

ICT VILLAGE IN RAJSHAHI

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The IT/ITES industry is one of the fastest growing industries in the world. The IT/ITES industry is growing and is playing an increasingly prominent role in Bangladesh's economy. This industry serves both domestic and international markets. As mentioned earlier, there are over 800 registered software and ITES companies in Bangladesh. In recent years, there have been significant developments in the status of the ICT sector in Bangladesh. In particular, the promise of a 'Digital Bangladesh' is a prominent element of the platform. Bangladesh has a sizeable unemployed and educated young population with low labor cost of production which can be utilized in this sector with proper training and guidance in order to develop world-class business environment conducive for IT/ITES to attract potential foreign and local entrepreneurs for investing in Bangladesh. The government of Bangladesh emphasizes the need for a comprehensive Master Plan in order to achieve an overall development of the ICT sector. Considering these in view Bangladesh Hi Tech Park Authority decided to create basic infrastructure for establishing IT Village in Rajshahi Division through the Ministry of Information and Communication Technology.

INTRODUCTION

The Government of Bangladesh intends to create basic infrastructure for establishing IT Parks in Rajshahi. Government has allocated 38 acres of land for developing the IT village. This land will be used to develop a world-class business environment, conducive for IT/ITES industry. This ICT village will attract investments from both foreign and local entrepreneurs. This project envisions human resources development through technology, connecting citizens, pro-poor services; ensure service delivery, and the creation of "e-administration" to ensure transparency. This policy also prioritizes e-services for Bangladeshi citizens, such as education, healthcare, agriculture, land & water resources, social safety nets and ICT based disaster management systems. With the appropriate digital education, it is expected that E-businesses will utilize the maximum potential of ICT. Businesses of all sizes can utilize ICT for production, and access to markets, both domestic and international. Businesses will be able to conduct transactions and make payments online, internally and globally.

CHAPTER 1: Background of the project

1.1 Project brief

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CHAPTER 1: Background of the project

1.1 Project Brief

The ICT Village project in Rajshahi district is to establish knowledge based industries throughout the country, particularly related to Software and IT Enabled Services, and thus contribute to the national economy and achieve the goals of Vision 2021: Digital Bangladesh

1.1.1 Name of the project

The project is titled “ICT village in Rajshahi”.

1.1.2 Client

The project has been proposed by the Bangladesh Hi-Tech Park Authority, through the Ministry of Information and Communication Technology.

1.1.3 Location and area of the site

The proposed site for the development of Rajshahi ICT Village is located in the NabinagarMouza in PabaUpazila at Rajshahi district with a land area of 23 acres.

1.2 Project introduction

The IT industry is one of the fastest growing industries in the world. The IT industry is growing and is playing an increasingly prominent role in Bangladesh’s economy. This industry serves both domestic and international markets. As mentioned earlier, there are over 800 registered software and IT companies in Bangladesh. There are a few hundred more small unregistered companies (BASIS). Out of the total IT/ITES industry approximately USD 800 million (BASIS survey), the software industry takes up 39% (USD 117 million). Recently, there has been strong growth in freelancing, where young professionals directly serve overseas clients. These professionals mainly work from

home and do not own registered companies. According to BASIS, there are about 10,000 freelance professionals in Bangladesh.

The ICT Village project is to establish knowledge based industries throughout the country, particularly related to Software and IT Enabled Services, and thus contribute to the national economy and achieve the goals of Vision 2021: Digital Bangladesh. The Government of Bangladesh intends to create basic infrastructure for establishing IT Parks in Rajshahi. Government has allocated 38 acres of land for developing the IT village. This land will be used to develop a world-class business environment, conducive for IT/ITES industry. This ICT village will attract investments from both foreign and local entrepreneurs.

1.3 Scope of the project

The demand of IT/IT enabled services is increasing throughout the world and the investors around the world want to have a competitive cost of production. Bangladesh has a sizeable unemployed and educated young population with low labour cost of production which can be utilized in this sector with proper training and guidance. GOB needs to create skilled manpower through developing world-class business environment conducive for IT/ITES to attract potential foreign and local entrepreneurs for investing in Bangladesh. There is also an advantage of Time zone. Bangladesh labour force can do the work ordered from Western countries overnight and have the job done before business hours begin the next day.

Bangladesh has one of the most attractive population demography in the world – relatively high young population base as over 34% are in age group of 15-34 years; which is favourable for IT-BPO industry. Analyst projections reveal that this number is further slated to go up. This corresponds to a young working population of over 53 million people – large enough to man the fledging IT/ITES industry for years while keeping the costs low. For creating employment opportunity in the IT sector it was felt necessary to develop infrastructures which will create an environment for innovative companies and increase foreign & local investment.

The government of Bangladesh emphasizes the need for a comprehensive Master Plan in order to achieve an overall development of the ICT sector. Considering these in view Bangladesh Hi Tech Park Authority decided to create basic infrastructure for establishing IT Village in 47 acres land allocated at Mohakhali, Dhaka and to established Software Technology Park (STP) in other 6 Divisions to develop world-class business environment conducive for IT/ITES to attract potential foreign and local

entrepreneurs for investing in Bangladesh. Establishment of IT village in Rajshahi Division is a part of this.

