Conceptual Plan

FOR
MODIFICATION CUM EXPANSION OF IT SEZ PROJECT
WITH ADDITION OF ELECTRONIC MANUFACTURING CLUSTER,
COMMERCIAL AREAS AND SPORTS COMPLEX UNDER
THE NAME OF INFOVALLEY
AT BHUBANESHWAR, ODISHA

Sponsor:

The Odisha Industrial Infrastructure Development Corporation
Bhubaneswar, Odisha

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1.0 Executive Summary

Bhubaneswar, the capital city of the state of Odisha, is a well-known Information Technology and Information Technology Enable Services (IT-ITES) hub in Eastern India. Major IT companies such as Infosys, TCS, Wipro and Satyam have a strong presence in the city to tap into the city’s trained manpower. As the leading IT-ITES exporting state in India, the Government of Odisha (GoO) is actively promoting the state for new investment in IT, ITES and related industries that include Electronic Systems and Design Manufacturing (ESDM), Commercial Areas and Sport complex. New development areas have since been identified to cater for such new investments.

The subject site also known as Infovalley is one of these new investment areas. The state government is developing Infovalley as an IT Park which comprises a Special Economic Zone (SEZ) and an integrated township. Odisha Industrial Infrastructure Development Corporation (IDCO) has been appointed as the Nodal Agency for the implementation of this special project.

It is proposed to modify and expand existing SEZ with addition of IT ITES, Commercial Area, Electronic Manufacturing Cluster and Sport Complex

The proposed site as a modern eco-friendly IT Park with full and reliable Infrastructure coupled with smart and sustainable features. Odisha Infovalley will be developed into a preferred destination for IT-ITES investors.

The broad development component under infovalley include:
- 296.5 acres of IT-ITES SEZ;
- 71.1 acres of Commercial Area;
- 264.2 acres of Electronics Manufacturing Cluster ;and
- 106.0 acres of Sport Complex

1.1 Project Objective

(a) The objective of the project is to set up a Infovalley in Bhubaneswar, Odisha. The proposed project will be Information Technology (IT), commercial area, Electronic manufacturing cluster and sport complex.

Infovalley aims to meet the following objectives:

- To make Infovalley the preferred IT destination in Odisha
- To provide attractive built environment of International Standard
- To create new industrial employment opportunities
- To create an efficient transportation system integrated with surrounding development
- To create a sustainable community with green environment
- To optimize on land use efficiency and to utilize modular parcellation layouts so as to cater to different and diverse market needs
- To provide a world class quality infrastructure
1.2 Project Background

(b) With an aim to make Odisha, particularly Bhubaneswar an attractive investment destination for Information Technology (IT) and Electronics System Design and Manufacturing (ESDM) companies, the Government of Odisha has announced new Information and Communication Technology (ICT) Policy in 2014. The new policy envisions a gross ICT turnover of $4 Billion and direct employment of 60,000 professionals by end of 2020.

(c) The Odisha Industrial Infrastructure Development Corporation (IDCO), a Government of Odisha (GoO) undertaking, has been set up to create infrastructure facilities in identified industrial estates and areas for rapid and systematic growth of industries, trade and commerce in the State. IDCO is jointly developing the Infovalley Project with Government of Odisha on 661 acres of land in Khurda district.

(d) IDCO has earmarked 203.37 acres of land for development of a Greenfield Electronics Manufacturing Cluster (EMC) in the Infovalley Project for supporting the Electronics Industry in the State. India Electronics and Semiconductor Association (IESA) has been mandated by IDCO to assist the Industry in submitting the Application to DeitY and get the approvals.

(e) IESA is the premier trade body representing the Indian Electronic System Design and Manufacturing ESDM industry and has represented it since 2005. It has over 250 members – both domestic and multinational enterprises. IESA is committed towards building global awareness for the Indian ESDM industry and supporting its growth through focused initiatives in developing the ecosystem. IESA works closely with the Government as a knowledge partner on the sector, both at the centre and at the state level.

(f) IL&FS Clusters is an initiative of Infrastructure Leasing & Financial Services Limited (IL&FS), a leading institution in the field of infrastructure development. The IL&FS group of companies has successfully collaborated with several ministries of Central Government, State Governments and Industry Associations in structuring, developing and implementing infrastructure projects on commercially viable Public Private Partnership (PPP) formats. IL&FS Clusters has rich experience in setting up of industrial parks with cluster approach in various sectors such as textiles, leather, engineering etc. and has developed enough expertise to render the above mentioned services.

(g) IL&FS Clusters is working with IESA as an Advisor for the Project, for providing assistance in seeking approval for grant funding from Department of Electronics Information Technology (DeitY), Government of India (GoI) under Electronic Manufacturing Cluster (EMC) Scheme.
1.3 Promoter’s Background

IDCO was established in 1981 under the Orissa Industrial Infrastructure Development Corporation Act, 1980 (OIIDC Act 1980). IDCO’s task, among others is to develop, manage and maintain industrial areas. The agency deals also with land acquisition and engineering works. They have been declared as the ‘Nodal Agency’ of the state Government to develop industrial infrastructures.

To date, IDCO has assumed a pivotal role in infrastructural development within Odisha. It has established more than 80 industrial areas throughout the state, which encompasses roughly 3,000 industrialists. The agency is also responsible for other notable developments, such as Info City, Fortune Towers, IDCO Towers, and Tower 2000 amongst many industrial parks catering to different industry clusters.

1.4 Modification cum Expansion of IT SEZ with addition of Electronic Manufacturing Cluster, Commercial Area and Sport Complex under the Name of “InfoValley”

Odisha Industry Development Corporation (IDCO), as the Chief Promoter is proposing an Infovalley Project in Bhubaneswar Industrial Area of Khurda district.

A. Information Technology (IT) and IT Enabled Services SEZ

IT-ITES cluster occupies the western portion of the Subject Site. The cluster covers 120.2 ha of land (30 percent of the total site area). 21.7 ha of land located at the center of SEZ site has been allocated to Infosys Groups as an Anchor tenant in this cluster. At the moment the Infosys campus is under construction and has an independent access point to the 45m North-south road. At the ‘back’ of Infosys plot there is a gap of about 45 m that has been safeguarded to allow for a common access road to be constructed, connecting the north and southern portion of the SEZ.

The remaining IT-ITES cluster covers 68.9 ha (22.3%) and is a bonded SEZ. It requires fencing in accordance to the SEZ rules and a custom checkpoint. Two (2) access points are being proposed – one is at the north and the other is at the south. Both accesses are taken from the 45m North-south road into the SEZ creating a loop road system.

The IT-ITES SEZ will have two focal points. At the northern part there is a centralized commercial area with dedicated green open spaces which can accommodate a green open space for playground. This commercial centre provides auxiliary services for the employees working in the SEZ. The commercial centre may have convenient store that open 24-hour. Besides, it provides spaces for a wide variety of activities that is required for the liveliness of the SEZ. Typical facilities include food courts, restaurants/eateries, coffee shops, convenient store, auto-teller machine (ATM), stationary shops, service shop, gym and recreational facilities.
The Incubation Centre at the southern part of the SEZ will be the second focal points. It will be a multi-tenanted building for start-up firms and research studios. Within the incubation centres, there will also be commercial spaces such as restaurants, convention center, meeting facilities, auditorium and others. In between the Incubation Centre plots there is a green open space that can be used as meeting place for the SEZ staffs during breaks. The open space is linked with the other green areas on the eastern part of the Subject site that form dedicated green corridor for public to enjoy.

