

Chapter 3 Assessment of Existing Situation

3.1 Case Study Selection

In order to understand the field level environmental / occupational health and safety issues, a relatively small, but credible set of samples of 19 ITIs were taken up for assessment of existing situation. Samples were selected on the basis of following criteria (Also refer Map 3.1).

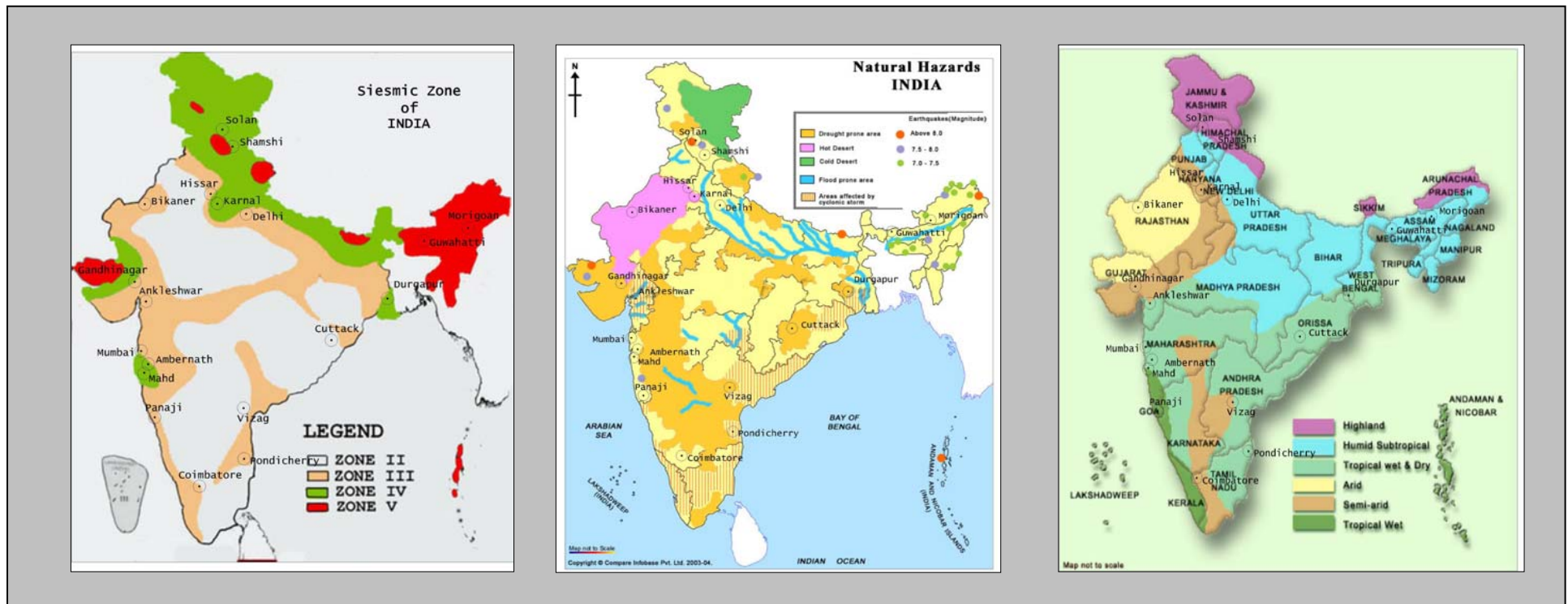
1. Geographic location / Siting (Such as urban / rural / hilly / coastal / flood prone)
2. Climatic condition (Hot / humid / dry / arid / warm etc.)
3. Polluting trade / Pollution potential (Chemical / plastic / hospitality / civil / P&M / Automobile)
4. Upgraded / Not upgraded (Whether upgraded to COE or not)

Table 3.1 List of ITI selected for field survey

Sr. No.	Name of the ITI	Location	Climate	Trade
1	Morigaon, Assam	Plain Rural	Humid Subtropical	Civil
2	Guwahati, Assam	Urban	Humid Subtropical	Civil
3	Durgapur, West Bengal	Urban	Tropical Wet & Dry	Instrumentation
4	Shamshi, Kullu	Hilly	Cold / Cloudy	Electrical
5	Bikaner, Rajasthan	Plain Urban	Arid	Electrical
6	Solan, Himachal Pradesh	Urban	Cold - Sunny	Electronics
7	Vizag, Vishakhapatnam	Urban	Hot - Humid	LET&F (EMF)
8	Cuttack, Orissa	Coastal	Warm - Humid	P & M
9	Ankleshwar, Gujarat	Urban	Hot & Dry	Chemical
10	Gandhinagar, Gujarat	Urban	Hot & Dry	IT
11	Panaji, Goa	Coastal	Warm - Humid	Hospitality Management
12	Pusa, Delhi	Plain Urban	Semi Arid	Automobiles
13	Hissar, Haryana	Plain Urban	Semi Arid	Fabrication
14	Karnal, Haryana	Plain Urban	Semi Arid	Leather
15	Pondichery, Tamilnadu	Rural	Warm & Huid	Plastic Processing

16	Ambarnath, Mumbai	Urban	Warm - Humid	Refrigeration & A.C. Maintaence
17	Dadar, Mumbai	Urban	Warm - Humid	Apparel Sector
18	Mahd, Maharashtra	Urban	Warm - Humid	Chemical
19	Coimbatore, Tamilnadu	Urban	Warm Humid	Upgraded-P & M

Map 3.1 Geoclimatic and Natural Hazard Zones of India



Map 3.2 Location of selected ITIs



3.2 *Field Investigation*

Keeping in mind the crucial issues and parameters coming out from the desk review, a structured questionnaire (Refer Annex-I) was canvassed by a team of experts consisting of qualified and experienced Planners, Architects, Engineers and Geographers. This questionnaire was finalized in consultation with the DG&ET, before commencing the site surveys.

The research team from CEPT was divided into three groups and these groups visited selected ITIs, to investigate the key issues related to site selection, access, site layout and design, construction material, resource consumption pattern, environmental issues, health and safety and best practices.

