



DPZ 01

PATENGA-HALISHAHAR

4.1 DPZ-01: PATENGA-HALISHAHAR

4.1.1 EXISTING SITUATION

a) Location and Administrative Boundary: Bounded by the Karnaphuli River on the east and the Bay of Bengal on the west this area of 51.24 sq km / 12,662 acres (BBS); is on the southern most tip of the City. Due its geographical location bordering the river and the sea, the port has been

and KEPZ 782 acres (560 +222).

d) Socio Economic Condition: According to census 2001(BBS) of the 66,840 HH some 39% are pucca and 18% are katcha & Jhupri. The remaining 43% are semi pucca. Pucca HH is mostly residence provided by the government. Piped water supply exists in 20% HH, Electricity connection in 91% and



Pic. 4-1 Shah Amanat International Airport is located in this DPZ.

established here. The openness has made it convenient to establish the only airport, which has been upgraded to an international one in 1995. Large public sector manufacturing industries and two EPZ's have been established here. The riverside, coast and beach are tourist attractions. The Area consists of four wards which are; Ward 38, Ward 39, Ward 40 & 41

b) Population: The population of the Area was 222,697 in 2001 (BBS). According to the trend population projection, this is estimated to grow to 317,000 in 2011 recording a rise of 94,303 persons over a 10-year period. This Plan estimates the population to rise to 399,690 in 2015. The population density is 4815 p/ sq km or 20 p/ acre in 2015.

c) Landownership: Major land owners in the formal sector are; Airport 517 ha, Port 308 ha, CEPZ

sanitary toilet facilities in 86% HH. Formally principal employment was in agriculture (farming/fishing) 30% HH's own agricultural land. Due to the presence of industries, influx of large number of migrant workers has occurred. Some 43% of the populations (both sexes) are in the 18-34 years age group.

4.1.2 EXISTING LAND USE AND DEVELOPMENT STATUS

Significant uses are the port, airport, major industrial areas and defense establishments. Residential uses dominate around 24%, Water bodies consisting of khals; ponds and marshy areas, coastal chars and vacant land consist of 35.63% area. The Table below shows the existing land use features of the DPZ-01.

a) Residential: Formal residential areas belong to the port, airport, military (Air Force & Navy) and the public sector industries. Private residential areas consist primarily of single storied pucca/semi-pucca homesteads. Multi storied (3 to 4) residential buildings are present in more accessible areas. Squatters and slums exist (some 200 HH) in ward 38, (some 400 HH Guscha gram) in ward 41.

In response to the demand for workers housing, private landowners have built semi pucca dormitory rooms for rentals. Some 12 to 15 rooms (@100-120sft) are built in one row with a central shared kitchen space. Toilets are shared or attached. The rent / month / room ranges from Tk. 1250 – 1500 or Tk 12,50 – 15 /sq. ft. which is very high considering the facilities provided. Commonly three female workers share a room. Some 3023 acres is primarily under residential use which is some 24% of all land uses

b) Industrial: Large public sector and heavy manufacturing industries such as the Karnaphuli EPZ (former Steel mill), the General Electric Manufacturing GEM Plant, oil installations, cement factory, grain silo are situated here. In the first

phase the Karnaphuli EZP has leased 85 plots (@ 2000 sq m sized plots) to 7 overseas and 8 domestic companies. Two firms have started construction and it is estimated to be in operation within 2 years. In full capacity it is assumed to create a total of 40,000 jobs. The Chittagong EPZ (built in the 80's) has 295 industrial plots in some 560 ha of land in which 135 industries are in operation, currently employing some 130,000 persons.