1.4 Aims and objectives of the project

In recent years, there have been significant developments in the status of the ICT sector in Bangladesh. In particular, the promise of a 'Digital Bangladesh' is a prominent element of the platform maintained by the winning party in the elections of 2008. The vision of the present government "envisages that by 2021, Bangladesh will reach a trajectory of high-performing growth supported by advanced and innovative technology" and that "Information and communication technology will, by that time, take us to new heights of excellence giving the country a new identity to be branded as Digital Bangladesh". The Government's Digital Bangladesh by 2021 vision proposes to mainstream ICT as a pro poor tool to eradicate poverty, establish good governance, ensure social equity through quality education, health care and law enforcement for all, and prepare the people for climate change.

In conformity with the objectives of "Digital Bangladesh" in the Perspective Plan, the government has pursued specific strategies. The plan has put particular emphasis on the development of ICT and set strategic objectives to implement the Government's commitment :

- Building sound and policy infrastructure: Creating appropriate dynamic legal and policy system to unleash potential for participation of citizens private sector, development agencies and government for creating new services.
- E-Administration: Business process reengineering for the government agencies for efficient and transparent decision making and accessing, for improvement of transparency of the government.
- E-Citizen Services: Converting traditional service delivery mechanism into e-service delivery system to bring "service at the door step of citizens.

ICT Policy addresses the goal of transforming the nation into a middle income country by 2021. The primary objective of the revised ICT Policy is to address issues related to (1) social equity, (2) productivity, (3) integrity, (4) education and research, (5) employment generation, (6) strengthening exports, (7) health care, (8) universal access, (9) environment, and provide (10) support to ICTs.

1.5 Proposed programs

ICT village will have the following construction and development:

1. Multi Tenant Building, MTB (The Silicon Tower) :

Contains office spaces, reception, foyer, multipurpose hall, seminar halls, meeting rooms, café, gym, lobby, lift, stairs, escalator, washrooms and toilets, large open area for display and exhibition, etc.

2. The Residential Buildings

This will provide suitable accommodation for the workforce of ICT village and will provide family accommodation for ICT officials.

3. Other Utility Buildings and Installations :

Other constructions in the project area are:

- Cafes Playgrounds for children and adults Vendor standing areas
- Recreational area Green areas Amphitheatre

4. Future Expansion Possibilities

In the available land, there will be space for future extension of MTB and ICT facilities.

CHAPTER 2 :Literature Review

According to UNESCO, we first began speaking of the use of computers in education back in the 1970's, when the level of technology made it possible to consider such ideas. By the late 70's, the size and price reductions of computer technologies made it

feasible to begin bring them into schools. Over the next decade or so, computers were followed by printers, floppy disk drives, scanners and the first digital cameras. That was the first time we began to use the term IT, or Information Technology, to describe computers and the various peripheral devices they used.

By the late 1980's, computer networks were also being installed in schools. This paved the way for the internet and the World Wide Web to make their way into educational environments. As the popularity of websites, web-based search engines, and email rose, a new term was coined: ICT. ICT, or Information and Communication Technology, refers to the many forms of technology which makes it possible for people to send and receive information with others all over the world.

Today, the air around us is literally full of thousands of pieces of data. ICT is the means by which we can transmit, detect, access and reply to this information. It includes such technologies as radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware and software; as well as the equipment and services associated with these technologies, such as videoconferencing, e-mail and blogs.

Information and Communication Technologies (ICTs) play an increasingly important role in the way we communicate, learn and live. The challenge is to effectively harness these technologies in a way that serves the interests of learners and the larger teaching/learning community.

UNESCO considers that ICTs can contribute to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development as well as improve education management, governance and administration provided the right mix of policies, technologies and capacities are in place. ICT allows for greater access to information and communication, leading to sustainable development. Thus, in developing nations, ICT has the potential to "close the gap between the economic gap between technological "have" and "have not" areas.

Timothy Garton Ash, a British historian, author and Professor at Oxford University said "Developments in information technology and globalized media mean that the most powerful military in the history of the world can lose a war, not on the battlefield of dust and blood, but on the battlefield of world opinion."

Bangladesh is a developing country home to 152.4 million people. As a developing nation Bangladesh relies heavily on imported technology, and within the context of education, economy and technology, lags behind other nations. (Academic journals ICT) The sustainable development of Bangladesh will depend upon the employment of science and technology, which will lead to the investment in ICT to promote economic and political sustainability. To date, ICT is entering into Bangladesh but is still in its primary stages of integration and adoption into the existing technology infrastructure,

and although ICT could potentially improve the educational systems that already exist in Bangladesh, due to certain barriers Bangladesh is having difficulty reaping the benefits.

According to the Technology Achievement Index (TAI) mandated by the UNDP Human Development Report in 2001, for Bangladesh, "the achievement value for creation of technology and diffusion of recent innovations is negligible in comparison to 72 countries included for TAI computation." The other two dimensions involving diffusion of old innovations and human skills the values are very low as well. (The role of science and technology education) Additionally, an ICT policy has been formulated for Human Resource Development (HRD) stating that Bangladesh must "prepare itself to compete effectively in the global ICT market" (ICT in vocational teaching/learning).

IT industry is one of the fastest growing industries in the world. The IT industry is growing and is playing an increasingly prominent role in Bangladesh's economy. This industry serves both domestic and international markets. There are over 800 registered software and IT companies in Bangladesh. There are a few hundred more small unregistered companies.

