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## **Inception Report**

# **Environmental Assessment and Preparation of Environmental Management Framework for Rashtriya Madhyamik Shiksha Abhiyan (RMSA)**

*Prepared for*

*Government of India*

*Ministry of Human Resource Development*

*Department of School Education & Literacy*

*Prepared by*



*SENES Consultants India Pvt. Ltd.*

# INCEPTION REPORT

## ENVIRONMENTAL ASSESSMENT AND PREPARATION OF ENVIRONMENTAL MANAGEMENT FRAMEWORK FOR RASHTRIYA MADHYAMIK SHIKSHA ABHIYAN

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## **1 Introduction**

### **1.1 BACKGROUND TO RMSA**

The Government of India (GoI) has made a commitment to expand and improve secondary education in the country. To help achieve this it has formulated the **Rashtriya Madhyamik Shiksha Abhiyan (RMSA)** a national scheme for universalisation of access and improvement in quality of secondary education. The scheme was officially launched in March 2009 covering all states of the country and is the first national level programme for reforming and improving secondary education in the country. Universalisation of secondary education will build on universalisation of elementary education being pursued through the **Sarva Shiksha Abhiyan (SSA)**.

The key goal and objectives of the RMSA are – *(i) to make good quality secondary education available, accessible and affordable to all young persons, (ii) to remove gender, socio-economic and disability norms, (iii) to ensure that all secondary schools conform to prescribed norms, (iv) to achieve a GER of 75% in secondary education by 2014, (v) to achieve universal access to secondary education by 2017 and (vi) to achieve universal retention by 2020.*

These goals and objectives are to be achieved through provision of additional physical infrastructure and hiring of additional teachers. Financing is also specified for school grants, in-service teacher training and for purchase of books, equipments and consumables.

### **1.2 SETTING UP OF NATIONAL MISSION ON RMSA**

The National Policy on Education (NPE), 1986 and its Programme of Action 1992 inter alia states that access to secondary education will be widened with emphasis on the enrolment of girls, SCs and STs, particularly in science, commerce and vocational streams. Following the constitutional mandate to universalize elementary education and the success of Sarva Shiksha Abhiyan it became essential to push this vision forward to move towards universalisation of secondary education.

The Committee on ‘Universalisation of Secondary Education’ constituted by the Central Advisory Board of Education (CABE) in its report (June 2005) had suggested urgently taking up a programme on secondary education based on laid down norms and parameters. The Mid-Term Appraisal of the 10<sup>th</sup> Five Year Plan (June 2005) of the Planning Commission had also suggested a new mission for secondary education on the lines of SSA (Sarva Shiksha Abhiyan) pursuant to the success of SSA .

While education is a concurrent subject and secondary education primarily remains the responsibility of the State Governments, the Ministry of HRD has set its vision on making secondary education of good quality available, accessible and affordable to all young persons

in the age group of 15-16 years. Accordingly the Government of India has launched a centrally sponsored scheme to universalize access to and improve quality of education at secondary stage, called the **Rashtriya Madhyamik Shiksha Abhiyan (RMSA)**

### **1.3 STATUS OF SECONDARY EDUCATION IN INDIA – THE NATIONAL PERSPECTIVE**

Secondary Education is a crucial stage in the educational hierarchy as it prepares the students for higher education and also for the world of work. Classes IX and X constitute the secondary stage, whereas classes XI and XII are designated as the higher secondary stage. The normal age group of the children in secondary classes is 14-16 whereas it is 16-18 for higher secondary classes. The rigor of the secondary and higher secondary stage, enables Indian students to compete successfully for education and for jobs globally. Therefore, it is absolutely essential to strengthen this stage by providing greater access and also by improving quality in a significant way.

The population of the age group 14-18 was 8.55 crore in 2001 as per census data. The estimated population of this age group as on 1.3.2005 was 9.48 crore, with an increase to 9.69 crore as on 1.3.2007 i.e., at the beginning of the 11th Five Year Plan. This is likely to stabilize at around 9.70 crore in 2011. The Gross Enrolment Ratio for classes IX-XII in 2005-06 was 40.49%. The figure for classes IX and X was 52.26 % whereas that for classes XI and XII was 28.54%.

With the liberalization and globalization of the Indian economy, the rapid changes witnessed in scientific and technological world and the general need to improve the quality of life and to reduce poverty, it is essential that school leavers acquire a higher level of knowledge and skills than what they are provided in the 8 years of elementary education, particularly when the average earning of a secondary school certificate holder is significantly higher than that of a person who has studied only up to class VIII. It is also necessary that besides general education up to secondary level, opportunities for improvement of vocational knowledge and skill should be provided at the higher secondary level to enable some students to be employable.

It is well recognized that eight years of education are insufficient to equip a child for the world of work as also to be a competent adult and citizen. The pressure on Secondary Education is already being felt due to the success of Sarva Shiksha Abhiyan. Therefore, while secondary education is not constitutionally compulsory, it is necessary and desirable that access to secondary education is universalized leading to enhanced participation, and its quality is improved for all. At the same time, it may not be possible to fully universalize education at the secondary stage during the Eleventh Five Year Plan as the drop out rates are as high as 28.49% from classes I-V and 50.39% from classes I-VIII. However, with rising expectation from improved access to secondary education, retention in classes I-VIII will further improve.

The following statistics give an overview of the present status of Secondary and Higher Secondary Education in the country (as on 30.9.2005):

**Table 1-1: Status of Secondary and Higher Secondary Education in India**

No. of secondary Schools (IX-X)	1,06,084
No. of Hr. secondary schools (XI-XII)	53,619
No. of Students at secondary level (IX-X)	2.50 Crore
No. of Students at Hr. secondary level (XI-XII)	1.34 Crore
Population of 14-16 age group (as on 30.9.2004)	4.78 Crore
Population of 16-18 age group (as on 30.9.2004)	4.91 Crore
Pupil Teacher Ratio (IX-X)	33
Pupil Teacher Ratio (XI-XII)	34

*Source: Framework for Implementation of RMSA, MHRD*

*(Based on Abstract of Selected Educational Statistics (2005-06) (provisional), population projections are based on census data compiled by Registrar General of India)*

The Table given below shows the status of enrolment, dropout rates and pass percentage in classes IX-XII (as on 30.9.2005):

**Table 1-2: Status of Enrolment, Dropout Rates & Pass Percentage in Classes IX-XII**

Indicators	Boys	Girls	Total
Enrolment (IX- X)	1.45 Crore	1.05 Crore	2.50 Crore
Enrolment (XI-XII)	0.78 Crore	0.56 Crore	1.34 Crore
Gross Enrolment Ratio (IX-X)	57.72	46.23	52.26
Gross Enrolment Ratio (XI-XII)	31.54	25.19	28.54
Dropout rate (Class I –X)	60.04	63.56	61.59
Pass percentage (Class X State Board Exam. -2006)	66.30%	70.26%	67.86%
Pass percentage (Class XII State Board Exam.-2006)	67.49%	77.25%	71.28%

*Source: Framework for Implementation of RMSA, MHRD*

*(Based on Abstract of Selected Educational Statistics (2005-06), provisional)*

#### **1.4 STATUS OF SECONDARY EDUCATION IN INDIA – THE WORLD BANK PERSPECTIVE**

The World Bank had carried out an assessment and published a report on “**Secondary Education in India: Universalizing Opportunity**” in January 2009. It brought out the critical importance of secondary education – particularly for girls – in bringing about economic growth and social change. Says Sam Carlson, the World Bank’s Lead Education Specialist who was the Task Team Leader for this study: “Secondary Education is vital for breaking the intergenerational cycle of poverty and provides hugely beneficial social impacts. Compared to girls who only complete primary education, girls who finish secondary school earn more money, tend to get married at a later age, have fewer children, and adopt better child rearing practices, leading to better health and education for future generations. It is a very high return investment.”



Generating the demographic dividend with nearly 95 percent enrollment in elementary school, and just over 50 percent in Grades 9 and 10 in secondary school, secondary education is the new bottleneck in the education system. Over the next decade, the number of secondary school students is expected to increase from 40 to 60 million. An increasing share of these students will come from rural and lower income groups, who will be less able to afford private secondary education.

### **Secondary Education in India – An Assessment by the World Bank**

Secondary education is critical in breaking the intergenerational cycle of poverty. With larger numbers of India's children finishing primary school, the demand for secondary schooling – Grades 9 to 12 is growing. The number of secondary school students is expected to increase from 40 to 60 million over the next decade. An increasing share of these students will come from rural and lower income groups, who will be less able to afford private secondary education. India needs to prepare now for this expansion and improve the quality of secondary education provided.

#### **Some Facts:**

- In India, 40 million children were enrolled in secondary school in 2008. The majority of them were boys, children from the urban areas, and those who belonged to the wealthier segments of the population.
- 37% of secondary students fail, and 11% dropout before the exam.
- India's Gross Enrolment Ratio (GER) in secondary school is lower than its global competitors. India's GER in secondary school is 40%, compared to 70% in East Asia and 82% in Latin America.
- There are 3 National Boards and 34 State and Union Territory Boards, with their own curriculum and certifying examinations.
- Secondary school enrolment varies greatly between states: Kerala (92%), Tamil Nadu (44%), Bihar (22%), Jharkhand (4%).
- 60% of the secondary school system is privately managed. Private unaided schools provide 30% of total secondary enrolment nationwide (2004-05), up from 15% in 1993-94.
- On average, government school teachers earn 3 times more than their counterparts in private schools.
- The quality of schooling as measured in students' cognitive skills is more important than the number of years of schooling in determining students' future incomes. Once quality is established, years of schooling matter. Just increasing years of schooling does not appear to be worthwhile.

**Source:** The World Bank Website: <http://go.worldbank.org/5B8N6HUOB0>

It is therefore crucial that all necessary efforts are made to ensure these youth develop the knowledge, skills and attitudes they need to find jobs in the rapidly evolving Indian economy, so that India's demographic growth is transformed into a global competitive advantage.

The challenge now for the Government of India is to dramatically improve access, enrollment and quality in secondary education, simultaneously.

**The Bank assessed that the launched centrally sponsored scheme for secondary education – Rashtriya Madhyamik Shiksha Abhiyan (RMSA) – offered a tremendous opportunity to set up a mass secondary education structure.**

### **1.5 VISION, GOALS AND OBJECTIVE OF RMSA**

Therefore with this backdrop the Government of India through the Ministry of HRD set its vision on making secondary education of good quality available, accessible and affordable to all young persons in the age group of 15-16 years and accordingly and launched a centrally sponsored scheme called the **Rashtriya Madhyamik Shiksha Abhiyan (RMSA)**

#### **Vision**

The vision for secondary education is to make good quality education available, accessible and affordable to all young persons in the age group of 14-18 years. With this vision in mind, the following is to be achieved:

- *To provide a secondary school within a reasonable distance of any habitation, which should be 5 Km for secondary schools and 7 -10 Km for higher secondary schools.*
- *Ensure **universal access of secondary education** by 2017 (GER of 100%), and*
- ***Universal retention** by 2020,*
- *Providing access to secondary education with special references to economically weaker sections of the society, the educationally backward, the girls and the disabled children residing in rural areas and other marginalized categories like SC, ST, OBC and Educationally Backward Minorities (EBM)*

#### **Goals**

In order to meet the challenge of Universalisation of Secondary Education (USE), there is a need for a paradigm shift in the conceptual design of secondary education. The guiding principles in this regard are; **Universal Access, Equality and Social Justice, Relevance and Development and Curricular and Structural Aspects**. Universalisation of Secondary Education gives opportunity, to move towards equity. The concept of 'common school' will be encouraged. If these values are to be established in the system, all types of schools, including unaided private schools will also contribute towards Universalisation of Secondary Education (USE) by ensuring adequate enrolments for the children from under privileged society and the children Below Poverty Line (BPL) families.

## **Objectives**

The above goal translates into the following main objectives:

- *To ensure that all secondary schools have physical facilities, staffs and supplies at least according to the prescribed standards through financial support in case of Government/ Local Body and Government aided schools, and appropriate regulatory mechanism in the case of other schools.*
- *To improve access to secondary schooling to all young persons according to norms – through proximate location (say, Secondary Schools within 5 Km, and Higher Secondary Schools within 7-10 Km) / efficient and safe transport arrangements/residential facilities, depending on local circumstances including open schooling. However in hilly and difficult areas, these norms can be relaxed. Preferably residential schools may be set up in such areas.*
- *To ensure that no child is deprived of secondary education of satisfactory quality due to gender, socio-economic, disability and other barriers.*
- *To improve quality of secondary education resulting in enhanced intellectual, social and cultural learning.*
- *To ensure that all students pursuing secondary education receive education of good quality*
- *Achievement of the above objectives would also, inter-alia, signify substantial progress in the direction of the Common School System.*

### **1.6 ENVIRONMENTAL ASSESSMENT FRAMEWORK FOR RMSA**

The RMSA as it currently stands, particularly in terms of what is specified for financing, is primarily designed for expanding 'access' to secondary school education. The program gives priority to creation and strengthening of physical infrastructure. As per current estimates, this involves creation/ upgrading of nearly 11,200 buildings and strengthening/renovation of about 44,000 schools across the country. While the RMSA framework seeks to bridge the current gap in infrastructure requirements, there is not much emphasis on the need and ways to create and maintain a sustainable/ environment friendly school campus.

In order to develop and strengthen environment, health and safety practices in planning, design, construction and operation of secondary schools, the Ministry of Human Resource Development (MHRD) envisaged that an environmental assessment study is to be carried out for RMSA that will enable in over-corning existing gaps/deficiencies in the schools and will enable comprehensive and holistic planning in case of new schools.

The Environmental Assessment is intended towards facilitating MHRD in overcoming the deficiencies with regard to environment, health and safety aspects in secondary schools and to help in developing an environmental management framework (EMF), to help in mainstreaming environmental dimensions in the development and operation of secondary schools. It is therefore intended to help the MHRD in introducing/implementing the concept of 'green schools'.

## **2 Environment Assessment Framework for RMSA**

The chapter highlights the purpose and objectives for the present assignment – the Environmental Assessment for the RMSA and defines the envisaged scope of services. It also spells out the geographical scope of the project and presents the Consultants organization for the project.

### **2.1 PURPOSE AND OBJECTIVES OF THE ASSIGNMENT**

As has been stated in the earlier chapter an environmental assessment study will be carried out for RMSA in order to develop and strengthen environment, health and safety practices in planning, design, construction and operation of secondary schools, that will enable in overcoming existing gaps/deficiencies in the schools and will enable comprehensive and holistic planning in case of new schools.

Therefore, the objectives of this consultancy services would be to:

- establish an environment assessment methodology/procedure keeping in mind the objective and scope of services (detailed out in the subsequent section);
- review the nature and extent up to which the compliance is being achieved in the existing system in line with the various regulatory requirements;
- identify strengths and deficiencies of the existing system and develop a framework, which will help in mainstreaming environmental dimensions in the development and operation of secondary schools.