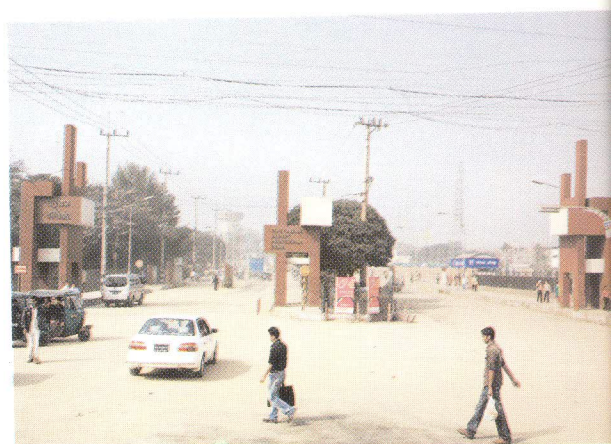


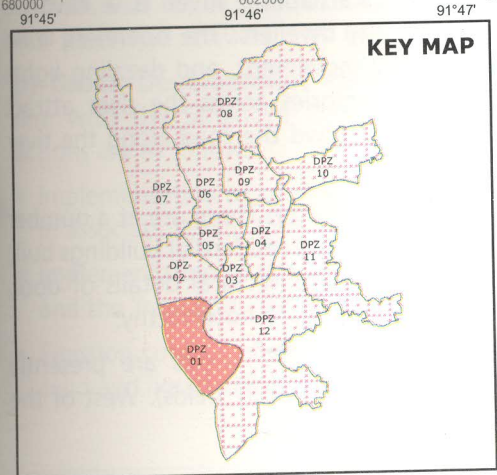
Fig. 4-2 Chittagong Export Processing Zone.

Table 4.1: Existing land use features of DPZ-01

Sl. No.	Type of use	Area (in acre)	Percentage
1.	Agriculture and Fisheries	1725.36	13.58%
2.	Commercial Activity	42.23	0.33%
3.	Education and Research	65.36	0.51%
5.	Manufacturing & Processing	132.525	10.43%
6.	Miscellaneous	42.65	0.34%
7.	Mixed Use	4.29	0.03%
8.	Open/Community Space	36.6	0.29%
9.	Residential	3023.04	23.79%
10.	Restricted (port, airport and defense)	1273.36	10.02%
11.	Service Facilities	13.61	0.107%
12.	Transport & Community	625.36	4.92%
13.	Vacant Land	1645.28	12.95%
14.	Water Body (khals, ponds, marshy land)	1125.25	8.85%
15.	Coastal Char	1756.36	13.86%
TOTAL		12704	100 %

Source: Land use survey, 2006-2007

FIGURE 4.1: EXISTING LAND USE MAP OF DPZ- 01 (Patenga-Halishahar)



LEGEND

Existing Structure

- Residential
- Commercial
- Industrial
- Mixed Use
- Community Service
- Education & Research
- Governmental Services
- Miscellaneous
- Non Government Services
- Service Activity

Existing Waterbodies

- River
- Ditch
- Khal
- Marshiland
- Pond

Major Land Use

- Restricted
- Manufacturing & Processing
- Port Related Use
- Coastal Char

Existing Road

- Pucca
- Semi-pucca
- Katcha
- Railway Line

Development Issues regarding formal industries

- Many Public sector industries have land in excess of their need. For example the GEM plant with 44 acres. (Refer Chapter 2 ECN 04.1)
- Some industries along the Karnaphuli River have insufficient parking and waiting space for the vehicles that they generate. (Chap 2 ECN 4.02)
- There are insufficient facilities for industrial waste treatment and disposal and tree cover to reduce dust noise and other air borne pollutants. (ECN 05.1)

Besides formal industries there are private garments factories. Also present are small metal and car repair workshops along roads. These create obstruction to pedestrian and vehicular movement

c) Commercial: There is pressure for setting up container yards. Two private ones (8 + 15 acres) have been established, with capacity to store some 7000 containers and employing some 2500 persons. The one on the Patenga road has no parking space resulting in severe traffic congestion as freight vehicles are parked on the road surface and reserves. This kind of use shall be relocated.

