the Marmagoa Port will be required to double, in the near future, its cargo handling capability from the present approximately 50 million tons to meet the logistic needs of Goa and surrounding areas. The state will need to start planning for enhanced use of its waterways by deploying modern tools for managing traffic.

> The cost-effectiveness associated with transport by waterways makes it an attractive option to pursue in Goa. This is particularly so at a time when the Marmagoa Port will be required to double, in the near future, its cargo handling capability from the present approximately 50 million tons to meet the logistic needs of Goa and surrounding areas.

5.27 Airport capacity has major implications to the future of Goa's industry, particularly to the knowledge-based industry which requires free movement of professionals internationally. National and international tourism is of strategic importance to Goa's future. Dabolim Airport needs to expand its capacity to handle 6-7 million passengers per annum (MPPA). By the beginning of the next decade the new airport at Mopa needs to be ready because the traffic will cross10 MPPA by then. The Mopa airport needs to be planned with a capacity to handle 25 MPPA around 2035. Keeping in mind the international arrivals, Mopa Airport should be planned to handle wide-bodied aircraft like Airbus-380.

> By the beginning of the next decade the new airport at Mopa needs to be ready because the traffic will cross10 MPPA by then. The Mopa airport needs to be planned with a capacity to handle 25 MPPA around 2035.

Bottlenecks arising from deficit in social infrastructure

5.28   The social infrastructure of a region is the backbone of its economy. A sound social infrastructure enhances the quality of life and attracts industrial investment for two reasons. A good social infrastructure implies that the industry, 1) will be able to get its human resource locally, 2) would be able to attract the desired human resource from anywhere in the world. GGJDC's recommendations on the social infrastructure of Goa from the point of view of its industry are given below.

5.29   **Education:** All the Recommendations made in Chapter 4 (Suvidhya Goa) of this report on school and college education need to be taken up for speedy implementation. Suggestions for creating institutions with most innovative combination of 'digital and physical learning', creating Goa as an education hub, making Goa University a university respected nationally and abroad are all laudable goals that need to be pursued vigorously. Education in science and technology, medicine, nursing, etc. are important for the supply of the human resources desired by the industry. This is particularly so because our vision for 2035 is built around *knowledge* and *healthcare* value chains.

> Suggestions for creating institutions with most innovative combination of 'digital and physical learning', creating Goa as an education hub, making Goa University a university respected nationally and abroad are all laudable goals that need to be pursued vigorously.

5.30   **Health Care:** The recommendations in the section on *Health for All* in Chapter 3 are important for improving the quality of life in Goa. They should be pursued. Attracting private investment to build large hospitals and to establish nursing education/research centres forms the foundation to build the *health care and pharma* value chain that has been discussed earlier in this chapter. The

goal of this value chain is to develop Goa as a health tourism and clinical research center.

5.31 **Security, Law and Order:** Industry looks for a secure environment with a stable law and order situation. Tourism being an important part of Goa 2035 vision, there will be a large movement of national and international tourists. Any incidence of violence, terrorism, social unrest, etc. can have significant impact on the tourism industry. This has been observed all over the world whenever such incidents have occurred at tourist spots. In addition, Goa's future image of 'nice place to live' must have secure environment as an important component.

5.32 The government needs to create and implement aggressive policies to make Goa a secure place by international standards. Tomorrow's security will be built by equipping the police force with the latest hardware and training to use it effectively. Information Technology is a key component of the technology required to have a satisfactory security, law and order situation.

> The government needs to create and implement aggressive policies to make Goa a secure place by international standards. Tomorrow's security will be built by equipping the police force with the latest hardware and training to use it effectively.

Agriculture

5.33 Manufacturing, services, and agriculture form the backbone of a state's economy in India. Agriculture is one of the major economic activities of the rural people of the state of Goa. A major problem that is being faced today is the exodus of the rural population to urban areas for employment, especially for white collar jobs. In the year 1960-61, 64 per cent of Goa's work force was engaged in agriculture and associated activities. This has declined to 16.6 per cent in 2001. While decadal censuses indicate continuous decline of work force in agriculture sector, the agricultural production in

the state is showing an increasing trend. However, agriculture's contribution to GSDP has declined sharply and is now at only 7 per cent.

5.34 The key question today is: should agriculture be allowed to decay because of the existence of alternative economic activities? This question is particularly relevant in the mining villages of the state. GGJDC witnessed considerable interest in villages, especially amongst the youth, in revitalizing Goa's agriculture potential and in developing it through the provision of appropriate infrastructure, reduced wastage, improved input availability, resource conservation and support for agro-based entrepreneurship. In this section we provide an overview of the state of agriculture in the state and conclude by making recommendations to revitalize this sector.

> . . . there is considerable interest in villages, especially amongst the youth, in revitalizing Goa's agriculture potential and in developing it through the provision of appropriate infrastructure, reduced wastage, improved input availability, resource conservation and support for agro-based entrepreneurship.

5.35 Rice is the main cereal crop of Goa. It occupied a total cropped area of 47,104 ha during 2010-11 comprising about 29% of the total cropped area in the state. Cashew continues to be the focus among all horticultural crops. This produce is a source of cash having export potential, and creates rural employment. Coconut is the main crop cultivated all along the coastal belt. Local cowpea known as 'alsando' is a popular pulse crop.

5.36 Productivity of the major crops of Goa, i.e. paddy, cowpea, vegetables, sugarcane, etc., is far lower than the desirable levels. Similar is the case with horticultural crops like coconut, mango, and cashew. Superior crop management practices, therefore, need to be introduced to enhance the yields. Innovative and multipronged approaches, including use of advanced machinery,

need to be adopted to improve the productivity. Steps such as: use of organic manures and farming, mechanization, fertilizer management, water management, high yielding seed material, protected cultivation, etc., will boost agricultural productivity and production.

> Innovative and multipronged approaches, including use of advanced machinery, need to be adopted to improve the productivity.

5.37 Availability of water for agriculture is reducing due to increase in population and demand from other sectors. Practices such as drip irrigation, protected cultivation, water harvesting, and soil recharging need to be adopted on a large scale.

5.38 The National Horticulture Mission scheme that was introduced in the State in 2005-06 needs to be aggressively pursued in a 'mission-mode'. It should cover the following: production of planting material; establishment of new gardens of fruits, flowers, spices, medicinal and aromatic crops; rejuvenation of senile plantation; promotion of integrated pest management; organic farming; etc.

