

FANGCHENGGANG MANGROVE DEMONSTRATION SITE

SUMMARY SHEET

<p>1. SITE NAME AND GEOGRAPHIC CO-ORDINATES:</p> <p>Name: Fangchenggang Mangrove Demonstration Site (See Map in Annex 1) Co-ordinates: 108°4'12"-108°25'48"E, 23°26'24"- 21°42'36"</p>
<p>2. COUNTRY IN WHICH THE SITE IS LOCATED:</p> <p>Fangchenggang City, Guangxi Zhuang Autonomous Region, People's Republic of China</p>
<p>3. STATE OR PROVINCE IN WHICH THE SITE IS LOCATED Guangxi Zhuang Autonomous Region</p> <p>Local government approval [yes or no].....yes September 2002 Local government involvement [yes or no]..... yes Local government co-financing [yes or no] Yes If yes then in kind or in cash? both in cash and in kind</p>
<p>4. LINKAGE TO NATIONAL PRIORITIES, ACTION PLANS AND PROGRAMS:</p> <p>Amongst the mangrove demonstration sites nominated by the Chinese government for consideration of the UNEP/GEF South China Sea project, the Fangchenggang mangrove demonstration site has the top national priority. A national level mangrove nature reserve—Beilun Estuary Marine Nature Reserve (BEMNR)—is within the area of the demonstration site. BEMNR, which is an important mangrove reserve receives strong support from the central and local governments, including policy and financial support. The major activities being conducted, and that will be implemented in the site by the governments include: Construction of Eco-city in Fangchenggang City (State Environmental Protection Administration of China, SEPAC); establishment of a Mangrove Eco-park in Fangchenggang City (key project of SEPAC in the ninth five year programme); Ten year mangrove reforestation project in Fangchenggang City (State Forestry Ministry); Jiangshan Peninsula Tourism Resources Development and Natural and Ecological Environment Protection Project in Fangchenggang (Guangxi Government, including ecotourism practice in mangrove demonstration site). BRMNR special project (Ministry of Finance).</p> <p>Central government involvement [yes or no].....Yes Central government co-financing [yes or no].....If yes then in-kind or in-cash?.....in-cash</p>
<p>5. DATE OF NATIONAL TECHNICAL WORKING GROUP MEETING WHICH CONSIDERED THE PROPOSAL AND RECOMMENDATION</p> <p>The Fifth Meeting of the National Technical Working Group of China, February 20, 2003</p>
<p>6. FOCAL POINT AND/OR NATIONAL TECHNICAL FOCAL POINT ENDORSEMENT AND/OR COMMENTS:</p> <p>Comments: In terms of extent, the mangrove forest in Fangchenggang, Guangxi, is the largest mangrove forest in China under protection. It is also the only trans-boundary mangrove forest in China, with part of the ecosystem lying across the border in Viet Nam. To protect the mangroves, a national level reserve, Beilun Estuary Nature Reserve, was established under the Fangchenggang Western Development Plan and the policy of promoting cooperation with ASEAN countries will boost the economic development in Fangchenggang. Such economic development is desired to be sustainable without negative impact on environment, especially on the mangrove resources. We believe that successful conservation and wise use of mangrove in Fangchenggang will be conducive to the protection of mangroves in other places of China and other developing countries. Therefore, we are willing to drive the implementation of Fangchenggang Demonstration Site Project.</p> <p>Signature: Name & Designation: Chen Mingjian, Director of the Ocean Office, State Environment Protection Administration of China Date: September 22, 2003</p>

DEMONSTRATION SITE PROPOSAL

7. SITE DESCRIPTION:

AREA: 787 km² (mangrove area is 1414.5 ha)

ENVIRONMENT:

Fangchenggang mangrove demonstration site lies in the Southern Chinese Province of Guangxi Zhuang Autonomous Region. Bordering Vietnam to the west, the mangrove site supports 1414.5 ha of mangrove.