B. Infovalley Incubation Centre

IT-ITES buildings in the southern part of Infovalley SEZ are arranged around the Incubation Centre with extensive soft landscaping and public space. The Centre will act as a nucleus to the overall development and shall be designed appropriately with iconic architectural landmark.

C. Commercial Zone

The commercial zone will be the new vibrant centre in Odisha encompassing high-end offices, retails, shopping and lifestyles, hotel, convention center, service apartment as well as community areas such as parks and plaza. The main commercial area of approximately 71.1 hectares is situated at the northern part of Infovalley while the smaller commercial zone also known as amenity centres are distributed in the industrial and IT-ITES clusters.

D. Residential

Infovalley is envisioned to have a lively work-live-play environment. It provides comfortable living spaces for employees to reside in close proximity to the workplace. The main residential zone is located at the eastern most part of Infovalley and distributed into two land parcels. These residential plots are meant for dormitory units for the blue-collar employees.

E. Employees Dormitory

The dormitories are multi-storey buildings up to 20 floors maximum. The ground floors are reserved for social facilities such as 24-hour convenient store, medical room and internet café. Parts of ground floor also kept as void deck that serve as communal and social spaces for events and activities. These space acts as an extension informal area for residents to meet and interact.

F. Electronic Manufacturing Cluster

Electronics System Design and Manufacturing (ESDM) Industry to support the Electronics manufacturing in the State. The Project will house Electronics manufacturing units and provide modern infrastructure with common amenities and need based common facilities
A. The Infovalley EMC will offer:

a. Processing Area

- Manufacturing Space for Units – Plots for manufacturing units and flatted factory complex
- Basic Development – Site development, compound wall, roads, storm water drainage system, landscaping
- Essential Services – Water supply distribution, fire fighting system, sewerage system, electrical distribution & street lighting, solid waste management, warehousing & packaging
- Support Services – Telecom & IT infrastructure and R&D Centre
- Manufacturing Support – Common Facility Centre with facilities like PCB prototyping, SMT line, rapid prototyping, tool room, testing & calibration and training entre

b. Non Processing Area

- Administration Complex
- Logistic / Truck parking
- Workers’ Hostel

G. Sport Complex

The project facilities shall include multipurpose convertible stadium for indoor and out sports, sports academy, sports club.

1.5 Estimated Project Cost

The total estimated project cost for developing the IT ITES with addition of Electronic Manufacturing Cluster, Commercial Area and Sport Complex is Rs. 18,054.604 crores.

1.6 Conclusion

Infovalley hold the opportunity to create a unique space that builds upon Bhubaneswar City’s considerable strengths. They have the potential to develop a brand and system of successful integrated development by closing the loop on IT and ITES, software design, product prototyping to mass electronic product commercialization. They also hold immense opportunity for job creation. It is estimated that there could be approximately 111,500 direct jobs created in Infovalley. Additional job opportunities also exist in indirect job sectors and during the construction period.
Prudent project management dictates that development of the Infovalley should be carefully staged so as to attract investors while not overstretching the development budget. This is also in view that Infosys Campus development is still in progress. It is suggested to complete the development of Infovalley in two phases. Each phase shall carry about 50 to 55 percent of the overall development sites. It covers the whole spectrum of land uses from IT-ITES, industrial manufacturing, commercial, residential and services, Sport Complex.

Infovalley shall have the following saleable spaces.

(a) Built up area for IT/ITES: 28,47,372 Sq.mt
(b) Built up area for Commercial: 6,78,895 Sq.mt
(c) Built up area for Electronic Manufacturing Cluster: 6,41,002 Sq.mt
(d) Built up area for Sport Complex: 1,41,000 Sq.mt
2.0 **Introduction of the Project/ Background Information**

2.1 **Identification of project proponent**

Bhubaneswar, the capital city of the state of Odisha, is a well-known Information Technology and Information Technology Enable Services (IT-ITES) hub in Eastern India. Major IT companies such as Infosys, TCS, Wipro and Satyam have a strong presence in the city to tap into the city’s trained manpower. As the leading IT-ITES exporting state in India, the Government of Odisha (GoO) is actively promoting the state for new investment in IT, ITES and related industries that include Electronic Systems and Design Manufacturing (ESDM).

The present proposal is for modification cum expansion of IT SEZ from 500 acres (202.3 ha) to 737.8 acres (298.4 ha) with addition of with addition of Electronic Manufacturing Cluster, Commercial Area and Sport Complex under the Name of “InfoValley”

The IT SEZ with integrated town ship has obtained Environmental Clearance from SEIAA vide letter No: SEIAA/292 dated: 02.08.2010.

Transfer of Environment Clearance for construction of IT SEZ with integrated township from Odisha Industrial Infrastructure Development Corporation to M/S Infosys (Co-Developer) obtained Environment Clerance from SEIAA vide letter No: 188/SEIAA dated: 25.09.2012

**Existing**

IT SEZ : Infosys facility exist in 50 Acres (20.2 ha)

**Proposed Infovalley**

IT SEZ Area after modification : 737.8 Acres (298.4 ha)
- (a) IT & ITES : 296.5 Acres (119.9 ha)
- (b) Commercial Area: 71.1 Acres (28.7 ha)
- (c) Electronic Manufacturing Cluster (EMC) Area: 264.2 Acres (106.9 ha)
- (d) Sport Complex : 106.0 Acres (42.9 ha)

**Total Area: 737.8 Acres (298.4 ha)**

2.2 **Need for the Project**

Infovalley hold the opportunity to create a unique space that build upon Bhubaneswar city’s considerable strengths. They have the potential to development a brand system of successful integrated development by closing the loop on IT and ITES, Software design, product prototyping to mass electronic product commercialization. They also immense opportunity for job creation. It is estimated that there could be approximately 1, 10,000 direct jobs created in infovalley. Additional opportunities also exist in indirect job sector and during construction period.
3.1 Project Description with Process Details (IT ITES, Commercial Area, Electronic Manufacturing Cluster, Sport Complex)

3.1.1 Info Valley IT-ITES Cluster

Infovalley SEZ encompasses an area of approximately 120.2 hectares in which IT and ITES industries are the major industrial cluster. The area is divided into IT-ITES zone (56.9 ha), Incubation Centre (6 ha), Infosys (22 ha), supporting uses such as parks, amenity centre, custom checkpoints as well as parking facilities (35.3 ha).

Infosys as the anchor tenant in Infovalley SEZ is strategically located at the center of SEZ. The campus has started its first phase development and will be operational in 2015. Areas to the south and north of Infosys are for IT-ITES sub-zones and shall be developed in phases. The SEZ (with the exception of Infosys) will be developed in two phases: the first phase involves land development of 65.6 hectares. It is recommended that the development starts from the southern part of the SEZ which has closer access from the NH5.

**FIGURE-1**
**DISTRIBUTION OF PLOTS**

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The second phase involves 54.6 hectares located at the northern part of the SEZ (including Infosys Campus). It will be a natural expansion area when more investments are expected to come in the future. In total there are 32 plots suitable for IT-ITES companies. The plot sizes range from 1.2 hectares to 3 hectares. At the heart of the IT-ITES cluster is a proposed Incubation Centre for IT startup companies and has two parcels of 3 hectares each. Development within the SEZ is characterized by large freestanding buildings, modern in design, with large office space component. Landscaping will be a prominent feature of the area delineating it from traditional industrial areas by creating an attractive environment for the IT workers.