5.39 The state uses very low levels of fertilizer and pesticide per hectare. The soils of Goa are rich in minerals, which contribute to the taste and quality of agricultural products of the state, especially organically grown products. Above all, Goa has become a brand name by itself. This needs to be exploited for marketing of produce.

5.40 Organic farming and agri-eco-tourism is getting a push from domestic and international tourists in the state and from increasing demand for organic food. There are about 2600

> There are about 2600 cashew cultivators who have been certified as organic cashew growers. Processed organic cashew nuts are exported to the European markets at premium rates. Such successes need to be coupled with agri-tourism.

cashew cultivators who have been certified as organic cashew growers. Processed organic cashew nuts are exported to the European markets at premium rates. Such successes need to be coupled with agri-tourism. For example, tourists should be exposed to the richness of the spices grown in the state and to the tropical fruits that are special to it.

5.41　The State has 18000 hectares of saline lands locally known as khazan lands. These are low lying reclaimed or reclaimable lands. The khazan lands have to be protected from saline water inundation by construction of embankments that border rivers and creeks. These lands are rich repositories of biodiveristy. They have for many centuries been governed through village management. These self-governing village institutions were known as *gaunkaris* or later, *communidades*. Khazan lands are highly adaptable: they can be used for agriculture during the rainy season when the salinity remains low; for pisciculture after rains withdraw; and, for salt manufacturing during summer when water is drained out of a khazan.

> The traditional varieties of rice need to be conserved through use in order to maintain a broad spectrum diversity of rice varieties.

For centuries khazan farmers have cultivated rice by selecting and replanting the best strain of rice available to them. There are at present 17 salt tolerant rice varieties used in khazan farming. This diversity is a result of centuries of selection by farmers, adaptation to poorly drained and saline environment, cross-breeding between wild relatives and local varieties, and the evolutionary process. But these traditional varieties are today being replaced by six or seven modern high-yielding varieties. The traditional varieties of rice need to be conserved through use in order to maintain a broad spectrum diversity of rice varieties.

5.42　Availability of local labour for agriculture has reduced over the years due to better prospects in other sectors. This has resulted in

keeping agricultural land fallow. Aggravating this problem is the size of land-holding in the state: nearly 80% of land holders own less than one hectare of land. Tourism, mining, infrastructure development, etc. tempt farmers to dispose of agricultural land. Food grains, milk, and vegetables are, therefore, brought into the state from adjoining states to cater to the needs of the domestic and tourist population. The agricultural reforms implemented in the state have not helped to reverse these trends.

5.43 Landowners often hold back their land without cultivation due to fear of losing the land under the tenancy rules. A system of contract farming with protection to the owners from losing land under tenancy needs to be designed to check this tendency. Similarly, some legislation is needed to check further fragmentation of land and to amalgamate small land holdings.

> Landowners often hold back their land without cultivation due to fear of losing the land under the tenancy rules. A system of contract farming with protection to the owners from losing land under tenancy needs to be designed to check this tendency.

5.44 Though the above issues present a pessimistic scenario, there are positive aspects of the agricultural sector. With high per capita income, the state is today a big and assured market for agricultural produce. Goa has good purchasing power and the market rates are often rewarding. The state therefore has excellent scope for production of vegetable, milk, fruits, flowers, and spices to cater to the needs of the domestic and floating population.

> Goa has good purchasing power and the market rates are often rewarding. The state therefore has excellent scope for production of vegetable, milk, fruits, flowers, and spices to cater to the needs of the domestic and floating population.

5.45 Organic farming with use of locally available biodegradable material and promotion of use of organic manures, vermi-compost,

and organic certification is recommended for crops like cashew, vegetables and spices. Establishment of exclusive organic farming zones can promote this concept among the tourist and middle or upper middle class of visitors. It is suggested that Government may address the following issue for promotion of organic farming: providing technical information about organic farming; creating separate marketing facility; enabling better price for the organic commodities; providing subsidies and lower interest rates; and, providing certification facilities

5.46   Decline in availability of skilled labour in the agricultural sector has necessitated need to promote the following: use of crop specific and function specific agriculture machinery; mechanization of ploughing of the soil, inter cultivation, weed control, pruning, and harvesting; farm mechanization through self-help groups, Non-Government Organizations (NGOs), and rural youth.

5.47   Good management of a farm starts with the management of soil. The soil nutrient availability in each field needs to be assessed. Soil analysis of each parcel of agricultural land needs to be carried out to ensure judicious use of available fertilizers. The data on soil need to be digitalized and analyzed to arrive at crop specific recommendations regarding use of fertilizers that a farmer can use.

5.48   With the flow of tourists, the demand for flowers, fruits and vegetables has been increasing at a fast pace. Goa's climate, however, is not suitable for round-the-year farming. Therefore, it will help to introduce protected cultivation system (such as greenhouses; piped water supply; etc.) on a large scale in the next two decades to facilitate round-the-year cultivation. This will also

> Goa's climate is not suitable for round-the-year farming . . . it will help to introduce protected cultivation system (such as greenhouses; piped water supply; etc.) on a large scale in the next two decades to facilitate round-the-year cultivation.

help in fighting the ill effects of weather fluctuation and improve the prospect of good economical returns from agriculture. The crops that have been recommended for protected cultivation are flowers (Orchids, anthuriums), vegetables (especially exotic vegetables like broccoli, lettuce, Chinese cabbage, red cabbage, celery etc.). Intensive cultivation of these vegetables under protected cultivation could meet the demand of the hotel industry as well as of the growing population. Incentives and facilities should be provided for marketing the local produce all over the state so that the consumer or the industry can source these products in Goa itself instead of bringing them from outside the State.

5.49 Goa is located in a heavy rainfall zone with precipitation of well over 2.5 m within a short span of about four months. As a result, soil erosion is severe. The measures to reduce erosion include terracing, contour bunding, contour trenching, gully plugging, development of ponds, etc. These structures help in harvesting rain water and recharging of ground water. The state needs to identify watershed areas and plan for watershed development at a micro level. Satellite data and topographic maps can help to develop such plans.

5.50 Mining in the state is expected to slow down over the future with depletion of reserves. Sites where mining rejects are dumped need to be revived for cultivation by enriching these soils with compost. Adoption of micro irrigation can help in reclaiming these areas for cultivation of cashew and mango gardens. Flat areas could, upon reclamation, be developed for vegetable cultivation under open or covered systems. There are many areas where the runoff from mines has silted paddy fields. These soils will need to be revived to improve soil aeration, to enhance microbial activity, and to reduce acidity. Government support should be extended for such revival of lands for cultivation.

