

Chapter 2 Review of Standards, Codes and Practices

A detailed desk review was conducted for various relevant Acts, Rules, Manuals, Standards, and Guidelines etc. at the national level, to have a comprehensive idea of mandatory as well as suggestive measures that can be incorporated in the draft EMF.

The available relevant documents were reviewed under six major heads like documents related to 1. Site Selections and Planning, 2. Construction, 3. Environmental legislations, 4. Occupational health and safety 5. Best Practices including EMS and EHS and 6.Operational Policies and Business Policies of World Bank. Relevance and applicability of different reviewed documents has been discussed below in the context of environmental management framework for India Vocational Training Institutes. Key activities based on the ITI trade (DGE&T list) that may govern the Environment Management Framework were also identified and referral documents for the same and responsible institutions has been recommended too in the main report of Desk review submitted earlier by CEPT.

Major documents reviewed are related to

- Site Selections and Planning,
- Construction
- Environmental legislations
- Occupational health and safety
- Best Practices including EMS and EHS an
- Operational Policies and Bank Policies of The World Bank

2.1 Review of Documents related to Site selection

Selection of proper site is supposed to be the most important and crucial factor from the environmental point of view. The draft notification under sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986 for imposing certain restrictions and prohibitions on new projects or activities, or on the expansion or modernization of existing projects or activities based on their potential environmental impacts as indicated in the Schedule to the notification, being undertaken in any part of India, unless prior environmental clearance has been accorded in accordance with the objectives of National Environment Policy as approved by the Union Cabinet on 18th May, 2006. Thus according to the notification of September 2006, any building to be constructed with an area more than or equal to 20000 sq.mtrs. requires prior environmental clearance.

The Forest Conservation Act, 1980, The Ancient Monuments & Archaeological Sites & Remains Act, 1958, The Wildlife Protection Act, 2002 and CRZ Notification gives special consideration for site selection too. It is evident from the review that, siting of an Institute in an ecologically fragile zone can further aggravate the environmental conditions of the region as well as have adverse impact on the occupants. Thus land use pattern, soil suitability and existing environmental settings need to be studied before selection of a site for construction. National building codes 2005 gives special consideration for the same as mandatory siting criteria. UDPFI guidelines and Eco-housing technical criteria provide guidelines and suggestive measures to take care of environmental considerations with special reference to biodiversity conservation and natural resource conservation. On the other hand site selection in an earthquake prone zone needs special consideration in line with BIS codes for earthquake engineering. Details of referral documents for the same have been provided in the Report submitted by CEPT on desk review.

2.2 Review of Documents related to Site layout, Design and Construction

Site layout as well as design and construction of building is equally important activity in the context of sound environmental assessment of a building. Proper layout of building units can provide much better environment in terms of its access, energy efficiency, natural drainage, lighting and ventilation and good aesthetics. On the other hand sound construction needs to look into some basic requirements of a better and greener building like, 1. It should be safe in terms of natural hazards like earthquake, cyclone or flood depending upon the local conditions, 2. It should be safe in terms of fire safety, emergency exit etc., 3. The building should provide a barrier free access for every body including physically disabled people. 4. Building construction materials should be of greener quality.

As far as available building codes are concerned, The National Building Code of India (NBC), is probably the most comprehensive building Code, and is a national instrument providing guidelines for regulating the building construction activities across the country. The provisions of this code are intended to serve as model for adoption by Public Works Department and other government construction departments, local bodies and other construction agencies. Existing

PWD codes, municipal bylaws and other regulatory media could either be replaced by the National Building Code of India or suitably modified to cater to local requirements in accordance with the provisions of the code.

Himalayan-Naga Lusai region, Indo-Gangetic plain, Western India, and Kutch and Kathiawar regions are geologically unstable parts of the country and some devastating earthquakes of the world have occurred there. Thus new buildings from these regions as well as other earthquake prone zones of India need to follow the BIS codes on earthquake engineering.

Conventional buildings are highly resource intensive both during construction as well as operation and maintenance. On the other hand buildings based on “Eco-Housing” principles are designed, built, and operated in an ecological and resource efficient manner. “Eco-Housing” signifies environmentally benign and energy efficient buildings, sustainable construction practices, and a healthy and productive indoor environment, with lowered use of natural resources.