It's a matter of pleasure that the present Government of Bangladesh declared a vision to build 'Digital Bangladesh' by 2021. The term 'Digital Bangladesh' has four inter-related components: (a) Digital Government (b) Digital Education (c) Digital Business and (d) Digital Citizen. Computer Literacy and the availability and use of computers and ICTs are integral to the Digital Education component of the Digital Bangladesh, which requires restructuring the education system to ensure equity in terms of access to quality education (Raihan, 2009). So, this vision will come into light if the non-government organizations integrate ICTs into Education sector alongside of Government initiatives.

From the very beginning era of ICT integration in education sector to till now, different initiatives have been taken by different countries through different projects. Among those initiatives one is the use of Television (TV) in Malaysia. Ministry of Education of Malaysia has a private TV Channel and this channel is used only for teaching learning method. Various educational programs are broadcasted from this channel regularly. Recently China started English learning through mobile phone so that any learner can download his/ her important lesson/s. India unlocked a very new system, 'Interactive Radio Learning' for students' learning and teachers' training in order to make learning cost and time effective. In this system, there is an interactive radio in the class; and an instructor or specialist in the studio who guide the teacher in the class. According to the instruction of the specialist, the teacher conducted the lesson to students. This teaching method is very much effective in India (Mahmud, 2009).

The Tata Computer Based Functional Literacy Programme (CBFL) in India uses a mixed method, including computer software, animated graphic, multimedia presentations and flashcards to teach literacy skills. (UNESCO, 2006). Tata Teleservices are offering mobile education for rural communities and physically challenged people. Under this model the mobile phone is used as a device which allows

the user to access to voice, text messaging and educational content and takes mock tests on the move no matter where the person is (Tata, 2009).

Bangladesh is also initiating to step toward the same path with vision of integrating ICT into its education system. Government of Bangladesh initiated a pilot study of e-Learning of Math in Secondary Schools in Gazipur and Comilla from 2009 with the support of BRAC under TQI-SEP (Teaching Quality Improvement in Secondary Education Project). Ministry of Education formally inaugurated Mobile ICT Lab of TQI-SEP on 23rd February, 2010 in order to provide e-Learning for the underprivileged secondary students of rural Bangladesh. A total number 17 Mobile ICT Labs in 17 Cars (14 Microbuses & 3 Four Wheel Drive Pickups for hill tracks, haor areas and remote areas) will move all over the country to introduce e-Learning system with the teachers and students of one thousand schools by December, 2010. Each lab contains five laptops, five wireless internet modems, two digital cameras, multimedia projector, webcam, printer, pen drive, interactive board, e-Learning CD, speaker, generator etc. This initiative will ensure primary ICT knowledge as well as ICT based education for the students and also enhance the teaching capacity of the teachers. (The Daily Samakal, 2010).

Healthcare availability in Bangladesh is greatly disparate. "All significant public and private institutions, including most medical colleges, hospitals, clinics, laboratories, drug stores, are established in the capital city or at the division level and thus the rural population are inherently deprived of specialist services in general" (Bangladesh Health System Review). There is one doctor for every 3000 people and a consistent 20% vacancy rate for certified healthcare professionals, reflecting the dire lack of qualified personnel in the healthcare field (Bangladesh Healthy System Review). Furthermore, only about 5% of doctors are licensed; the remaining 95% are informal doctors who use modern medicine, but, since they are untrained, often misprescribe medication and end up harming patients (Role of Village Doctors'). In rural areas, one community clinic for every 6,000 people provides no-cost treatment. Clearly, the health system has room for improvement. ICT can help.

When applied to healthcare, ICT takes the form of telemedicine. Telemedicine, according to the WHO, is the "delivery of health care services at a distance aimed at the diagnosis, treatment, and prevention of disease and injury by using information and communication technologies" (Telemedicine: Opportunities in Development). This definition is very broad because telemedicine can be found in several different forms: video conferencing, "store and send" (take a photo of a patient and send via email), or remote monitoring of vitals or other signs, for example. 4 principles are common among all applications of telemedicine:

1. Its purpose is to provide clinical support.

2. It is intended to overcome geographical barriers, connecting users who are not in the same physical location.
3. It involves the use of various types of ICT.
4. Its goal is to improve health outcomes.

The main barriers to wide implementation of telemedicine include poor internet connection, startup costs, and infrastructure. However, Telemedicine would provide more thorough and comprehensive access to healthcare to the Bengali population, particularly those in rural areas. Telemedicine would be especially effective in Bangladesh in connecting rural patients with specialists in Dhaka. In addition, telemedicine consultations with specialists would be more affordable for patients, as there is no need to travel to the capital city or pay the high premium charged by the specialist. Telemedicine can also provide education for local doctors, especially given that most have not received formal training.

To conclude, ICT is the backbone of any digital initiative. Digital Bangladesh is an Idea that includes the IT use for management, administration and governance to ensure transparency, accountability and answerability at all levels of society and state. To materialize the idea of digital Bangladesh, development of countrywide backbone and expected number of human resources are the basic needs.

Despite having 50 years of history the government has only from 1997 started the process of developing a national ICT strategy. In 2002 Bangladesh identified ICT as a "thrust sector" as it represents potential for quick wins in reforms, job creation, industry growth, improving governance and facilitating inclusion, and it has high spillover effects to other sectors. Today, in Bangladesh, the overall IT/ITES sector is valued at USD 650 million, with export claiming 39% (\$250 million) of that value. The overall IT/ITES industry has enjoyed a high growth rate of 40% over the last five (5) years and this trend is expected to continue.