> Revitalizing Goa's agriculture should be a cherished goal of the state as it marches towards achieving its vision for 2035.

5.51 Revitalizing Goa's agriculture should be a

cherished goal of the state as it marches towards achieving its vision for 2035. GGJDC recommends the following 15-point programme to meet this goal:

- Promote organic agriculture and build a unique 'Goa organic brand'.

- Promote innovative value addition, aggressive branding, and niche marketing to get better prices for the farmers. Ensure quality of brand through strict regulation.

- Give an industry status for agriculture.

- Provide agriculture entrepreneurship mentoring; develop agriculture incubators.

- Promote cooperative farming and agri-sales cooperatives.

- Use social media and other Information and Communication Technologies for disseminating of information on state agriculture.

- Provide insurance to farmers and speedy compensation against losses from natural calamities and wild animals.

- Develop special transport systems to link rural agri product to urban market.

- Promote Geographic Indicators (see www.aiacaonline.org) in rice, mango, and cashew to establish Goa's uniqueness in these products.

- Bring agriculture into the mainstream of the educational system in Goa and improve the attitude towards agriculture amongst the youth of Goa by setting up agro-eco clubs in schools.

- The state must address the primary needs of agriculture such as registration of farm holdings, resource inventory, and the potential of their utilization for further planning and development.

- The land records in Goa are in the name of parents or grand-parents and need to be mutated in the name of present legal heirs.

- Protect contract farming. Protect small land owners by allowing them to give their lands on lease to interested farmers on contract.

> Encourage multi-pronged approaches involving integrated farming systems, cost effective mechanization, integrated need management, water management, and recycling of farm waste.

- Encourage multi-pronged approaches involving integrated farming systems, cost effective mechanization, integrated need management, water management, and recycling of farm waste.

- Enhance production by adopting the use of high yielding varieties, hybrids, and better quality seeds.

Chapter 6

सुशासित गोवा (Sushasit or Well Governed Goa)

6.1   Shasan (Goverment) has to give the highest priority to good governance. And Goa should emerge as Sushashit Goa, the best governed state in India. The need for good governance has been felt by all citizens in recent times in India.

6.2   The Finance Minister of India, in his budget speech for the year 2010, enumerated three grand challenges that the country faced. The first two were related to achieving double digit growth and inclusive development. As regards the third, he said,

"The third challenge relates to the weaknesses in government systems, structures and institutions at different levels of governance. Indeed, in the coming years, if there is one factor that can hold us back from realizing our potential as a modern nation, it is the bottleneck of our public delivery mechanisms."

Three cornerstones of high quality governance are fairness, rapid response, accountability and transparency in all endeavors in the public domain. In this chapter we discuss how Goa could master these cornerstones. The chapter is divided into the following sections:

> Three cornerstones of high quality governance are fairness, rapid response, accountability and transparency in all endeavors in the public domain.

- Improving Public Delivery Mechanisms
- Panchayat Raj Institutions
- Technology led Citizen-Centric Governance
- e-Governance and m-Governance in Goa
- Fiscal Consolidation
- Land and Good Governance
- The Size of the State Government

Improving Public Delivery Mechanisms

6.3   There are several challenges that await Goa. In terms of structure, how do we move from monolithic and hierarchical to manageably autonomous structures? How do we change the role itself from that of a regulator and a provider to a largely facilitative one? How do we change the current mistrust based system to one that is based on trust? How do we change the current complex and archaic rules to rules that are simplified and understandable? At the same time, how do we create rules that are flexible and dynamic? How can our responses that are presently reactive be made proactive?

6.4   Let us deal with the issue of bottleneck of our inefficient public delivery mechanisms that the Finance Minister had referred to. It is true that the cost of interacting with government departments, when it comes to the issue of obtaining permissions, licenses, etc., is high and is often fraught with difficulties associated with cumbersome procedures that cause unwarranted delays. Gifts or informal payments are reportedly required for electrical connections; water connections; construction related permits; for an operating license; and, inspections by tax inspectors, labour officials, fire and building safety officials, sanitation and epidemiology officials, and even police officials.

6.5   There are important issues regarding transparency in the working of government. The Right to Information (RTI) Act has been a powerful tool in the hands of civil society. It has enabled it to obtain information from the government in a timely manner. Under this act submission to the Public Information Officer – the State Information Commissioner's Office – is the channel for submission of applications and citizens have

> An RTI call centre should be set up to be the single nodal point for use by citizens to file RTI applications or appeals or complaints over the telephone. It could also be used as a centralized database for all applications received and the responses given.

sometimes to make multiple trips to submit the application. Since there is only one office situated in Panaji, considerable time is consumed. An RTI call centre should be set up to be the single nodal point for use by citizens to file RTI applications or appeals or complaints over the telephone. It could also be used as a centralized database for all applications received and the responses given. The "Jankari" RTI call centre in Bihar, where citizens can file information requests on a telephonic channel under the RTI, is a good example. In addition an RTI portal for submitting RTI requests, submitting them online through a portal could be another option. Such a portal could be accessed not only from home, but even from remote areas. Such a portal would serve to create a centralized database of RTI applicants and should contain links to all the appropriate ministry and department websites of the government. These should, in turn, provide a comprehensive list of agencies and offices under their control along with proactive disclosure of information. Such a portal could also be utilized by the RTI call centre for a request for information.

6.6 In Goa, the Vigilance department should be completely free from political interference so that the government officers will be able to take up positions. The Goa Lokayukta Bill 2003

> A small state like Goa does not require multiple anti-corruption agencies and it would be advisable to discontinue with the state vigilance commission once the Goa Lokayukta is set up.

provides for the establishment of the institution of Lokayukta to inquire into grievances and allegations against public functionaries in the state and investigate allegations of corruption. The passage of the Bill has not had a smooth ride in the Legislative Assembly. On being sent for Presidential assent it was sent back with a query pertaining to the contempt of court powers, which were vested in Section 19 of the Goa Lokayukta Bill. As the powers to deal with contempt of court are vested only with the high courts and Supreme Court, the state government was advised to drop this section 19 of the bill. Also there are provisions in the bill which

contradict the state vigilance commission. A small state like Goa does not require multiple anti-corruption agencies and it would be advisable to discontinue with the state vigilance commission once the Goa Lokayukta is set up. More importantly the bill had made recording of evidence confidential which is not in consonance with the Right to Information Act. The government withdrew the bill but reintroducing it with required changes during late 2011. It was passed and is now awaiting consent of the President of India. The setting up of such an anti-corruption government organization at the state level authorized to investigate public servants accused of maladministration and graft is an important governance reform that is long overdue in the state.