Other commercial activities consist of shops and small business houses. Larger shopping malls are concentrated around the EPZ entrance area. Some 3 km stretch is lined with shops, business offices and other services. These have insufficient setbacks for dropping and vehicular movement and parking.

d) Topography and Drainage: The area is geologically flat as well as encompasses a large number of Ponds. East side of the area covers flood plain land along the Karnaphuli River. Consequently, this portion of the study area is flood prone and water remains for few weeks during the rainy season. A part of the south east side along the river and west side along the Bay of Bengal is swampy and also affected by tidal overflow. Some khal and branches, which cross the area, are important natural drainage courses. Finally all the khals fall into the Karnaphuli River and the Bay of Bengal. In addition to the khals a significant number of ponds work as storm water reservoir during the monsoon period

e) Transport Network: The roads which are performing the functions of arterial network in this planning zone are: Port Road, Patenga Road, Chittagong Port Access Toll Road, Strand Road and part of Hrishahar Road. Toll Road has recently been made operational to provide direct access from Dhaka Trunk Road to port area. The other important roads are Naval H.Q Road, Kathgar Road, Zelepara Road and Nayahat Road. Another important transport feature of this area is the presence of two rail tracks, one connects the port and the other connects the Old Chittagong Steel Mill, presently known as Karnaphuli Export Processing Zone (KEPZ). In the road network system, it was observed that there are two important north-south roads (Patenga Road & Port Road), but there are no major east-west links. It was also found that the other internal roads are narrow; as a result the level of traffic circulation in this zone was considered to be very poor.

f) Restricted Areas: This category consists of the port, airport, and military operational and housing areas (Patenga Naval Base, Isha Khan Base, and Air force Base). The port is currently handling an estimated 600,000 TEUs and has been experiencing average growth rates in container traffic of 14.5 % annually. It expects to be handling up to 2.5 million TEUs by 2020. The port is currently undergoing major upgrading of its facilities

g) Community Facilities: There is a general lack of community facilities in terms of quality and area served.

The beach and coastal estuaries are a major source for recreation and tourism. A stretch of some 2km road along the Karnaphuli River is a favorite leisure area for city dwellers. The openness, mild sea breeze, vessel movement, and dazzling lights of the fertilizer factories across the river attract large crowds who crowd the road along the river Karnaphuli.

h) Culture and Heritage: There are at a number of over hundred year old residential buildings built of Burma teak. The architectural details of door, windows, and moldings are noteworthy.

i) Agriculture: Some 1725 acres are presently under agricultural use (paddy fields). West of the

embankment there are fish farms on land leased from the Water Development Board (BWDB). There are vacant and derelict lands.

4.1.3 HIGHER LEVEL PLANNING

a) Structure Plan – CMMP 1995: The area has not been considered as a major urban expansion area due to its susceptibility to tidal surges caused by cyclones. A major cyclone in 1991 caused huge losses to lives and to the economy. Major recommendations are:

- A linear 'No Development Zone' along the western coast, which should be kept free from major urban uses, and retained under agriculture and forestry.
- The coastal embankment should be kept free from development other than seats and shade structure.
- Land should be made available for expansion of the airport and port operational facilities.
- Provisions should be made for truck parking in the Port Area.
- The road transport needs of the Port should be met.
- The unspoilt coastline should be protected and their environmental quality enhanced.

The relevant Structure Plan Policies are:

POP 3, ECN 01, ECN 04, ECN 06, ECN 07, ECN 09, ECN 11, ECN 12, SDS 01, SDS 07, HOU 02, HOU 04, COM 01, COM 02, COM 03, TRN 07, TRN 08, TRN 09, TRN 10, TRN 11, INF 07, FCD 01, FCD 02, ULD 03, ULD 04, ULD 05, ULD 06, ULD 07, ULD 08, ULD 09, RLD 05, ENV 01, ENV 03, ENV 06.

b) Urban Development Plan CMMP 1995: In line with the Structure Plan policies the major actions are as follows:

- Implementation of coastal afforestation scheme in association with the embankment.
- Implementation of the 1st. phase Drainage Plan and the Transport Plan of the CMMP.
- Emission control of pollutants and provision of solid and liquid effluent disposal for industries.

- Making better use of underutilized areas within government industrial enterprises.
- Implementation of schemes for enhancement of the river and coastline for recreational purposes.
- Implementation of a slum/squatter-upgrading program.
- Planning for the organized development of the urban fringe land.