The site examinations included interviews with the ITI management, current students and recent graduates about their opinion on the key issues mentioned above. Compliance of the National standards and norms (appraised through the desk review) were verified too. An appraisal of any requirement of land for the potential activities under the project was also examined. Brief observations of each visited ITIs have been given in the annexure.

3.3 *Summary of issues identified from field investigation*

The details of field survey observations have been annexed with this report (Refer Annex II). The issues identified from the field survey can be summarized as below,

- 1) Site planning and design issues (Location / site planning / accessibility / design)
- 2) Construction issues
- 3) Maintenance issues
- 4) Resource Consumption Issues
- 5) Environmental Augmentative Measures

3.3.1 Site Planning and Design Related Issues

3.3.1.1 Location of ITIs

- The siting of Vocational training institutes was found fairly good in most cases, but there were some causes of concern, for example the ITI of Cuttack in Orrissa, which is located in a low lying area and falls in a floods prone area too. The ITI is located almost 5m below the N H highway level that is passing next to it. The entire area gets flooded in monsoon, since the gradient is towards the Mahanadi River, which is a short distance away from the ITI. The road levels have been raised manifold in the past few years making the positioning of the ITI vulnerable.
- The ITI at Solan was difficult to access even with a special access road provided. The building was very difficult to access for anybody even with a partial / temporary disability. The building is a three-storied RCC frame building with almost non existent facilities for the disabled.
- Some ITIs were found to be located at far away distance from the habitations or industries, for example Samshi ITI of Himachal Pradesh is located at a remote area, however accessibility is good.
- ITI Guwahati is located in a low-lying area resulting into stagnation of water throughout the year and water logging is evident in the playground for students.
- Among the selected ITIs for this study, 3 ITIs fall in zone II, 8 ITIs fall in zone III, 6 ITIs come in zone IV and 2 ITIs fall in zone V as per seismic zones of India. However none of the buildings were found to be constructed with adequate earthquake resistant measures. It may be noted that the buildings located in zone IV and V need special construction considerations as mentioned in the national building code 2005.
- Some ITIs like Goa, Guwahati and Durgapur have issues like conflicting landuses or encroachments with in the campus. ITI Durgapur has a unique problem in terms of interference by out siders. Here outsiders frequently visit the campus for taking water from the pond located within the campus. Water being an basic need of human being, its difficult for the IMC to deny the outsiders to share it, since these people belong to the weaker section of the society and do not have access to other sources of water near by.



ITI Shamsi located on steep slope



Playfield converted in to wetland at ITI Guwahati

3.3.1.2 Site Planning

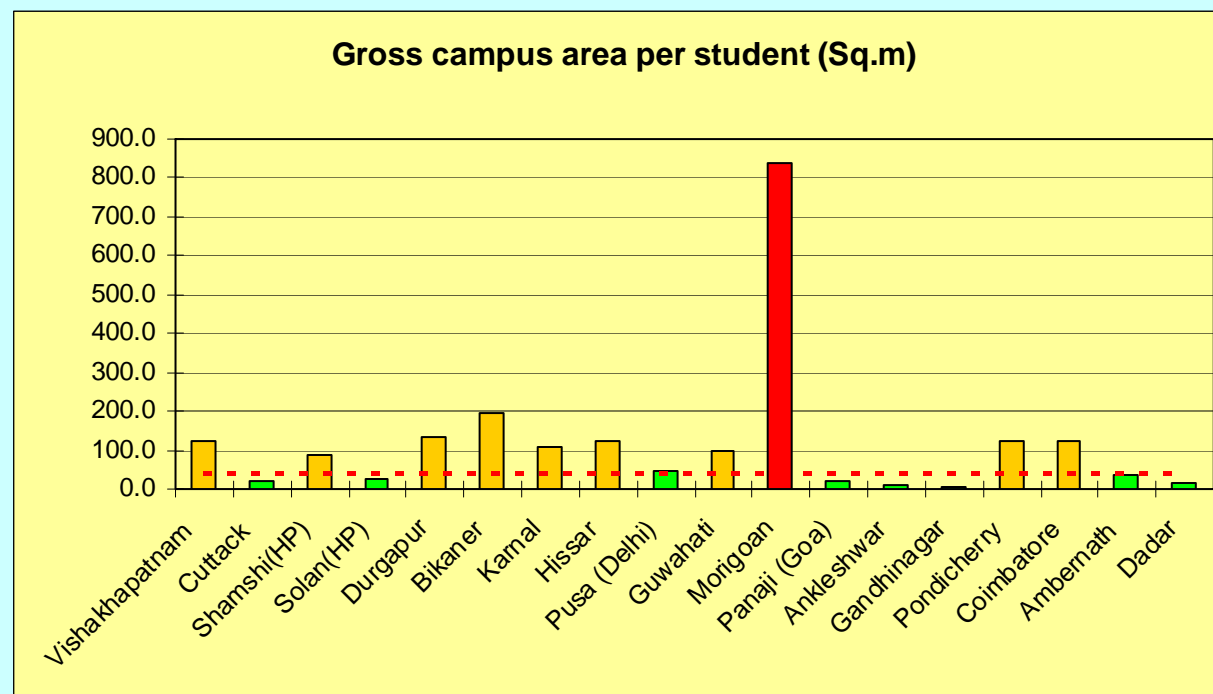
- The overall ambience, efficiency, work atmosphere, materials of construction, ease of maintenance, ease of access and a host of issues are related to the layout, planning and the building design.
- The built up area and the open land available in most of the buildings was adequate with the exceptions of the Dadar ITI but the space constraints in the city like Mumbai are well known. The other ITI that had space constraints was the ITI Panaji, Goa where the foot print of the building is the land area since the ITI occupies a pre built government owned building within a government administrative complex. The scope for further development for this ITI is absent. As an immediate consequence, the ITI lack parking space and the occupants are bound to park on the neighbourhood road .
- Boundary wall provides a sense of security and compactness of any educational campus. This important aspect is ignored in most of the ITIs. ITI Panjim is directly located on the urban street. ITI Durgapur boundary wall was found to be broken and encroached upon. But the case of ITI Guwahati is an eye opener in this context as part of Campus (approximately 4 Bighas) was encroached upon and the IMC was bound to hand over the area to the encroachers. However no other ITI was found to have any encroached area as of today.