6.7   Recognizing that the largest incidence of corruption occurs in the interface of government departments with private suppliers of goods and services to the government, Transparency International, the global coalition against corruption (www.transparency.org), has advocated the incorporation of an Integrity Pact (IP) to bring about a binding agreement in order to limit the possibility of corruption in government contracts. GGJDC recommends that the state implement such a pact. The Integrity Pact is an agreement between a government agency and all bidders for a government or public sector contract, where mutual rights and obligations are established so that neither side will extort or offer bribes, collude with competitors to obtain contracts, or engage in abuses while implementing contracts. The Integrity Pact is a specific tool used to build transparency in public procurement, consultancy, or service contract, bidding or licensing process by public institutions and private agencies. It involves an undertaking by the principal that its officials will not demand or accept any bribes, gifts, etc. Appropriate disciplinary action can be taken in case of violation. A statement by each supplier or bidder that it has not paid or will not pay any bribes is mandatory. Violation of the implementation of the Integrity Pact results in cancellation of contracts, forfeiture of security deposits and performance bonds, liquidation damages, and blacklisting. Monitoring is a key element of IP implementation and public access to all relevant information is a necessity. It calls for a

forum in which representatives of civil society can discuss the contract itself. The existence of an Independent External Monitor, who is approved by the Central Vigilance Commission (CVC) and will be delegated with the responsibility of protecting the rights of civil society to monitor the contract is a desirable development. Monitoring procedures are specified and at the conclusion of the contract a certificate of the status of being corruption-free is issued. More than 40 central Public Sector Undertakings have signed IPs and many of these are in the field of mining such as Coal India Ltd., Manganese Ore (India) Ltd., and Hindustan Copper Ltd. Other signatories include BHEL, MTNL, NTPC, etc.

Panchayat Raj Institutions

6.8 Following the 73rd constitutional amendment Goa promulgated the Goa Panchayat Raj Act in July 1994. Initially the Act provided for the setting up of a two tier panchayati raj system at the village and the district level. Though the Act was amended in 1999 to provide for an intermediate level panchayat in the form of the Taluka Panchayat, there has been no follow up on this. There are two zilla parishads and 189 gram panchayats in Goa. The zilla parishads have 50 elected representatives (including 20 women) and the gram panchayats have 1,509 representatives (including 513 women). The functional powers of the village panchayats include, amongst others:

- imposition of taxes (house tax; trade, profession, and employment tax; advertisement/hoarding tax; entertainment tax; drainage / garbage tax, etc.)
- imposition of non tax revenue fees (construction permission, sale of goods in markets, registration of births and deaths, certified copies, licensing of hotels and shops, sale of premises for transfer of house tax, etc.)
- licensing for construction of buildings, factories, hotels, shops, restaurants, etc.
- improving sanitary conditions and providing water supply.

Zilla Panchayats have no power to levy any taxes or fees and depend solely on establishment and other grants from the

government. Goa has attempted to strengthen the administration of panchayats by providing grants for salaries to Sarpanchas, Deputy Sarpanchas of village panchayats, and Adhyakshas and Upadhyakshas of Zilla Parishads (A Zilla Parishad Adhyaksha gets a monthly salary of Rs. 6,500 and a Sarpanch gets Rs. 2,000. These sums need to be revised periodically.)

6.9   As of 2005-06, panchayats' own resources constituted 28% of their receipts (total receipts of all panchayats was Rs. 41 crore); and 72% came from the state support in the form of grants-in-aid and loans. Of panchayats' own resources, 64 % came from tax revenues and 36 % from non-tax revenues. House tax comprised the major component (72 %) of the tax revenue of panchayats. The major components of non-tax revenues are fees (46.5 %) and fairs and festivals (3.4 %). Matching grants are given to village panchayats depending on their tax collection to be utilized for purposes as determined by the panchayat. For instance, panchayats with annual income up to Rs. 50,000 are given 200% of taxes collected subject to a minimum of Rs. 20,000, panchayats with annual income between Rs. 2 lakh and 5 lakh are given Rs. 2.75 lakh and 50% of the additional income from taxes above Rs. 2 lakh, etc. The Directorate of Panchayats releases grants to panchayats too based on income criteria for project costs. Loans are also given by the state government for income generating projects, which have been used mainly to construct market complexes.

6.10 Obligatory services (57.6 % of total expenditure) and general administration (17.9 %) comprise the major heads of expenditure by the panchayats. The main expenditure under obligatory services is on roads (82.5 % of obligatory expenditure) and on street lighting (13.4 %). Under general administration, expenditure on salary (26 %) and on maintenance and other expenditure (74 %) are the two items of expenditure.

6.11 Over the years the panchayats' own resources in their total receipts have been declining at a substantial rate. In 1999-2000 the

panchayats sought state support to the extent of 32 % of their receipts. By 2005-06 state support was 72 % of their receipts. Given their high dependence on the state it would be advisable for the State Finance Commission to earmark a portion of the State's own revenue for panchayati raj institutions. These resources can be distributed amongst panchayats on the basis of criteria such as population or fiscal capacity of the panchayats.

> Given their high dependence on the state it would be advisable for the State Finance Commission to earmark a portion of the State's own revenue for panchayati raj institutions.

6.12 Each Gram Sabha is mandated to constitute Ward Development Committees to prepare the development plan for each ward that is to be submitted to the panchayat. Annual development plans, after approval of the Gram Sabhas, are to be forwarded by village panchayats to the District Planning Committee for consolidation and onward submission to the state government. The state has constituted a District Planning Committee for each district but plans are yet to be consolidated at the state level. Participative planning should be emphasized with the state committed to seeing to it that annual development plans are carried out.

6.13 It is also important that a 'State of Panchayats' report be prepared periodically in the state to ascertain the issues that require the attention of the government. Finally, capacity building and training are important for elected representatives and functionaries of these institutions. The

> It is also important that a 'State of Panchayats' report be prepared periodically in the state to ascertain the issues that require the attention of the government.