Due to the presence of the airport and the naval operations there is a height restriction as follows:

- a) No development in Zone 1, b) Up-to 6 m in Zone 2, c) Up-to 9m recommended in Zone 3

4.1.4 DETAILED AREA DEVELOPMENT PROPOSALS

The following development proposals have been shown in *Figure no 4.2*

Intensive urban development is dependent on ensuring that the area is flood free. Major development proposals include: meeting the expansion needs of the Port and airport, provision of workers and staff housing, community facilities, conference centre, promotion of sporting, leisure and recreational and tourism facilities and environmental protection areas.

Government action should be geared to; regeneration and improvement of haphazardly growing areas through land management techniques use of vacant tracts within public sites and protecting and enhancing the environment.

Guidance Notes are appended in the Annex 2, for improvement and new land development, housing standards, provision of amenities, and open spaces, footpath reservations, and protection of natural creeks and khals. This guidance is to be followed as relevant.

a) Residential (Housing): There is a huge backlog for workers housing. The principal aim would be to make available a large number of *rental accommodations at affordable levels, in the form of row houses, shop houses dormitories.* The Authority in partnership with the government / CCC / NHA with or without the private sector, the

private sector on its own will improve and add on to this category of housing.

Implementation can be achieved in two ways: i) Compulsory acquisition: Government may assist in acquiring land, while the private sector may build the residential units with all facilities. ii) Land readjustment/ guided land development schemes may be made mandatory, where landowners are guided to provide such facilities at acceptable standards.

1. Improvement of Existing Settlements: Two types of settlements need improvement. One is the previous planned area and the second is traditionally grown areas in semi urban state. The Authority will liaison with CCC / NHA / government / Community / NGO's to improve these two type of settlements, through land readjustment and Guided Land Development Techniques.

For traditionally grown areas the following policies will apply for all improvement areas.

Policies in Chapter 2: H1.1, H1.2, H1.3, H1.4, H3, H3.1, H5, ECN 11.1, ECN 11.2, ECN 13.1, COM 1.2, COM 1.3, RO 2, RO 3, RO 3.1, RO 3.2, RO 3.4, RO 3.5, RO 3.8 will apply. In Annex 2: Guidance Notes 2 (with all its subsections) is mandatory. Guidance 5, 6a, 10, 11 and 12 will be considered.

Implementing Agency: CDA / CCC / NHA / Private sector / NGO's/ Local residents / local representatives

R-01-01: The resettlement area east of the airport may be guided make local improvements to include housing and support facilities. Settlement west of the khal may have to be relocated to the east of the khal. No further expansion of private settlements should be permitted.

R-01-02: This land on the west of Patenga road is almost triangular shape. This area is suggested for planned residential use with required community facilities and amenities.

R-01-03: The site north of the airport is recommended for predominantly residential use largely for Low and Middle income group with emphasis to industrial workers housing. Due to the expansion needs of the airport this area should be kept in its semi urban state.

R-01-04: The large sites north of the zone are recommended for predominantly residential use largely for Low and Middle income group with emphasis to industrial workers housing. All supporting facilities and urban amenities will be permitted.

R-01-05: A strip of existing settlement on the west side of Patenga road will be improved through guided land development. Structures for low and middle-income residential use and its local support facilities will continue. Playgrounds and other urban amenities will be incorporated.

R-01-06: This area is located on the west of Patenga road and on the south of naval colony. A certain part of the area close to Patenga road has already been developed. The rest portions adjacent to the naval colony and embankment cum road, will be developed as planned residential area through land readjustment techniques with necessary urban services and facilities.

2. New Development:

R-01-07: An area north west of the zone may be developed for junior and mid level employees serving the industries. Housing will be restricted to 50% area. Remaining will accommodate urban amenities such as kitchen markets, education centers, basic health facilities, and community spaces. Open spaces and playgrounds will occupy a minimum of 15% space.

Implementing Agency: CDA/CCC/NHA/Relevant Industry/with or without the private sector/private sector

b) Industrial:

In-01-01: It should be the policy of the government to see that the underutilized lands used for industrial expansion. Support facilities such as treatment plants, parking and transport facilities relating to the industries may be incorporated. .