Encroachment in ITI Guwahati

Table 3.1 Total Campus Area per Student

	Name of the ITI	Total campus area per student (Sq.m)	Standard area / student as per NBC (Sq.m)
1	Vishakhapatnam	121.8	40
2	Cuttack	21.1	40
3	Shamshi(HP)	87.4	40
4	Solan(HP)	24.3	40
5	Durgapur	134.1	40
6	Bikaner	193.4	40
7	Karnal	105.5	40
8	Hissar	120.9	40
9	Pusa (Delhi)	43.9	40
10	Guwahati	95.6	40
11	Morigoan	836.4	40
12	Panaji (Goa)	18.8	40
13	Ankleshwar	8.6	40
14	Gandhinagar	7.3	40
15	Pondicherry	121.5	40
16	Coimbatore	125.1	40
17	Ambarnath	34.6	40
18	Dadar	15.2	40



As can be seen from the above graph, that campus area per student varies from 7.3 sq.m in ITI Gandhinagar to as high as 836.4 sq.m in ITI Morigaon. As per the standard of National Building Code 2006, the minimum campus area per student need to be 40 sq.m. Thus some of the ITI do not comply with the norm. Per capita space is too high at Morigaon since it's a new ITI and having less number of students.

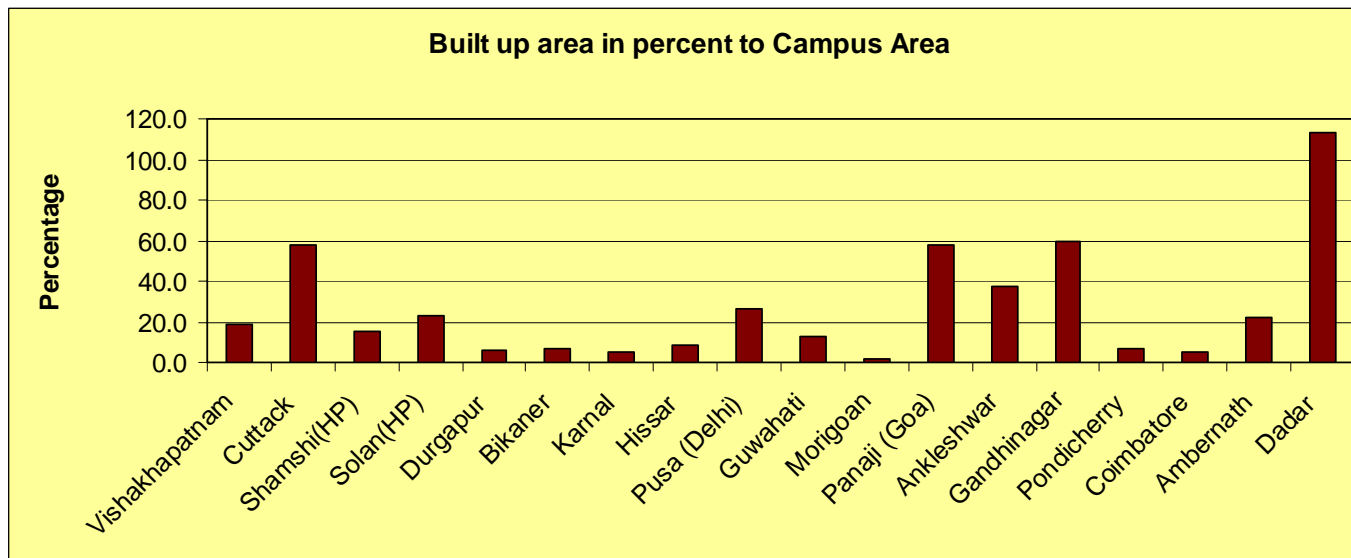
- Green space or open space in an educational campus gives a special ambience but it was found that most of the ITIs are not having ample green or open space except in ITI Vishakhapatnam. The ITI at Durgapur, Ankleshwar, Bikaner and Gandhinagar represents poor maintenance and landscaping.
- No defined parking area was found in most of the ITIs, leading to poor accessibility. In ITI of Goa, Durgapur and Guahati allotted parking space was found, however it is not at all sufficient for the number of vehicles.
- Poor campus drainage facility was also observed in many of the institutes visited under this study. In Durgapur ITI wastewater generated from the hostel bathrooms are disposed through open drain. Condition of wastewater disposal at Morigaon and Pondicherry is also in poor state. In case of ITI Guwahati, the natural drainage with polluted waste water from chemical industries and hospital flows along the boundary of the campus, which gives bad aesthetics and may cause health hazard to the occupants in the campus.



No green space– Bikaner

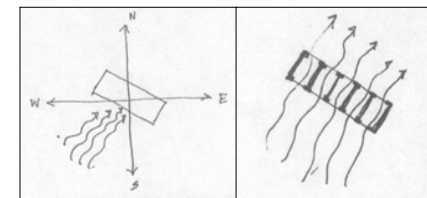
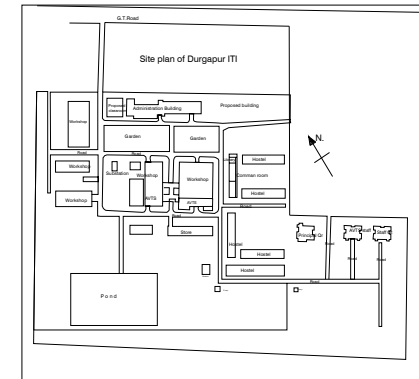


Lack of Parking Space –ITI, Goa



3.3.1.3 Design of buildings / Layouts

- Orientation of the Buildings in most of the ITIs was found to be cardinal or skewed. However cardinal orientation should be preferred looking into solar architecture and energy consumption pattern. However none of the building was observed to have building design in line with eco-housing assessment criteria or solar architecture (Passive or active) as suggested in the desk review report. Many of the institutes are having good amount of plot area with smaller built up area.
- Barrier free access for the disabled is also an issue that needs to be addressed in all the ITI s as none of the institutes visited were found to have any provision in the building structure for the differently abled. Though most of the ITI s except for the Solan, Pusha with ground floor structures and with ramps in the workshops making them accessible even by disabled using ambulatory means. But, this may have been more since the workshops usually house heavy machinery and these could not have been moved into the workshops otherwise.
- Most of the buildings are constructed by locally available material with masonry wall with RCC slab or tubular section. Administrative and main buildings are mostly load bearing structures.
- The buildings are having adequate amount of natural light and ventilation since the window area were sufficiently high and also the arrangements to draw light from the roofs through north light was making the illuminations levels high.