The general goal for the SEZ is to create a premier work environment. IDCO will either develop this incubator units or as joint venture with private sector to set the building standard on this greenfield site and create the ambience through quality building design and external landscape spaces as a benchmark development.

**Key Characteristics of IT-ITES Cluster include:**

- Plot Ratio or FAR of 3.5 is ascribed to the IT-ITES plots. Each 10,000m² of land may provide 35,000m² GFA. This is higher than the norm Plot Ratio which is 2.75.
- The master plan of the SEZ should deliver an environment that favours people rather than vehicles as the prime focus.
- SEZ is a bonded zone (external fencing is mandatory) but each plot shall not have boundary wall to discourage walking and cycling. Security can be introduced in terms of building sensors. There are dedicated pedestrian corridor and gateway that allow people to move around freely.
- The free standing buildings are proposed to have podium and semi-private areas at the ground floor to encourage people interaction.

### 3.1.2 Infovalley Incubation Centre

IT-ITES buildings in the southern part of Infovalley SEZ are arranged around the Incubation Centre with extensive soft landscaping and public space. The Centre will act as a nucleus to the overall development and shall be designed appropriately with iconic architectural landmark.

The first few floors (the podium level) are proposed for common facilities such as exhibition halls, auditorium, gymnasium and cafeteria. The spaces shall be treated as semi-private areas where employees and visitors are given unrestricted access as a way to encourage formal and informal activities. Given that the SEZ is a bonded zone dedicated to IT and ITES industries, its introduction of commercial /retails services at the Incubation Centre will be a major contribution to promote Infovalley beyond IT-ITES. The commercial spaces will bring opportunities for the employees and visitors to obtain services within the bonded zone without the requirement to travel far. On the layout plan, the Incubation Centre has two land parcels with dedicated open space in between the plots. IDCO may consider combining these three plots into one integrated
development. It will create a ‘mirror effect’ in which two buildings are created side-by-side and linked at ground level, above ground level as well as at basement level.

3.1.3 Infovalley Commercial Zone

The commercial zone will be the new vibrant centre in Odisha encompassing high-end offices, retails, shopping and lifestyles, hotel, convention center, service apartment as well as community areas such as parks and plaza. The main commercial area of approximately 18.2 hectares is situated at the northern part of Infovalley while the smaller commercial zone also known as amenity centres are distributed in the industrial and IT-ITES clusters. The amenity centre provide a range of supporting facilities such as amenity centre that contain the cafeteria, 24- hours shop, internet café, ATM machine, post and courier services. Besides, the incubation centre at the south of Infovalley SEZ and employee residential zone at the eastern part of Infovalley will also contain commercial uses to cater needs. There is also one (1) land plot each for a club house and private institution.

In total there are 13 land parcels ranging from 0.9 hectares to 3.3 hectares. The main commercial zone is given higher plot ratio (PR5.0) which allows them to have higher structure that creates an immediate development impact. Smaller commercial use land is given Plot Ratio 1.2 to accommodate building of three to four storeys.

a. Characters & Quality

Apart from the scale and massing of urban form, the character of Infovalley Commercial Zone will be defined by the architecture, color and materials, and the treatment of the public realm. This design quality is of utmost importance to create an environment that attracts both Infovalley residents and visitors to ensure long term viability.

Below are design criteria to deliver quality in this area and assist with future place branding:

- Use limited loud and vibrant colours for the retail, shopping and lifestyles areas to establish the commercial zone as a destination.
- Provide canopies (landscape or structures) to provide shelters for pedestrians.
- Frontage and Elevations
- Active ground floor uses to all building facades.
- Visually important frontages should be of exceptional design quality.
- Retails along roads should be designed with distinctive features.
- Views and landmarks are essential in delivering a successful scheme that draws people to the commercial zone and to mingle around. Landmark features will be located at key corners and terminating at important sight
vistas. These will either be landmark buildings or visually important visual points.

- Views and sight lines created through the main commercial zone should assist movement particularly at the retail, shopping and lifestyles areas. The following are the key views.
- From the office block facing east towards the linear pedestrian shopping street at the north of Commercial Zone.
- From the residential at the mixed-use zone looking west towards the linear pedestrian street at the north of Commercial Zone.
- From external road at the north of Commercial Zone facing south towards the roundabout that demarcates the end of Commercial Zone areas.

3.1.4 Infovalley Residential

Infovalley is envisioned to have a lively work-live-play environment. It provides comfortable living spaces for employees to reside in close proximity to the workplace. The main residential zone is located at the eastern most part of Infovalley and distributed into two land parcels. These residential plots are meant for dormitory units for the blue-collar employees. The provision of dormitory allows companies to tap on a larger pool of workers from various parts of Odisha state and also from different parts of India to work in Odisha. It also an alternative accommodation for those living in Bhubaneswar and Cuttack cities to stay in Infovalley to reduce daily commuting time.

The dormitory zone shall have areas for social facilities. It include centralised modern kitchen, living quarters, administrative block, gymnasium and recreational facilities, retail amenities, dining/assembly hall, transport pick-up point, religious facilities, internet room and medical room. Besides special events such as health screening, educational talks and festival celebrations can be conducted within the residential zone to promote social adhesion.

The dormitory can be arranged into several categories such as single male dormitory, single female dormitory or workers with family. The unit sizes are also varies depending on the number of occupant per unit ranging from single occupant to four (4) people per unit. The dormitory residential areas are projected to cater up to 3,600 employees.
3.1.5 *Infovalley Employees Dormitory*

The dormitories are multi-storey buildings up to 20 floors maximum. The ground floors are reserved for social facilities such as 24-hour convenient store, medical room and internet café. Parts of ground floor also kept as void deck that serve as communal and social spaces for events and activities. These space acts as an extension informal area for residents to meet and interact.

- The site is located outside Infovalley bonded zone thus will be fenced at the plot periphery.
- The site is a guarded community and access to the plot is control 24-hours.
- Common hall is located near the entrance. It shall have main assembly hall, cafeteria, transport drop point and pick up point and residential management office.
• The site shall promote pedestrian friendly environment. Vehicle access is control at the entrance. Multiple pedestrian accesses are also proposed to the surrounding areas.

3.1.6 **Infovalley Service Apartment in Mixed-use Zone**

In order to create a vibrant setting and offer an alternative accommodation for the younger worker at Infovalley, The urban design plan recommends introducing multi-family residential at the mixed-use zone for up to 1,300 units. The two plots cover 1.6 hectares and 1 hectare of land. These residential areas would be within walking distance to the workplace and integrated with pocket parks and green pedestrian corridors. A variant on this could possibly be short-stay residential flats for employees visiting their company’s Infovalley campus. The urban design intent for the residential development are as follows:

• These residential areas in the form of multi-storeys buildings will be built up to 25 floors maximum.
• Number of dwelling units approximately 1,300.
• The ground and first floors are reserved for commercial and social facilities.
• The internal courtyard at ground floor shall be designed into people-friendly environment. No motorised movement is allowed.
• The courtyard is open to residents and visitors.
• Access to the apartment is control at the ground floor. A separate elevator for residents may also be considered.
• Total Population likely to be housed here is approximately 5,000 residents.