Chapter 3: SITE AND CONTEXT ANALYSIS

1.1 Environmental considerations, site and surrounding plans, photographs, topography.

1.2 Historical and social background (if any)

1.3 SWOT Analysis

1.4 Concept

Chapter 3: SITE AND CONTEXT ANALYSIS

1.1 Environmental considerations, site and surrounding plans, photographs, topography.

The proposed site for the development of Rajshahi ICT Village is located in the Nabinagar Mouza in Paba Upazila at Rajshahi district. The site is bounded by the DC office and District Judge Court on the east, Bhatar Pukur on the west, Rajshahi-Chapainawabganj old road on the north and Padma river on the south. The site is almost 13 km away from Shahmakh Dum airport of Rajshahi and about 7 km from the Rajshahi railway station.

An embankment passes through the north to south side of the site and ended at the River Padma. The site is a non-arable flat land with a shallow ditch in the middle and north side. 600 unauthorised dwellings are on the land with two pacca mosque, pacca sanitary latrines and a pacca internal road. The local households are situated around the periphery of the proposed site. There are two different ways to go to the proposed ICT village from Rajshahi Town, one is Chapai - Rajshahi old road (7 km from Rajshahi Town) and another one is Rajshahi Town road.

The land area of the proposed site for the development of Rajshahi ICT Village is almost 23 acres excluding the embankment and the three pieces of land (Dag nos of these lands are 412, 416 & 417). The land presently belongs to the two different government agencies namely Roads & Highways Department (R&H) and Water Development Board (WDB).

There are over 600 households living in the area and 5% of the number of households anticipated to be displaced by the project, which is translated to 30 households. This is because the proposed ICT Village will increase job opportunities, increase land value and demand for houses, opportunities for business, increase infrastructure etc. Squatters residing within the project area is often a major issue which needs to be dealt with adequate care.

Presently, a considerable area (close to 40 %) is classified as fallow land (bare, semi-natural grassland, or wetlands covered with sedges and reeds) and partly used for grazing cattle. The rest of the land is occupied by housing and settlement. In the project site, a significant number of semi-pacca houses exist – 65% of the surveyed households live in semi-pacca houses. Many of the respondents claimed that they use the land for commercial interest as part of the livelihood activity like – vegetation, mango orchard, livestock grazing, shops, etc. The site land and its vicinity are relatively plain in nature.

1.4 Historical and social background

The project area is under tropical monsoon climate with three prominent seasons - summer/pre-monsoon (March to May), rainy/monsoon season (June to October) and winter season (November to February). The rainy season is hot and humid, and characterized by heavy rainfall, tropical depression and cyclone. The winter is predominately cool and dry. The summer is hot and dry interrupted by occasional heavy rainfall. Almost 80% rainfall occurs in monsoon and a negligible amount in winter.

The seasonal changes in temperature are noticeable throughout the year, with the warmest months being from April to October and the coolest months being January, February, November and December.

Two types of ecosystem exist in the project site and adjacent area viz. terrestrial and aquatic ecosystem. The project site comparatively has low floral and faunal density. Urban terrestrial ecosystem plays an important role within the existing ecosystem. The project site has some natural trees. Herb and shrub are few in number and some grows naturally adjacent to the project area. The site is predominantly covered by grassland, with traces of shrubs. The soil is generally covered with green grass that may be attributed to the climate. Weed plants and shrubs were also noted.

The river Padma flows on the south end of the project site. In fact, some of the land in this area has been washed away by erosion of the river in 2013. The local Water Development Board officials were consulted for the present situation. It is learnt that the existing project site is above normal flood level in the area. Presently, the bank is stable. And the BWDB has no project or plan to provide bank protection at this site. However, if there is any emergency situation, the BWDB takes up remedial measures, such as placement of sand bags, concrete blocks etc.

The river bank protection is usually done by constructing earthen embankments with mild slope on the river side, turf laying and providing corbet block on the river side, if the wave action is severe.

1.3 SWOT Analysis

Strength :

The river Padma flows on the south end of the project site bringing in fresh air and a beautiful sight.

Weakness :

There are over 600 households living in the area and the construction of the proposed ICT village will have an adverse socio-economic impact for the occupants of these slums. Moreover, due to Padma, some of the land in this area has been washed away by erosion of the river in 2013 and any emergency situation may arise in future as well.

Opportunity :

The mighty Padma seems to have a powerful calming effect and is used as an entity to derive certain experiences, enhancements and character in a micro scale. The power of water in architecture comes from using senses by seeing, hearing, feeling, touching and communicating. Land and water have always had a visual relationship. Water's reflective property, along with the audiovisual effects of moving water, offers architects a tool for creating energy and space. Water is generally used in architecture in such a way that their reflective property creates extra architectural values. It's transparency property creates visibility from interior to exterior.

Threat :

ICT has an environmental impacts through construction of buildings, the manufacturing, operation and disposal of devices and network equipment, but it also provides ways to mitigate the adverse effects as well as efficient energy use, for example through smart energy saving buildings and well-designed telephone activities. Though information technology i.e., computer use at all walks of life brings enormous benefit to the economy its adverse impact at operation level cannot be ignored. Its environmental impacts are often not realized or considered. These impacts are expressed throughout the manufacturing, use and disposal of computers, and thus require monitoring and an understanding of each stage of a computer's lifecycle.