Implementing Agency: Ministry of Industry / PWD / Dept of Forest

Policies ECN 04, ECN 04.3 ECN 9.3, RO 3.4 will apply.

In-01-02: The sites immediate north and south of the CEPZ may be acquired for expansion of the

CEPZ.

Policies ECN 9.3, ENV 05

In-01-03: Full utilization of existing sites under various industries should be made as per the structure Plan ECN 04.

In-01-04: Buffer zone for pavements and plantation strips will be incorporated between the road and the industrial plots.

c) Mixed Use:

MU-01-01: A triangular shape on the east side of Patenga road has developed as predominantly residential area. In addition to residential use a certain scale of commercial use as well as mixed use in the same structure, will get permission through following policies and guidance notes given in this study.

MU-01-02: This place is located to the east side of Patenga road and proposed mixed use (MU-01-01). It is predominantly residential area. Considering future needs this area is recommended for mixed use.

MU-01-03: On both sides of a portion looked like zigzag form of Patenga road is recommended as mixed use area. In this area commercial activities will be highly appreciate along the road side considering road width and other requirements as per Building Construction Rules.

MU-01-04 / MU-01-05 and MU-01-06: Three areas already have a wide mix of use. These will be retained as mixed-use areas. Efforts however have to be taken to guide its development to achieve orderly growth. Land readjustment techniques will be applied to generate revenue to redevelop the area in a planned manner. Flood retention areas have to be retained and natural canal protected and enhanced.

Policies H 1.2, H 1.3, H 1.4, H3, H5, H6a, ECN 1.3,, ECN 9.3, ECN 11, ECN 11.1, ECN 11.2, ECN 09, ECN 13, RO 3, RO 3.2, RO 3.4, RO 3.5, RO 3.8, CH 1 will apply.

d) Drainage: DPZ-01 falls entirely in the Drainage Area No. 6 (Bandar) and partly in the Area No. 4b (Western coastal plain) of the Chittagong Storm Water Drainage and Flood Control Master Plan,

1995. Whole area of DPZ-01 is covered by the proposals of Chittagong Storm Water Drainage and Flood Control Master Plan, 1995. In addition, DAP study has identified the drainage works to be done for DPZ-01.

Drainage Master Plan Proposals for the area include:

1. Rehabilitation of Gupta khal, Mahesh khal and five small khals.
2. Seven secondary new khals in Patenga Area with a total length of about 13.7km are proposed. Their locations are identified in the proposed land use plan of Figure 4.2
3. 11 regulators on khals flowing into the Karnaphuli River and 5 regulators on khals flowing into the Bay of Bengal and their locations are identified in the proposed land use plan of Figure 4.2
4. 4 flood storage ponds adjacent to Karnaphuli River and their locations are identified in the proposed land use plan of Figure 4.2
5. Flood defense is proposed on the right bank of the River Karnaphuli and along the Bay of Bengal Coast.

DAP proposals:

1. Rehabilitation of 8 small khals in Dakhshin Patenga areas having a total length of about 11 km. is proposed. The locations are identified in the proposed land use plan of Figure 4.2
2. Retaining and preservation of 108 ponds over the size of 0.5 acre are proposed. The accumulated size of these existing ponds proposed to be preserved equal approximately 133 acres. These ponds are identified in figure 4.2.
3. Two secondary new khals near to embankment of the Bay of Bengal with a total length of about 8.1km and their locations are identified in the proposed land use plan of Figure 4.2
4. A new secondary khal proposed in Chittagong Storm Water Drainage and Flood Control Master Plan, 1995 had no regulator proposed. This khal flowing into the Bay of Bengal needs a regulator. The location of the regulator is

identified in the proposed land use plan of Figure 4.2

5. Taking into account the existing ponds, a new flood storage pond is recommended close to the eastern side of Patenga road. It will be used as water based recreational facilities. The location of this flood storage pond is identified in the proposed land use plan of Figure 4.2
6. Following drainage-guiding principles/guidelines C at page 3-3 remaining drainage networks is proposed and identified in the proposed land use plan of Figure 4.2.
7. Where not shown specifically in the proposed land use plan of Figure 4.2, drainage guiding principles/ guidelines will apply.

e) Transportation: To address the problems indicated in section 4.1.1 and to develop a proper circulation pattern, the first initiative was to establish the primary and secondary road networks. The next step was to provide a proper internal circulation pattern so that mobility in the inner neighborhoods could be easier. Completion of a number of missing links and winding of several roads have, therefore, been proposed to establish almost a grid iron pattern of road system so that several alternative routes are available for movement within this planning zone.