3.1.7 **Infovalley Electronic Manufacturing Cluster**

1. The Project components focus on an integrated development model capturing the entire value chain in conformity with the requirements of the Scheme;

2. The Project provides necessary support services required by manufacturing units such as Electronics manufacturing, tool room, testing centre etc;

3. The complementary supportive activities like social infrastructure, welfare facilities for workers and common green areas increase the attractiveness of the Project;

4. The following points summarize the proposed Project components:

   **Processing Area**

   a) Plots for manufacturing units
   b) Basic Development
• Site development & compound wall
• Roads
• Storm Water Drainage system
• Signages and landscaping

c) Essential Services
• Water Supply distribution & Fire Fighting system
• Sewerage System
• Electricity Distribution and Street lighting
• Solid Waste Management
• Warehousing & Packaging

d) Support Services
• Telecom & IT Infrastructure
• R&D Centre

e) Manufacturing Support
• Flatted Factory Complex
• Common Facility Centre (Tool Room with CAD/CAM and Mechanical Testing, Plastic moulding/ Metal stamping)

Non Processing Area
• Administration Complex
• Logistic / Truck parking
• Workers’ Hostel

3.1.7.1 Production Support Facilities


Proto PCB Prototyping Centre

a. PCB Prototyping is critical for Electronic design processes. This process is also considered as a modern method for cost effective manufacturing of PCB boards

b. The validated design and PCB layouts can be verified by creating prototypes of the desired PCBs. The CFC will set up a proto PCB manufacturing unit to help the customers in eliminating the waiting period from external suppliers

c. The main advantages of having a Proto PCB Manufacturing Centre in the Park are:
   (i) Development process without delays
   (ii) Quicker marketability
   (iii) Layout data remains in-house
SMT Line

a. Surface Mount Technology (SMT) is the method of attaching leaded and non-leaded electrical components to the surface of a conductive pattern that does not utilize leads in feed through hole;

b. SMT Line is being set up to benefit the product development companies and product manufacturers to carry out production of samples and conduct test and quality assurance processes. The availability of in-house SMT assembly line will obviate the need for the local ESDM companies to go to external sources. This will help in increasing their competitiveness and reduce the turnaround time;

c. The CFC will set up a SMT assembly line for its members to help them in enhancing production speed, increasing circuit density and achieving higher operating speed. The line will also reduce:

   (i) Human intervention
   (ii) Labour cost
   (iii) Production cost
   (iv) Material cost
   (v) Overheads

d. The CFC will have tie ups with the component vendors to source the materials for its customers in a timely manner

Rapid Prototyping Centre

a. Rapid Prototyping is a group of techniques used to quickly fabricate a scale model of a part or assembly. The class of technologies can automatically construct physical models using three dimensional Computer Aided Design (CAD) data;

b. Rapid Prototyping or model making is an important step in finalizing a product design. The main advantage of this is that it can create almost any shape at a low cost and in less time;

c. The Rapid Prototyping process starts with 3D modeling of part of the product. The stereo lithography (STL) file is exported by tessellating the geometric 3D model. During tessellating various surfaces of a CAD model are piece wise approximated by a series of triangles. The facet deviation of the part decides the number and size of triangles;

d. The STL files used are then checked for any defects or errors like missing facets, flip triangles and overlapping facets etc. The verified STL files are used as an input for various slicing softwares. After selecting the deposition orientation and slice thickness, tessellated model is sliced to generate standard data in forms like SLC (stereo lithography contour) or CLI (common layer interface). The data generated is stored and sent to the software that operates the rapid prototyping systems;
e. The Rapid Prototyping system generates laser scanning paths or material deposition paths. This step is different for different processes and depends on the basic deposition principle used in Rapid Prototyping machine. In the post processing stage, a few skilled operators are required for manual work. The prototype produced is then tested and verified. The detailed process of Rapid Prototyping is given in Figure-2.

f. Rapid Prototyping helps in taking the design from concept to reality. Many companies offer mechanical design services, but cannot fabricate prototypes. The CFC will specialize in designing and fabricating rapid mechanical prototypes to help the customers visualize the complete product.
Conceptual Plan for modification cum expansion of ITSEZ project with addition of Electronic Manufacturing Cluster, Commercial Areas, and sports complex under the name of Infovalley, Bhubaneswar, Odisha

**FIGURE-2**

**RAPID PROTOTYPING PROCESS**
Tool Room & Moulding

a. As any electronic prototyping set up would require casing, for the mounted and ready PCB’s either through metal casing or plastics casing, a tool room would be required facility, with a mould making facility, to support the prototyping activity;

b. The manufacturing of Mould involves various complex designing and machining processes. The entire manufacturing process is mainly dominated by the cost and time required for mechanical machining during production. The machining activities performed should be accurate to reduce the efforts needed for reworking. The main process involved in a Tool Room is given in Figure-3.
Conceptual Plan for modification cum expansion of ITSEZ project with addition of Electronic Manufacturing Cluster, Commercial Areas, and sports complex under the name of Infovalley, Bhubaneswar, Odisha

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FIGURE-3
MAIN PROCESSES OF TOOL ROOM
The Mould manufacturing includes four main processes as given below in the Figure-4.

a. The Greenfield Cluster Project proposes to set up a vertically integrated Tool Room and Moulding facilitation centre to support the members. The centre will help the customers right from the design phase to the assembly in order to get the end product;

b. The facilities to be made available in this centre are:

   (i) Sheet Metal Work
   (ii) Mould Design
   (iii) Mould Manufacturing – Pre Machining, Hardening & Finishing
   (iv) Plastic Injection
   (v) Assembly

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**Solar PV Line**

a. A PV Solar Cell is an electrical devise that converts the energy of light directly into electricity by the photovoltaic effect. These cells are think silicon disks that convert sunlight into energy. These cells are widely used in telecommunications, lighting, pumping and medical electronics.

b. The Government of India is promoting the generation of renewable energy, in general, and, solar energy in particular. The Government has targeted 100 GW of solar energy generation by 2022. Correspondingly, in line with the ‘Make in India’ push, there is huge potential for domestic manufacturing of solar cells and modules. The present production capacity in India is inadequate to meet the large projected demand.
c. The State Government is also promoting usage of solar energy. As it is endowed with good solar insolation, there is good potential for setting up of large solar plants as well as the roof top systems

d. Accordingly, the solar PV manufacturing is expected to generate good interest from the investors. The equipment provided for the solar PV line, as part of the CFC, will support the potential investors to carry out production and testing of few solar products as samples for their performance evaluation.