Most of the building as they are designed and used today, contribute to serious environmental problems, because of their excessive energy consumption in heating / cooling / lighting and material used for the construction of the buildings. Thus principles of solar architecture should be followed to reduce energy consumptions.

2.3 *Review of documents related to pollution control*

General polluting activities such as solid waste generation, noisy workshop exercises may be observed in most of the ITIs of any trade. From the ITI trade list (DGE&T), it was tried to identify the trades where some specific type of emissions or discharge of pollutants take place in substantial quantities. While framing Environmental Management Framework for ITIs, it is very important to look at the polluting activities that are taking place in the campuses of various ITI trades. Based on the type of polluting activities, the ITI trades may be grouped into certain categories.

It was found in the review, that the environmental acts generally describe powers and functions of the institutional framework along with some general guidelines. However, rules describe limits and standards. Thus, most of the important parameters were derived from the set of Rules framed in line with the Acts. A framework may be developed from these basic parameters, based on which the status of environment of an institutional campus may be captured. The

framework might consist few sets of indicators such as – quantity of waste generated per day (in kg); amount of waste generated per capita (gm); frequency of cleaning; facilities for collection, storage and disposal of the waste; infrastructure for the effluent treatment etc. In setting up bench marks for the indicators, the Environment (Protection) Rules, 1986; the Noise Pollution (Regulation and Control) Rules, 2000; the Municipal Solid Waste (Management & Handling) Rules, 2000; Hazardous Wastes (Management & Handling) Rules, 1989 may be helpful.

2.4 *Review of documents related to occupational health and safety*

It is seen generally in any institutional campus, that there are several workers involved in campus support & maintenance activities such as gardening, sweeping, hostel mess, canteen etc. Most of these labourers are immigrants from neighbouring states. Among these labourers, several are below the age of 14. Therefore, consideration of certain labour laws becomes imperative in the framework. The Child Labour (Prohibition and Regulation) Act, 1986; and Interstate Migrant Workmen's (Regulation of Employment & Condition of Service) Act, 1979 were reviewed to capture certain important parameters that may be useful in the project.

2.5 *Operational Policies and Bank Procedures of World Bank*

As part of its Safeguard policies, the World Bank has issued Operational Policies (OPs) and Bank Procedures (BPs) on different themes for projects financed by the Bank. In the context of the categories in the IVTI project some of these policies and procedures are discussed below in table below.

2.6 World Bank OPs and BPs relevant to IVTI project

OP / BP	Relevant Content
WB BP/OP 4.01 Environmental Assessment	<ul style="list-style-type: none"> • Applies to conduct EA for new or expansion of ITIs • Disclosure and Public Consultation • Mitigate construction related environmental and social impacts
WB BP/OP 4.04 Natural Habitats	<ul style="list-style-type: none"> • Avoid sites that have Natural Habitats of rare and endangered species • Preserve Natural habitats wherever possible
WB BP/OP 4.09 Pest management	<ul style="list-style-type: none"> • Applies to creation and maintenance of Green Belts • Use IPM approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest. The Bank may finance the purchase of pesticides when their use is justified under an IPM approach. • The procurement of any pesticide in a Bank-financed project is contingent on an assessment of the nature and degree of associated risks, taking into account the proposed use and the intended users. • The following criteria apply to the selection and use of pesticides in Bank-financed projects: <ul style="list-style-type: none"> a) They must have negligible adverse human health effects. b) They must be shown to be effective against the target species. c) They must have minimal effect on nontarget species and the natural environment. d) The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural enemies. Pesticides

	<p>used in public health programs must be demonstrated to be safe for inhabitants and domestic animals in the treated areas, as well as for personnel applying them.</p> <p>e) Their use must take into account the need to prevent the development of resistance in pests.</p>
<p>WB BP/OP 4.10 Indigenous Peoples</p>	<ul style="list-style-type: none"> • Applicable when ITI location is on lands owned by indigenous peoples or linked to them. • The identities and cultures of Indigenous Peoples are inextricably linked to the lands on which they live and the natural resources on which they depend. These distinct circumstances expose Indigenous Peoples to different types of risks and levels of impacts from development projects, including loss of identity, culture, and customary livelihoods, as well as exposure to disease. • Local Community Consultations in SA to minimise and mitigate impacts
<p>WB BP/OP 4.11 Physical Cultures</p>	<ul style="list-style-type: none"> • This policy addresses physical cultural resources, which are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, historical, architectural, religious, aesthetic, or other cultural significance. • Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community. • Preparation of a physical cultural resources management plan that includes (a) measures to avoid or mitigate any adverse impacts on physical cultural resources; (b) provisions for managing chance finds; (c) any necessary measures for strengthening institutional capacity for the management of physical cultural resources; and (d) a monitoring system to track the progress of these activities.
<p>WB BP/OP 4.12 Involuntary Resettlement</p>	<ul style="list-style-type: none"> • This policy covers direct economic and social impacts that both result from Bank-assisted investment projects, and are caused by (a) the involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) lost of assets or access to assets; or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location; or (b) the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons. • Assess displacement and loss of livelihood Prepare resettlement plan as part of EA • Include compensations / income generation and pension schemes for affected people