Accordingly, the activities under this consultancy package will include:

- Study and review the various acts, rules and regulations of Govt. of India (including those of MHRD) and some State Governments regarding environment, health and safety provisions/aspects that are required to be followed by the schools.
- Detailed review of the nature and extent of compliance of environment, health and safety aspects in schools (covering both existing secondary schools and those that are proposed for upgrading from upper primary to secondary level).
- Identification of good practices, strengths, deficiencies and gaps in the existing system/s with regard to planning, implementation, enforcement and monitoring of environment, health and safety aspects in schools.
- Preparation of an Environment Management Framework (EMF) that provides/recommends a comprehensive set of measures to ensure that school buildings and the over-all campus, covering both new and existing construction, are environment-friendly / sustainable.
- Development of a detailed capacity building plan for sensitizing and training various stakeholders, particularly the state directorates to guide them on the implementation of the Environment Management Framework.

## **2.2 SCOPE OF SERVICES**

The key tasks of the present consultancy assignment are as follows:

### **Task A: Review Existing Provisions and Establish Detailed Methodology / Procedure for Conducting Environmental Assessment (EA)**

- (i) Review and understand the various acts, rules and regulations of Govt. of India (including those of MHRD) and State Governments regarding environment, health and safety provisions/aspects that are required to be followed by the secondary schools.
- (ii) Review the existing systems (institutional, financial and human) of the secondary education sector at National, State, District and Block level regarding environmental management and health and safety in secondary schools. This will include review of planning, delivery, monitoring, and reporting systems through collection and assessment of primary (small representative sample including government, govt. aided and private schools in advance and lagging States, in rural and urban locations) and secondary data/information.
- (iii) Identify and provide an evidence-based explanation of the critical issues and risks that need to be assessed in detail and establish an EA procedure, satisfactory to MHRD and the Development Partners. The critical issues and risks should be presented in order of priority.

### **Task B: Conduct Environment Assessment (EA)**

- (i) Carry out a detailed environment assessment of secondary schools in line with the identified issues/risks and agreed methodology. This review and assessment to be carried out for a representative sample must include, but may not be limited, to the following aspects pertaining to:
  - a. Siting/ location of the school
  - b. Planning and Lay-out of the campus (including orientation of buildings: internal circulation arrangements)
  - c. Structural safety aspects (application and adherence to building codes; condition of buildings)
  - d. Building Design (building lay-out; space for various activities; materials used)
  - e. Class room design (space availability; natural light and ventilation; display arrangements)
  - f. Library and laboratory design (space availability; natural light and ventilation; display arrangements)
  - g. Measures for Disaster Risk Management

- h. Facilities for Physically Challenged
  - i. Water management in the school (drinking water arrangements its usage for other purposes, water supply sources and quality)
  - j. Drinking water arrangements
  - k. Drainage arrangements
  - l. Sanitation arrangements and its condition
  - m. Energy use and management
  - n. Waste management (collection and disposal)
  - o. Exposure to pollution particularly dust, toxic fumes, contaminated water and noise.
  - p. Fire and Electrical Safety Practices
  - q. Storage, handling and use of various toxic/hazardous materials (such as chemicals used in laboratories).
  - r. Specific safety measures/precautions in the laboratories
  - s. First aid and emergency response arrangements
  - t. Over-all operation and maintenance aspects (housekeeping; cleanliness and hygiene)
- (ii) Assess the capacity for complying with current environment health and safety requirements at various levels including students, teachers and staff from school management and state directorate.
- (iii) Identify and make a comprehensive list of items/aspects and areas/sections where gaps/deficiencies exist.
- (iv) Identify the good practices that are being followed/adopted, which can be used as dissemination and potential scaling-up.

### **Task C: Preparation of Environment Management Framework**

- (i) Review norms, experience and implementation mechanisms to identify global best practices with regard to environmental management in schools.
- (ii) Recommend specific actions, and specify, associated Financial and management costs (e.g. technical capacity), that are required to overcome deficiencies and to strengthen/improve environment, health and safety conditions in schools focusing on planning, design, construction and maintenance elements. The required measures will be separately identified for new buildings and retro-fitting/improving existing structures.
- (iii) Prepare an Environment Management Framework that can serve as a comprehensive and systematic guide towards making secondary schools (both new and existing ones) environment friendly/sustainable.

## Task D: Training and Capacity Building

- (i) Develop a detailed capacity building plan for improving awareness and knowledge on environment, health and safety requirements at various levels.
- (ii) Organize workshops/sessions to build capacity by sensitizing and training various stakeholders, particularly the staff of state directorates, to guide them on the implementation of the environment management framework.

### 2.3 THE PROJECT AREA

The **Rashtriya Madhyamik Shiksha Abhiyan (RMSA)** has been launched by the Government of India as a centrally sponsored scheme for all states and union territories across the country. However for the purpose of conducting the Environmental Assessment for the RMSA it was decided to select 5 different states across the different regions of the country. The states selected would not only represent the different geographic domains of the country but at the same time bring out unique natural, environmental and socio-economic conditions that prevail across the various regions of the country and thereby help in formulation of an Environmental Management Framework (EMF) that can be made applicable to the overall country as a whole.

The 5 states selected include Uttar Pradesh (North) Kerala (South), Orissa (East) Gujarat (West) and Assam (North-East). 15 secondary schools (with a mix of government, government aided and private schools) will be studied per state from both urban and rural locations (at least 10 schools should from rural areas).

The unique natural, environmental and socio-economic conditions prevailing in these 5 states are highlighted in the following Table while the states themselves are depicted in **Figure 2.1**.

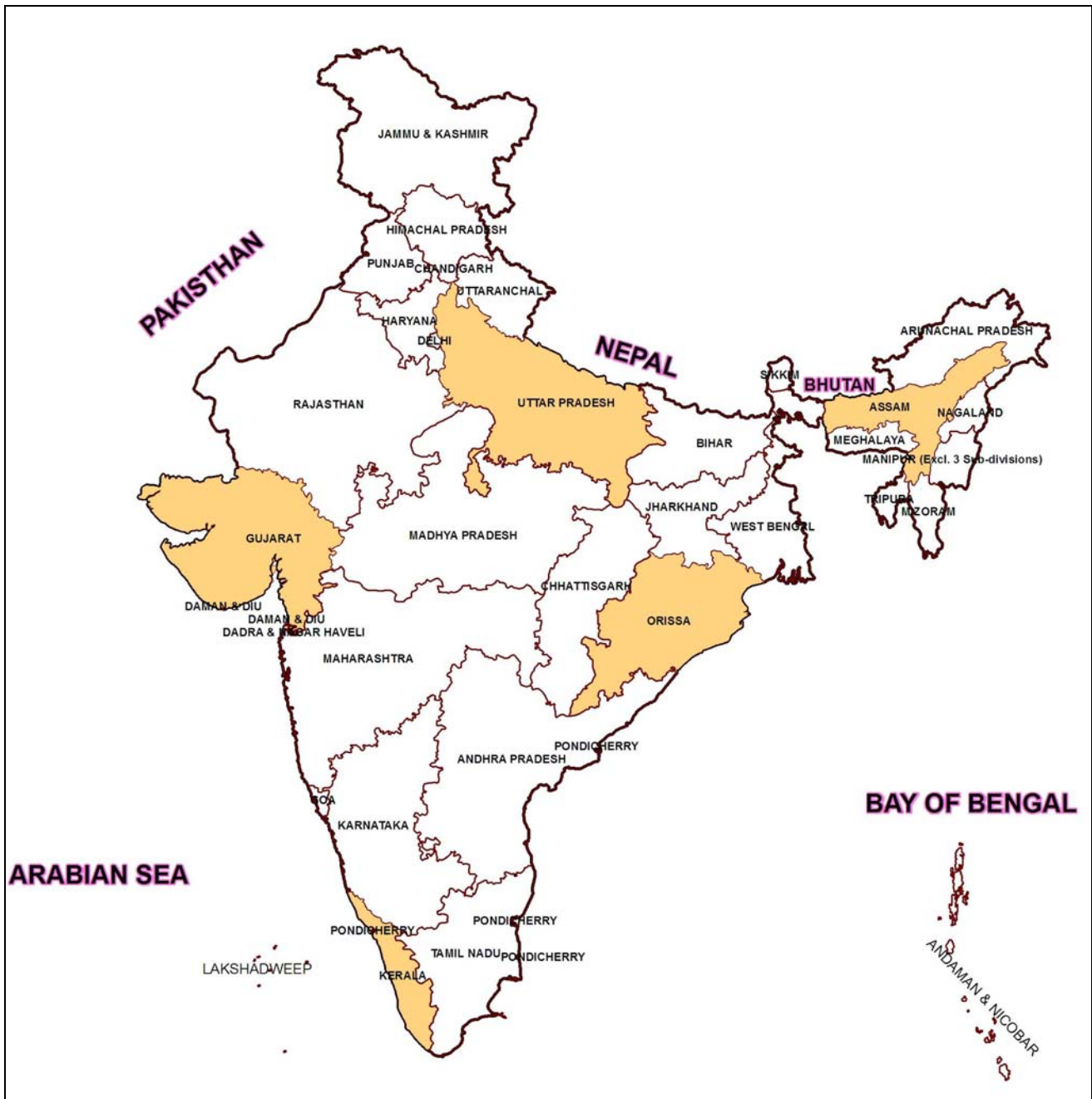
**Table 2-1: States Selected for Environmental Assessment of RMSA**

Sl. No	State	Geographic Region	Environmental Uniqueness
1	Uttar Pradesh	North	<ul style="list-style-type: none"> <li>– Distinct Physiographic Zones (Northern Himalayas &amp; Siwalik Foothills, Western Plain and Eastern Gangetic Plains &amp; Vindhyan Plateau)</li> <li>– Number of Archaeological Locations, Heritage Sites and Religious Places</li> <li>– Fertile Land with Agricultural Dependency</li> <li>– Natural Hazard (Flood)</li> </ul>
2	Kerala	South	<ul style="list-style-type: none"> <li>– District Physiographic Zones (Highlands-Western Ghats, Midland-Plans and Lowland-Coastal</li> </ul>

Sl. No	State	Geographic Region	Environmental Uniqueness
			<p>Areas)</p> <ul style="list-style-type: none"> <li>– Rich Biodiversity and Number of Protected Habitats and Wildlife</li> <li>– Natural Hazard (Landslide and Flood)</li> <li>– Well known for its Scenic Beauty, but the land is relatively poor in natural resources</li> </ul>
3	Orissa	East	<ul style="list-style-type: none"> <li>– Distinct Physiographic Zones (Northern Plateau, Eastern Ghats, Coastal Areas and Flood Plains)</li> <li>– Natural Hazard (Cyclone, Flood, Storm Surge, Earthquake, Drought)</li> <li>– Environmental Vulnerability (Industrial Area, Mining Areas, etc.)</li> <li>– Large Forest Area with Wildlife Habitat, especially Elephant, Tiger, Olive Ridley Turtles and migratory bird habitat at Chilika. Presence of Mangrove Vegetation.</li> <li>– Socio-economic Backwardness</li> </ul>
4	Gujarat	West	<ul style="list-style-type: none"> <li>– One of most Industrialized States in India</li> <li>– Distinct physiographic zones (Alluvial Plains, Eastern Highlands, Peninsular Region and Arid Zone )</li> <li>– Sensitive Ecological Habitat</li> <li>– Natural Hazard (Earthquake, Drought)</li> </ul>
5	Assam	North-East	<ul style="list-style-type: none"> <li>– Distinct Physiographic Zones (Brahmaputra and Barak Valley and Hilly Regions)</li> <li>– Rich Biodiversity with Sensitive Ecological Habitat for number of Endangered Species</li> <li>– Rich Natural Resources (Petroleum, Natural Gas, Coal, Limestone and Other Minor Minerals)</li> <li>– Natural Hazard Prone (Flood, Earthquake)</li> </ul>



Figure 2-1: States Selected for Environmental Assessment of RMSA



## **2.4 THE PROJECT CONSULTANTS**

The MHRD has retained the services of **SENES Consultants India Pvt. Ltd. (SENES)** to conduct the Environmental Assessment and Formulate the Environmental Management Framework for RMSA.

SENES, which stands for Specialists in Energy, Nuclear and Environmental Sciences, provides leading-edge environmental services for governmental, industrial and public interest groups on a broad spectrum of projects. In business for over 25 years, SENES has participated in over 4500 projects throughout North America, India, the Caribbean, South America, East and South-East Asia, Central Asia, Australia and Europe. SENES has its main office in the Toronto Area (Richmond Hill) with branch offices in Ottawa and Vancouver, British Columbia.

SENES has also established four other companies – Decommissioning Consulting Services Limited in Richmond Hill; SENES Center for Risk Analysis in Tennessee, U.S.A.; SENES Chile, S.A. in Santiago; and SENES Consultants India Pvt. Limited – to provide services in selected specialized areas and to serve regional markets for environmental services.

SENES Consultants India Pvt. Limited is a 100% subsidiary of SENES Consultants Limited and has been operational in India for the last ten years having its head office in New Delhi with branch offices in Kolkata, Mumbai and Hyderabad and has all supporting infrastructure for project implementation including GIS lab and environmental software development cell.

SENES has extensive experience working with international aid and governmental agencies including the Canadian International Development Agency (CIDA), World Bank, Japanese Bank for International Cooperation (JBIC), Japanese International Cooperation Agency (JICA), International Finance Corporation (IFC), European Commission (EC) and the Indian Ministry of Environment and Forests.

SENES provides specialist services with respect to:

- Environmental & Social Assessment & Management
- EMS Implementation Services
- Hand holding Support for EMP implementation for various sectoral projects
- Executing Training Programs for EMP Implementation
- Solid Waste Management.
- Water Resource Management
- GIS mapping & GIS based software development.
- Training & Capacity Building

SENES has played a key role in formulating and implementing EMPs for a number of multilaterally fund supported projects. SENES also has obtained extensive experiences in working with in socio-cultural settings of both urban and rural settings. SENES has worked on a large number of World Bank and IFC funded projects and understand the dynamics of working with government departments, urban local bodies, development agencies and other institutions including civil societies.

Therefore utilizing its experience of conducting EAs/ESAs and formulating and implementing Environmental Management Plans/Frameworks and understanding and appreciating the purpose and objective of the assignment along with the scope envisaged for this consulting assignment SENES has developed a plan for execution of this assignment which is presented in the subsequent chapter.

### **3 Implementation Plan**

The Government of India (GoI) has made commitment to improve access to quality secondary education. To be achieve these objectives provision of additional physical infrastructure and hiring of additional teachers have been planned. Financing is also planned for school grants, in-service teacher training and for purchase of books, equipments and consumables. MHRD intends to overcome the deficiencies with regard to environment, health and safety aspects in secondary schools and introduce/implement the concept of 'green schools'. With this central focus the environmental assessment has been designed to prepare and Environmental Management Framework which would help integrate the environmental, health and safety into the design and operation of schools.