ITI Dadar



ITI Morigaon



ITI Guwahati

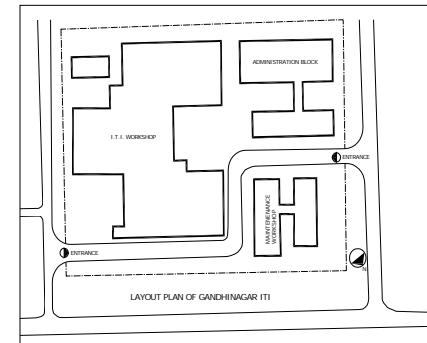
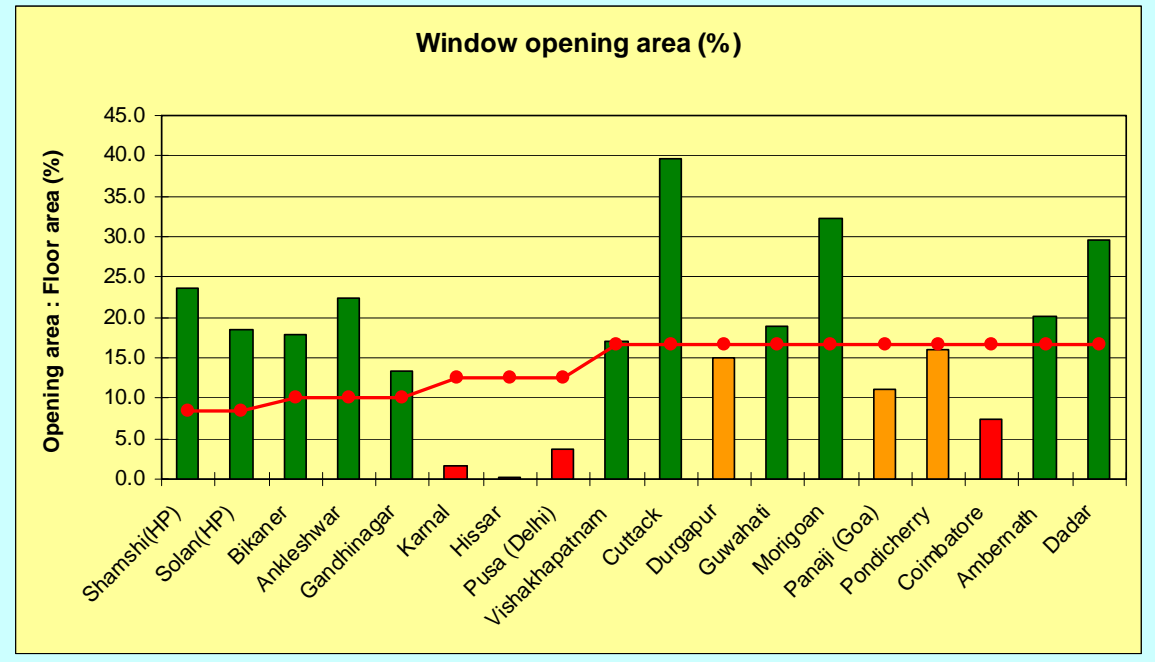


Table 3.2 Area of opening in classrooms.

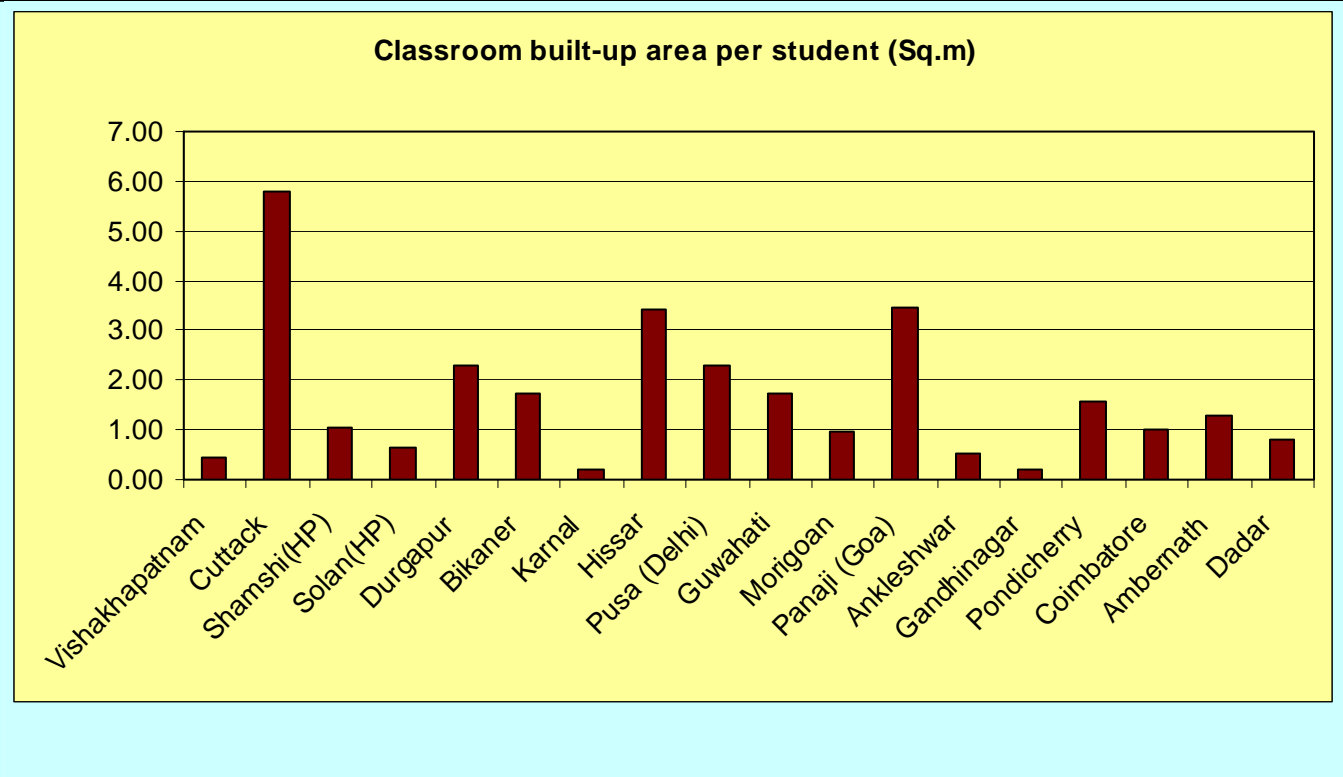
Name of the ITI	Total classroom area (Sq.m)	Total Window area (Sq.m)	Window (%)	Standard (%)
Shamshi(HP)	338.43	80.00	23.6	8.3
Solan(HP)	232.23	42.84	18.4	8.3
Bikaner	540.00	96.00	17.8	10.0
Ankleshwar	1290.00	288.84	22.4	10.0
Gandhinagar	405.00	54.00	13.3	10.0
Karnal	152.00	2.38	1.6	12.5
Hissar	2577.00	6.70	0.3	12.5
Pusa (Delhi)	2600.00	93.75	3.6	12.5
Vishakhapatnam	300.00	51.00	17.0	16.6
Cuttack	4940.34	1961.70	39.7	16.6
Durgapur	2046.00	306.00	15.0	16.6
Guwahati	864.00	164.00	19.0	16.6
Morigoan	63.00	20.36	32.3	16.6
Panaji (Goa)	333.30	36.66	11.0	16.6
Pondicherry	720.00	115.20	16.0	16.6
Coimbatore	970.00	71.45	7.4	16.6
Ambemath	1496.55	300.00	20.0	16.6
Dadar	270.00	80.00	29.6	16.6