1.5 Concept

Today, companies are focusing how to help employees concentrate and get work done — which is traditionally thought to require an enclosed office. The concept of Hybrid workplaces provide a mix of both enclosed and open work spaces that are available for users to occupy on an as-needed basis. The mobility allows individuals to choose how and where they work best. A flexible work environment promote interaction and knowledge sharing . In a hybrid workplace, employees have the option of working individually in a quiet space or working with their colleagues in open, collaborative team areas or leisure spaces.

Today's IT companies require employees to stay in and work for long hours, even the nights, providing them whatever facilities they need, starting from leisure spaces to entertainment, sports, gym, swimming pool, etc.

These Leisure spaces are small coffee shops, lunch spots, and terrace spaces that offer a break from the high energy computer environment, so people can loosen up, share what they've been up to, and think about the big picture. This is a place to not only socialize, but also tell someone about the cool thing you hacked together the night before, or the article you read on the train on your way into the office. This space needs to be casual, comfortable, and away from the boring cubicles. All of these is because, sitting around on couches and talking about fantasy sports isn't a waste of time- it's essential

CHAPTER 4: Case Studies

NFU and SZU Advanced Technology Park / Jaeger and Partner Architects



Architects: Jaeger and Partner Architects, Ltd. / SaltansArchitects_International, Ltd

Location: Nanshan District, Shenzhen, China

Principals at Jaeger and Partner Architects, Ltd.: Johannes Jaeger, Wang Ling Jiang
Principal at SaltansArchitects_Intl., Ltd.: Janis J. Saltans, AIA

Client: Nanshan District Government Project Area: 528,000 sqm

Project Year: 2010 (construction of Phase One will begin in autumn 2010)

Shenzhen based Jaeger and Partner Architects, Ltd. and Chicago based saltans architects intl, Ltd have collaborated on the winning design solution for the NanFanG University of Science & Technology and New Shenzhen University Technology Park.

The site for the competition is in the rapidly developing NanshanDashaha Innovation Corridor in Shenzhen, PRC and directly adjacent to the New Shenzhen University Campus and will comprise of R&D office and light manufacturing, IT incubator space, outsourcing facilities, and business support services. The concept for the master plan is an integral environment for entrepreneurs, researchers and students within an environment for technological innovation and discovery in an above ground building area of 528,000 m².

The fundamental feature of the design is the integration of nature and the advancement of technology. Technology is the facilitator to the drawing out of the "truth" from nature, which, by the standards of the design team, should be nurtured and protected so that it may procure knowledge. Therefore, the natural landscape is maintained in the design proposal.

The master plan includes several buildings resting on the natural topographical features of Shenzhen and Nanshan District and the site in particular, notably individual hills and mountains, among which are an ancient burial mound hill. In addition, new landscapes are introduced to provide zones for programmatic elements that support the cultural development and the technological imperative of the design.

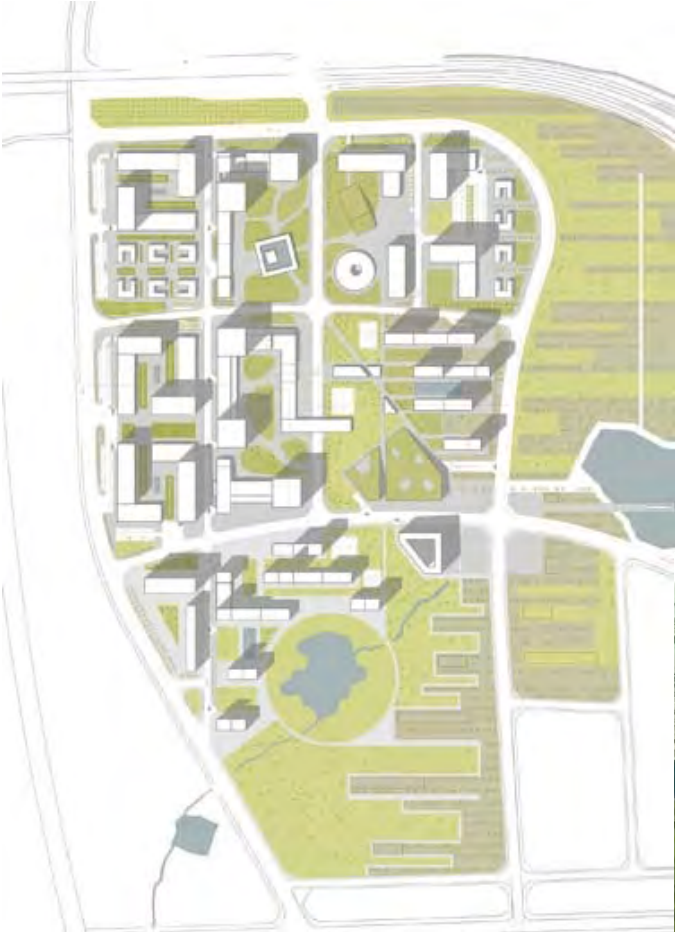
The technology campus is envisioned as The City of Discovery, Opportunity & Reward and is organized in a series of districts and key centers that reflect traditional and modern cities. The ancient burial mound is the heart of the campus and the surrounding four districts reflect their specific programmatic functions:

District of Inspiration – Entrepreneurship Incubator Center
District of Investigation – Medical Instruments & Meters
District of Knowledge – Entrepreneurship & Industrial
District Service Center
District of Realization – Outsourcing Services

Although distinct, the four districts all maintain a dedication to public space and the city center – the Realm of Discovery. The “city center” is an element that is intended for use by all visitors, both for the University and the surrounding neighborhood. Technology Park is designed to become an extension of the city, a microcosm that opens the relationship of technology and nature beyond the University and into the community. The programmatic flexibility in the development of the site represents research and developmental facilities that are not closed off to the public and provide optimism for innovation and discovery in future generations.