#### **3.1 APPROACH FOR THIS STUDY**

The basic objective of proposed environmental assessment (EA) and preparation of environment management framework (EMF) for RMSA would be to establish an environment assessment methodology/procedure; review the nature and extent up to which the compliance is being achieved in the existing system in line with the various regulatory requirements; identify the strengths and deficiencies of the existing system and develop a framework, which will help in mainstreaming environmental dimensions in the development and operation of secondary schools. The EMF defines the roles and responsibilities of various stakeholders and also provides guidelines to be followed during the program implementation.

We intend to adopt a systems approach to the implementation of assignment. We would thus understand the inputs the processes and systems which functional at this point of time. This would help in identifying systematic shortcomings and practical hindrances. We would focuses not only on the practical aspects but also looks into the institutional failures or shortcomings which hamper development of a conducive environment. This process of assessment would help us understand the HSE (health Safety and Environmental) shortcomings in the present system and also help us develop sound practices which are practicable. Institutional shortcoming which are hindering would also be put into the perspective through the Environment Management Framework.

Appreciating that the education framework in India is a state subject and there are a number of stakeholders involved t different level the study would take a collaborative approach. Consultations with different stakeholders have been planned at:

- *Policy Makers at National & State Levels i.e. MHRD and the State Education Dept.*
- *Implementers of the System i.e. Department / Boards / Councils / Management*
- *Teaching Community*
- *Educants*
- *Community*

A common understanding among all these stakeholders would help in integrating HSE issues into the normal functioning of the system of providing education infrastructure and also impacting knowledge to the children.

### **3.2 PROPOSED WORK PLAN**

The section provides a detailed task to be undertaken and the work program. The Work program included details of the work to be undertaken as also the timelines for the activity.

#### ***Activity 1.0: Team Mobilization***

All the team members have been intimated about the project and the first project meeting was held on 3<sup>rd</sup> October 2011. The team members were briefed about the project and also the approach which would be adopted. The individual discipline members also identified the broad areas of concerns which related to the health, environment and safety aspects of schools.

#### ***Activity 2.0: Kick Off Meeting***

A kickoff meeting was held with Joint Secretary, Ministry of Human Resource Development, World Bank Team, DFID Team, TSG members Department of School Education and Literacy, Ministry of Human Resource Development on 11<sup>th</sup> October 2011. SENES was represented in the meeting by Avijit Ghosh (Environmental Specialist) and Salil Das (Environmental Specialist). The methodology and approach of the study for selection of districts, sub districts and schools were discussed and the areas which would be focused were agreed on. In the meeting it was also discussed and agreed that before the actual school visits a state level Kickoff meeting will be held in each state.

#### ***Activity 3.0: Review of the Existing Documentation***

The following documents would be reviewed:

##### ***Legislations***

- Right of Children to Free and Compulsory Education Act, 2009
- Right of Children to Free and Compulsory Education Rules, 2009

##### ***Guidelines***

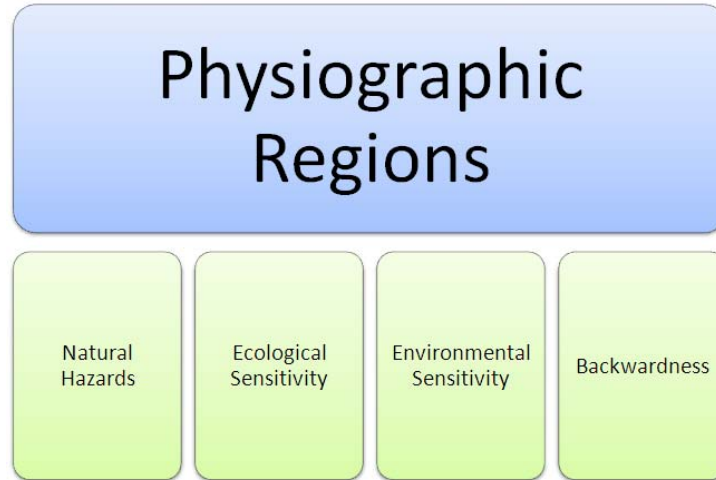
- Review of the existing guidelines for schools issued by individual states.
- National Building Codes

**Deliverable:** A review of the documents would be carried out and presented as part of the Environmental Assessment Report of the five states.

**Activity 4.0: Developing a Methodology for Short Listing Schools**

As presented in the proposal we have developed a framework for short listing of districts and also schools. The generic framework for short listing of districts is presented in Figure 3-1.

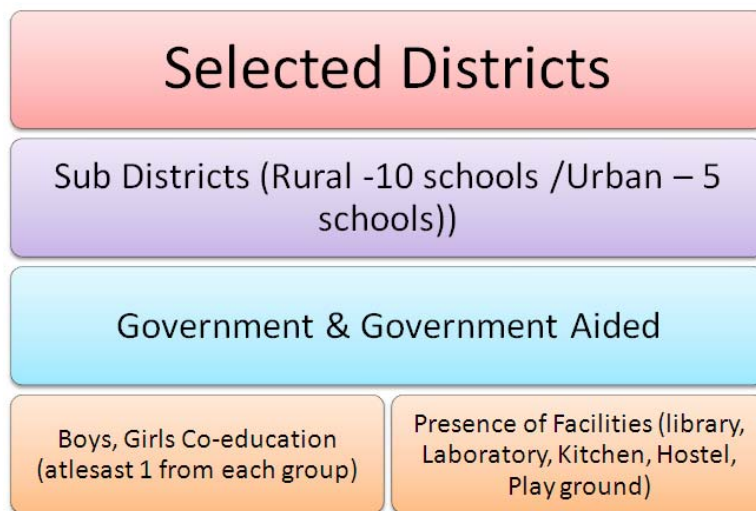
**Figure 3-1: Classification of Districts in Each State**



The districts in each state would be classified into physiographic regions representing different terrains and the climates. Each physiographic region would further be classified based on the ecological sensitivity (forest, wildlife corridor etc) and environmental vulnerability (industrial activity, mining etc), Backwardness. The district which best represents each of the above parameters would be selected to represent the region within a state.

From each of the districts individual schools would be selected. The framework for election of schools in each representative district is presented in Figure 3-2.

**Figure 3-2: Framework for Selection of Schools**



For each selected district one urban sub-district and two rural sub-districts are selected. The district headquarters or major urban area would be selected as an urban sub district. In each of the sub-district or the sub-districts a combination of government and government aided schools would be selected depending on the total sample size. This would result in short listing of schools in each of the sub-districts.

The schools which would be visited would be selected form this shortlist based on stratified random sampling based on the following criteria:

- Boys, Girls Co-education (at least 1 from each group)
- Presence of Facilities i.e. library, Laboratory, Kitchen, Hostel, Play ground (at least one school which has these facilities)

The state of Orissa was used as for testing this framework developed. In this regard the following approach was adopted.

### **Field Testing of the Survey Framework Proposed in Orissa**

A Kickoff Meeting with Directorate of RMSA, Orissa was organized in Bhubaneswar on 3<sup>rd</sup> November 2011 in presence of representative from the World Bank (Ms. Neha Vyas, Environmental Specialist). From the State, the State Project Director – Mr. B. C. Pattanaik and his entire team were present. SENES was represented in the meeting by a six member team lead by Dr. A.K. Ghosh (Team Leader). The methodology and approach of the study for selection of four districts (Sundegarh, Anagul, Ganjam, Kandamal) for Orissa, sub districts and schools were discussed. The Director of RMSA suggested including Cuttack district for this study as a district representative for flood prone areas.

Thereafter the SENES team along with World Bank’s Environmental Specialist and RMSA Officials visited two schools in Ganjam district on 4<sup>th</sup> November, 2011 for field testing the methodology and approach adopted for the school surveys. During the School Visits the District Inspector of Education was also present.



**Deliverable:** The Inception Report contains the outcome of the application of the framework first in Orissa and thereafter in all other states. The schools selected through the process have also been presented.

***Activity 5.0: Preparation of Health Safety Environmental Assessment Methodology***

A Questionnaire / Check list was prepared from the inputs from different functional area expert. This questionnaire would be used for facility visit. This questionnaire contains the following areas:

- Location of the School
- Basic Information of School
- Planning and Lay-out of the Campus
- Structural (Building) Safety Aspects
- Building Design (Work Place Issues)
- Library & Laboratory Design
- Kitchen Design & Safety
- Measures for Disaster Risk Management
- Facilities for Physically Challenged
- Drinking water & Water Management
- Drainage Arrangement
- Sanitation Arrangement & Conditions
- Energy Use & Management
- Waste Management (Collection & Disposal)
- Exposure to Pollution Particularly Dust, Toxic Fumes, Contaminated Water and Noise
- Fire Safety
- Electrical Safety
- Landscaping & Biodiversity
- Transport Safety
- School Curriculum and Activities Related to Environment

**Deliverable:** The copy of the questionnaire is presented in the Annexure of the Inception Report. The questionnaire developed for the assessment was finalized after incorporating World Bank's comments. The questionnaire has also been field tested during the schools visits organized during the Orissa Kickoff.



***Activity 6.0: Visits to the Individual Schools***

We intend to visit all the school selected in each of the state carry out a facility audit to identify the shortcomings in each of the areas pointed above. The approach of the facility visit would not only be to identify the short coming but also to identify the factors which contribute it i.e. finding out the underlying weakness. Structured documentation of the issues would be undertaken by the use of the following questionnaire. Photo documentation would be carried out to highlight the issues which are identified during the facility visit.

Considering the paucity of time it was decided to undertake facility visit in the schools of Orissa on a priority basis in November and the rest of the states would be taken up subsequently in December 2011 and January 2012. We have already initiated school visit for Orissa from 21<sup>st</sup> November after finalization of 18 schools from RMSA State Directorate and its approval for these schools. We are planning to complete the facility visit within January 2012 for all the five states.

***Activity 7.0: Environmental Issues and Concerns***

The environmental issues and concerns which have been identified in each of the states would be compiled in the form of a compendium of issues. The issues would be screened to identify the issues which would require institutional interventions and those which would require a change in the practice. This classification would later help in defining the strategies.

**Deliverable:** Considering the urgency of the situation we propose to present the finding of Orissa as a separate report, which would have representation of coastal areas, plains and flood prone areas, highlands and mountains within the first fortnight of December 2011. The full report on the issues and concerns for all the states would be submitted within the first fortnight of February 2012.

***Activity 8.0: Consultation at State & National Level***

The findings of the environmental assessment would be discussed with the state level stakeholders in each of the five states. These state level meetings would be organized at each of the state capitals in the second fortnight of February 2012. After completion of the state level consultations, a consultation at the national level will be organized to finalize the EA Report. All such consultations at the state and national level are expected to be completed within February 2012.

**Deliverable:** The Final Environmental Assessment incorporating the views of the stakeholders would be submitted within the first fortnight of March 2012.

***Activity 9.0: Preparation of the Environment Management Framework (EMF)***

The Environment Management Framework for the project would define framework for incorporating the environmental health and safety concerns into the various stages of the development and functioning of the schools. It would present the directives i.e. do's and do not's for building design, construction maintenance and operation of the school. Issues like hygiene, sanitation resource conservation would also figure. These directives would further be elaborated in to guidance manuals which would include guidelines on each aspect. Where ever required the guidance manuals would also detail specific requirement for a region based on physiographic or other natural or anthropogenic conditions.

The environmental framework would thus be applicable for:

- New schools on new sites
- New schools or extension on existing schoolyards.
- Rehabilitation of existing schools on existing schoolyards

**Deliverable:** The Draft EMF is expected toward the end of the March 2012.

***Activity 10.0 Validation of the EMF***

To ensure that the views of the state level stakeholders are adequately and appropriately reflected it is proposed that the draft EMF report be circulated to the State Directorate for their review and consent. Once this consent is obtained from the state level and after incorporation of their comments, the draft EMF would be handed over to MHRD for review and comment. The EMF would be finalized based on comments and feedback from the MHRD.

**Deliverable:** The Final EMF would be submitted to MHRD after incorporation of all comments received from state / national level for final approval and subsequent distribution to the State Directorate for training and capacity building program. It is expected that this entire process of validation of the EMF will be completed within April 2012.

***Activity 11.0: Training and Capacity Building Plan***

In order to build the capacity of the personnel of the education department / state project office who would be involved in the implementation of the RMSA program we would hold a one day Training Workshop at Delhi. The basic objective of the workshop would be to explain the EMF and also the provisions of the Guidance Manuals. The participants would be made familiar with rationale behind the guidance manuals as also the process of their implementation / incorporation in the overall framework of RMSA.

**Deliverable:** The Training Workshop at Delhi is expected in the month of May 2012.

## 4 Schools Selected for RMSA

The selection criteria stated has been applied for all five states in India and presented in the Inception Report.

### 4.1 SHORT LISTING OF SCHOOLS IN ORISSA

The following approach has been followed in short listing of the schools in Orissa:

#### 4.1.1 Selection of District

Orissa has four distinct physiographic regions namely:

- **Coastal Plain:** This region stretches along the coast of Bay of Bengal. This region is the combination of several deltas, formed by the major rivers of Orissa.
- **Eastern Ghats:** This region covers about three-fourths of the entire State. This region comprises the hills and mountains of the Eastern Ghats which rise abruptly and steeply in the east and slope gently to a dissected plateau in the west running from north-east (Mayurbhanj) to north-west (Malkangiri). The average height of this region is about 900 meters above the mean sea level.
- **Northern Plateau:** The northern plateaus are mostly eroded plateaus forming the western slopes of the Eastern Ghats with elevation varying from 305-610 meters.
- **Major Flood Plains:** These are lower in elevation than the central plateaus having heights varying from 153 meters to 305 meters.

The 30 districts in the state can be classified into the four physiographic regions as follows:

**Table 4-1: Districts in the Four Physiographic Regions in Orissa**

Physiographic Region	Districts
Coastal Plains	Balasore, Bhadrak, Ganjam, Jagatsinghpur, Kendrapara, Khurdha, Puri
Eastern Ghats	Bolangir, Gajapati, Kalahandi, Kandhamal, Koraput, Malkangiri, Nabarangpur, Nuapada, Rayagada
Northern Plateau	Deogarh, Jharsuguda, Keonjhar, Sundergarh
Flood Plain	Angul, Bargarh, Boudh, Cuttack, Dhenkanal, Jajpur, Mayurbhanja, Nayagarh, Sambalpur, Sonapur

Each of the districts was further classified on the basis of the Ecological Sensitivity, Natural Hazards and Environmental Sensitivity. Backwardness was also taken as a criterion considering the guidelines issues by the Planning Commission, Government of India.