1. Proposals for new and widening of major roads

1.1 Embankment-cum-Road along the western coast: One of the most important primary roads proposed for this zone is the Embankment-cum-Road along the western coast from southern tip of Patenga to the north, parallel to Dhaka-Chittagong Trunk Road, having a Right of Way (ROW) of 120 ft for the road.

1.2 Widening of Patenga Road and Port Road: Both these roads are already carrying heavy traffic, and in the future they will continue to be the primary roads and carry most of the traffic of this zone. As such, widening has been proposed for Port Road, with ROW of 120 ft and Patenga Road with a ROW of 100 ft to be developed on an incremental basis, as per the geometric standards recommended by the DAP

1.3 Widening of the Link Road between Patenga Road and Port Road: The existing link road from the Haliashahar and Patenga Road intersection, east of Chittagong EPZ to Patenga Road and Port Road intersection near National Cotton Mills, is proposed for widening with a ROW of 100 ft.

1.4 Further widening of Port Access Toll Road: At present the Toll Road is a 2-lane access road. In future it will need widening for which a ROW of 100 ft is proposed to be earmarked.

1.5 A number of new links between Patenga Road and the Embankment-cum-Road: A number of new secondary road links are proposed to provide access to the new Embankment-cum-Road along the coast. These will be developed based on a ROW of 60 ft and 40 ft. The details are shown in Figure 4.2

2. Bus Termination / Stoppage (Tran-01-01): To serve the visitors to Patenga Beach, it is proposed to have a city bus terminal at the tip of the peninsula. Sufficient set back from the road will be created to cater to the parking of public buses, as this will be a terminal point of the route. Permitted facilities would include ticketing booth, covered waiting areas, toilets, small provision stalls and parking area for other modes of transport.

Implementing Agency: CDA/CCC with or without the private sector involvement

3. Parking for Industries: The KEPZ and EPZ have to make an estimate of freight and commuter traffic generated by the expansion of industries. Arrangements for road - industry interface, (bus bay/stand), waiting, loading unloading and parking have to be determined and provided by the respective authorities within their sites.

4. Parking Facilities: Single and multilevel parking facility is proposed on the north of the MA Aziz road. This should have support facilities (rest rooms, dining facilities, and communication centre) for drivers, helpers and other staff. A minimum of 40' tree plantation buffer will be made between the parking terminal and the surrounding property. There will be adequate offset between the main road and such parking facility.

Implementing Agency: CPA/CDA with or without the private sector / the private sector Dept of Forest

5. River Transport: Quay / Berthing Facility for Boat:

Parking of boats in the river channel creates environmental and traffic hazard. To provide a safe berthing place for fishing boats and boating service for tourism a quay is recommended in the coastal strip on the west. Actual size and location will depend on technical and market survey. An area is proposed on the riverbank

Implementing Agency: BIWTA/ CPA / CDA/CCC with or without the private sector

f) Restricted Areas:

Rt (CPA)-01-01: For efficient use of scarce land surrounding the port, the area west of the road may be designated for port expansion areas. This includes the south port colony, and areas to its north and east. The single storied CPA south colony (7 persons per acre) is surrounded by port operational activities and no longer suited for residential purpose and the economic value far overrides the current use. (Chapter 2 ECN 07.2)

Policy ECN 7 , ECN .2

Implementing Agency: Relevant Government / CPA/CDA

g) Community Facilities

This section translates the structure plan policy COM 02. To create employment through tourism and provide leisure and recreational facilities, a number of recommendations are also made. These is with reference to policy ECN 12 , COM 01, and ENV 06 of the Structure Plan.