National Building code provides separate standards for openings in class room for different climatic zones. As can be seen from the above table and graph, all the ITI from cold and sunny zones are complying well with the norm, however the ITI from some zones are having much less opening in the wall of class rooms compare to the standard. ITI Cuttack shows a very high amount of openings, where as ITI Hissar shows the lowest amount of opening in class rooms. ITI Goa, ITI Pondichery and ITI Coimbatore also needs to increase its openings in classrooms.

Table 3.3 Per capita classroom area for students

	Name of the ITI	Total classroom area (Sq.m)	Classroom area per student (Sq.m)
1	Vishakhapatnam	300.00	0.43
2	Cuttack	4940.34	5.79
3	Shamshi(HP)	338.43	1.04
4	Solan(HP)	232.23	0.64
5	Durgapur	2046.00	2.28
6	Bikaner	540.00	1.72
7	Karnal	152.00	0.20
8	Hissar	2577.00	3.42
9	Pusa (Delhi)	2600.00	2.27
10	Guwahati	864.00	1.71
11	Morigoan	63.00	0.98
12	Panaji (Goa)	333.30	3.47
13	Ankleshwar	1290.00	0.53
14	Gandhinagar	405.00	0.18
15	Pondicherry	720.00	1.57
16	Coimbatore	970.00	1.02
17	Ambarnath	1496.55	1.28
18	Dadar	270.00	0.82



Area of classroom per student (in sq. mtrs.) was found varying from 0.43 in ITI Vishakhapattanum to as high as 3.47 in ITI Goa. The average area per student in classrooms was found to be 1 to 2 sq. mtrs. per student. However due to ongoing construction work, classrooms are some time over crowded as shown in the picture beside at ITI Hissar .

In case of work shops per student area availability is highly varied from ITI to ITI depending upon the trade and machinery. However none of the ITI was found to have less per capita area in workshops than the required area.



Water Supply and Sanitation

- Sources of water supply in most of the ITI are found to be surface water supplied by PWD. Some of the ITI have its own bore well, But quality of water is some time not acceptable, specially in ground water due to high TDS in coastal areas.
- In case of ITI Guwahati deep tube well was found out of order. Thus sustainability of water sources is some time questionable. Conflict between PWD and ITI Bikaner regarding the ownership of the bore well situated in the campus, is an example of institutional failure in water supply.
- In some of the ITI, location of drinking water taps was found to be in a very dirty place or near the toilet block with a risk of contamination.
- Toilet blocks were found to be very dirty because of poor maintenance. In some places number of toilets was not adequate compare to the number of occupants.



Sanitation block at ITI Durgapur



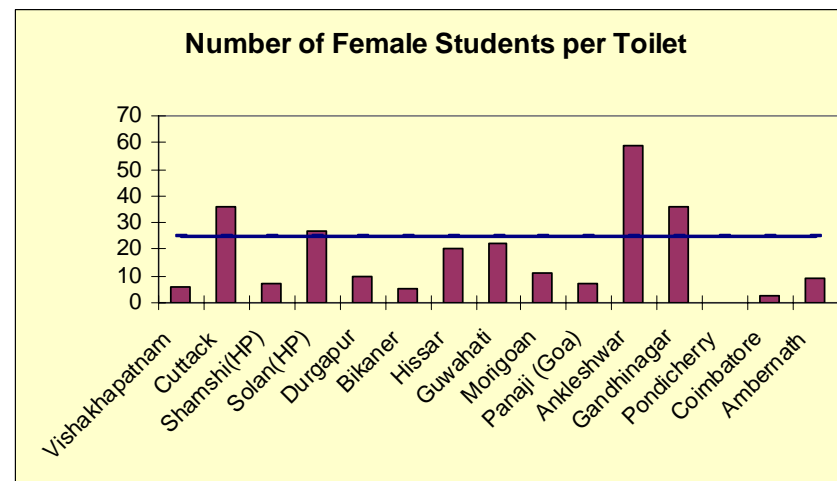
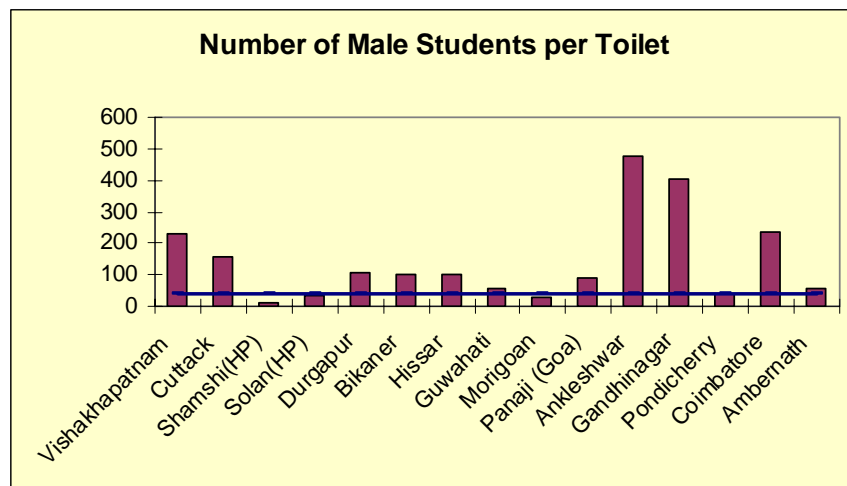
Sanitation block at ITI Durgapur