Directorate of Panchayats, or the Goa Institute of Rural Development & Administration, Ela Farm, Old Goa, (http://sirdoldgoa.gov.in/) , or some other agency should be entrusted with the task of conducting training programmes on a

regular basis to help the elected representatives and functionaries of the panchayats with their duties and sensitize them to audit and accounting, including fund management, so as to minimize corruption. In fact, a Capacity Building Fund for periodic training should be set up by the state government to promote the exposure to best practices at panchayat level. It is also advisable that a social audit by members of the Gram Sabha should be conducted to ensure that panchayats are utilizing the funds in the right manner. IT enabled e-governance of panchayats is also important to enhance the decision making process in such institutions. To provide effective services it is also important to interconnect organizations such as Directorate of Panchayats with district and block level offices so that information is available in an efficient and timely manner.

> . . . a Capacity Building Fund for periodic training should be set up by the state government to promote the exposure to best practices at panchayat level. It is also advisable that a social audit by members of the Gram Sabha should be conducted to ensure that panchayats are utilizing the funds in the right manner.

6.14 Whilst the above issues are important, we believe that in moving forward Goa will become increasingly urbanized. It is quite conceivable that Mapusa, Porvorim, Panjim, Bambolim, Verna, Dabolim, Vasco, Nuvem, and Margao will become a contiguous area that resembles a single city. Increasingly then there is going to be a need to coordinate the activities of panchayats and urban local bodies, especially for regulatory purposes and for the provision of public amenities. Certain

> . . . in moving forward Goa will become increasingly urbanized. It is quite conceivable that Mapusa, Porvorim, Panjim, Bambolim, Verna, Dabolim, Vasco, Nuvem, and Margao will become a contiguous area that resembles a single city.

technical and legal
regulatory issues such as
construction licenses,
etc., should be moved out
from the purview of
panchayats and into the
hands of a central urban
and town planning

authority to ensure consistency of regulations as well as to ensure that technical and legal aspects are given due consideration. It is not always possible to have technical and legal expertise at local levels. Multiple locations for such expertise implies the loss of benefit of a scale. Increasingly the provision of parks and playgrounds, cultural and educational facilities, roads, sewage and water infrastructure, and solid waste collection will have to be decided on the basis of considerations of a movement towards the creation of an increasingly higher urban dimension. This will allow us to exploit the benefits of scale as well as to allow people and goods and services to move cheaply and efficiently. Goa can take a lead in this direction.

Technology led Citizen-Centric Governance

6.15   The power of emerging technology in creating world class governance systems is in evidence today all around the world. Technology has been shown to significantly influence democratic participation and reduce civic illiteracy as well as voter apathy. It has become a powerful driver for political discussion, education, debate, and participation. Extraordinary efficiency in delivery of public services and public goods can be brought about through the application of   modern technology. This has to be coupled with modern tools of management based on progress through partnership of various administrative disciplines, administrative-customer relationships, and administrative-expert interactions.

6.16   If the 'front end' of public domain focuses on the provision of public services and goods the 'back end' relates to organizations,

people, systems and processes. Therefore, to obtain high quality outcomes, the nature of organizations and the design of the process and factors that lead to optimization of capacity and human involvement are important. With the inclusion of civil society as a key part in governance, citizen-centeredness takes a pivotal role.

Fundamentally, we need to change the image/perception of our public administration system in terms of its structure, role, system, rules, personnel, work environment and response.

6.17   To achieve good governance, it is important to improve the civic engagement, which has three distinct dimensions, namely that of political knowledge, political trust and political participation. Political knowledge involves what people learn about public affairs, political trust involves the public's orientation of support for the political system and political participation involves the conventional activities designed to influence government and the decision-making process.

> To achieve good governance, it is important to improve the civic engagement, which has three distinct dimensions, namely that of political knowledge, political trust and political participation.

6.18   Let us begin by looking at the bigger picture of how technology can influence the civic engagement. It is not an exaggeration to say that Internet is the new electronic cradle of democracy. Indeed, web discussion forums, newsgroups, blogs, wikis, and social networking services are becoming transformative instruments today.

> It is not an exaggeration to say that Internet is the new electronic cradle of democracy.

It is remarkable that the design principles that were established early in the evolution of the Internet had the principle of democratization of information embodied implicitly, if not explicitly. The lack of centralized control ensures that censorship or other attempts at control will be unworkable.

Internet moved fundamentally from mediated to unmediated information communication. Our society first moved from one to one communication through letters or landline telephones to one to many through radio and television. Internet took a leap forward by moving to many-to-many communication. This process of unmediated many-to-many communication on a large scale strengthens the process of democratization.

6.19 Development of novel tools is empowering bloggers, webmasters and owners of other social media. This is influencing the movement from a strictly informational use of the Internet to using the Internet as a means of social organization not requiring a top-down action.

Social networks can potentially act as a medium to help the government act more like the public it serves. Government and its agencies can share information with citizens, who share common interests and concerns.

6.20 A number of non-governmental sites have developed cross-jurisdiction, customer-focused applications that extract information from thousands of governmental organizations into a system that brings consistency to data across many dissimilar providers. It is convenient and cost-effective for businesses, and the public benefits by getting easy access to the most current information available without spending tax payers' money.

6.21 The great promise of technology can get limited by IT illiteracy as well as by the digital divide between those with access to the media of e-democracy and those

> Mobile telephony is changing the scene so dramatically that the term m-governance, that is governance influenced by mobile telephony, is gaining currency.

without. However, mobile telephony is changing the scene so dramatically that the term m-governance, that is governance influenced by mobile telephony, is gaining currency.

Mobiles are rapidly revolutionizing our approach to and understanding of public participation in governance. Mobiles have already demonstrated that in the hands of a vibrant civil society, they are powerful tools that hold government and public institutions accountable, their interactions transparent and their transactions efficient. Conversations inspired, produced, stored and disseminated through mobiles are rapidly changing the manner in which we imagine the State, interact with the government and participate in the mechanisms and institutions of democratic governance.

e-Governance and m-governance in Goa

6.22   The state of Goa has implemented several e-Governance initiatives at the State and individual Department level. Implementation of these e-Governance initiatives and rollout of existing initiatives required a reliable IT Infrastructure including high-performing servers, communication systems, storage capacity and state of the art security

> It is commendable that the state has taken significant initiatives in e-governance as well as m-governance.

infrastructure. With the objective of consolidating its information processing infrastructure of various key e-Governance applications and individual departments, a State Data Center (SDC) has been established. This would provide a common platform for all the departments of the state to share the IT Infrastructure required for their individual e-Governance initiatives. It is commendable that the state has taken significant initiatives in e-governance as well as m-governance that uses mobile platforms. The initiative of Goa Broadband Network (GBBN) is aimed at connecting not only the Government Departments but also each and every household and industry within the State of Goa. There is a provision for voice, video, and data transfers through a single optic fibre cable at an affordable cost to the citizens. In all talukas, more than 800 offices, industries, households have been provided internet and intranet (as applicable) connectivity through GBBN. The video

conferencing facility has been provided in all talukas, jails, and courts. Internet Protocol (IP) video phones have also been deployed in talukas and a helpdesk has been setup for addressing the queries. The services on offer include:

a. Information services on education, healthcare, agriculture, welfare, entertainment, etc.
b. Interactive services like IP telephony, video-conferencing, etc.
c. Transactional services like e-Governance services, business-to-consumer (B2C) services, etc.