Comm-01-01: A motor vehicle driving training school and practice tracks is proposed immediate North West of the airstrip. Permitted facilities include offices, training facilities, public toilets etc. The area will have a 15% tree cover.

Implementing Agency: CDA/ CCC / Government / CMP / Private sector

h) Leisure, Recreation, Parks and Open Spaces:

RO-01-01: The existing beach shall be upgraded and two new sandy sites on the west, developed with public amenities such as rest rooms, souvenir

shops and snack stands. Public safety and convenience will be ensured. In each site parking for 50 vehicles in the first phase should be developed which could be later developed into two layers of parking facility. Life guard posts, toilets and restrooms, a minimum of 40 ft. tree lined roads from the Patenga road to the new locations is proposed. The beach will be conserved as an open expanse with tress and shaded kiosks for sitting. Structures and settings including landscaping should be of high design standard.

Implementing Agency: CCC / CDA/Parjatan / Private



Pic. 4-3 Upgradation of Patenga sea beach will encourage tourism development.

sector

RO-01-02/ RO-01-03: The two sites are located to the south of Patenga area, which is near to Patenga Beach. Tourism related facilities and amusement will be permitted in the sites.

RO-01-04: An area west of the coast may be reserved for camping, picnic, annual sports meet, and other community events. This will consist of large outdoor spaces of high aesthetic and landscape quality. Public toilets and security structures and other structures to support the uses will be permitted. Existing settlements will be upgraded but not allowed to expand.

Policies RO 1.1, RO 2, RO 3.1 ECN 9.3, ECN 13.1, CH 1, CH 2.1, CH 2.3 and CH 2.4 will apply.

Implementing Agency: CDA/Private entrepreneurs.

RO-01-05: An area east of the Patenga road may be used for an amusement park with water and

horizontal rides. The maximum height will be up to 6m. Adequate space for ticketing and dropping and parking has to be incorporated. Sufficient setback from the road is mandatory. The entry and exit will be from the access road on the north. Existing settlements may be relocated, in surrounding areas.

Implementing Agency: CDA/CCC / with or without the private sector/ private sector/ landowners

RO-01-06: An area between the airport and industries may be turned into a water based tourist site. Original landowners shall remain and settlement upgraded. Original landowners may or may not be partners to development.

Implementing Agency: CDA/CCC/ Parjatan / Private Sector / Private Landowners

RO-01-07: A public promenade shall be developed for a stretch of about 1 km along the river from airport the entry point to the Naval installation. Efforts shall be made to separate pedestrian and



Fig. 4-4 Promotion of public promenade from airport entry point to Naval installation.

vehicular traffic. Parking arrangements shall be made west of the protective tree belt. Large open pavilion/s, with sections for crafts workshops may be permitted Design will be in harmony with nature and maximum openness shall be retained. Open-air concerts may be held. Licensed vendors will be allowed to sell snacks and drinks and artisans wares.

Policies RO 1.1, RO 2, RO 3.1 ECN 9.3, ECN 13.1, CH 1, CH 2.1, CH 2.3 and CH 2.4 will apply.

Implementing Agency: CDA/ CCC/Other

Government agencies

i) Utility Services:

Ut-01-01: As the present CCC dumping site in Ward 38 is located in the south which is the direction of the prevailing wind, consideration may be given to relocate the site to a northern location of study area. (The present condition of the site is unsanitary and wastes spill into the surrounding settlements. A wide green tree buffer may be made to protect the environment from unpleasant odor). In the medium term a site on the north of the city may be designated got a waste-dumping site. Existing settlements may be resettled in the plane d manner in a part of the site. The Authority as per need will determine actual size.

Implementing Agency: CCC INGOs ICDA / Original landowners may be a partner to recycling of the wastes

Ut-01-02: The present DAP study recommends that the responsible agencies for the provision of utility services, will prepare their own detailed plan in respective fields.

j) Culture and Heritage

CH-01-01: Commemorating Natural Disasters:

It should be the policy of the Authority to create a place to commemorate those who lost their lives in numerous cyclones over the past 100 years. This venue will be somber and reflective of lives lost. The triangular area south of the approach road to the airport may have a public plaza/ sculpture commemorating those who lost their lives. This will be used for paying homage and will be accessible to visitors and visible from roads.