The region has subtropical climate. Annual mean temperature is 22.3°C. Annual mean rainfall is 2222.5 mm. Annual mean number of days of rain is 147.5 d. Annual mean evaporation capacity is 1400mm. NNE and SSW wind prevail year round, and average wind speed is 5.1m/s. Normal diurnal tide dominates, with mean range of tide at 2.24m (extreme tide range is 5.64m); Mean seawater temperature is 23.5°C and mean seawater salinity is 29.1‰.

Weighted slope gradient of mangrove flats at the site is 0.32%. Ratio of sand to silt to clay in the sediment is 74.83:17.38:6.71. Mean bulk density of soils is 1.58 g/cm³ outside the mangrove area and 1.40 g/cm³ inside mangrove area, and mean water content is 20.67% outside mangrove area and 26.03% inside mangrove area. The mean pH value of soil in the mangrove area is 5.13, and means salinity is 9.35‰. The content of organic matter, sulfide, Total N, Total P, and Total K in soils are 1.05%, 53.93 mg/kg, 0.693 g/kg, 0.226 g/kg, and 9.724 g/kg respectively.

Mean salinity of near shore seawater in the area is 23.34‰, pH value of seawater is 7.77, and DO is 6.95% (100.18%). Pollution in the area is far from serious and near shore seawater quality is fairly good. In the mangrove potential site, there are two embayments where three rivers, namely the Fangcheng, Beilun, and Jiangping River, flow into the sea. Total watershed area of these three rivers is 2274 km².

HABITATS:

In the Fangchenggang Mangrove Demonstration Site, there are 15 species of mangrove, 10 true mangrove and 5 associate mangrove species. The mangrove forest covers an area of 1414.5 ha with the species *Bruguiera gymnorhiza*, *Kandelia candel*, *Aegiceras corniculatum*, and *Avicennia marina* being dominant. Nine formations and 17 communities of mangrove are found in the area, which supports 240 species of macrobenthos in 175 genera of 10 phyla. These include 37 species of polychaete in 32 genera; 104 species of mollusc in 41 genera; 19 species of benthic fishes in 17 genera; and 13 species of other marine creatures in 11 genera. The average density of these macrobenthos is 346 m⁻², and the mean biomass is 225.68 gm⁻². One hundred and forty five species of benthic algae have been recorded in the demonstration site, including varieties and new records. Ninety-four species of phytoplankton in 30 genera of 3 phyla were found during surveys in the preparatory phase; 68 species of zooplankton in 43 genera; and 71 species of fishes in 52 genera were also recorded. In addition, 187 species of birds in 42 families of 14 orders are also known from the area, suggesting that this site is an important habitat for birds. Vascular plants found in coastal area of the number 634 species whilst a Seagrass (*Zostera japonica*) bed occupies an area of 3 km² in the vicinity of the mangroves.

Key features of the biological resources include:

- Mangroves border Viet Nam and provide a suitable habitat for migratory marine organisms and birds, which feed and breed in the mangroves. The conservation of mangroves in Fangchenggang will be of significance in maintaining ecological balance and biodiversity of the marine areas between China and Vietnam.
- Being on the flyway of migratory birds, the demonstration site is used as a stopover by migratory birds flying on the two migratory routes (from East Asian Coast or Central Siberia and Central China to Southeast Asia and Australia). 145 species of migratory birds have observed in the area, of which ten species are endangered namely: *Platalea minor*, *Pelecanus philippensis*, *Egretta eulophotes*, *Anser erythropus*, *Anas Formosa*, *Aythya baeri*, *Aquila heliaca*, *Larus saundersi*, *Emberiza rutila*, and *Pitta nympha*.
- 18 species of water birds (mainly of the family Ardeidae) were found breeding in mangrove areas in Fangchenggang, and the total number of individual breeding water birds is estimated

to be over seventy thousand per year, of which about forty thousand are from Southeast Asia. Fangchenggang mangrove site is therefore a significant site from the perspective of the implementation of the Ramsar Convention on Wetlands.