6.23   The initiative of State Service Delivery Gateway (SSDG) should achieve the cooperation, collaboration and integration of information across different departments in the states and local government to the central Government. Government systems are characterized by islands of legacy systems using heterogeneous platforms and technologies that spread across diverse geographical locations, in varying conditions of automation. This makes information collation a very challenging task. A single platform like SSDG can simplify this task by acting as standard based messaging switch and providing seamless interoperability and exchange of data across the departments and the central government.

6.24   "Lok Seva Kendras" are being established in all the urban and rural areas. The Lok Seva Kendras or the Integrated Citizen Service Centers (ICSCs) are envisioned as "Single Window Service Delivery Channels for Government to Citizen (G2C) & Government to Business (G2B) Services for ensuring accessibility, convenience, transparency and timeliness in service delivery". The services provided will be collection of utility bills, submission of e-Forms, delivery of various certificates etc.

6.25   Goa is a forerunner in the use of mobile technology for the delivery of services. With its exclusive SMS Gateway,

> With its exclusive SMS Gateway, Goa is taking rapid strides towards m-Governance.

Goa is taking rapid strides towards m-Governance: the development of Mobile Service Delivery Platform (MSDP) is being planned. MSDP is a combination of software applications running on dedicated servers in a State Data Centre (SDC) that will enable development, deployment, delivery, and management of voice, SMS, and e-Services quickly and cost-effectively. MSDP shall be based on open standards.

6.26 Goa also has plans to host services on a managed model through its state of the art State Data Centre. Managed Data Centre offerings would provide a comprehensive support for managing servers, storage systems and networks in the data centre. The offering should cover analysis, planning, implementation and full or partial operation of the infrastructure. The benefits that will accrue will include consistent standardized services, high quality, reliability and cost savings and the freedom to delegate the responsibility of operations as needed, 24X7 operations with defined service levels and continuous and transparent reporting.

6.27 India will have the distinction of being the first country to issue a single ID. In a billion plus population, this looks an enormous challenge but did we not achieve the distinction of using electronic voting technology on scales that the world had not seen before? And imagine the impact of introducing a single ID on such a massive scale in the age of mobile phones and ubiquitous connectivity. The opportunity for effectively dis-intermediating layers of bureaucracy between the citizen and the government is enormous. When we speak of the vision of governance for Goa 2035, we will have to factor in the massive disruption in creating technology led citizen-centric services that is on the anvil.

> When we speak of the vision of governance for Goa 2035, we will have to factor in the massive disruption in creating technology led citizen-centric services that is on the anvil.

Fiscal consolidation

6.28 The state should improve its tax administration and plug leakages in compliance. It should be able to tax more too to increase the revenue surplus. Goa is a state with a tax to GSDP ratio that is lower than the mean for all the states, which is unusual for a state which is in the highest decile of per capita GSDP. In addition, the fiscal deficit is way above the target, 3 % of GSDP, recommended by the Thirteenth Finance Commission. The state should consider achieving a target of an aggregate debt to GSDP ratio of 25 %. Currently the debt/GSDP ratio is well above this target set for the states of the Union by the Thirteenth Finance Commission. For the period 2005-08 the debt-GSDP ratio was 38.5 % for Goa; 62.5 % of the state government securities issued as on March 2010 had a maturity above 7 years. Since 2005-06 all issues have a maturity of 10 years which means large repayment obligations from 2017-18 onwards. A revenue surplus is the key to achieving the fiscal deficit and debt targets as it enables the state to pursue public investment expenditures that are growth promoting. The associated increased economic activity makes it easier to garner revenues that bring down deficits and debt. GGJDC would recommend that the state conducts an independent review. A regular monitoring of the fiscal health of the state is desirable. Such a review process should ideally suggest strategies to replace the budget deficits by surpluses in the future. Such a process will give a long term perspective to the fiscal policy.

> The state should improve its tax administration and plug leakages in compliance. It should be able to tax more too to increase the revenue surplus.

> A regular monitoring of the fiscal health of the state is desirable. Such a review process should ideally suggest strategies to replace the budget deficits by surpluses in the future.

6.29 The accumulation of large surplus cash balances when the fiscal deficit is high reflects inefficiency in cash management and an avoidable interest burden. Whilst states require a cushion to smooth out expenditures at the implementation level, existing cash balances should be utilized before the state resorts to fresh borrowings. Such balances could be used to make bullet repayments of market borrowings. Also, the state would do well to have an effective forecasting and monitoring mechanism in place for short term cash flows and developing skills and capacity in this regard could save the state from adding to its already high debt. Cost recovery (which is measured as revenue receipts as a ratio to non-Plan revenue expenditure) of public services is another critical issue in the state finances. It is time for the state to consider making non-tax revenues a more durable source of revenue by looking at the commercial viability of some state provided services such as power and irrigation from a medium to long term perspective.

6.30 The budgeting process needs to take into account the medium term dimensions of fiscal policy. To make the connection with fiscal policy proposals that have an economic and development impact it is important to have in place a Medium Term Fiscal Plan as suggested by the Thirteenth Finance Commission. Fiscal consolidation is easier to pursue too when policy decisions are made by keeping in view a longer time horizon than just the immediate year when the expenditure or tax change is suggested to the legislature. Each expenditure proposal therefore should be

> To make the connection with fiscal policy proposals that have an economic and development impact it is important to have in place a Medium Term Fiscal Plan as suggested by the Thirteenth Finance Commission.