Implementing agency: CCC / CDA / Parjatan/ Other Government agencies

CH-01-02 / CH-01-03: Conservation of old traditional residences:

The Authority shall assist in conserving two private wooden over 100 year old residential in ward 38, the Malum bari and the Talukdar bari. The Authority shall provide technical assistance. Incompatible use will be prohibited in the immediate surrounding.

Implementing agency: CCC / CDA / Other Government agencies

k) Agriculture

A-01-01 Model Tourism Village: To refrain building development immediate North West of the airport, a wide area may be retained as an agricultural use. However, to generate higher revenue and enhance economic potentials of the area the area may be turned into model villages with addition of facilities of tourist interest. Agricultural products will be of high value (flowers, local fruits, mushrooms). Water areas should be retained in substantial areas to prevent flooding. Boating facility may be incorporated. Butterfly parks and snake farms will be permitted. Shade structures and kiosks will be built to facilitate visitors. Planning Authority should motivate landowners to form cooperative to assemble land and run these commercial operations. Existing residential use will continue and expansion of existing house hold will be permitted as part of a planned neighborhood. All conditions for Residential Improvement areas will also apply.

Implementing Agency: CDA/CCC/Private landowners with assistance from relevant government bodies

4.1.5 ENVIRONMENTAL PROTECTION AND ENHANCEMENT

En-01-01: Reservation shall be made for open space on the vacant site on the southeastern edge.



Fig. 4-5 Concept of Butterfly Park can be combination of nature and modern architecture.

This will give protection form cyclonic surges. Adequate and appropriate tree plantation will be undertaken. Recreational use such as park, picnic, and water areas may be permitted. Mechanical rides will not be permitted. In the long term this may be used for port facilities.

Implementing Agency: CCC / CDA/ Department of Forest/ Other Government

En-01-02: Reservation shall be made for open space on the largely vacant site on the west of the coast. Permitted uses will be a) a conference centre, b) hotel for business and general tourism, c) an emergency/specialized health facility, 50% of the area may be used as park and landscapes gardens. Water Retention areas must be preserved. Adequate parking and dropping facilities will be provided. All facilities will be of high design standards.

Implementing Agency: The Authority will assist original landowners to design and implement projects. A consortium of the landowner, and private land developers/ financier shall be formed.

En-01-03: The vacant area of the airport approach road may be developed into an urban forest with land based and aquatic plants. Wet and marshlands will be retained. Other areas will be landscaped for a public plaza. (Refer CH 01 1)

Implementing Agency: Civil aviation authority/ forest department/CDA

En-01-04: Two sites may be developed as designed grasslands.

i) The vacant site east of the airport may be developed into flowering grasslands and aquatic grasslands.

ii) The vacant site on the edge of the river may be planted with saline resistant flowering grasses/plants. River transport facilities will be permitted.

Implementing Agency: Civil aviation authority/ forest dept./ CCC / BIWTA / CDA

En-01-05: To reduce further vulnerability due to surges, development of a green corridor along the landward side of the coastal embankment by non-mangrove native species is recommended. A tree



Pic. 4-6 Expansion of existing tree plantation zone can reduce vulnerability due to surges.

plantation zone of varying width is recommended on the landward side of the coastal embankment. This plantation zone will be maximum 300 meters as well as may be reduced based on existing obstacles.

Implementing Agency: BWD ICCCI CDA/Forest Department / CBOs/ NGOs.

En-01-06: To reduce the deadly effect of cyclone and storm surges and act as a shield a seaside mangrove green belt, extending from the embankment to low tide limit is recommended. Measures should be taken to facilitate visitors (elevated walkways, boat berthing decks etc).

Implementing Agency: BWD / Forest Department /



Pic. 4-7 Mangrove green belt may protect embankment from erosion.

CDA/CBOs/ NGOs.

En-01-07: All along the natural khals and creeks 20 feet width of land on the both sides will be kept free from all development and turned into a green walkway.