Test and Measurement Lab

a. The Test and Measurement Centre in the CFC of the Park will ensure that the various aspects related to performance of all the mounted electronic components, individually and as a system, are checked. Other technical parameters like voltage, current, impedance, wave from both digital signal and analog signals will also be inspected;

EMI/EMC Lab:

a. Electromagnetic Interference (EMI) is defined as the electromagnetic energy from external or internal sources to electrical or electronic equipment that affects equipment by creating undesirable performances or responses. Electromagnetic Compatibility (EMC) is an electrical system’s ability to perform its specified functions in the presence of electrical noise generated either internally or externally by other systems. EMI/EMC testing is mandatory for any electronic validation;

b. This testing is designed to ensure that the electronic equipment will perform as desired in its expected electromagnetic environment. The EMI/EMC test facility will enable the users to test their products to the latest and applicable EMC/EMI requirement for domestic and international market;

c. It is important that the electronic products manufactured are legally complying with the international EMC standards;

d. No electronic product or installation can be designed unless all the aspects of EMC are taken into consideration. An EMI/EMC lab will be set up as a part of the CFC in the proposed park. The lab will enable the clients to ensure that the products tested in the facility are as per international standards.

e. The proposed EMI/EMC test lab in the CFC would have:
   I. Modern EMI/EMC compliance testing facilities
   II. Efficient turnaround times
   III. Competitive pricing
   IV. Experienced and highly competent EMC test operators
   V. EMI/EMC testing data available immediately on completion of measurements
Training Centre

a. The Project proposes to establish a Training Centre for the ESDM Industry with state-of-the-art equipment and modern classrooms. The Centre would run courses for fresher’s seeking employment, experienced individuals seeking upgradation of existing skill sets and supervisors and managers for development of additional skills. The Centre would offer the following services:

(i) Training
(ii) HR consultancy
(iii) R&D collaborations

1.3.7.2 Administrative Complex

Administration facilities such as park management office, service provider’s offices, banking, display, conference/exhibition facilities. Warehousing Facilities / Raw Material depot, Packaging Unit and Truck Parking. Social Infrastructure in the form of housing for managers/ executives, dormitories for workers, kitchen/ canteen and dining facilities, crèche, first- aid centre, local shopping area, recreation facilities and club house.

Administrative Complex comprises of the components as mentioned in the following Table. A total area 12272 Sq Mt has been designated for developing Administrative complex. The site plan for the complex is presented in the Figure-5
Conceptual Plan for modification cum expansion of ITSEZ project with addition of Electronic Manufacturing Cluster, Commercial Areas, and sports complex under the name of Infovalley, Bhubaneswar, Odisha.

FIGURE-5
SITE PLAN FOR ADMINISTRATIVE COMPLEX
The total built up area of 2093 Sq Mt has been considered for the complex is given in Table-1. The Administrative complex is located at the entrance of the plot so as to have easy access and better control as shown in the Plan.

### Table-1

**AREA STATEMENT OF ADMINISTRATIVE BLOCK**

<table>
<thead>
<tr>
<th>S No.</th>
<th>Administrative Block</th>
<th>Area (Sq Mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reception, Lounge and Office</td>
<td>80</td>
</tr>
<tr>
<td>2</td>
<td>Office Area</td>
<td>150</td>
</tr>
<tr>
<td>3</td>
<td>Display Area</td>
<td>200</td>
</tr>
<tr>
<td>4</td>
<td>Conference./ Board Room</td>
<td>150</td>
</tr>
<tr>
<td>5</td>
<td>Training Centre</td>
<td>300</td>
</tr>
<tr>
<td>6</td>
<td>Guest House</td>
<td>330</td>
</tr>
<tr>
<td>7</td>
<td>Bank</td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>Commercial Space</td>
<td>200</td>
</tr>
<tr>
<td>9</td>
<td>Canteen</td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>Add 30% Circulation Area</td>
<td>483</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>2093</strong></td>
</tr>
</tbody>
</table>

The detailed layout plan for the proposed complex is given in the Figure-1.

**Hostel Complex**

A total land area for developing Hostel Complex is considered as 24213 Sq Mt. A Workers Hostel with 300 beds capacity having total built up area of 3350 Sq Mt has been proposed and located in the Hostel Complex. The site plan for the hostel block is given in the Figure-6.

**Logistic / Truck Park**

Truck parking facility is provided for truck drivers who need a safe place to sleep, drop a trailer or park a semi-truck for short term, overnight or long term. There shall be a total provision to park 50 trucks. The parking lot shall also provide for servicing requirements as well as basic accommodation facilities. The parking lot shall be fully graveled, well lit at night, fully attended and monitored 24 hours every day. The land Area of 3751 Sq Mt. shall be developed as Logistic / Truck Parking out of warehousing and packaging area.
Conceptual Plan for modification cum expansion of ITSEZ project with addition of Electronic Manufacturing Cluster, Commercial Areas, and sports complex under the name of Infovalley, Bhubaneswar, Odisha

FIGURE-7
DETAILED LAYOUT PLAN OF ADMINISTRATIVE COMPLEX
Conceptual Plan for modification cum expansion of ITSEZ project with addition of Electronic Manufacturing Cluster, Commercial Areas, and sports complex under the name of Infovalley, Bhubaneswar, Odisha

FIGURE-8
SITE PLAN OF HOSTEL BLOCK
3.1.8 **Sport Complex**

The project facilities shall include multipurpose convertible stadiums for indoor and outdoor sports, sports academy, and sports club.

### 3.2 Services and Utilities

3.2.1 **Infovalley Water requirement**:

The total water requirement for IT ITES, EMC and commercial area is 14,834 KLD. Sport complex water demand is about 1000 KLD.

3.2.2 **Infovalley Power Demand**

The power requirement is about 95 MW for Info valley and will be met from Odisha power Transmission Corporation Limited (OPTCL). Sport Complex power requirement is about 5 MW.
4.0 Site Analysis

The proposed site is part of the overall Info valley Project being developed by IDCO on about 737.8 acres (298.4 ha).

Ease of Access to the Site

The proposed location for the Infovalley is well connected with road, rail and air and is strategically placed to cater to the needs of the hinterland as well as major industrial clusters across the State and Country.

- NH-5 : 3 Km
- Rail connectivity Bhubaneswar : 23 Km
- Nearest International Airport Bhubaneswar : 22 Km
- Sea port Paradeep : 130 Km

Site Configuration

The proposed site is Modification cum Expansion of IT SEZ with addition of Electronic Manufacturing Cluster, Commercial Area and Sport Complex under the Name of “InfoValley” developed by IDCO the total area is about 737.8 acres.

Proposed 150’ wide IDCO main road connecting the NH-5 to the Info valley passes on the western side of the site at a distance of 0.5 Km. IDCO has proposed dedicated 100 wide approach roads to provide direct connectivity to the site. The site is bounded by revenue forest lands on the western side, village road on the north and private lands on the eastern side.
5.0 Planning Brief

The Master Plan of the Infovalley has been derived based on the requirements of the industries proposed to be set up in the Park and functionality with self-contained facilities. The concept is to provide and maintain maximum and continuous access to all the components of the Park. The design envisages functional and accessible work places by incorporating prudent and scientific planning principles.

The Master Plan is based on modern planning concepts of providing good and efficient internal movement with supporting infrastructure and facilities in an aesthetic environment.

5.1 Industrial Use

Four zones (4) cluster namely IT-ITES, Commercial Area, Industrial Park (EMC) and sport complex. The industrial park includes Electronic Manufacturing Cluster targeting the electronic industries. The allocation of specific cluster is to attract investors of similar business into same zone for product chain support and similar infrastructure and utilities provision and treatment.

The details elaboration of each industrial cluster is as follow:

5.1.1 Information Technology (IT) and IT Enabled Services SEZ

IT-ITES cluster occupies the western portion of the Subject Site. The cluster covers 84.5 ha of land (30 percent of the total site area). 21.7 ha of land located at the center of SEZ site has been allocated to Infosys Groups as an Anchor tenant in this cluster. At the moment the Infosys campus is under construction and has an independent access point to the 45m North-south road. At the ‘back’ of Infosys plot there is a gap of about 45 m that has been safeguarded to allow for a common access road to be constructed, connecting the north and southern portion of the SEZ.