Location of drinking water facility at ITI Ankleshwar

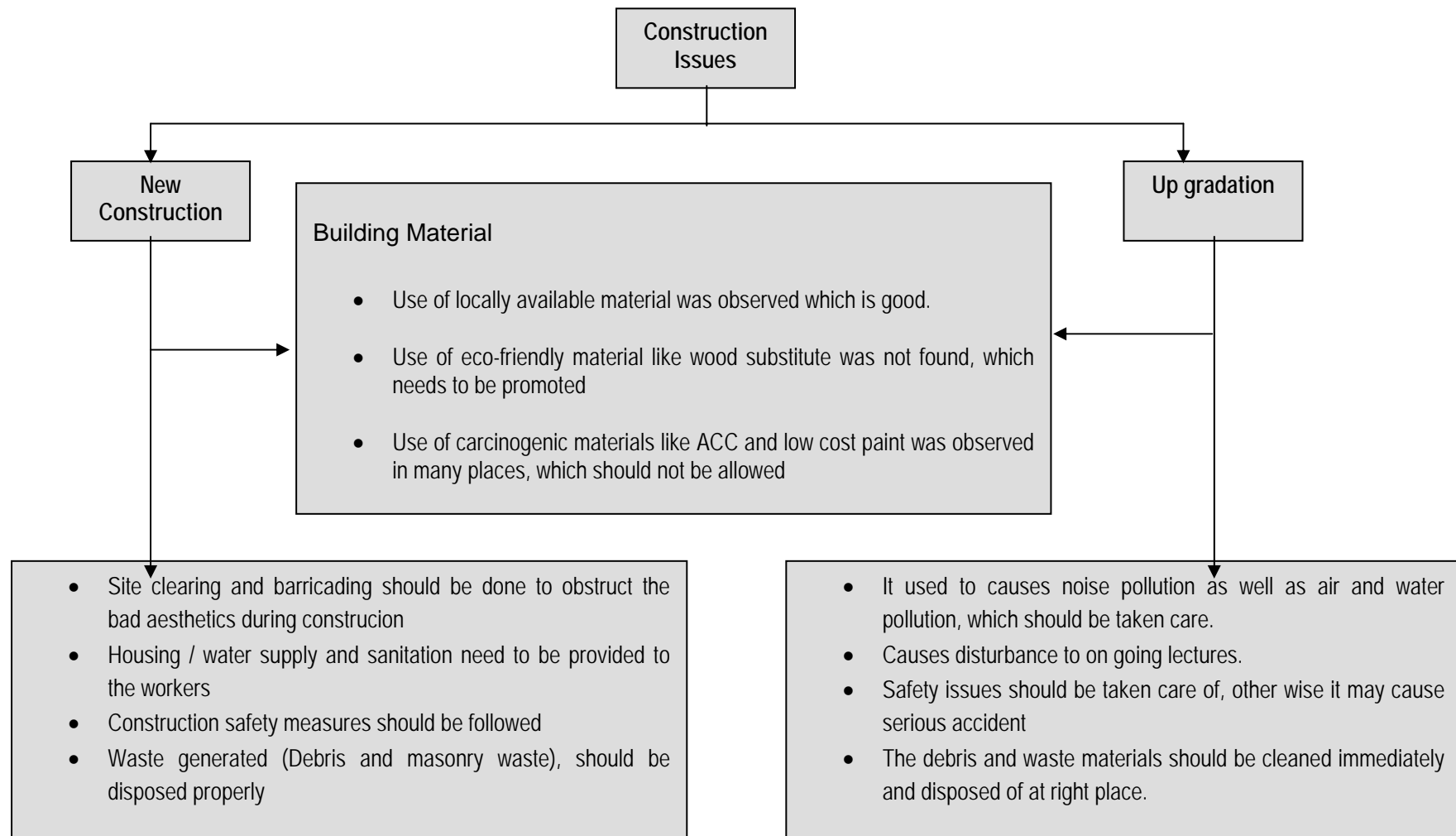
Table

	Name of the ITI	Male students	Male toilets	No. of Male students per toilet	Female students	Female toilets	No. of Female students per toilet
1	Vishakhapatnam	697	3	232	6	1	6
2	Cuttack	781	5	156	72	2	36
3	Shamshi(HP)	287	26	11	37	5	7
4	Solan(HP)	282	8	35	81	3	27
5	Durgapur	858	8	107	40	4	10
6	Bikaner	309	3	103	5	1	5
8	Hissar	712	7	102	41	2	21
10	Guwahati	460	8	58	44	2	22
11	Morigoan	53	2	27	11	1	11
12	Panaji (Goa)	89	1	89	7	1	7
13	Ankleshwar	2389	5	478	59	1	59
14	Gandhinagar	2015	5	403	180	5	36
15	Pondicherry	458	12	38	0	0	0
16	Coimbatore	941	4	235	7	3	2
17	Ambarnath	1096	20	55	71	8	9



3.3.2 Construction Issues

The construction related issues have been shown in the chart below.