Yunlong Digital and Technology Park / NAUTA



Architects: NAUTA Architecture & Research

Location: Yun Long New Town, Zhuzhou, China

Project Team: Maurizio Scarciglia, architect – project manager; Feile Cao, architect; Alessandro Capello, architect; Antonio Silva Caparrós, architect; Catalina García Trujillo, architect; David de Cos Roman, assistant architect

Time: January-April 2011

Program: 45ha master plan with offices, social housing, luxury housing, congress centre, kinder garden, cine multiplex, hotel, retail, park

NAUTA Architecture & Research, in collaboration with P.B.A. Architectural Design Ltd. shared with us their design for the Yunlong Digital and Technology Park. Sustainability in a fast urbanization calls for simplicity, sobriety, pragmatism and elegance. The most efficient way to emerge in a screaming parade is silence. The design for the business park provides R&D offices and facilities for innovation industry, which focuses on mid-high level of the market. More images and architects' description after the break.

This project is driven by the intention to integrate the cities of Changsha, Zhuzhou and Xiangtan into one urban region. Furthermore it should respect the National vision that aims to develop this region as a testing zone of 'Resource-saving and Environmentally friendly development'. Therefore, this project has the ambition to explore a sustainable model to develop a business park, which could guarantee a long-term payback for the investors in terms of economy, social and environmental development.

The focus of urbanization in China is shifting from the coastal regions to the inland. The Changsha-Zhuzhou-Xiangtan (CZT) Region turns to be a hot spot, subject to enormous urban transformation and expansion, which get support by the national policy since 2006. This growth is based on a strong external infrastructural network that includes the high speed train and highway connection to Beijing, Shanghai and Guangzhou. Thus this region holds the best opportunity of urban development in the coming decade. Since 2007, this region has proved to be a testing zone of 'Resource-saving and Environmentally friendly development' by the State Council.

The three cities originally connected by the Xiangjiang River are now integrating into one urban area. The urban form is turning into a 'City Loop', with an ecological 'Green

Heart' in the middle. This regional integration strategy is implemented upon a very strong infrastructural network, connecting the main cities within the region to the rest of the country.

The location of this project is very strategic. On the fore hand, it locates in the central networks of CZT region. It is connected to the regional Huanghua airport and high speed train station with a distance of 15-20min by car. In addition, the highway to Shanghai goes across at the south of the site. The connectivity implies enormous advantage for business oriented development.

On the other hand, the site is surrounded by the protected ecological 'Green Heart'. On the global scale, where new park developments occur, working/living spaces in high quality natural environment turn to be the essential condition to attract the users and investors. On the regional scale the challenge of this project is to generate a maximum commercial value of the park from the potentiality of connectivity and landscape.

Growing towards a 'City Loop', Zhuzhou is extending its urban area along two new wings, among which Yun Long New Town (as well the site) is located in the northeast one. Because of its proximity to the airport, Yun Long New Town has strong competitiveness for the new business development which has ambition at the national scale, while the other New Town in the southwest owns the advantage of the local market.

According to the new urban regulations, the central area of the new Yung Long town where this business park project is located, appears as the centre of the new development on the urban scale. This portion of the master plan shows how it will programmatically link the new extension to the consolidated city centre of Zhuzhou, yet creating a new functional centre for the satellite city.

The program portrays a multifunctional/business oriented heart that will centralize the activities, becoming the new city centre for the adjoining areas, respectively leisure/tourism epicenter and administrative/logistic epicenter. In this network of macro-areas within the new town, the central cluster plays an epicenter role, being heart between the Institutional development to the south and the north Leisure pole. For this reason it is possible to portray a leading role of this central cluster, giving attention to its multifunctional vocation.

The overall concept proposes the definition of a central park, capable to inject in the master plan a natural atmosphere, yet become a catalyst for all daily activities and flows connecting business and living clusters.

The central park becomes as well the design tool to define a variable skyline of the master plan, capable to dilute as much as possible the traditional Chinese zoning into a more vibrant urban rhythm. The predominant office typology is softened by the study of more office building typologies. From small office headquarters villas, to courtyard rental offices, to sculptural towers rising on commercial plinths, the architecture of the park aims to improve at all times the quality of the public space and reduce the rigid urban code.

Sober architectures and synthesis in the use of construction materials wills to simplify the relationship between architecture and nature, trying to focus on the predominance of green. In fact, all public buildings engage a physical dialogue with the park, either by extending it on their roof-tops or by sinking in the ground, or being covered by water basins that make those buildings seamless in the context. Sustainability is achieved by maximizing green solutions and recycling of water for services. Solar energy collected by natural roofs plays as well a role in the overall ecological strategy.

All developments phases engage the construction of a portion of the multifunctional program, in order to reduce in every phase the “satellite city” effect. In order to avoid the monotonous pattern of housing towers, dictated by a rigid urban code that allows little space to variations of orientation, we hybridize the towers into slabs with variable profiles, memory of a city block skyline. Once more the public space benefits of a more clear relation between objects and less resulting spaces.