The remaining IT-ITES cluster covers 62.8 ha (21.3%) and is a bonded SEZ. It requires fencing in accordance to the SEZ rules and a custom checkpoint. Two (2) access points are being proposed – one is at the north and the other is at the south. Both accesses are taken from the 45m North-south road into the SEZ creating a loop road system.

The IT-ITES SEZ will have two focal points. At the northern part there is a centralised commercial area with dedicated green open spaces which can accommodate a green open space for playground. This commercial centre provides auxiliary services for the employees working in the SEZ. The commercial centre may have convenient store that open 24-hour. Besides, it provides spaces for a wide variety of activities that is required for the liveliness of the SEZ. Typical facilities include food courts, restaurants/ eateries, coffee shops, convenient store, auto-teller machine (ATM), stationary shops, service shop, gym and recreational facilities.
The Incubation Centre at the southern part of the SEZ will be the second focal points. It will be a multi-tenanted building for start-up firms and research studios. Within the incubation centres, there will also be commercial spaces such as restaurants, convention center, meeting facilities, auditorium and others. In between the Incubation Centre plots there is a green open space that can be used as meeting place for the SEZ staffs during breaks. The open space is linked with the other green areas on the eastern part of the Subject site that form dedicated green corridor for public to enjoy.

The following figure shows the proposed site for IT-ITES SEZ in Infovalley shown in Figure -9.

![Figure 9: Distribution of IT-ITES and the components within SEZ in the Subject Site](image)

5.1.2 Commercial Use

The commercial uses in Infovalley are distributed into three broad classifications; (1) Business Park, (2) Mixed-use Zone and (3) Amenity Center. The Business Park and mixed-use areas are distributed on the northern part of the Subject Site. It formed a main commercial zone for Infovalley. The Business park zone being located between South City and Infovalley will be the main commercial and business node for the entire development. The site is strategically located and will be able to serve the new residential township to the north and the daytime working community at Infovalley; the new employment center in Bhubaneswar.
The smaller commercial uses are distributed throughout the SEZ and Industrial Areas. They are within 400m (15 minutes) walking distance from the workplace. The commercials centers provide necessary services for the employees such as Food & Beverage, gymnasium, ATM and convenience store. They do not have to travel far to find these services during office breaks. In terms of development intensity, the proposed floor area ratio for Business Park, Mixed-use Zone and Amenity Center are between 1.2 to 5 maximum.

5.1.3 Business Park

The proposed Business Park covers 10.5 ha of land (3.7 percent of the total land area). The site will be designed as a business-friendly zone with park-like setting. The Park offers commercial spaces for office, retail and services. The general commercial uses includes banks and financial services, business and professional offices, private institutional offices, regional headquarters for multinational companies (MNC), F&B outlets, retails, MICE (facilities for meetings, conventions, conferences, exhibitions), showrooms and gallery, sport and recreational facilities as well as hotels.

The Business Park will be developed as an establish business area that is accessible by public and private transportation. It has direct linkages with MDR77 towards west, South City towards north and east and industrial areas towards south. Besides, each land parcel in the Business Park is connected with green corridor that promotes walking and cycling.

The Park will have excellently designed green open spaces and appealing building design to enhance the overall built environment of Infovalley. It will use landscape design to mark the plot boundaries instead of physical concrete fences surrounding the building blocks. This open concept will let people move seamlessly around the Business Park.

A dedicated plot for forum/conference will provide an important space for Infovalley and Bhubaneswar City. The envisioned space will support symposia, programs, events and other activities to create a social, cultural and intellectual heart. It could be developed jointly with Client.

5.1.4 Commercial Mixed-use Zone

Mixed-use zone covers 2.7 ha of land (1 percent of the total land area). The site is located on the north-eastern most of the Subject Site closest to the residential township of South city. It blends a combination of residential, commercial, institutional and other uses, where those function are physically and functionally integrated holistically. There are two hills adjacent to the mixed-use zone.

These two hills are preserved as green and open spaces. In the detailed design at the next stage of work, these green and open spaces shall be elaborated further on how it will be integrated with the mixed-use zone.

Detail uses within the mixed-use zone include service and studio apartment, business hotel, retails, entertainment and civic uses such as international schools and libraries. Such a higher order of activities needs a wider population catchment to allow the mixed-use zone to be thriving and be sustainable. The mixed-use zone will allocate ground-level retail space to create a socially engaging setting and pedestrian-friendly environment, whilst the upper levels are
Conceptual Plan for modification cum expansion of ITSEZ project with addition of Electronic Manufacturing Cluster, Commercial Areas, and sports complex under the name of Infovalley, Bhubaneswar, Odisha

for apartments catering to midlevel professionals. The commercial uses at the ground and G+1 level will bring vibrancy throughout the development and aims to extend the duration of activity at Infovalley beyond regular working hours.

5.1.5 Amenity Center

The three amenity centers covers 5.0 ha of land (1.6 percent of the total land area) and distributed throughout the SEZ and Industrial Parks. Another commercial uses is integrated within Incubation Center at the southern part of SEZ. This is to ensure that each area in Infovalley provide spaces for commercial uses that is within walking distances.

The amenity center provides just the required services to the Park’s employees and visitors. This includes cafeteria, coffee house, convenient shops, repairs and services, recreational facilities and others. The amenity center does not require large land parcel as they can be G+2. The plot sizes ranged from 0.8 to 1.2 ha.

The amenity centre will also provide sufficient car parks and public transport drop-off and pick-up points. The commercial space shall incorporate the following key features.

• Create pedestrian-friendly environments with interconnected pedestrian network to surrounding areas.
• Roads leading to the commercial zone are designed with dedicated lane for walking and cycling.
• Low rise commercial building of 3-storeys high with lush landscape greenery exhibiting the Qualities of good design and efficient function to serve the need of the industrial park.
• Provide transit area such as public transport drop-off point and on-site car parks.

These small commercial and amenity centers will have open spaces attached to it and be integrated with the larger open spaces in the forest land at the heart of Infovalley. They not only provide common area for the workers to unwind but also act as assembly points during the non-routine events such as fire and industrial hazards.

Besides, the Incubation Centre in IT and ITES zone will also provide commercial uses. These spaces are to cover the IT-ITES cluster at the south of Infosys Campus.

5.1.6 Green and Open Spaces

Infovalley aimed to be an exemplary development in Bhubaneswar. The landscape green and open spaces will not only provide aesthetics but also many complementary benefits which will become an integrated fabric on the Subject Site.

The green and open spaces within Infovalley site boundary covers 38.8 ha (or 13 percent) from the total land. There is also surrounding green areas as per Land Office information to Consultant. It is proposed that Infovalley to avoid the traditional industrial park image which normally lack of coherent identity. It should instead create a distinct image as an emerging modern and quality
development with pleasant public spaces. These spaces may be ‘active’ or ‘passive’ open space but most importantly they must be maintained throughout the lifespan of the project and not only at the Phase 1 period only.

The green and open space in Infovalley serves several inter-related and overlapping roles, including:

- Circulation network and access The road right-of-way (ROW) provides both vehicular and pedestrian circulation. Pedestrian walkways are laid on both sides of road and shall have trees line and streetscape to provide shades. These connectors may also be used by cyclist. The tree planting should have a common theme with same species for each zone.
- Common space the public realm plays important role as it allow for a respite from the enclosure of buildings. The public parks, plaza as well as streetscapes also serve as the communal area where the residents, workers and visitors can meet, interact and linger. A detailed landscape plan shall be commissioned to planned and developed the Green open space and thereafter a landscape maintenance budget shall be set aside to oversee the maintenance of the Communal green spaces within this development.