**Table 4-2: Selection Matrix for the Districts in Orissa**

Physiography	Name of District	Backward District	Natural Disasters	Eco Vulnerability	Environmental Vulnerability	District Selected
Coastal Plain	Balasore	-	Cyclone	Kuldhia Wildlife Sanctuary	-	
	Bhadrak	-	Cyclone	-	-	
	<b>Ganjam</b>	Backward	Cyclone	Chilika Lake & Breeding Site for Olive Ridley Turtle; Lakhari Valley Wildlife Sanctuary	Industry	Selected
	Jagatsinghpur	-	Cyclone	-	Port & Industry	
	Kendrapara	-	Cyclone	Bhitar Kanika National Park; Gahirmata Beach & Marine Sanctuary (Breeding Site for Olive Ridley Turtle)	-	
	Khurdha	-	-	Nandankanan National Park & Chandaka Elephant Reserve	-	
	Puri	-	Cyclone	Chilika Lake & Wildlife Sanctuary; Balukhand-Konarak Wildlife Sanctuary	-	
Eastern Ghat	Bolangir	Backward	Drought	-	-	
	Gajapati	Backward	-	-	-	
	Kalahandi	Backward	Drought	Karlapat Wildlife Sanctuary	-	
	<b>Kandhamal</b>	Backward	Drought	Kotgarh Wildlife Sanctuary & Elephant Corridor	-	Selected
	Koraput	Backward	-	-	-	
	Malkangiri	Backward	-	-	-	
	Nabarangpur	Backward	-	-	-	
	Nuapada	Backward	-	Sunbeda Wildlife Sanctuary	-	
Northern Plateau	Deogarh	Backward	-	-	-	
	Jharsuguda	Backward	-	-	Mines	
	Keonjhar	Backward	-	Hadgarh Wildlife Sanctuary, Elephant Reserve & Corridor	Industry & Mines	
	<b>Sundergarh</b>	Backward	-	Elephant Reserve & Corridor	Industry & Mines	Selected

<b>Physiography</b>	<b>Name of District</b>	<b>Backward District</b>	<b>Natural Disasters</b>	<b>Eco Vulnerability</b>	<b>Environmental Vulnerability</b>	<b>District Selected</b>
Flood Plain	<b>Angul</b>	-	-	Satkoshia Gorge Wildlife Sanctuary	Industry	Selected
	Bargarh	-	-	Debrigarh Wildlife Sanctuary	-	
	Boudh	Backward	-		-	
	<b>Cuttack</b>	-	Cyclone	-	-	Selected
	Dhenkanal	Backward	-	-	Mines	
	Jajpur		-	-	Mines	
	Mayurbhanj	Backward	-	Simlipal National Park; Kuldhia Wildlife Sanctuary, Tiger Reserve, Elephant Reserve & Corridor	-	
	Nayagarh		-	Baisipali Wildlife Sanctuary	-	
	Sambalpur	Backward	-	Badrama & Khalasuni Wildlife Sanctuaries, Elephant Reserve & Corridor	-	
	Sonapur	Backward	-	-	-	

Considering the selection matrix in **Table 4-2** the district which best represents all of them in each physiographic category was shortlisted for the sampling. Thus the following districts were identified in the four physiographic regions:

- **Coastal Plains:** Ganjam
- **Eastern Ghats:** Kandhamal
- **Northern Plateau :**Sundergarh
- **Flood Plains:** Angul and Cuttack

The districts selected in Orissa are shown in **Figure 4.1**.

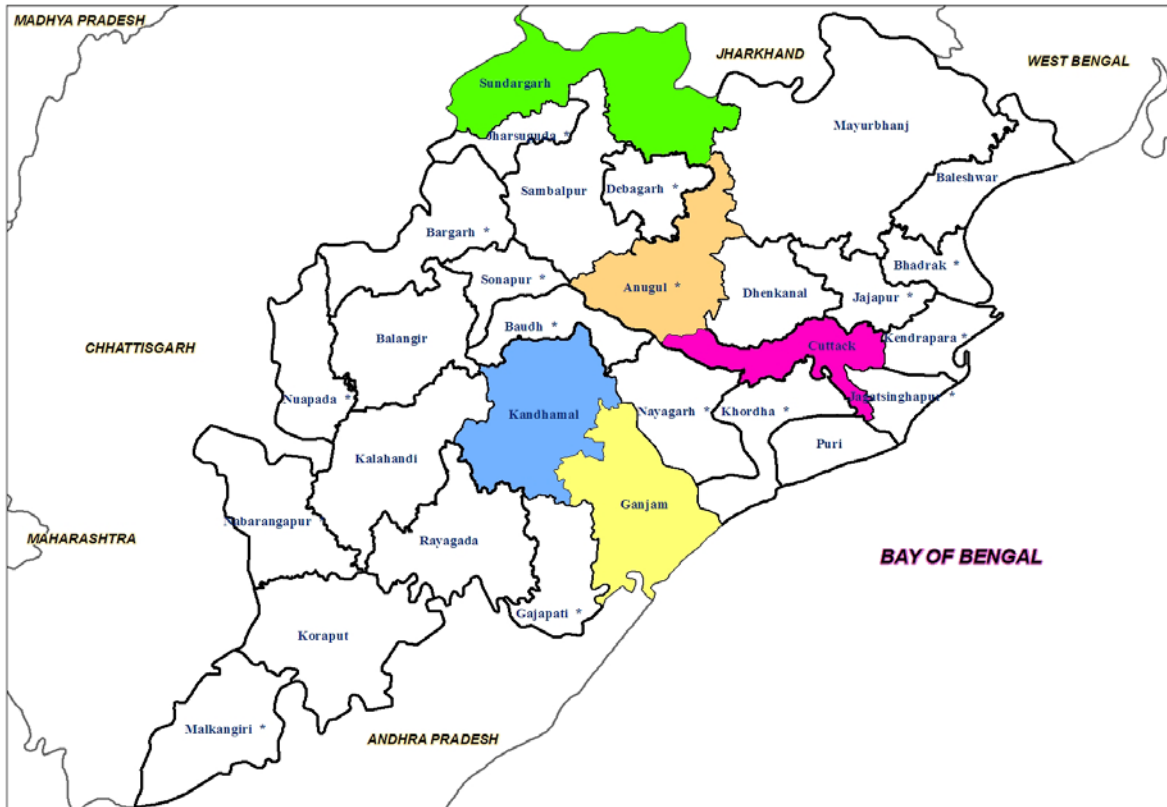
#### **4.1.2 Selection of the Sub Districts**

From these five district sub-districts were selected which would best be representative of the rural and urban areas. As a general principle it was decided to consider the district headquarters or the main settlement in each district as an urban area and two other sub-districts in district as rural areas. Further districts which have particular environmental or ecological sensitivity (for which a district has been selected), the sub-district which best represents this has been selected. Considering this principle the following sub-districts in each of the districts were identified which is presented in **Table 4-3**.

**Table 4-3: Selected Sub-district in Representative Districts of Orissa**

<b>Physiographic Region</b>	<b>District</b>	<b>Block</b>	<b>Urban / Rural</b>
Coastal Plains	Ganjam	Khallikote	Rural
		Ganjam NAC	Urban
		Chatrapur	Rural
Eastern Ghats	Kandhamal	Phulbani NAC	Urban
		Phulbani	Rural
		Khajuripada	Rural
Northern Plateau	Sundergarh	Rourkela MPL	Urban
		Rajgangpur	Rural
		Kuarmunda	Rural
Flood Plains	Angul	Talcher	Rural
		Angul NAC	Urban
		Kishorenagar	Rural
	Cuttack	Banki	Rural
		Cuttack Sadar	Urban
		Salipur	Rural

Figure 4-1: Districts Selected in Orissa



#### 4.1.3 Selection of the Schools

Considering the guidelines in the RfP that in each state 15 schools would be selected of which 10 would be in rural areas and five in urban areas, one school in each block was selected. However, for selection of schools both government and government aided schools were taken. Representative samples were also taken from boys, girls and co-education schools. Additionally, the representative sample was selected in such a way that the following facilities in education system were represented in the sample:

- Playground
- Laboratory
- Library
- Kitchen
- Hostel

Considering these criteria above the schools were identified using the SEMIS data base. The schools selected are presented in **Table 4-4**. The list of shortlisted schools includes a slightly higher number of schools (more than 15 Nos.) and this list will be circulated to the State Project Office for RMSA in each state. The final list of schools will be drawn up based on the recommendations at each state level.

**Table 4-4: Schools Selected in Orissa for the RMSA Environmental Framework**

<b>District</b>	<b>Block</b>	<b>Sl. No.</b>	<b>School</b>
Anugul	Anugul NAC	1	Anugul Govt. High School
		2	Shankapur Project UPS
	Talcher	3	Colliery High School
	Kishorenagar	4	R.D. High School
		5	Maa Maheswari High School
Ganjam	Chattarpur	6	Saraswati Sishu Vidya Mandir
		7	Mahananda P.U.P.S
	Ganjam NAC	8	Bharati Bidyapith
	Khallikote	9	Uddyanath Bidyapith
		10	R.C.M. High School
Kandhamal	Phulbani NAC	11	A.J.O. H.S.
		12	Govt Girls High School
		13	Keridi UPS
	Phulbani	14	Jawahar Navodaya Vidyalaya, Tudipada
		15	Govt Upgraded High School, JamuJhari
	Khajuripada	16	Project UPS Pirikudi
		17	Govt. Girls High School
Sundergarh	Kuarmunda	18	Kuarmunda Girls High School
		19	Padampur U.P.S
	Rourkela MPL	20	Govt. High School, Uditnagar
	Rajgangpur	21	Langibera Sramik High School
		22	Kichinda Nodal UPS
Cuttack	Banki	23	Sadhab Samaj Bidya Niketan
	Cuttack Sadar	24	Kelikadamba High School
		25	Sankhatras Govt. H.S.
	Salipur	26	Gopabandhu Girls H.S.
		27	Mahasingpur High School

*Note: Final list of schools to be visited will be drawn up based on recommendations of the State Project Office of RMSA*



## 4.2 SHORT LISTING OF SCHOOLS IN ASSAM

The following approach has been followed in short listing of the schools in Assam:

### 4.2.1 Selection of District

Assam has four distinct physiographic regions namely:

**The Brahmaputra Valley:** This is the major physiographic unit of Assam. The valleys as a whole gently slope from north east to south west. The Brahmaputra valley in its east-west direction has fair distinct physiographic units

- **Upper Brahmaputra Valley:** The region situated at the northern foothills sub Himalayan ranges of the upper valley is comprises by tertiary sandstones.
- **Lower Brahmaputra Valley:** The North and South Bank Plains formed by recent alluvial deposits carried by the Brahmaputra. The Flood Plain of Brahmaputra including Charlands inside the area lies between the north and south bank plains.
- **The Barak Valley:** The Barak Valley also forms one of the important physiographic units of Assam, which comprises the Barak plain and the northern and southern foothills are the product of Barak Rivers.
- **The Karbi Plateau and Southern Hills:** The Karbi Plateau genetically belongs to the Meghalaya Plateau consists of the two hilly lobes of unequal size separated by Kapili Valley. The Southern hills of Assam comprised by tertiary mountain range, which is a continuation of the Barak range.

The districts in the state can be classified into the four physiographic regions as follows:

**Table 4-5: Districts in the Four Physiographic Regions in Assam**

Physiographic Region	Districts
<b>Upper Brahmaputra Valley</b>	Dhemaji, Dibrugarh, Jorhat Lakhimpur, Sibsagar, Tinsukia
<b>Lower Brahmaputra Valley</b>	Barpeta, Bongaigaon, Darrang, Dhuburi, Goalpara, Golghat, Kamrup, Kakarajhar, Marigaon, Nagaon, Nalbari, Sonitpur,
<b>Barak Valley</b>	Hailakandi, Karimganj, Cachar
<b>Karbi Plateau &amp; Southern Hills</b>	Karbianglong, North Cachar Hills

Each of the districts was further classified on the basis of the Ecological Sensitivity, Natural Hazards and Environmental Sensitivity. Backwardness was also taken as a criterion considering the guidelines issues by the Planning Commission, Government of India.

**Table 4-6: Selection Matrix for the Districts in Assam**

Physiography	Name of District	Backward District	Natural Disasters	Eco Vulnerability	Environmental Vulnerability	District Selected
Upper Brahmaputra Valley	Dhemaji	Backward	Extreme flood prone	-		
	Dibrugarh			Dibru Saikhowa National Park;	Tea Garden; Mines	
	Jorhat				Tea Garden	
	Lakhimpur	Backward	Extreme flood prone	Pobha or Milroy Sanctuary		
	Sibsagar			Pani Dihing Bird Sanctuary	Tea Garden; Mines	
	<b>Tinsukia</b>			Flood	Dibru Saikhowa National Park; Dehing Patkai Sanctuary	Digboi Refinery; Tea Garden; Mines
Lower Brahmaputra Valley	Barpeta	Backward				
	Bongaigaon	Backward			Bongaigaon Refinery	
	Darrang			Manas National Park; Orang (Rajiv Gandhi) National Park; Bornadi Wildlife Sanctuary		
	Dhuburi			Chakrashila Wildlife Sanctuary		
	Goalpara	Backward	Floods		Mines	
	<b>Golaghat</b>		Floods	Kaziranga National Park; Nambor - Doigrung Wildlife Sanctuary	Numaligarh Refinery; Tea Garden	Selected
	<b>Kamrup</b>		Floods	Deepar Beel	Guwahati Refinery; Cement Industry; Mines	Selected
	Kokrajhar	Backward		Manas National Park		
	Marigaon	Backward	Floods	Pabitora Wildlife Sanctuary		
	Nagaon		Floods	Kaziranga National Park; Laokhowa Wildlife Sanctuary	Tea Garden; Mines	
	Nalbari		Floods			
Sonitpur			Nameri National Park; Burachapori Wildlife Sanctuary; Sonai Rupai Wildlife Sanctuary	Tea Garden		
Barak Valley	<b>Hailakandi</b>	Backward	Floods		Tea Garden	Selected
	Karimganj			Son Beel	Cement Industry	
Karbi Plateau and Southern Hills	<b>Cachar</b>	Backward		Borail Wildlife Sanctuary		Selected
	Karbi Anglong	Backward	Floods	Garampani Wildlife Sanctuary; Nambor Wildlife Sanctuary; East Karbi Anglong Wildlife Sanctuary	Cement Industry; Mines	
	North Cachar Hills	Backward		Borail Wildlife Sanctuary	Cement Industry; Mines	

Considering the selection matrix in **Table 4-6** the district which best represents all of them in each physiographic category was shortlisted for the sampling. Thus the following districts were identified in the four physiographic regions:

- **Upper Brahmaputra Valley** : Tinsukia
- **Lower Brahmaputra Valley**: Golaghat & Kamrup
- **Barak Valley**: Hailakandi
- **Karbi Plateau and Southern Hills**: Cachar

The districts selected in Assam are shown in **Figure 4.2**.