Yun Long digital and technology park aims to offer smart solutions for a new sustainable Chinese urbanism in which sobriety and uniformity become signs of new architectural ambition and responsibility.

Technological Park in Obidos / Jorge Mealha



Architects : Jorge Mealha

Location : Óbidos Municipality, Portugal Project Year : 2014

Landscape Architect : Mafalda Lavrador

Construction Company : MRG Engenharia e Construção S.A.

Back in 2010 the Óbidos Municipality launched an international architectural competition. The aim of the competition was to design the Central Buildings and Main Piazza for the Óbidos Technological Park, intended as a start-up built structure to allocate creative companies.

The Technological Park site is located in the outskirts of Óbidos, a small and beautiful historic town located approximately one hundred kilometres north of Lisbon.

The Óbidos region is still characterised by a mainly rural and balanced arrangement between forest and small agricultural premises, where paved surfaces spread through this territory in an almost random way. The plot designated to build the Óbidos Technological Park main building and main piazza uses the place where before was located the main supply site for the A8 highway construction, that today links Lisbon to the north of the country.

The design strategy proposes a solution that tries to reverse the ongoing pavement process in this territory, through a solution that tries to reverse this logic, increasing as much as possible the green surface. More than designing a building, the adopted strategy tries to (re)create a place where landscape is determinant for the spatial structure.

The design also dealt with the competition programme, which, in a strange way for us, was asking for a main piazza for a technological park in the middle of the countryside. This programme premise was the reason to arise some design doubts. How to create a piazza in the middle of this particular and still beautiful countryside? How to design (draw) a piazza without an urban fabric surrounding and evolving such place?

Either as a result of negotiation through time within the urban fabric convenes an all range of associated functions - housing, commerce, crafts, etc - as seen in Piazza San Marco in Venice, or as a baroque symbolic design as in Praça do Comércio in Lisbon or even as in Piazza Navona in Rome where the piazza overlaps its actual geometry on top of earlier premises and programmes. The piazza, as concept, can not be separated from the urban realm that conforms and shapes its limits and purpose.

The study concerning the shape, uses and geometry of several piazzas and the possible adequacy to the project site emerged during the design process as a quite strange and forced solution. So, how to draw a piazza without a city, without its generator urban fabric? This design perplexity, the inadequacy of trying to design a piazza without a urban fabric, as been a key factor to look and try to search for alternative public spaces. So, the design strategy shifted and tried to search for other kind of convivial spaces who could achieve the intended public realm without designing a piazza as such.

In several places of Portugal's countryside still exist some interesting public spaces called "Terreiros". Characterising some settlements or small villages, those convivial spaces range from a kind of formless shape almost without buildings surrounding them, to places completely integrated and evolved by small constructions.

We found that, in a quite interesting way for us, the "terreiros", those kind of large free spaces, where in fact quite effective public spaces despite its often formless borders.

It's in those very flexible spaces that throughout the year small communities in the region organise traditional corteges, informal open air markets, religious processions, music concerts and traditional activities or games. Much less dependent from an urban fabric, those civic spaces are very flexible and quite strong in providing opportunities to encounter and convivial activities. Then, instead of proposing to draw a urban piazza as such, the project aims to develop a large public space with similar convivial characteristics as a piazza, but much more flexible towards the relations with a building environment or geometry.

Maintaining the convivial aims expressed in the competition brief, the design decision focused in the aim of creating a large public space with either an easy and flexible relation with the buildings surrounding it, either as a complement of the natural landscape.

Other aspect of research through the design process concerned the qualities and characteristics of large buildings in this particular territory. It was possible to notice that apart from the small built settlements that somehow mark this lush territory, we could notice some large farms or convents and monasteries scratching thin horizontal lines in the still mainly green landscape. Those larger built structures mark the territory perspective with thin horizontal lines where of crucial importance for the design development. So, the design tried to draw a building that would appear in the landscape as a thin horizontal line, as a long and continuous wall.

On the other hand, the research and study of larger religious structures in the region, namely as Batalha's Monastery and Cristo's Convent in Tomar, revealed interesting aspects towards the competition programme. The cloisters presented by those religious structures where of particular effectiveness for the requested programme. In fact, as a start-up companies compound, communication and easy contact between users is a fundamental aspect. Or, a cloister structure is quite effective towards the possibility of a strong visual interaction. So, the design process went also through the possibility of creating a solution where a kind of cloister could be related with all other design premises.

In parallel, further layers of knowledge contaminate and have given support to the ongoing design process. Two sources where of particular interest for the design team. One was the John Maeda's book "The Laws of Simplicity" and the other the exhibition "The New Silk Roads" from Kyong Park, held at Museo de Arte Contemporáneo de Castilla y León in Spain a few years ago.

This exhibition from Kyong Park dealt with the expression and registry in the territory of some concepts as negotiation, conflict, superimposition, contamination and balance that where similar to the ones emerged through the premises of the design process in development.

In fact, all the design aims concerning the project for Óbidos Technological Park Central Building where somehow balanced and supported by similar strategies towards territory, as the expressions and notations showed in Park's work.

The book from John Maeda "The Laws of Simplicity" as been used as a conceptual frame, as a kind of architectural treaty, as a model for architectural thought. Through notions as reduce, organize, time, differences, context and emotion, the design research and development tried to balance the programme's requirements with

solutions as simple as possible, strongly contaminated by the law 10 on the book, the one where Maeda, states that “simplicity is about subtracting the obvious and adding the meaningful”.