<p>WB BP/OP 4.36 Forests</p>	<ul style="list-style-type: none"> • This policy applies to the following types of Bank-financed investment projects: <ul style="list-style-type: none"> a) projects that have or may have impacts on the health and quality of forests; b) Projects that affect the rights and welfare of people and their level of dependence upon or interaction with forests; and c) Projects that aim to bring about changes in the management, protection, or utilization of natural forests or plantations, whether they are publicly or privately owned.
<p>WB BP/OP 4.60 Disputed Areas</p>	<ul style="list-style-type: none"> • For every ITI project in a disputed area, Bank staff will consider the nature of the dispute. The Project Appraisal Document (PAD) for a project in a disputed area discusses the nature of the dispute and affirms that Bank staff have considered it and are satisfied that either (a) the other claimants to the disputed area have no objection to the project; or (b) in all other instances, the special circumstances of the case warrant the Bank's support of the project notwithstanding any objection or lack of approval by the other claimants.

2.7 Summary

The whole review process gives an insight of the relevance of national standards, code of practices, legal provisions, guidelines, and manuals with special reference to vocational training institutes in India and its environmental assessment. It is evident from the major findings explained above in this section, that there are some crucial factors which need special attention in the context of environmental management framework. On the whole, available building codes, manuals and guidelines provide broadly two set of norms / standards as Mandatory and Suggestive. There are some crucial factors which need special attention during various stage of establishment of a ITI building and which need to be incorporated in the EMF. The following table provide a list of crucial parameters pertaining to different activities and the relevant norms / standards.

Applicability of review documents for different activities

Parameter	Mandatory			Suggestive				
	NBC	BIS	EL	UDPFI	EHAC	BFBE	SA	OP/BP
I. Site Selection								
• Land use	Yes	Yes		Yes	Yes			
• Soil Suitability		Yes			Yes			
• Biodiversity conservation			Yes	Yes	Yes			Yes
• Natural Resource Conservation			Yes					Yes
II. Site planning and layout								
• Area of Campus	Yes			Yes				
• FAR	Yes			Yes			Yes	
• Access	Yes					Yes		
• Open space	Yes				Yes			
• Landscaping / Green belts	Yes				Yes			
• Environmental Concerns	Yes		Yes	Yes	Yes			Yes
III. Site development								
• Design Criteria	Yes	Yes			Yes	Yes	Yes	
• Construction material	Yes	Yes	Yes		Yes		Yes	
• Energy Efficiency	Yes				Yes		Yes	
• Water conservation / Water harvesting	Yes		Yes		Yes			Yes
• Acoustics / Noise	Yes		Yes					
• Lighting and Ventilation	Yes				Yes		Yes	
• Earth quake resistance	Yes	Yes						
• Fire Safety	Yes	Yes						Yes

Parameter	Mandatory			Suggestive				
	NBC	BIS	EL	UDPFI	EHAC	BFBE	SA	OP/BP
• Life Safety	Yes	Yes						Yes
• Exit	Yes	Yes						
• Location of services	Yes				Yes		Yes	
• Special requirement for physically challenged	Yes					Yes		
• Special planning for hilly areas	Yes				Yes		Yes	
• Waste Management			Yes		Yes			Yes

Note:

NBC: National Building Code; BIS: Bureau of Indian Standards for Earth Quake; EL: Environmental Laws; UDPFI: UDPFI Guidelines; EHAC: Eco-Housing Assessment Criteria; DMBFBE: Design Manual for a Barrier Free Built Environment; SA: Solar Architecture; OP/BP: OP and BP of World Bank.