> Each budget should be accompanied by a Medium Term Fiscal Plan that provides such details about the fiscal impact of major policy changes and the consequences to the fiscal situation due to the proposed capital expenditures.

accompanied by a statement as to how the finance for an item of capital expenditure will be maintained by a user charge or by a specific charge on the revenues of the state. Thus all items of capital expenditure should be accompanied by a statement indicating the revenue consequences of such expenditure in the future. Each budget should be accompanied by a Medium Term Fiscal Plan that provides such details about the fiscal impact of major policy changes and the consequences to the fiscal situation due to the proposed capital expenditures.

Land and good Governance

6.31   Given the huge scarcity of land there are a number of issues that the state needs to look into. First, GGJDC suggest that the government form a High Powered Committee to study the communidades, which hold large chunks of land so that rationalization of the land use can be achieved. It is advisable to retain the community character of ownership, while at the same time utilizing the land. The ways and means by which long leases of land may be given with ownership retained by the communidades is something that should be explored. Second, with the passing of the Tenancy Act, land that is fallow is supposed to be given back to the government. This has not happened so far. It may be possible to use such land for contract farming. Third, there is a tendency of private parties to ask for more land than is required. Parties should be asked to supply utilization plans before any further allotment is allowed. There should also be an audit of the land already acquired by the government that is unutilized. Recently it has come to light that about a fourth of the land in Goa's 21 industrial estates is lying vacant. Practically every CAG has urged the Goa State Industrial Development Corporation that there is a need for more transparency in the allocation of plots in

> The government should form a High Powered Committee to study the communidades, which hold large chunks of land so that rationalization of the land use can be achieved.

industrial estates and for control of the indiscriminate acquisition of land. Also, for properties given on rent by the government to private agents an Estate Officer should be appointed. Finally, there is scope to have a betterment levy on land owners, when the value of the land increases due to public investment such as the building of a bridge or a bus stand.

> Practically every CAG has urged the Goa State Industrial Development Corporation that there is a need for more transparency in the allocation of plots in industrial estates and for control of the indiscriminate acquisition of land.

6.32   GGJDC recommends that the Government seriously considers a Magarpatta (see en.wikipedia.org/wiki/Magarpatta) type model of land acquisition for Goa. In this model, the ownership of a large fraction of the land lies with the original holders of land. As of now, industrial estates have been removed from the purview of village panchayats, with the result that the village loses an important resource given that it has still to deal with the pollution and loss of ground water caused by such estates. Instead, in the Magarpatta type of model, the individuals and the families can get together to pool their land into a company and each family can obtain shares equal to the size of their landholding. For instance, each share can be made

> ... the Government should seriously considers a Magarpatta (see en.wikipedia.org/wiki/Magarpatta) type model of land acquisition for Goa. In this model, the ownership of a large fraction of the land lies with the original holders of land.

equivalent to one square metre of land and the shares, for a period of time, are allowed to be sold only to member families. A methodology should be developed to see that family members of the shareholders get preference for employment generated in the company. Further, the shareholders get involved in bidding for contracts for development work such as supplying raw material for construction, vending contracts, landscaping, beautification, and

security and maintenance contracts. Village panchayats are currently the licensing authorities for construction projects and if the land is owned by the original title holders some of the genuine interests of the village will continue to be protected in a transparent and effective manner.

6.33   The state government should also enact regulations that promote a transparent development of real estate and construction. This should be done for the sale and transfer of residential colonies, apartments, buildings, and townships also. All the information about the construction, details of carpet area, proper conveyance of titles to owners, etc., should be disclosed. There should be restrictions on the collection of the entire amount of consideration before possession is sought to be delivered, and on the mortgage of land or apartment without the consent of the purchaser. Money should only be transferred after an agreement has been entered into or an allotment letter is provided. Reducing the stamp duty to 1 % for registering property is also strongly recommended. This will help reduce the illegal transactions in the real estate sector.

> The state government should also enact regulations that promote a transparent development of real estate and construction. This should be done for the sale and transfer of residential colonies, apartments, buildings, and townships also.

6.34   The government is at the centre of the intensification of redistributive activities as groups attempt to extract rents and transfers from the rest of the society, which reduces the effectiveness of the institutions of governance such as the bureaucracy and the legal system that serve as countervailing forces to such rents and transfers. Governments in such a state are also less well placed in their control over social forces and face a reduction in their ability to tax. Borrowing allows such governments to finance expenditures without imposing the tax cost that would reduce their current political support. The outcome is an

unhealthy fiscal deficit and a shift of the burden of government to future budgets and future taxpayers, who will face the cost of paying for the interest payments on the currently incurred public debt. The sustainability of the borrowings due to the fiscal deficit should be a concern for the state. The implications of the current trajectory of macro-economic growth on governance are clear. We note that groups in their search for rents and the extraction of transfers have not only tended to contribute in some way to the instability of the government, but also have contributed to an increase in public debt that taxes future citizens, who have not voted in the current government.

The size of the State Government

6.35　The ratio of the number of bureaucrats to citizens in Goa today is 1 is to 27. This is seen to be a burden on the exchequer. There is a need to rationalize the size of the bureaucracy. This issue of a large bureaucracy, however, needs to be dealt with appropriately. For many goods and services provided by the government, there is no direct relationship between population and the size of the bureaucracy required for the provision of those goods. Consider, for instance, the example of a Health Department that is involved in sending out trucks to spray uniformly against mosquitoes. The service eliminates mosquitoes from the yard of Mr. X and from the plot occupied by Ms. Y as also from the vacant plots between them. If a vacant plot is built on subsequently by Mr. Z, he is protected at no loss to Mr. X and Ms. Y. The addition of Mr. Z to the population does not require an increase in the number of bureaucrats in the community to contribute to malaria prevention. The number of bureaucrats per unit of government provision of goods and services (in this example this is the unit of mosquito protection) does not decrease

> The ratio of the number of bureaucrats to citizens in Goa today is 1 is to 27. This is seen to be a burden on the exchequer. There is a need to rationalize the size of the bureaucracy.

though the number of bureaucrats per member of the population does with the addition of Mr. Z. In government provided public services the production unit is independent of the size of consumer units by the very nature of the type of services and goods provided. For a small state, the number of bureaucrats as a ratio of the size of the population will tend to be high, since the minimum efficient scale of public good provision is higher.