In many places locally available masonry is good enough in terms of strength, however in some places Asbestos Cement Sheet (ACC) has been used for covering the workshops, which does not have direct health impact on occupants but can cause serious health hazard for the workers in manufacturing units. Wide use of ACC can be found even in the ITIs, which have been upgraded recently. Similarly in Goa, thermocol has been used for internal ceiling material in the newly upgraded COE for hospitality management.

One of the most important activities of the proposed ITI strengthening initiatives is improvement/up gradation of the building including infrastructure provision, expansion of classrooms, additions of class rooms and expansion or addition of workshop areas. All such activities have environmental impacts of which dust, noise and building waste are the most important. The other important impacts are difficulty in conducting regular classes, over crowding of students in small or make shift classrooms and workshops leading to accidents (workshops). Given the modular lecture delivery mode such disturbances adversely affects the curriculum, it remains incomplete or is treated superficially.

- Asbestos sheets are used in roofing even for most extensions
- The materials like kotah stone is used in Solan
- Thermocol is used as internal false ceiling in ITI Goa

		
Construction environment at ITI Mahad	Paint worker without any safety gloves at ITI Mahad	Renovation work going on during a lecture

3.3.3 Maintenance Issues

- The building, its services and the overall site maintenance are important factors for any structure. The life of the building, its performance and the efficiency of services in the building both are greatly enhanced when it is properly maintained.
- As far as long terms maintenance is concerned, in general all major repair works are carried out by PWD. This arrangement often delays the process of regular up keep. For example Ankleshwar ITI is an exceptional case of disrepair - the RCC slabs show high amount of corrosion and spalling of concrete in almost all the buildings. The toilets and other services are also in a very bad state of maintenance. The ITI at Durgapur also has shows a very poor state of maintenance and repair.
- The responsibility of day to day maintenance, solid waste etc lies with the institute administration whereas the overall maintenance of buildings and site with PWD, leading to delays in executing works that have to go through the system. Same system is in place for all the ITI s but the Solan, Vishakhapattanam, Morigaon administration shows impressive maintenance of lawns, gardens, landscape etc. Where as ITI Bikaner / Ankleshwar are cases of "*opportunity lost*".
- The trades like carpentry, plumbing and masonry do some percentage of routine maintenance as a part of their training in the case of Vishakhapattanam ITI. This practice is a good case for replicating at other ITIs where such trade exists.
- Fire extinguisher and sand bucket was found in many of the ITIs, however very few of the teachers and students were found to have enough training to use them in case of fire accident. Some of the extinguishers were found to be expired. Gap between two buildings were found enough for fire fighting movement in most of the ITIs. However no provision was found for fire exit in any of the buildings.
- No fire or chemical spill was found in any of the visited ITIs. However its important to have adequate precautions for the same which was found inadequate in most of the ITIs.



Roof of classroom at ITI Ankleshwar



Cracked wall at ITI Ankleshwar



Status of campus maintenance at ITI Durgapur

- A major issue in repair is of the available budgets for the ITIs. The majority of the expense is incurred on the salary as seen from the table below. The amount allocated for building repair is about 7%. This is extremely low and should be about 15-20%.

Table ITI Budget Head

Budget Head	Avg Proportion of budget allocation (2003-04)
Salary	77%
Building Repair	7%
Buying equipments/machines	5%
Raw materials	6%
Staff Training & Development	2%
Other major expenses	6%

Source: Primary survey

Good Case of Campus Maintenance

The Vishakhapattanam ITI was an excellent case of proactive role of the institutional head. The ITI was excellently maintained not only the main buildings but also the open land that was abundant in fertile soil was well maintained as can be seen even from the pictures.

The workshops, classrooms were also very well maintained. The toilet blocks were clean and well maintained though the materials used were dated indicating to the fact that they were maintained properly all through. The trades like carpentry, welders, plumbers do some part of the routine maintenance work, this subsidises the costs of maintenance as well as the training giving the additional benefit of building remaining well maintained. The plumbing trade students maintained the taps and other devices, for major repairs the trainer would help the students and direct them.

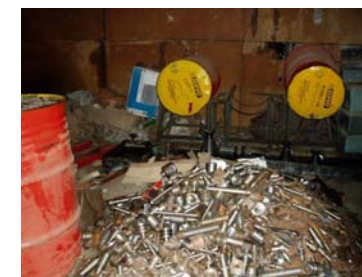
The painting trade students whitewash the walls and often the trade does various paintings on the walls also making the campus more lively. The students are also participating in the gardening and other campus activities, which has resulted in a green and clean campus.



Status of campus maintenance at ITI Vishakhapattanam

Hazardous Waste Management

Hazardous materials—such as laboratory chemicals, chemical by-products, chemical handling supplies, paints, and solvents—can cause pollution and present risks to health, safety, and the environment. The improper use and disposal of hazardous chemicals have consequences on both the health of those who handle the material and those whose water, air, and land may be polluted by leaks, spills, and volatile emissions. However, proper storage and disposal of hazardous solid waste was not found in any ITI. In most of the ITI, hazardous solid waste was found dumped in an open place with out any signage. Storage of different waste material like broken furniture, old table cloths, roofing material was found in corners of classrooms.



Storage of Hazardous waste

3.3.4 Resource Consumption Issues

The average energy consumption in most ITIs is in the range that is acceptable since the daylight factor in most workshops is high. The workshops have high number of windows and most of the trussed roofs have north lighting taking the ambient level of illumination to a higher level. This has reduced the need of artificial lighting in most cases.

In most of the ITI s there is awareness in a general form about the energy saving concepts but the implementation part was almost absent everywhere. The approach of using renewable sources of energy for the activities like pumping, campus lighting, and water heating was not seen.