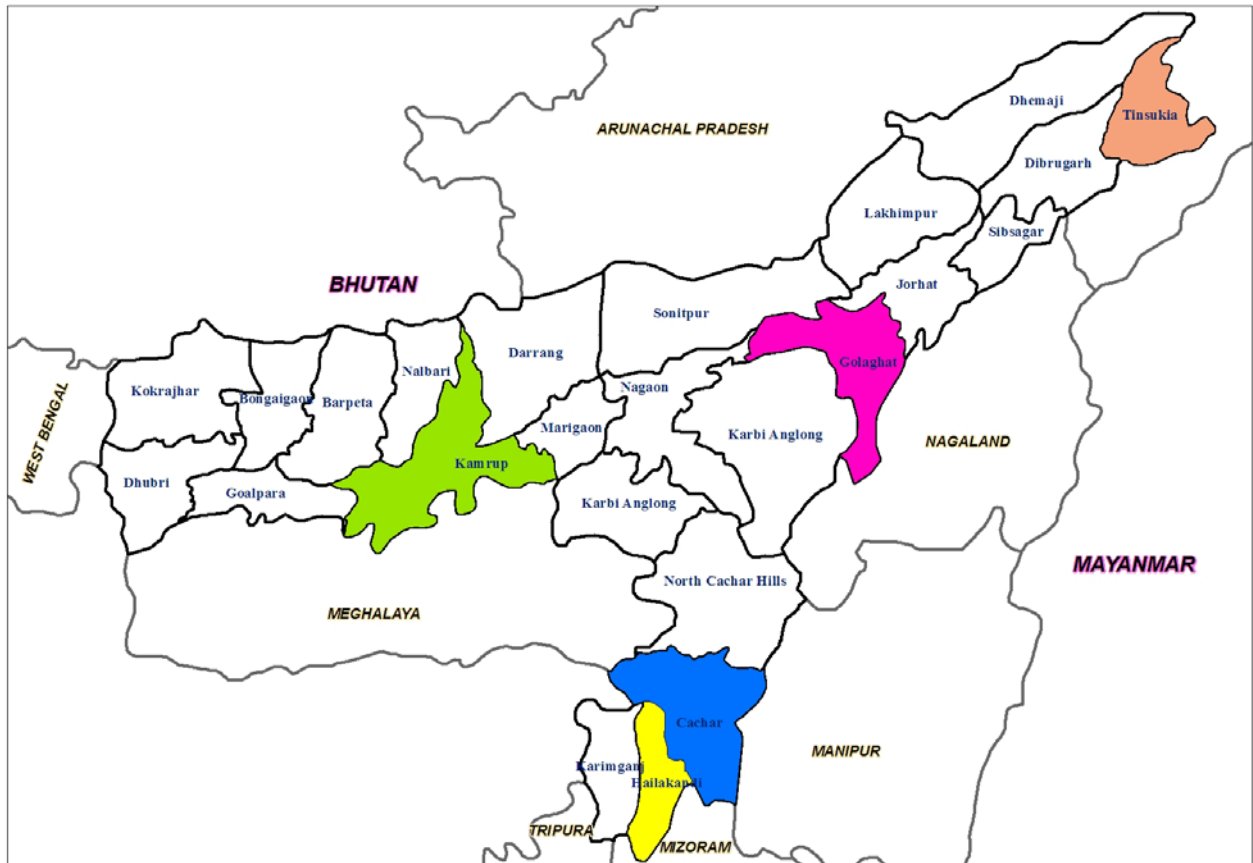
#### 4.2.2 Selection of the Sub Districts

Considering the criteria as mentioned under Section 4.1.2 the following sub-districts in each of the districts were identified and is presented in **Table 4-7**.

**Table 4-7: Selected Sub-district in Representative Districts of Assam**

Physiographic Region	District	Block	Urban / Rural
Upper Brahmaputra Valley	Tinsukia	Tinsukia	Urban
		Margerita	Rural
Lower Brahmaputra Valley	Gholaghat	Gholaghat North Block	Rural
		Gholaghat Central Block	Urban
	Kamrup	Guwahati	Urban
		Rangia	Rural
Barak valley	Hailakandi	Hailakandi	Urban
		Algapur	Rural
Karbi Plateau & Southern Hills	Cachar	Silchar	Urban
		Udarbond	Rural
		Lakhipur	Rural

Figure 4-2: Districts Selected in Assam



#### 4.2.3 Selection of the Schools

Considering the criteria as mentioned under Section 4.1.3 the schools were identified using the SEMIS data base. The schools selected are presented in **Table 4-8**.

**Table 4-8: Schools Selected in Assam for the RMSA Environmental Framework**

District	Block	Sl. No.	School
Tinsukia	Tinsukia	1	Womens College Tinsukia
		2	Tinsukia Railway High School
	Margerita	3	Margherita Public Higher Secondary School
		4	Digboi College
Gholaghat	Gholaghat North Block	5	Missamara Higher Secondary School
		6	Devogram Girls High School
		7	Missamora Girls High School
	Gholaghat Central Block	8	Joya Gogoi College
		9	Dhekial Higher Secondary School

<b>District</b>	<b>Block</b>	<b>Sl. No.</b>	<b>School</b>
Kamrup	Guwahati	10	Bani Kanta Memorial Girls Higher Secondary School
		11	Uzanbazar Govt. Girls High School
	Rangia	12	Rangia Higher Secondary School
		13	Rangia College
Hailakandi	Hailakandi	14	Kendriya Vidyalaya Panchgram
		15	Uttor Hailakandi Ancholic Senior Madrassa
	Algapur	16	Algapur Public Higher Secondary School
		17	Premlochan High School
Cachar	Silchar	18	Govt. Boys Higher Secondary. School
		19	Narsing Higher Secondary. School
	Udarbond	20	Kashipur V.P. High school
		21	Morley High School
	Lakhipur	22	Nehru Higher Secondary School Pailapool
		23	Jawahar Navodaya Vidyalaya

*Note: Final list of schools to be visited will be drawn up based on recommendations of the State Project Office of RMSA*

### **4.3 SHORT LISTING OF SCHOOLS IN UTTAR PRADESH**

The following approach has been followed in short listing of the schools in Uttar Pradesh:

#### **4.3.1 Selection of District**

Uttar Pradesh has three distinct physiographic regions namely:

- **The Northern Himalayas and Siwalik Foot hills:** The northern Himalayas and Siwalik foot hills one of the important physiographic units of Uttar Pradesh. The area spread along the Nepal boundary in the west to east slope.
- **The Gangetic Plains:** The most important physiographic region of the state is the Gangetic plain which stretches across the entire length of the state from east to west. It includes the Ganges-Yamuna Doab, the Ghaghra plains, the Ganges plains and the Terai. It has highly fertile alluvial soils and flat topography broken by numerous ponds, lakes and rivers. The Gangetic plain is watered by the Yamuna, the Ganges and its major tributaries, the Ramganga, the Gomati, the Ghaghra and Gandak. The Gangetic. The Gangetic Plains can be divided into two distinct regions:

- **The Eastern Gangetic Plains:** The Eastern Gangetic Plains are subject to periodical floods and droughts and have been classified as scarcity areas. The districts in this region have the highest density of population.
- **The Western Gangetic Plains:** The Western Gangetic Plains are comparatively better with a well-developed irrigation system. They suffer from water logging and large-scale user tracts.
- **Vindhiyan Range and Plateau:** The Vindhya Hills and Plateau region is in the south: it is characterised by hard rock strata and varied topography of hills, plains, valleys and plateau; limited availability of water makes the region relatively arid.

The districts in the state can be classified into the four physiographic regions as follows:

**Table 4-9: Districts in the Four Physiographic Regions in Uttar Pradesh**

<b>Physiographic Region</b>	<b>Districts</b>
<b>Northern Himalayas and Siwalik Foot hills</b>	Balrampur, Kushi Nagar, Lakhimpur Kheri, Maharajganj, Pilibhit Saharanpur, Sharavasti Siddharth Nagar
<b>Western Gangetic Plains</b>	Agra, Aligarh, Allahabad, Auraiya, Baghpat, Bahraich, Bareilly, Bijnor, Budaun, Bulandshahar, Etah, Etawah, Faizabad, Farrukhabad, Firozabad, Gautam Buddha Nagar, Gaziabad, Hardoi, Hathras, Jyotiba Phule Nagar, Kannauj, Kansi Ram Nagar, Lucknow, Mainpuri, Mathura, Meerut, Mirzapur, Moradabad, Muzaffarnagar, Rampur, Shahjanpur, Sitapur, Sonbhadra, Unnao
<b>Eastern Gangetic Plains</b>	Ambedkar Nagar, Azamgarh, Ballia, Barabanki, Basti, Chandauli, Chhatrapati Shahuji Maharaj Nagar, Deoria, Fatepur, Gazipur, Gonda, Gorakhpur, Jaunpur, Kanpur Dehat, Kanpur Nagar, Mau, Pratapgarh, Rai Bareli, Sant Kabir Nagar, Sant Ravidas Nagar, Sultanpur, Varanasi
<b>Vindhiyan Range and Plateau</b>	Banda, Chitarkoot, Hamirpur, Jalaun, Jhansi, Kaushambi, Lalitpur, Mahoba

Each of the districts was further classified on the basis of the Ecological Sensitivity, Natural Hazards and Environmental Sensitivity. Backwardness was also taken as a criterion considering the guidelines issues by the Planning Commission, Government of India.

**Table 4-10: Selection Matrix for the Districts in Uttar Pradesh**

Physiography	Name of District	Backward District	Natural Disasters	Eco Vulnerability	Environmental Vulnerability	District Selected
Northern Himalayas and Siwalik Hills	Balrampur	Backward		Suhelva Sanctuary		
	Kushi Nagar	Backward	Flood Prone		Sugar Industry; Buddhist Circuit	
	<b>Lakhimpur Kheri</b>	Backward		Dudhwa National Park, Kishanpur Wildlife Sanctuary, Dudhwa Tiger Reserve	Sugar Industry	Selected
	Maharajganj	Backward	Flood Prone	Sohagi Barwa Sanctuary	Sugar Industry; Buddhist Circuit	
	Pilibhit			Pilibhit Tiger Reserve	Sugar Industry	
	Saharanpur		Earthquake Prone		Sugar Industry	
	Shravasti	Backward		Suhelva Sanctuary		
	Siddharth Nagar	Backward	Flood Prone			
Western Gangetic Plains	Agra			National Chambal Wildlife Sanctuary, Sur Sarovar Sanctuary	Leather Industry; Heritage Tourism	
	Aligarh				Sugar Industry	
	Allahabad		Drought Prone		Pilgrimage Tourism	
	Auraiya					
	Baghpat		Earthquake Prone		Sugar Industry	
	Bahraich	Backward	Flood Prone	Katarniaghat Wildlife Sanctuary, Dudhwa Tiger Reserve	Sugar Industry	
	Bareilly				Sugar Industry	
	Bijnor		Earthquake Prone		Sugar Industry	
	Budaun	Backward			Sugar Industry	
	Bulandshahar		Earthquake Prone		Sugar Industry	
	Etah	Backward		Patna Bird Sanctuary		
	Etawah			National Chambal Wildlife Sanctuary		
	Faizabad				Pilgrimage Tourism	
	Farukhabad	Backward			Sugar Industry	
	Firozabad					
Gautam Buddha Nagar		Earthquake Prone		Industrial Hub		

Physiography	Name of District	Backward District	Natural Disasters	Eco Vulnerability	Environmental Vulnerability	District Selected
	<b>Ghaziabad</b>		Earthquake Prone	Okhla Sanctuary	Industrial Hub	Selected
	Hardoi	Backward		Sandi Bird Sanctuary		
	Hathras					
	Jyotiba Phoole Nagar		Earthquake Prone		Sugar Industry	
	Kannauj			Lakh Bahosi Sanctuary		
	Kanshi Ram Nagar					
	Lucknow				Handloom & Handicrafts; Heritage Tourism	
	Mainpuri			Saman Sanctuary		
	Mathura				Mathura Refinery; Pilgrimage Tourism	
	Meerut		Earthquake Prone	Hastinapur Wildlife Sanctuary	Industrial Hub	
	Mirzapur	Backward	Drought Prone	Kaimoor Wildlife Sanctuary	Cement Plants	
	Moradabad		Earthquake Prone			
	Muzaffar Nagar		Earthquake Prone		Sugar Industry; Industrial Hub	
	Rampur		Earthquake Prone		Sugar Industry	
	Shahjahanpur					
	Sitapur	Backward			Sugar Industry	
Sonbhadra	Backward			Kaimoor Wildlife Sanctuary	Aluminim Plants	
Unnao	Backward			Nawabganj Bird Sanctuary		
Eastern Gangetic Plains	Ambedkar Nagar	Backward				
	Azamgarh	Backward	Flood Prone		Sugar Industry	
	Ballia		Flood Prone	Suraha Tal Sanctuary	Sugar Industry	
	Barabanki	Backward			Automobiles	
	Basti	Backward	Flood Prone			
	Chandauli	Backward			Chandra Prabha Wildlife Sanctuary	
	Chhatrapati Shahuji Maharaj Nagar					