6.36   Certain technical characteristics determine the efficient scale of provision. Apart from the scale at which the government services are provided, there is the issue of intensity of demand that also results in variations in the scale of operations and the size of the bureaucracy. This is best expressed with the help of an example. The accompanying table provides an example of two communities A and B, which differ in their population sizes. A has a population of 100 and B has a population of 150. The number of bureaucrats in the two communities are 25 and 50, respectively. The bureaucrat to population ratio is thus higher in Community B. Assume now that the two communities differ also in their demands or tastes for various public goods. Suppose community A wants 100 units of education to be provided, whereas community B wants 250 units of education. Then, it turns out that the ratio of bureaucrats to population is not equal to the number of bureaucrats per unit of education, which is lower in community B than in A. If we use population as a measure of the relative size of the bureaucracy we ignore the effects of economies of scale in the provision of services. This example highlights the point that variations in the intensity of demand may be associated with changes in the per capita number of bureaucrats, which is unrelated to the size of the bureaucracy.

6.37   It would be appropriate for the state to have a Staff Selection Commission. Job creation should be on rational grounds and it should not end up as a

> It would be appropriate for the state to have a Staff Selection Commission. Job creation should be on rational grounds and it should not end up as a burden on the exchequer.

Demand variations for public services and the size of the bureaucracy		
	Community	
	A	B
Population	100	150
Number of bureaucrats	25	50
Bureaucrat to Population ratio	0.25	0.33
Units of education	100	250
Average number of bureaucrats per unit of education	0.25	0.20

Table 6.1: Demand variations for public services and the size of the bureaucracy

burden on the exchequer. As of now, the state only has a Public Service Commission. All factors that reduce the efficiency of the provision of services and the effectiveness of the delivery mechanisms of the government should be eliminated. A Staff Selection Commission, chaired by an individual with an impeccable credibility will go a long way in bringing transparency, reducing the transaction costs and also the potential for corruption.

Chapter 7

स्वानंदी गोवा (Swanandi or Happy Goa)

7.1 Goa will become Samruddha (affluent) by 2035. But will this affluence mean that Goans will be happy? Happiness is not a measure of growth, it is a measure of people's feeling of well being. Goa is celebrated as a land of natural beauty, of serenity, as a land of happy people. Our vision of development for Goa should surely aim to preserve this heritage. Afterall the Konkani terms for development are 'Udargat'or 'Vikas', terms very close to the terms 'Utsarp' or 'Vikas' used in Jain philosophy to describe periods during which 'Sukha' or happiness is on the increase.

> Goa is celebrated as a land of natural beauty, of serenity, as a land of happy people. Our vision of development for Goa should surely aim to preserve this heritage.

7.2 Happiness goes beyond satisfaction. Happiness includes material more than well being. There are eight agreed general contributors to happiness: physical, mental and spiritual health; time-balance; social and community vitality; cultural vitality; education; living standards; good governance; and ecological vitality.

> There are eight agreed general contributors to happiness: physical, mental and spiritual health; time-balance; social and community vitality; cultural vitality; education; living standards; good governance; and ecological vitality.

7.3 There is a great challenge that the society is facing today. With consumerism becoming a yardstick for economic growth, the social, ecological and cultural support systems are disappearing. This is worrying, since it is these critical mediators that fundamentally influence happiness. Subjective measures like well-being are more relevant and important to happiness than mere objective measures like consumption.

7.4   There have been several attempts to look at the issue of happiness.

- World Happiness Survey: This survey led by London School of Economics (LSE) is based on spending power and quality of life. Its findings clearly showed that money cannot buy happiness.
- World Map of Happiness: This provides the survey of people's satisfaction with life based on social network, career, political and economic systems.
- World Value Survey: This was started in 1995. It explores the impact of social and political changes on people's values, beliefs, freedom of choice.
- Bhutan's Gross National Happiness: This is based on the Buddhist doctrine of harmony with environment and fellow beings besides material comfort.

7.5   The term "Gross National Happiness" was coined in 1972 by Bhutan's then King Jigme Singye Wangchuck, who had opened Bhutan to the age of modernization. Gross National Happiness was designed in an attempt to define an indicator that measures the quality of life or social progress in more holistic and psychological terms than only the economic indicator of gross domestic product (GDP).

7.6   The vision for Goa 2035 has to be one where we see material and spiritual development occurring side by side, continuously complementing and reinforcing each other. As per the Bhutanese model, the four pillars of Gross National Happiness are the promotion of sustainable development, preservation and promotion of cultural values, conservation of the natural environment, and establishment of good governance.

> The vision for Goa 2035 has to be one where we see material and spiritual development occurring side by side, continuously complementing and reinforcing each other.

7.7 This GGJDC report on the vision for Goa 2035 has addressed the issue of sustainable development and conservation of natural development while dealing with the issues of Santulit Goa (Balanced Goa) (see Chapter 3). This report has also addressed the issue of preservation and promotion of cultural values, while dealing with Susanskrut Goa (Cultured Goa) in Chapter 2. Finally, the issue of establishment of good governance was dealt with when the Report examined Sushasit Goa (well Governed Goa) in Chapter 6. In other words, this GGJDC Report has included all the four pillars that are contributors to Gross National Happiness.

7.8 Happiness was treated as a socio-economic development metric in 2006 by Med Jones, President of International Institute of Management. He tracked seven development areas. Gross National Happiness was calculated by considering seven measures of wellness:

1. Economic Wellness: Indicated via direct survey and statistical measurement of economic metrics such as consumer debt, average income to consumer, price index ratio and income distribution.
2. Environmental Wellness: Indicated via direct survey and statistical measurement of environmental metrics such as pollution, noise and traffic.
3. Physical Wellness: Indicated via statistical measurement of physical health metrics such as severe illnesses.
4. Mental Wellness: Indicated via direct survey and statistical measurement of mental health metrics such as usage of antidepressants and rise or decline of psychotherapy patients.
5. Workplace Wellness: Indicated via direct survey and statistical measurement of labor metrics such as jobless claims, job change, workplace complaints and lawsuits.
6. Social Wellness: Indicated via direct survey and statistical measurement of social metrics such as discrimination, safety, divorce rates, complaints of domestic conflicts and family lawsuits, public lawsuits, and crime rates.

7. Political Wellness: Indicated via direct survey and statistical measurement of political metrics such as the quality of local democracy, individual freedom, and foreign conflicts.

7.9 GGJDC proposes that Goa should become the first state in India to start this process of measuring and monitoring happiness sending a signal that Goa considers this to be the most critical socio-economic development indicator.

> Goa should become the first state in India to start this process of measuring and monitoring happiness sending a signal that Goa considers this to be the most critical socio-economic development indicator.

GGJDC also wishes that Goa becomes not only the happiest state in India but in the world. That should be our vision for Goa 2035.