The resulting design proposal is at the end quite simple and somehow literal towards the addressed references. One inner surface of the plot was partially paved with his limits suggesting a kind of natural (suggesting the result of an erosion process) borders.

Part of this paved area, the “terreiro”, had some buttonholes in order to increase soil permeability. Surrounding the space, two long walls, sustain land and incorporates part of the programme. At southeast corner, a new hill is created reusing the land movements needed to imbed all the ground floor program of the building.

On top, above the created civic space and the (re)created and extended landscape, a huge but thin voided square, an office cloister, a frame, floats supported only in six points and delimits the space filtering the perspectives inwards and outwards.

The decision to imbed part of the programme underneath the landscape aims several goals. One is to increase the green surfaces within the plot. The other is to decrease energy needs in terms of AVAC systems of the building. Finally, creating the new hill, reusing the land moved to locate the ground floor program, we could somehow suggest an southeast natural limit to the “terreiro”, avoid to spent energy in order to transport that land to other place and avoid to create an embankment elsewhere.

The program was distributed in a very clear and simple way. At ground floor are located all the support support spaces as main meeting and multipurpose room, a Fablab, a small restaurant, some shops and main technical areas. On the floating cloister are located all the office units for the startup companies and a few labs. Both floors present large areas organised trough a modular structure providing huge flexibility to be adapted concerning the needs.

Mainly three materials are used. Concrete, Steel and glass. Basically, ground floor is about rough concrete, expressed as a telluric structure. On purpose, all the marks of the building process where left, acting as a mural texture and a storyboard memory. Also on purpose, the rough plasticity of concrete was seen as a expression feature and towards spatial identity. All ground floor as do to with hearth, with its rough and heavy expression.

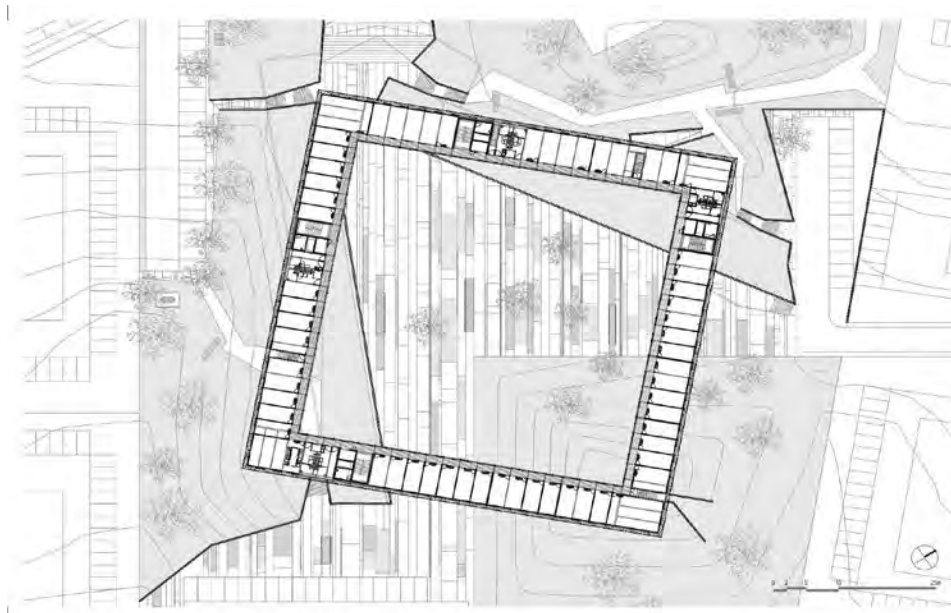
Internal walls and floors are in concrete. A few appointments in wood (OSB panels) and painted black elements (reception counters, acoustic false ceilings, staircases) proposes an internal framework of perspectives, balancing the expression of concrete.

Externally, at ground floor, apart from windows (double thermal glass with natural color aluminium frame), two materials are used. Concrete and corten steel. The concrete floor is texturised with metal powder in order to slightly and randomly rust this pavement trough time. Part of the walls are covered by rusty corten steel panels. Those panels are made using standard modules of scaffold pavement units.

Opposed to ground floor, the first floor is all about geometry and clarity. A set of huge metal trusses, assembled to create four voided and interconnected prisms, builds a large and floating cloister. The structure rims the modularity of the startup units that occupy most of the space on this floor.

On this floor, circulation is made trougha inner and naturally ventilated circulation, protected by a huge glass surface. External walls are made with light damp proof insulated panels and internal walls have been built with light dry gypsum panels system.

On the circulation cloister the pavement is in folded perforated steel scaffold units, and false ceiling his in light aluminium sheets. The outer facade is completely covered by light, translucent and transparent white membrane, built with lacquered perforated steel scaffold units.



ACRONYMS AND ABBREVIATION

IT : Information Technology

ICT : Information and Communication Technology

ITES : Information and Technology Enabled Services

DBS : Digital Bangladesh Secretariat

BHTPA : Bangladesh Hi-Tech Park Authority

MTB :Multi Tenant Building

R&H : Roads & Highways Department

WDB : Water Development Board

BWDB :Bangladesh Water Development Board

TQI-SEP : Teaching Quality Improvement in Secondary Education Project

CBFL : Computer Based Functional Literacy

TAI : Technology Achievement Index

HRD : Human Resource Development

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CHAPTER 5 : Design Development

5.1 Analysis

5.2 Plans

5.3 Visuals