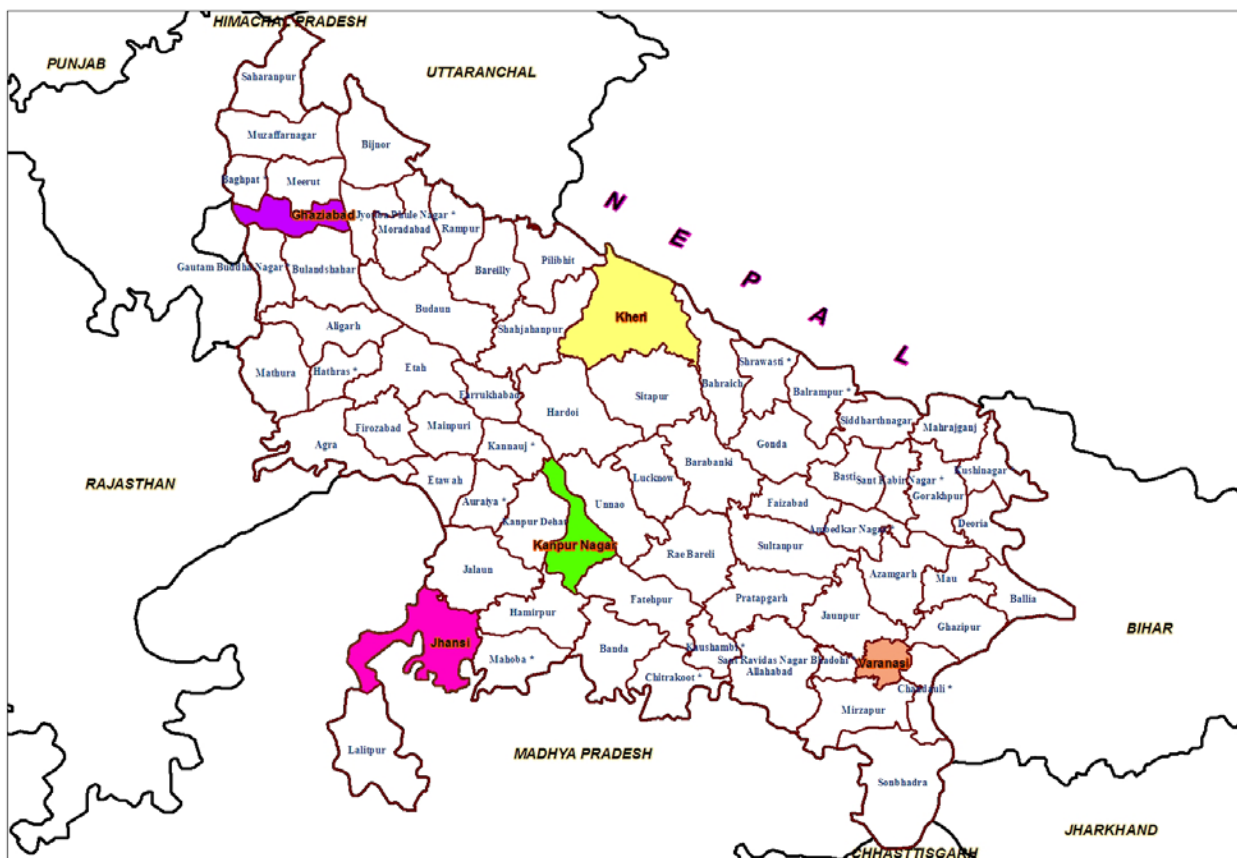
Physiography	Name of District	Backward District	Natural Disasters	Eco Vulnerability	Environmental Vulnerability	District Selected
	Deoria		Flood Prone	Ranipur Wildlife Sanctuary	Aluminium Plants; Sugar Industry	
	Fatehpur	Backward				
	Ghazipur		Flood Prone			
	Gonda	Backward	Flood Prone	Parvati Arga Sanctuary, Suhelva Sanctuary		
	Gorakhpur	Backward	Flood Prone			
	Jaunpur	Backward	Flood Prone			
	Kanpur Dehat (Rambai Nagar)				Leather Industry	
	<b>Kanpur Nagar</b>				Leather Industry; Textile Industry; Automobiles	Selected
	Mau					
	Pratapgarh	Backward				
	Raebareli	Backward		Samaspur Sanctuary		
	Sant Kabir Nagar	Backward		Bakhira Sanctuary		
	Sant Ravidas Nagar				Sugar Industry	
	Sultanpur				Sugar Industry	
<b>Varanasi</b>			Flood Prone; Drought Prone	Kachhua Sanctuary	Handloom & Handicrafts; Pilgrimage Tourism; Buddhist Circuit	Selected
Vindhiyan Range and Plateau	Banda	Backward	Drought Prone	Ranipur Wildlife Sanctuary		
	Chitrakoot	Backward				
	Hamirpur	Backward	Drought Prone			
	Jalaun	Backward	Drought Prone			
	<b>Jhansi</b>					Selected
	Kaushambi	Backward			Buddhist Circuit	
	Lalitpur	Backward		Mahavir Swami Wildlife Sanctuary		
	Mahoba	Backward		Vijai Sagar Sanctuary		

Considering the selection matrix in **Table 4-10** the district which best represents all of them in each physiographic category was shortlisted for the sampling. Thus the following districts were identified in the four physiographic regions:

- **Northern Himalayas and Siwalik Foot hills:** Lakhimpur Kheri
- **Western Gangetic Plains:** Ghaziabad
- **Eastern Gangetic Plains:** Kanpur Nagar & Varanasi
- **Vindhyan Range and Plateau:** Jhansi

The districts selected in Uttar Pradesh are shown in **Figure 4.3**.

**Figure 4-3: Districts Selected in Uttar Pradesh**



### 4.3.2 Selection of the Sub Districts

Considering the criteria as mentioned under Section 4.1.2 the following sub-districts in each of the districts were identified and is presented in **Table 4-11**.

**Table 4-11: Selected Sub-district in Representative Districts of Uttar Pradesh**

Physiographic Region	District	Block	Urban / Rural
Northern Himalayas and Siwalik Foot hills	Lakhimpur Kheri	Paliya	Rural
		Lakhimpur	Urban
Western Gangetic Plains	Ghaziabad	Hapur	Rural
		Ghaziabad	Urban
Eastern Gangetic Plains	Kanpur Nagar	Kanpur City	Urban
		Ghatampur	Rural
	Varanasi	Varanasi	Urban
		Pindra	Rural
Vindhiyan Range and Plateau	Jhansi	Jhansi	Urban
		Mauranipur	Rural

#### 4.3.3 Selection of the Schools

Considering the criteria as mentioned under Section 4.1.2 the following sub-districts in each of the districts were identified and is presented in **Table 4-12**.

**Table 4-12: Schools Selected in Uttar Pradesh for RMSA Environmental Framework**

District	Block	Sl. No.	School
Lakhimpur Kheri	Lakhimpur	1	Bhartiya Inter College
		2	Abul Kalam Azad Girls Inter College
	Paliya	3	Zila Panchayat Girls Inter College
		4	Saraswati Vidya Mandir Higher Secondary School
		5	Gautam Buddha Public Higher Secondary School
Ghaziabad	Ghaziabad (Municipal Area)	6	Government Inter College
		7	Durgawati Hemraj Teh Saraswati Vidya Mandir Senior Secondary School
	Hapur	8	Govt. Girls Higher Secondary School
		9	Gramodaya Higher Secondary School
		10	Adarsh Inter College

<b>District</b>	<b>Block</b>	<b>Sl. No.</b>	<b>School</b>
Kanpur Nagar	Kanpur City	11	Raja Ram Saraswati Higher Secondary School
		12	Gyanodaya Higher Secondary School
	Ghatampur	13	Asha Devi Balika Girls Higher Secondary School
		14	Government Girls Higher Secondary School
		15	Maharshi Dayanand Babbu Lal Inter College
Varanasi	Varanasi	16	C. M. Anglo Bengali College
		17	Saraswati Vidya Mandir B.I.C.
	Pindra	18	Adarsh Madhyamik Vidyalay
		19	Gramayanchal Mahila Vidyapith Intermediate College
		20	Sri Tapaswi Maharaj Inter College
Jhansi	Jhansi	21	Dr. B.R. Ambedkar Inter College
		22	Saraswati Inter College
	Mauranipur	23	Government Girl Inter College
		24	Shree Shiv High School

*Note: Final list of schools to be visited will be drawn up based on recommendations of the State Project Office of RMSA*

#### **4.4 SHORT LISTING OF SCHOOLS IN GUJARAT**

The following approach has been followed in short listing of the schools in Gujarat:

##### **4.4.1 Selection of District**

Gujarat has four distinct physiographic regions namely:

- **The Alluvial Plains:** A major physiographic region in Gujarat is the Western Alluvial Plains including the coastal plains.
- **Eastern Highland:** Mainland Gujarat consists of the eastern rocky highlands – their altitude varying between 300 to 1000 meters.
- **Saurashtra Peninsula:** Saurashtra (earlier known as Kathiawar), the Peninsular Gujarat, is bounded on three sides by waters of sea, viz. In the north by the Gulf of Kutch with some part by the Little Rann, in the west and south by the Arabian Sea,

and in the Southeast by the Gulf of Cambay; while in the east is the alluvial tract of the Mainland of Gujarat.

- **Kutch:** The region of Kutch in the north-eastern part of Gujarat State forms an independent geographical and geological unit. It has an international border in the north with Pakistan, making it strategically important. Kutch includes the ‘Rann’ - which are salt encrusted wastelands rising only a few metres above the sea level and inundated during the monsoons. The Rann is divided into the Great Rann of Kutch in the north and the Little Rann in the east.

The districts in the state can be classified into the four physiographic regions as follows:

**Table 4-13: Districts in the Four Physiographic Regions in Gujarat**

<b>Physiographic Region</b>	<b>Districts</b>
<b>Alluvial Plains</b>	Banas Katha, Patan, Mahesana, Gandhinagar, Ahmedabad, Kheda, Anand, Bharuch, Surat, Nasari
<b>Eastern Highlands</b>	Sabar Kantha, Panch Mahals, Dahod, Vadodara, Narmada, Tapi, Dangs, Valsad
<b>Saurashtra Peninsula</b>	Surendra Nagar, Jamnagar, Rajkot, Bhavnagar, Amreli, Porbander, Junagadh
<b>Kutch</b>	Kutch

Each of the districts was further classified on the basis of the Ecological Sensitivity, Natural Hazards and Environmental Sensitivity. Backwardness was also taken as a criterion considering the guidelines issues by the Planning Commission, Government of India.

**Table 4-14: Selection Matrix for the Districts in Gujarat**

Physiography	Name of District	Backward District	Natural Disasters	Eco Vulnerability	Environmental Vulnerability	District Selected
Alluvial Plains	Banas Katha	Backward	Highly Earthquake Prone (Zone IV); Cyclone Prone	Balaram Ambaji Wildlife Sanctuary; Jessore Sloth Bear Sanctuary	Industries	
	Patan		Highly Earthquake Prone (Zone IV)		Industries	
	<b>Mahesana</b>		Earthquake Prone (Zone III); Cyclone Prone	Thol Lake Bird Sanctuary	Industries	Selected
	Gandhinagar		Earthquake Prone (Zone III)		Industries	
	Ahmedabad		Earthquake Prone (Zone III)	Nal Sarovar Bird Sanctuary	Industries	
	Kheda		Earthquake Prone (Zone III)		Industries	
	<b>Anand</b>		Earthquake Prone (Zone III)		Industries	Selected
	Bharuch		Earthquake Prone (Zone III)		Industries	
	Surat		Earthquake Prone (Zone III)		Industries	
Navsari		Earthquake Prone (Zone III)	Vansda National Park	Industries		
Eastern Highlands	Sabar Kantha	Backward	Earthquake Prone (Zone III)		Industries	
	Panch Mahals	Backward	Earthquake Prone (Zone III)	Jambuhoda Wildlife Sanctuary	Industries	
	Dahod	Backward	Least Earthquake Prone (Zone II)	Ratanmahal Sloth Bear Sanctuary	Industries	
	Vadodara		Earthquake Prone (Zone III)		Industries	
	Narmada	Backward	Earthquake Prone (Zone III)	Shoolpaneshwar Wildlife Sanctuary	Industries	
	Tapi		Earthquake Prone (Zone III)		Industries	
	<b>Dangs</b>	Backward	Earthquake Prone (Zone III)	Purna Wildlife Sanctuary		Selected
	Valsad		Earthquake Prone (Zone III)		Industries	

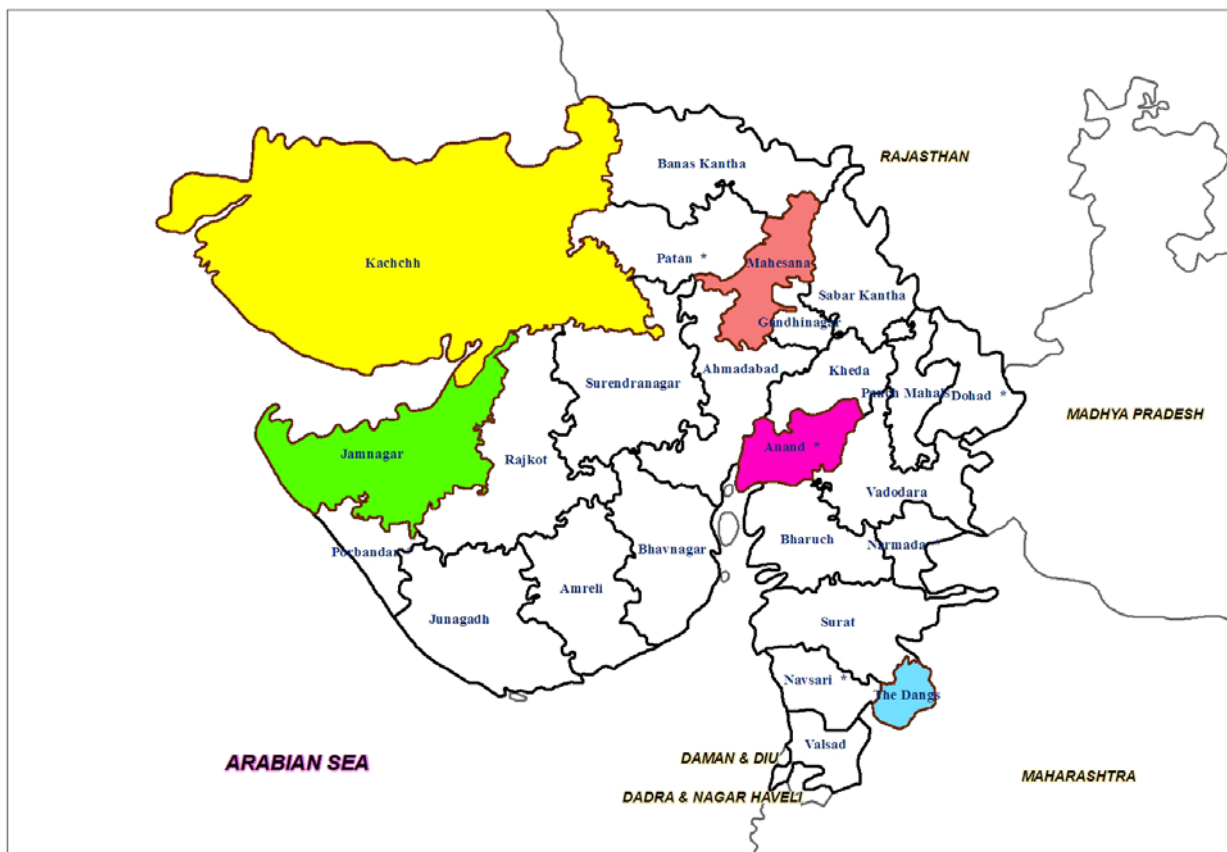
Physiography	Name of District	Backward District	Natural Disasters	Eco Vulnerability	Environmental Vulnerability	District Selected
Saurashtra Peninsula	Surendranagar		Earthquake Prone (Zone III)	Wild Ass Sanctuary	Industries	
	<b>Jamnagar</b>		Highly Earthquake Prone (Zone IV); Cyclone Prone	Marine National Park - Gulf of Kutch; Khijadia Bird Sanctuary; Gaga Wildlife Sanctuary	Industries	Selected
	Rajkot		Highly Earthquake Prone (Zone IV)	Barda Wildlife Sanctuary; Rampara Wildlife Sanctuary; Hingolghadh Nature Education Sanctuary	Industries	
	Bhavnagar		Earthquake Prone (Zone III); Cyclone Prone	Blackbuck National Park - Velavadar	Industries	
	Amreli		Earthquake Prone (Zone III); Cyclone Prone	Pania Wildlife Sanctuary; Mitaliya Wildlife Sanctuary	Industries	
	Porbandar		Earthquake Prone (Zone III); Cyclone Prone	Porbandar Bird Sanctuary	Industries	
	Junagadh		Earthquake Prone (Zone III); Cyclone Prone	Gir Forest National Park; Sasan Gir Wildlife Sanctuary	Industries	
Kutch	<b>Kutch</b>		Most Earthquake Prone (Zone V); Cyclone Prone	Kutch Desert Wildlife Sanctuary; Narayan Sarovar Sanctuary; Kutch Bustard Sanctuary	Industries	Selected

Considering the selection matrix in **Table 4-14** the district which best represents all of them in each physiographic category was shortlisted for the sampling. Thus the following districts were identified in the four physiographic regions:

- **Alluvial Plains:** Mahesana and Anand
- **Eastern Highlands:** Dangs
- **Saurashtra Peninsula:** Jamnagar
- **Kutch:** Kutch

The districts selected in Gujarat are shown in **Figure 4.4**.