Table Status of Energy Consumption

Name of the ITI	Average electricity consumption (Wh/month)	Total Built up area (sq.m.)	Average consumption per unit area (Wh/ Sq.m)
Vishakhapatnam	2150000	16194.3	133
Cuttack	4236000	10440.0	406
Shamshi(HP)	3200000	4232.2	756
Solan(HP)	3374000	2008.3	1680
Durgapur	7800000	7506.0	1039
Bikaner	750000	4300.0	174
Karnal	11000000	4120.5	2670
Hissar	5000000	7434.0	673
Pusa (Delhi)	320000	13262.1	24
Guwahati	3643000	6186.0	589
Morigoan	14000	770.0	18
Panaji (Goa)	0	1038.0	0
Ankleshwar	7287000	7882.2	924
Gandhinagar	140000	9562.2	15
Pondicherry	400000	3656.3	109
Coimbatore	4200000	5928.2	708
Ambarnath	9936000	8850.6	1123
Dadar	3250000	5637.6	576

3.3.5 Environmental Augmentative measures

- Concept of saving every drop of water was found to be known to the teachers, staff and students but Rainwater Harvesting is being practiced in very few ITI campuses like in case of ITI Ankleshwar.
- The issue of use of solar energy was also discussed and participants from various ITIs have shown interest in the same and were willing to install solar panels. But no distinct plan for future was observed in the same line.
- As far as solid waste management is concerned, very few ITI has the system in place. ITI Goa has taken up a good initiative in this line by having partnership with urban local body for composting the biodegradable wastes.
- Solid waste generated out of machine shop is mostly sold in the market as scrap. Solid Waste generated out of carpentry shop activity is also sold/ occasionally decomposed.
- Holistic Personality development courses like Yoga being practiced by ITI Solan, as can be seen from the picture beside.



3.4 Summary of Issues

Major Issues	Specific Issues	Name of the ITIs
Site planning and design issues	<ul style="list-style-type: none"> • Problematic Location • Low lying area • Steep Slope • Far away from habitation • Earthquake Zone V 	ITI Cuttack ITI Solan ITI Shamshi/ ITI Vishakhapattanam/ ITI Cuttack/ ITI Bikaner ITI Morigaon / ITI Guwahati
	<ul style="list-style-type: none"> • Site planning • Space Constraint • Lack of boundary wall • Poor campus drainage • Access roads • Site Development and landscape 	ITI Dadar / ITI Panaji ITI Panaji / ITI Guwahati/ITI Solan ITI Guwahati / ITI Durgapur/ ITI Cuttack ITI Solan All except IT I Vishakhapattanam
	<ul style="list-style-type: none"> • Design of Building • Absence of Barrier free design for disabled / Energy efficient / Eco-housing / Solar Architecture / Fire Exit • Poor plumbing services • Poor Design of Service corridors 	All visited ITIs ITI Cuttack All visited ITIs
Construction issues	<ul style="list-style-type: none"> • Use of Carcinogenic material like ACC / Low cost Paint etc • Use of non local materials • Use of Expanded Poly Styrene (EPS i.e.-Thermocol) Sheets • Asbestos sheet roofing 	Almost all ITIs / (Special issues in ITI Mahad) ITI Solan ITI Panaji ITI Panaji/ ITI Vishakhapattanam/ ITI Cuttack/ ITI Shamshi
Maintenance issues	<ul style="list-style-type: none"> • Poor maintenance of Landscape and site • Poor Maintenance of services especially plumbing and drainage • Poor routine maintenance like painting /white washing/ cleaning etc • Poor maintenance of electricals • Poor maintenance of building elements like slabs, columns, beams 	ITI Durgapur / ITI Ankleshwar / ITI Bikaner / ITI Gandhinagar Almost all visited IT Is Almost all visited ITIs Almost all visited ITIs Almost all visited ITI s
Resource Consumption Issues	<ul style="list-style-type: none"> • Lack of use of renewable energy resources • Lack of Rain water Harvesting 	All Visited ITIs Almost all visited it is
Environmental Augmentative Measures	<ul style="list-style-type: none"> • Very few environmental friendly actions • Slope Stabilising • Ground water recharging 	Almost all ITI (Except Goa and visag) ITI Solan Almost all visited ITIs

3.5 Status of Compliance

	Name of the ITI	NBC	BIS	UDPFI	DMBFBE	EP	WA	AA	HZ	OHS
1	.ITI Vishakhapatnam	H	M	H	H	L	L	H	M	L
2	ITI Cuttack	H	M	H	L	L	L	H	M	L
3	ITI Shamshi	H	M	H	M	L	L	H	M	L
4	.ITI Solan	M	L	M	L	L	L	H	M	L
5	ITI Durgapur	M	M	M	NC	M	M	M	H	L
6	ITI Bikaner	H	H	M	L	M	H	M	M	L
7	ITI Karnal	M	M	H	M	M	M	L	L	L
8	ITI Hissar	M	M	H	M	M	M	L	L	L
9	ITI Pusa (Delhi)	M	M	H	M	M	M	M	M	M
10	ITI Guwahati	M	L	H	M	L	L	L	M	L
11	ITI Morigoan	H	M	H	M	M	L	M	H	L
12	ITI Panaji (Goa)	L	L	L	M	L	L	M	H	L
13	ITI Ankleshwar	M	M	M	NC	L	L	M	L	L
14	ITI Gandhinagar	M	M	M	NC	L	L	L	L	L
15	ITI Pondicherry	L	M	L	M	L	NC	L	NC	L
16	ITI Coimbatore	L	M	L	L	L	NC	L	NC	L
17	ITI Ambernath	L	M	L	L	L	NC	L	NC	L
18	ITI Dadar	L	M	L	L	L	NC	L	NC	L
19	ITI Mahad	M	M	M	M	L	NC	L	NC	L

Note: High=H; Moderate=M; Low=L; No Compliance=NC

NBC: National Building Codes (NBC) ; BIS: BIS Codes on Earthquake Engineering; UDPFI: UDPFI guidelines ;

DMBFBE: Design Manual for a Barrier Free Built Environment; EP: Environment (Protection) Act, 1986

WA: Water (Prevention & Control of Pollution) Act, 1974; AA: Air (Prevention & Control of Pollution) Act, 1981

HZ: Hazardous Wastes (Management & Handling) Rules, 1989; OHS: Occupational Health and Safety Management

Standards ; OP/BP: OPs and BPs of The World Bank