5.2 Infovalley Electronic Manufacturing Cluster Master Plan

Integration

Integration of aesthetics, environmental concerns, functional requirements and technological innovation with various attributes of planning like land use distribution, zoning, transportation, infrastructure, design, building guidelines & regulations were given due consideration. The interdependence and at the same time, individuality, of the units was also kept in focus.

Flexibility

The planning of the Park has been kept flexible so as to be adaptive to the rapidly evolving business landscape. The Master Plan allows programmed or functional re-arrangement and re-distribution of plot sizes, infrastructure network and open space distribution etc.

Zoning

he Master Plan follows the zoning concept for meeting the statutory norms of planning, to minimize the impact of pollution if any on resident population in and around the Park and to attain the economics of design by consolidating scarce and costly resources for shared access.

Access & Greens

Common facilities have been planned for ease of access to the users of the Park. Another guiding principle of the Master Plan is to incorporate the principles of eco-industrial Park by maximizing green and open spaces, and provision of green
The design envisages functional road design and simplified accessibility through green spaces to work places.

The green space envisaged for the Park would include:

- Large open spaces for maintaining the green cover
- Small Quality green spaces for recreation
- Linear plantations to provide relief during movement
- Small aesthetic greens for forming vistas etc

5.3 Industrial Parks (Infovalley Electronic Manufacturing Cluster)

The term "Industrial Park" is often used interchangeably with Industrial Estate, Industrial Growth Center, Export Processing Zone, Special Economic Zone, etc. An Industrial Park (IP) is a self-contained geographical area, equipped with dedicated infrastructure facilities, which houses businesses of an industrial nature.

The main objectives behind setting up of Industrial Parks are as outlined below.

- To provide dedicated infrastructure in a delineated area to facilitate operations of units and reduce business expenses
- Achieving economies of scale in providing common infrastructure facilities
- To attract new business by providing an integrated infrastructure in one location
- To achieve competitive advantage for the industrial units within the Park in a sustainable manner
- To provide for localized and customized environmental controls in an area
- Value addition to the economy
- Employment generation – both direct and indirect
- Enhancement and up gradation of social infrastructure in terms of healthcare and educational facilities

Industrial parks offer industrial areas with developed plots/ pre-built industrial sheds and infrastructure facilities like road, power, telecom, water, warehousing facilities etc. and social infrastructure including residential and other support facilities in cases.

Industrial Parks are regions, which are created specifically to attract the high value adding small and medium scale industries, which do not have the financial capability to invest in developing their own basic infrastructure facilities, but have the capacity to pay for the services provided to them.

The units in an Industrial Park have the advantage of common utilities like power, water, drainage facilities, effluent treatment plants, ICDs, etc. thus saving on...
investment costs, which a stand-alone unit has to bear thus affecting its operating margins.

The units in an industrial park sometimes also enjoy specialized facilities like testing labs with sophisticated equipment, technical/ research institutes, knowledge centers etc, which offer them a competitive advantage over stand-alone units. In an industrial park, the units can avail of common social infrastructure facilities like tradecum-exhibition centers, convention hall, shopping complex etc.

In many cases the implementing agencies handle day-to-day maintenance and any renovation/ up gradation required for the infrastructure facilities in the park while the units located there can concentrate on their core competency of producing value added output.

The units in an industrial park can avail of Government support in terms of raw material procurement, technology assistance, product marketing/ exports, and quality norm adherence in production process etc.

The units in an industrial park are entitled to multiple fiscal incentives like state investment subsidy, tax holiday, stamp, electricity duty and sales tax exemption etc. which are financial burdens on stand-alone units and hamper their economic prospects.

5.4 Sport Complex:

The sport complex facilities shall include multipurpose convertible stadium and outdoor sports, sports academy, sports club. The sport complex area is about 106.0 acres. The total built up area is about 1,41,000 sq mts. The total water requirement during the operation phase is about 1074 KLD. Sewage generation during operational phase is about 850 LD. In case of emergencies due to power failure the generators (1500 KVA X 4 no). The municipal solid waste properly collected and segregated at source. The recycle material sold to vendors. Basement is used only for the parking purpose. The area earmarked for the parking used for parking only. Traffic congestion near the entry and exit points from the roads adjoining the proposed project shall be avoided. Energy Conservation Building Code (ECBC) norms implemented in the project. Green areas and landscaping developed including at ground level and intermediate levels of building as proposed.
6.0 Proposed Infrastructure

6.1 Transportation Planning

6.1.1 Existing Condition

The Info Valley site is located approximately 20km to the south-west of the city of Bhubaneswar. The site's main access is via a road with a 45m reserve that links directly to National Highway 5 (NH5). The site is also relatively close to major transport nodes such as the Biju Patnaik International Airport (12km) and 28km to the proposed new international airport to the south-west. In addition, it is also close to existing railway stations (8km to Retang station and 16km to Bhubaneswar station).

6.1.2 Regional Road Network

The Info Valley site is in close proximity to National Highway 5 (NH5) which provides it with direct access to the city of Bhubaneswar and Cuttack in the north-east and Berahmapur and Visakhapatnam in the south-west. To the north-west is the Khurdha-Chandaka Road (MDR77) which provides an alternative link to Cuttack bypassing Bhubaneswar.

6.1.3 Proposed Road Network

The proposed road network and hierarchy for the Info Valley site is shown in Figure 10. The road network features a hierarchy of roads ranging from major arterial roads to local access roads. Major arterials are divided dual-4 and dual-3 carriageways with a 60m and 45m right-of-way (RoW) respectively. The major arterials in the development area provide links to National Highway 5 (NH5) and Khurdha-Chandaka Road (MDR77).

Supporting the major arterial roads are minor arterial roads and primary access roads both with a 35m right-of-way (RoW). The functions of minor arterial roads are similar to that of the major arterial roads but are divided dual-2 carriageways. They also provide linkages to the primary access roads.

Primary access roads are dual-2 undivided carriageways and link development clusters to the arterial roads. A further category of local access roads provide access to the individual plots and linkage to the primary access roads. Local access roads are undivided dual-1 carriageways with a 30m right-of-way (RoW).
Conceptual Plan for modification cum expansion of ITSEZ project with addition of Electronic Manufacturing Cluster, Commercial Areas, and sports complex under the name of Infovalley, Bhubaneswar, Odisha

FIGURE -10
PROPOSED ROAD HIERARCHY
6.1.4 Proposed Drainage System

The drains shall be located near the property line along either side of all the roads for the ease of connectivity of rainfall runoff from the individual plots. Taking the advantage of road camber and embankments, the rainfall run off from road shall flow towards the property line and get into the drains. The drains have been designed as the rectangular drain with Concrete. It will have cement concrete floor. For road crossings, culverts of R.C.C. box section shall be provided.

6.1.5 Water Supply System

The details of proposed water supply system are given below:

a. Water shall be supplied by IDCO to the Cluster site with service line to the Ground Level Service Reservoir and would be passed to Elevated Level Service Reservoir (ELSR) located in the cluster

b. The raw water would be pumped to the elevated reservoir planned in the cluster

c. A distribution network has been designed for the cluster to supply water for industrial and drinking water use from the ELSR to all the industrial units and common facilities

d. Water for firefighting water shall be stored in the GLSR in a separate compartment and will be replenished on as required basis periodically. This will be pumped through a parallel system to the various fire hydrants located in the Cluster

6.1.6 Sewage Treatment Plant

The capacity of STP proposed is 12000 KLD waste water to be used for flushing of toilets, horticulture, AC cooling Sludge will be generated (will be reused as soil-conditioner in horticulture after treatment).