**Figure 4-4: Districts Selected in Gujarat**



#### **4.4.2 Selection of the Sub Districts**

Considering the criteria as mentioned under Section 4.1.2 the following sub-districts in each of the districts were identified and is presented in **Table 4-15**.



**Table 4-15: Selected Sub-district in Representative Districts of Gujarat**

Physiographic Region	District	Block	Urban / Rural
Alluvial Plains	Mahesana	Mahesana	Urban
		Unjha	Rural
	Anand	Anand	Urban
		Khambhat	Rural
Eastern Highlands	Dangs	Ahwa	Rural / Urban
Saurashtra Peninsula	Jamnagar	Jamnagar	Urban
		Kalavad	Rural
Kutch	Kutch	Bhuj	Urban
		Bachao	Rural

#### 4.4.3 Selection of the Schools

Considering the criteria as mentioned under Section 4.1.2 the following sub-districts in each of the districts were identified and is presented in **Table 4-16**.

**Table 4-16: Schools Selected in Gujarat for RMSA Environmental Framework**

District	Block	Sl. No.	School
Mahesana	Mahesana	1	Shri Vardhaman Vidhyala
		2	Kisan Bharti Uchchattar U.B. Vidhyalaya
	Unjha	3	J.M Kanaya Vidhyalaya & T.M Guru Higher Secondary School
		4	Adarsh Vidyalaya
Anand	Anand	5	C.V.M.H.S.E.C. Sci. Stream
		6	C.V.M. Higher Sec. Edu. Vocational Stream - Home Science Unit
	Khambhat	7	St Xavier's High School
		8	Shri B.V. Patel Kanya Vidhayalaya
		9	Municipal Jubilee High School
Dangs	Ahwa	10	Eklavya Girls Residential School, Saputara
		11	Govt. High School, Saputara
		12	Adarash Nivasi Shala, Bardipada

<b>District</b>	<b>Block</b>	<b>Sl. No.</b>	<b>School</b>
Jamnagar	Jamnagar	13	Jawahar Navodaya Vidyalaya - Aliyabada
		14	Smt. Gulabben Shantilal Mehta Kanya Vidyalaya
	Kalavad	15	Municipal High School - Kalavad
Kutch	Bhuj	16	Kutch Vikas St. Xavier's School
		17	Adarsh Nivasi Shala (Sc / Kanya)
	Bachao	18	Govt. High School Bhachau
		19	Shree Sarswati Higher Secondary School

*Note: Final list of schools to be visited will be drawn up based on recommendations of the State Project Office of RMSA*

#### **4.5 SHORT LISTING OF SCHOOLS IN KERALA**

The following approach has been followed in short listing of the schools in Kerala:

##### **4.5.1 Selection of District**

Kerala has three distinct physiographic regions namely:

- **Highland (Western Ghats):** The Highlands slope down from the Western Ghats (also known as the Sahyadri) which rise to an average height of 900m, with a number of peaks well over 1800 m in height. This is the area of major plantations like tea, coffee, rubber and various spices. This area is also known as Cardamom Hills. The region is one of the largest producers of many spices especially cardamom from which it earns its name. Most of the rivers of Kerala originate from the Western Ghats.
- **Midland (Plains):** The Midlands, lying between the mountains and the lowlands, is made up of undulating hills and valleys. This is an area of intensive cultivation. Cashew, coconut, areca nut, tapioca, banana and vegetables of different varieties are grown in this area.
- **Lowland (Coastal):** Lowlands are also known as the Coastal Area. It is made up of numerous shallow lagoons known locally as kayels, river deltas, backwaters and shores of the Arabian sea and is essentially a land of coconuts and rice. This area is very fertile and most of the paddy cultivation is along this area. Water transport is the main mode of transportation in these areas.

The districts in the state can be classified into the three physiographic regions as follows:

**Table 4-17: Districts in the Three Physiographic Regions in Kerala**

<b>Physiographic Region</b>	<b>Districts</b>
<b>Highland (Western Ghat)</b>	Idukki, Palakkad, Pathanamthitta, Wayanad
<b>Midland (Plain)</b>	Kottayam
<b>Lowland (Coastal)</b>	Alappuzha, Kannur, Kasargod, Kollam, Kozhikode, Malappuram, Thiruvananthapuram, Thrissur, Ernakulam

Each of the districts was further classified on the basis of the Ecological Sensitivity, Natural Hazards and Environmental Sensitivity. Backwardness was also taken as a criterion considering the guidelines issues by the Planning Commission, Government of India.

**Table 4-18: Selection Matrix for the Districts in Kerala**

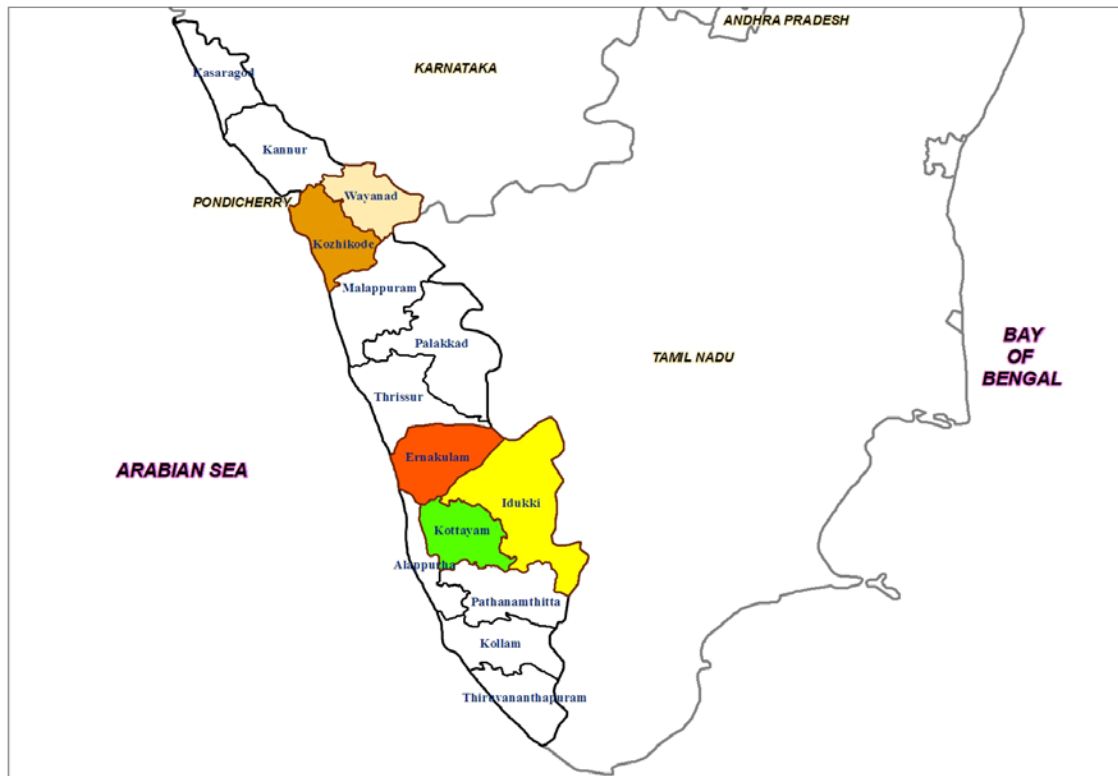
Physiography	Name of District	Backward District	Natural Disasters	Eco Vulnerability	Environmental Vulnerability	District Selected
Highland (Western Ghat)	Idukki			Eravikulam National Park; Periyar (Thekkady) Wildlife Sanctuary; Idukki Wildlife Sanctuary; Chinnar Wildlife Sanctuary; Mathikettan Shola National Park; Pampadum Shola National Park; Anamudi Shola National Park		Selected
	Palakkad	Backward		Silent Valley National Park; Parambikulam Wildlife Sanctuary & Tiger Reserve		
	Pathanamthitta					
	Wayanad	Backward		Wayanad Wildlife Sanctuary		Selected
Midland (Plain)	Kottayam				Backwater Tourism	Selected
Lowland (Coastal)	Alappuzha		Tsunami		KSIDC, Backwater Tourism	
	Ernakulam		Tsunami	Thattekkad Wildlife Sanctuary (Salim Ali Bird Sanctuary); Mangalavanam Bird Sanctuary	Backwater Tourism, Port, Refinery	Selected
	Kannur		Cyclone	Aralam Wildlife Sanctuary	KSIDC	
	Kasargod					
	Kollam		Tsunami	Shendurni Wildlife Sanctuary		
	Kozhikode		Cyclone		KSIDC, Port	Selected
	Malappuram		Cyclone		KSIDC	
	Thiruvananthapuram			Neyyar Wildlife Sanctuary; Peppara Wildlife Sanctuary		
Thrissur			Peechi Vazhani Wildlife Sanctuary; Chimmini Wildlife Sanctuary			

Considering the selection matrix in **Table 4-18** the district which best represents all of them in each physiographic category was shortlisted for the sampling. Thus the following districts were identified in the four physiographic regions:

- **Highland (Western Ghats):** Idukki and Wayanad
- **Midland (Plain):** Kottayam
- **Lowland (Coastal):** Ernakulam and Kozhikode

The districts selected in Kerala are shown in **Figure 4.5**.

**Figure 4-5: Districts Selected in Kerala**



#### **4.5.2 Selection of the Sub Districts**

Considering the criteria as mentioned under Section 4.1.2 the following sub-districts in each of the districts were identified and is presented in **Table 4-19**.

**Table 4-19: Selected Sub-district in Representative Districts of Kerala**

Physiographic Region	District	Block	Urban / Rural
Highland (Western Ghats)	Idukki	Idukki	Urban
		Devikulam	Rural
	Wayanad	Kalapetta	Urban
		Sultan Bathery	Rural
Midland (Plain)	Kottayam	Kottayam	Urban
		Vaikom	Rural
Lowland (Coastal)	Ernakulam	Kochi Corporation	Urban
		Kothamangalam	Rural
	Kozhikode	Kozhikode	Rural
		Kozhikode City	Urban

#### 4.5.3 Selection of the Schools

Considering the criteria as mentioned under Section 4.1.2 the following sub-districts in each of the districts were identified and is presented in **Table 4-20**.

**Table 4-20: Schools Selected in Kerala for RMSA Environmental Framework**

District	Block	Sl. No.	School
Idukki	Idukki	1	St. Mary's Higher Secondary School, Arakulam
		2	I.H.E.P. Govt. High School, Kulamavu
		3	Model Residential School, Painavu
	Devikulam	4	Model Residential School Munnar
		5	Govt. Vocational Higher Secondary School Munnar
		6	Government High School Vattavada
Wayanad	Kalapetta	7	Govt. VHSS Kalpetta (Higher Secondary School)
		8	Wayanad Orphanage VHSS
	Sultan Bathery	9	Rajeev Gandhi Memorial Residential High School
		10	Govt. High School Kalloor
Kottayam	Kottayam Municipality	11	Govt. HSS (HS) Karapuzha
		12	St Josephs Convent Girls GHSS Kottayam
	Vaikom	13	Govt. High School, Kulasekharamangalam
		14	Govt. D.V. High School
		15	St. Little Tresas GHSS Vaikom

<b>District</b>	<b>Block</b>	<b>Sl. No.</b>	<b>School</b>
Ernakulam	Kochi Corporation	16	Govt. Girls Higher Secondary School Tripunithura
		17	Govt. Regional Fisheries Technical High School, Thevara
		18	Fatima Girls High School Kochi
		19	EMGHSS Fort Kochi (HSS)
	Kothamangalam	20	St. Josephs H.S, Velielchal.
		21	Govt. HSS. Kuttampuzha (Higher Secondary Section)
		22	St. Augustines Girls HSS, Kothamangalam (Secondary)
Kozhikode	Kozhikode	23	Calicut Higher Secondary School for the Handicapped (Higher Secondary)
		24	Govt. Ganapat Girls HSS, Chalappuram
	Kozhikode City	25	Malabar Christian College Higher Secondary School, Kozhikode

*Note: Final list of schools to be visited will be drawn up based on recommendations of the State Project Office of RMSA*

# **ANNEXURE**



## Annex I: Checklist for Conducting School Assessment

A.	General Information	
A.1	Name of the School	
A.2	Type of School	Boys / Girls / Co-ed
A.3	Administrative Location	Village/Town Sub-division PS District
A.4	Name, Address & Phone No./E-mail of Head Master	
A.5	Year of Establishment	
A.6	Site Settings (Adjacent features)	North South East West
A.7	Class	(V to X)      (V to XII)
A.8	Number of Sections	
A.9	Number of Class rooms	
A.10	Number of Students	Boys : (    )      Girls : (    )
A.11	No. of Teaching / Non-Teaching Staff	Teacher: (    )      Non Teaching Staff : (    )
A.12	Area of the School	School Building: (    )      Open Space: (    )
		Playground: (    )      Others: (    )
A.13	Draw a not to scale map (School Building, Boundary Wall, Main Gate/ Alternative Gate, Play Ground, Parking Space) and mark Geographical North and Predominant Wind Direction	

Sl. No.		Screening Checklist	Applicability		Impact Level			Remark
			Yes	No	High	Medium	Low	
<b>B. School Environment</b>								
B.1	Location of School	Is the school adjacent to or within any of the following environmentally sensitive areas?						
		<i>Protected Area (National Park, Wildlife Sanctuary)</i>						
		<i>Flood Prone / Flood Plain Area</i>						
		<i>High Seismic Zone (Earth Quake Prone Zone)</i>						
		<i>Unstable Slope / Landslide Prone Area / Erosion Prone Area</i>						
		<i>Cyclone Prone Area</i>						
		<i>Storm Surge Prone Area</i>						
		<i>Drought Prone Area</i>						
		<i>Polluting Industrial Area</i>						
		<i>Mining Area</i>						
		<i>Arsenic/Fluoride Contaminated Ground Water Area</i>						
		<i>Busy National/State Highway</i>						
		<i>Congested Urban/Market/Commercial Area</i>						
		<i>Any particular disturbance faced by school due to its location</i>						
B.2	Building Design	Type of building ( <i>Pucca/ Semi-pucca/Kutchra</i> )						
		Physical condition of building ( <i>Cracks/ Damp/Seepages/ Damages in Plaster</i> )						
		Material used for roof ( <i>Asbestos/Tin/RCC</i> )						
		Material used for windows ( <i>Glass/ Wood / Glass &amp; Wood</i> )						
		Any local innovative approaches in school building design						
		Use of local materials to improve cooling, ventilation, lighting, etc.						
		Any special measures taken in building design considering regional settings of the school						
		Is there any landscaping & natural shade ( <i>Plants and full growing trees around the campus &amp; periphery</i> )						
		Colour of the building and class room is aesthetic or not						
B.3	Natural Light & Ventilation	Cross ventilation is available or not						
		Width of the door & window is sufficient or not						

Sl. No.		Screening Checklist	Applicability		Impact Level			Remark
			Yes	No	High	Medium	Low	
		Sufficiency of natural light is available or not						
B.4	Artificial Lighting & Air Circulation Arrangement	Is there any lighting facility in the class room						
		Is there any arrangement for air circulation						
		Is there any cooling / heating arrangement						
B.5	Seating Arrangements in Class Rooms	Sufficient space is available for students						
		Are the height of benches / tables / desk suitable for students ( <i>different height sitting arrangement is available or not?</i> )						
		Special sitting arrangement for physically challenged students						
B.6	Display Arrangement in Class Rooms	Is the black board's position visible from each corner						
B.7	Library Design	Free movement space is available or not						
		Adequate numbers for seating is available or not						
		Adequate light & ventilation is available or not						
		Regular pest control is carried out or not						
B.8	Laboratory Design	Adequate space is available for all subjects ( <i>Physics, Chemistry, Biology &amp; other subject</i> )						
		Proper height (3ft) of the laboratory table is available or not						
		Cross ventilation and exhaust fan is available or not						
		Is clear daylight available or not						
		Artificial lighting facility is available or not						
		Running water and hand/eye washing facility is available or not						
B.9	Kitchen Design	Is there any separate kitchen provision						
		Location of kitchen in proximity to class rooms						
		Exhaust fan or chimney is available or not						
B.10	Facilities for Physically Challenged	Is there any ramp for physically challenged student						
		Are benches of different height available in the class room						

Sl. No.		Screening Checklist	Applicability		Impact Level			Remark
			Yes	No	High	Medium	Low	
B.11	Drinking Water Facility	Source of drinking water (Supply Water/ Tube Well/ Dug Well/ Other)						
		Is there any water storage facility (Open Tank/ Underground Tank/ Overhead Tank) and its condition						
		Is required amount of water available across all seasons						
		Are sufficient number of drinking water facilities available in the school						
		Is there any treatment facility for drinking water (aqua-guard/ sand filter/ etc)						
		Regular testing of drinking water is done at least once a year or not						
		Arsenic test in ground water has been carried out						
		Condition of basin & tap (in case of tap water) and slab (for tube well) – well maintained or not						
		Regular cleaning schedule is followed or not						
		Is the underground water reservoir away from septic tank, drain or any other source of contamination						
B.12	Sanitation Facility	Adequate number of urinal / lavatory is available (one latrine for about 30 pupils - 20 for girls and 40 for boys)						
		Is there any separate toilets for boys and girls						
		Is there any separate toilets for teachers and students						
		Is the location of the girl's toilet safer						
		Is there any provisions in toilets for physically challenged students						
		Is water connection available in toilets or not						
		Structural condition of the toilet is good or not						
		Is there any provision of exhaust fan						
		Hygienic condition is maintained in the toilet or not						
		Regular cleaning of toilets is done or not						

Sl. No.		Screening Checklist	Applicability		Impact Level			Remark
			Yes	No	High	Medium	Low	
B.13	Drainage System	Drainage facility is available or not						
		Water logging or overflow of drains occurs or not						
		Type of drains (Underground/ Pucca & Covered/Pucca & Open/ Kutcha & Open)						
		Structural condition of drains is good or not						
		Regular cleaning of drain is carried out or not						
<b>C. Potential Environmental Impact</b>								
C.1	Drainage	Final outfall point of drain (Pond/ River/ Agricultural Field /Municipal Drain/Others)						
C.2	Waste water treatment & discharge	Waste water treatment & discharge arrangement (Septic Tank/ Municipal Drain/Open Field)						
		Are latrines single pit / double pit/twin pit attached with septic tank						
C.3	Disposal of Solid waste	Is there any waste collection facility in the school & its adequacy						
		Separate collection bins for segregated waste is available or not						
		Condition of bins is good or not						
		Disposal of Waste (Within School / Outside School Boundary / In Municipal Waste Collection Facility)						
		Is the waste daily disposed or not						
		Is there any facility/practice for treatment of waste						
		Any facility for composting of organic waste and use in gardening						
C.4	Air & Noise Emission	DG set has the stack and acoustic enclosure or not						

Sl. No.		Screening Checklist	Applicability		Impact Level			Remark
			Yes	No	High	Medium	Low	
<b>D. Conservation of Resource</b>								
D.1	Water conservation	Water Conservation Measures i) Auto flash arrangement ii) Auto stop arrangement iii) Low volume high pressure flushing arrangement						
		Rain water harvesting structure if any						
		Leakage in pipeline and overflow of reservoir is regularly checked						
D.2	Energy Conservation	Type of lighting facility used ( <i>Ordinary Bulb/ Ordinary Tube / CFL</i> )						
D.3	Renewable Energy	Is there any provision of renewable energy						
		Are teachers & school management aware of the possibility of use of solar energy						
<b>E. Reinforcing the Learning Environment</b>								
E.1	School Curriculum and Activities Related to Environment	Is there any curricular and extra-curricular activities in school related to environment						
		Is there any environment related awareness camp organized in the school						
		Are there an Eco-Clubs / Environmental Clubs in the school						
E.2	Celebration of Day	Is Forestry Week celebrated in the school						
		Is World Environment Day celebrated or not						
		Are other similar days celebrated or not						
E.3	Awareness Campaigns & Program	Safety campaign & awareness activities are carried out or not						
		School campus cleaning program is taken up or not						
		Nature study camp has been organized or not						
		Are the teachers & students aware about waste management						

Sl. No.		Screening Checklist	Applicability		Impact Level			Remark
			Yes	No	High	Medium	Low	
		Teacher, student, staff is aware about energy conservation measures (turn off the light & fan when not in use, use of natural light, etc)						
		Teacher, student, staff is aware about water conservation issues						
		Poster on water conservation measures & general awareness is available to students & teachers						
		Others						
<b>F. Resilience of the School</b>								
F.1	Safety aspect of Building Design	Is the physical condition of the building good or not						
		Is there any special structural facility to cope with natural hazard (flood/ cyclone/ earthquake)						
		Width of the stair case is sufficient or not						
F.2	Laboratory safety	All the chemicals are properly labeled or not						
		Fire extinguishers are available in the laboratory or not						
		PPE is available at the laboratory or not						
		Are students aware about PPE use and are they regularly using it						
		Dos and Do nots while handling chemicals posted						
F.3	Kitchen Safety	Fire extinguishers available in the kitchen or not						
		Is there any separate LPG storage area						
F.4	Fire Safety	Fire extinguisher is available or not						
		Fire exist sign is posted or not						
F.5	Electrical Safety	Is there any defective switches/fittings						
		Is there any defective/damaged/cut wires/temporary line						
		Are the switches within the reach of student (specially students of lower classes)						
F.6	Transport Safety	Buses provided by the school are thoroughly checked or not						
		Drivers of school buses are trained or not						

Sl. No.		Screening Checklist	Applicability		Impact Level			Remark
			Yes	No	High	Medium	Low	
F.7	Disaster Preparedness	Alternative exit gate is available or not						
		Alternative building exit is available or not						
		Sufficient area for outdoor assembly point is available for emergency exist or not						
		Contact numbers for Ambulance, Fire Brigade and Nearby Hospital is available and posted in school office or not						
		Emergency plan is available or not						
		Are the school employees aware about emergency plan and have training on fire safety and evacuation plan been carried out or not						
		First aid facility is available or not						



## Checklist for Conducting School Assessment

### Attachment 1- Schools with Hostels

A. General Information	
A.1	Name of the School
A.2	Hostel facility for Boys / Girls /
A.3	Accommodation facility (No.) Boys Girls
A.4	Location of Hostel Within the School Campus Outside the school Campus
A.5	Number of student per room

Sl. No.	Screening Checklist	Status		Scale of Impact			Remark
		Yes	No	High	Medium	Low	
<b>B. Hostel Environment</b>							
B.1	Building Design	Type of building ( <i>Pucca/ Semi-pucca / Kutcha</i> )					
		Physical condition of the building ( <i>Cracks/ Damp/Seepages/ Damages in Plaster</i> )					
		Material used for roof ( <i>Asbestos/Tin/RCC</i> )					
		Material used for windows ( <i>Glass/ Wood/Glass &amp; Wood</i> )					
		Any local innovative approaches in hostel building design					
		Use of local materials to improve cooling, ventilation, lighting					
		Any special measures taken in building design considering regional settings of the hostel					
B.2	Natural Light & Ventilation	Cross ventilation is available or not					
		Width of the door & window is sufficient or not					
		Sufficiency of natural light is available or not					
B.3	Artificial Lighting & Air Circulation Arrangement	Is there any lighting facility in the hostel rooms					
		Is there any arrangement for air circulation					
		Is there any arrangement for cooling & heating arrangement					
B.4	Kitchen Design	Is there any separate kitchen provision					
		Exhaust fan or chimney is available or not					
B.5	Drinking Water Facility	Source of Drinking Water ( <i>Supply Water/ Tube Well/ Dug Well/ Others</i> )					
		Is there any water storage facility ( <i>Open Tank/ Underground Tank/ Overhead Tank</i> ) and its condition					
		Is required amount of water available across all seasons					
		Are sufficient number of drinking water facilities available in the hostel					
		Is there any treatment facility for drinking water ( <i>aqua-guard/ sand filter/ etc</i> )					
		Regular testing of drinking water at least once a year or not					

Sl. No.		Screening Checklist	Status		Scale of Impact			Remark
			Yes	No	High	Medium	Low	
		Arsenic test in ground water has been carried out						
		Condition of basin & tap (in case of tap water) and slab (for tube well) – well maintained or not						
		Regular cleaning schedule is followed or not						
		Is the underground water reservoir away from septic tank, drain or any other source of contamination						
B.6	Sanitation Facility	Adequate number of urinal / lavatory / wash rooms is available						
		Water connection is available or not						
		Structural condition of the toilet is good or not						
		Is there any provision of exhaust fan						
		Hygienic condition is maintained in the toilet or not						
		Regular cleaning of toilets is done or not						
B.7	Availability of Electricity	Electrical connection is available or not						
		Is there any provision of DG						
B.8	Drainage System	Drainage facility is available or not						
		Water logging or overflow of drains occurs or not						
		Type of drains (Underground/ Pucca & Covered/Pucca & Open/ Kutcha & Open)						
		Structural condition of drains is good or not						
		Regular cleaning of drain is carried out or not						
<b>C. Potential Environmental Impact</b>								
C.1	Drainage	Final outfall point of drain (Pond/ River/ Agricultural Field /Municipal Drain/Others)						
C.2	Waste water treatment & discharge	Waste Water Treatment & Discharge Arrangement (Septic Tank/ Municipal Drain/Open Field)						
		Are latrines single pit/ double pit/twin pit attached with septic tank						

Sl. No.		Screening Checklist	Status		Scale of Impact			Remark
			Yes	No	High	Medium	Low	
C.3	Disposal of Solid waste	Is there any waste collection facility in the hostel & its adequacy						
		Separate collection bins for segregated waste is available or not						
		Condition of bins good or not						
		Disposal of Waste ( <i>Within Hostel/Outside Hostel Boundary/Municipal Waste Collection Facility</i> )						
		Is the waste daily disposed or not						
		Is there any facility/practice for treatment of waste						
		Are the teachers & students aware about Waste Management						
		Is there any facility for composting and use in gardening						
C.4	Air & Noise Emission	DG set has the stack and acoustic enclosure or not						
<b>D. Conservation of Resource</b>								
D.1	Water conservation	Water Conservation Measures i) Auto flush arrangement ii) Auto stop arrangement iii) Low volume high pressure flushing arrangement						
		Rain water harvesting structure if any						
		Leakage in pipeline and overflow of reservoir is regularly checked						
		Poster on water conservation measures & general awareness is available to students & Hostel Super						
		Are students aware of water conservation issues?						
D.2	Energy Conservation	Type of lighting facility used ( <i>Ordinary Bulb/ Ordinary Tube / CFL</i> )						
		Energy saving lighting arrangement is available or not						
		Hostel Super, Student, Staff are aware of energy conservation measures (turn off the light & fan when not in use, use of natural light, etc)						
D.3	Renewable Energy	Is there any provision of use of renewable energy						
		Are the teacher & hostel management aware about the possibility of use of solar energy						

Sl. No.	Screening Checklist	Status		Scale of Impact			Remark
		Yes	No	High	Medium	Low	
<b>E. Resilience of the Hostel</b>							
E.1	Safety aspect of Building Design	Is the physical condition of the building good or not					
		Is there any special structural facility to cope with natural hazard ( <i>flood/ cyclone/ earthquake</i> )					
		Width of the stair case is sufficient or not					
E.2	Kitchen Safety	Fire extinguishers available in the kitchen or not					
		Is there any separate LPG storage area					
E.3	Fire Safety	Emergency exit is available or not					
		Fire extinguisher is available or not					
		Fire exit sign is posted or not					
		General awareness amongst the authority					
E.4	Electrical Safety	Is there any defective switches/fittings					
		Is there any defective/damaged/cut wires					
		Whether system checked by competent person once in a year or not					
E.5	Disaster Preparedness	Alternative exit gate is available or not					
		Alternative building exit is available or not					
		Sufficient area for outdoor assembly point is available for emergency exist or not					
		Contact numbers for Ambulance, Fire Brigade and Nearby Hospital is available and posted in school office or not					
		Emergency plan is available or not					
		Are the hostel staff aware about emergency plan and have training on fire safety and evacuation plan been carried out or not					
		First aid facility is available or not					

**Checklist for Conducting School Assessment –  
Attachment 2 - Schools with Ongoing Construction Activity**

<b>A. General Information</b>		
A.1	Type of Construction Activity	New Building Additional Class Room Repairing of School Building
A.2	Construction Site	Within the School Campus Nearby Area New Area
A.3	Others	

Sl. No.	Screening Checklist	Status		Scale of Impact			Remark
		Yes	No	High	Medium	Low	
<b>B.</b>	<b>Disturbance due to Ongoing Construction Activity</b>						
B.1	Disturbance	Timing of the construction activity during school hours is avoided or not					
		Others					
B.2	Air & Noise Pollution	High dust generating work is avoided during school hours or not					
		Water is regularly sprinkled on road surfaces and work areas or not					
		Construction material is covered during transport or not					
		Operation of heavy construction equipments is avoided during school hours or not					
B.3	Material Storage & Handling	Construction material stock piles are covered or not					
		Separate storage area for construction materials is designated /used or not					
		Proper disposal of construction debris is done or not					
B.4	Safety Aspects	Temporary fencing of construction area is done or not					
		Safe construction practices are being followed or not					
		Others					