Sport complex STP is about 850 KLD

6.1.7 Solid Waste Management

Approximately 20 TPD solid wastes will be generated from the project. Horticultural waste will be generated from the project, which will be properly stored with biodegradable waste fraction and handed over to Municipal authorities for final disposal.

From the sports complex about MSW 5 TPD of solid waste is expected to be generated.
The Environmental Management Plan proposed for the park envisages a comprehensive waste management system comprising collection & segregation, reuse/recycling, temporary storage and Disposal. To accomplish this adequate numbers of bins and pickup vans will be employed. A primary collection system shall be put in place wherein dedicated staff will be provided with tri-cycles and engaged in street sweeping activities. Collection bins would be located at convenient locations and such waste shall be transferred by the staff to the nearest bin which would be collected by the tractor-cum-trailer.

The overall collection activity itself would also involve segregation and the waste collected would be stored in a temporary storage facility which shall be designed as per the CPCB/MoEF guidelines and would have storage capacity of up to 90 days and will be periodically sent for final disposal to a secured landfill facility. Organic waste segregated during collection itself will be sent to nearest composting facility.

6.1.8 Environmental Management Plan

The Environmental Management Plan (EMP) implementation process discusses about the mitigation, management, monitoring & institutional to mitigate the impacts associated with the construction & operation of the proposed modification cum expansion project at Bhubaneswar.

The EMP will consist of following Environmental components

(a) Water / Waste Water Management

(b) Air Emission Control and Management

(c) Noise Emission Control and Management

(d) Green Belt Development

(e) Solid Waste Disposal

(f) Disaster Management Plan

(g) Energy Conservation

(h) Workers Health & Safety

Water / Waste Water Management

a. A Sewerage Treatment Plant will be installed and water shall be recycled for plantation

b. Implementation of Storm water collection & Rain water Harvesting Scheme, rainwater to be stored & reuse
c. In the construction phase Septic tank and Soak pits will be provided for construction workers

d. To manage rain water in normal times and during storms a comprehensive plan is developed

**Air Emission Control and Management**

a. DG Sets will only be used as emergency power backup

b. Low Sulphur diesel will be used as a fuel for the DG sets

c. Green belt will be developed in and around the project site

d. Regular maintenance of Transport vehicle & ensuring PUC certificate

e. Discharge of flue gasses at appropriate designed height of stack as per norms

f. Adequate parking & traffic movement space provided to avoid traffic jams to minimize emissions from vehicles

g. In the construction phase periodic maintenance of the equipment/vehicles ensured to minimize the emissions

**Noise Emission Control and Management**

a. DG sets with acoustics enclosure would be used and these will be used as back-up power only

b. Regular maintenance of Transport vehicle & ensuring PUC certificate

c. Maintenance of machinery will minimize noise

d. Green belt will be developed around the project site to act as a noise attenuation barrier.

e. During construction phase lubrication of all Transport and Material handling Equipment control Vibrations Provision of safety Equipment to labour shall help reducing noise emission

**Effluent Treatment Plant**

IDCO will set up an Effluent Treatment Plant (ETP) which is outside the preview of the Project Cost. The facility will be provided to the proposed Infovalley. The transmission network up to the respective plots shall be provided at no extra cost to the units. However the SPV or the individual units shall be charged respective
costs / maintenance fees / treatment charges etc. as fixed by the Board of IDCO from time-to-time.

Disaster Management Plan

A major emergency is one which has the potential to cause serious injury or loss of life. It may cause extensive damage to property and serious disruption both inside and outside the premises. Sometimes, it would require the assistance of outside agencies.

Water for fire-fighting shall be stored in separate compartment & will have required water all the time. There will be provision for water & fire extinguishers within the park to meet fire fighting.

On Site Emergency Planning

The provisions of the Hazardous Chemicals Rules, Section 41 B (4) of the Factories Act, 1948 (as amended) requires that every occupier is to draw up an on-site emergency plan with detailed disaster control measures and to educate the workers employed. The individual unit in proposed industrial area is expected to abide by above regulations and prepare an on-site emergency preparedness plan. In case the consequences of a site emergency are large enough to cross battery limit of an industry, the situation demands an off-site emergency management for which district authorities are supposed to play a key role.

Off-Site Emergency Planning

The occupiers are charged with the responsibility of providing the above concerned authority with such information, relating to the industrial activity under their control, as they may require for preparing the Off-site emergency plan. A team will be proposed at EMC which will combat the emergency with an off-site emergency, by the time district administration comes into action.

Energy Conservation

a. The central area and street lighting will be partially provided by solar lamps

b. The corridors will be provided with CFL

c. Solar Water Heating Systems will be used for hot water generation for domestic use

d. Dimmers will be provided for public area lighting.

e. Selection of highly efficient fans for air handling units & ventilation systems

f. Maximum use of natural ventilation & natural light
g. Building materials will be selected with specific characteristics to limit heat ingress into the building

Workers Health and Safety

The workers will be provided with masks, shoes, gloves, helmet & other safety equipment as per the requirement.

Primary health check-up of the construction workers for respiratory, dermal, acoustic, visional disorder will be arranged at Public Health Centres. During construction, First Aid Room will be provided for the laborers engaged in the project.

Maintenance of hygienic working condition, washing facilities, provisions of safety from rotating, free moving & other machine/machine parts shall also be ensured
7.0 Project Schedule & Cost Estimates

The total estimated project cost for developing the IT SEZ and Integrated township at Info-valley is Rs. 18,054.604 crores.

**TABLE-3**

**ESTIMATED PROJECT COST**

<table>
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<th>Sr. NO</th>
<th>Description</th>
<th>Area (Sq.m)</th>
<th>Amount (Rs.)</th>
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<td>109,802,113,344.00</td>
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<td>Industries</td>
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<td>3</td>
<td>Residential</td>
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<td>2,614,336,032.00</td>
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<td>4</td>
<td>Mall &amp; Hotel</td>
<td>1,21,440</td>
<td>6,535,840,080.00</td>
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<td>5</td>
<td>Amenities Centre</td>
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<td>1,882,321,943.04</td>
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<td>6</td>
<td>Business Park</td>
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<td>7</td>
<td>Road Infra</td>
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<td>8</td>
<td>Greens</td>
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<td>9</td>
<td>Utility Infra</td>
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<td><strong>Total Project Cost</strong></td>
<td><strong>49,40,179.2</strong></td>
<td><strong>180,546,046,369.92</strong></td>
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8.0 Analysis of Proposal (final Recommendations)

Bhubaneswar has become a well-known IT-ITES hub in the eastern part of India. The industry has grown phenomenally for the past few years and is expected to grow and realize its true potential. It is time to make an exemplary development that can be at the forefront of IT-ITES in the global stage.

The two reports, Upcoming Electronic Manufacturing Cluster (EMC) in Odisha, India and Strategic Roadmap for Development of ESDM Sector in Odisha have painted a very bold picture of even greater IT industry possibilities in the State of Odisha.

Odisha Infovalley will be an exciting place to realize the vision of the Government of Odisha to become a fully integrated, smart, sustainable and economically thriving center within the Bhubaneswar Area.