- Marine living fossils such as *Lingula anatine* and horseshoe crabs (*Tachypleus tridentatus*, *Carcinoscorpins routnolicauda*, *Tachypleus sp*) are found inhabiting the mangrove area in Fangchenggang in large numbers. Young horseshoe crabs are common on mangrove flats as horseshoe crabs usually breed in tidal creeks. *Lingula anatine* is mainly found on the seaward margin of the mangrove forest.
- Pearl (*Pinctada martensi*) farming in Zhenzhu Bay within the mangrove demonstration area is the most prosperous in China and the sustainability and success of pearl farming here can be attributed to the ecological security offered by the 991.6 ha mangrove in Zhenzhu Bay.
- In the mangrove area in Fangchenggang, maximum tide range is 5.52 meters, and mean, tide range is 2.48 meters. Water is often 3 meters deep at high tide, which is much deeper than in many tropical mangrove areas, which may exert strong selection on the eco-physiology and genome of mangrove in Fangchenggang.
- A three km² seagrass bed of *Zostera japonica* is found in the shallow water in the vicinity of mangroves and pristine vegetation in the sea-to-land transitional zone both contribute to the species richness of the area.
- The mangrove in the Fangchenggang area is the largest mangrove forest in Mainland China, with *Bruguiera gymnorhiza* covering an area of 99.7 ha. The *Bruguiera gymnorhiza* forest has been designated as a parent forest since large *Bruguiera gymnorhiza* trees are not common in China.
- Land reclamation in the coastal area has badly damaged the habitats of *Heritiera littoralis* forest, causing a sharp reduction of *Heritiera littoralis* to only 4.3 ha. Wild populations of *Heritiera littoralis* are hardly found elsewhere in China and the survival of the *Heritiera littoralis* population in this area is attributed to protection by local villagers who have the belief that *Heritiera littoralis* trees are auspicious trees (Fengshui Forest).

PRESENT USE:

Along the coastline of the Fangchenggang mangrove demonstration zone, are scattered 19 villages that are under the jurisdiction of the four towns of Dongxing, Jiangping, Jiangsan, and Gangkou (Port). All these villages are in the vicinity of mangrove forests. Distances range from 100 to 3,500 meters (average is 883 meters). All the villages can be categorized as mangrove coastal villages and the total population is around 41,290, of whom 21,937 are male and 19,353 female. The labour force numbers 22,713 and the area of tillable land in the 19 villages is 2,947.8 ha, of which 65.69% is for farming rice, 13.44% for sweet potato, 11.17% for peanut, 6.97% for corn, and 1.24% for cassava. The total number of cattle in the 19 villages is 4,236.

Per capita tillable land area in the 19 villages is only 0.07 ha *per capita*. One third of the tillable land is infertile and agricultural production on the tillable land can only generate 30% of total income of the villagers. The remaining 70% derives from mariculture and traditional fishery in mangrove habitats.

Fangchenggang is a port city with a population of 28,000 living in the urban area. Along the urban mangrove coast there is only one village, and adjacent land is for the purpose of city expansion, port construction, and industry. In addition to the ethnic Han people, minorities such as Zhuang, Jing, and Miao, are also present with the Vietnamese speaking, Jing minority, inhabiting only the Wanwei peninsula at the demonstration site.

MANAGEMENT REGIME:

75.35% of mangrove in the GEF potential mangrove demonstration site in Fangchenggang City is state-owned property, managed in the form of a mangrove reserve (BRMNR) by the Oceanic Administration. Xindi Co., Ltd. of Fangchenggang City holds ownership over the remaining 24.65% of mangrove by paying about five million Yuan RMB to the local government. Three government sectors, Oceanic Administration, Forestry Department, and Environment Protection Bureau are directly involved in the management of mangrove at the site. The BEMNR is under Oceanic Administration, which is responsible for the management of the reserve and has the right to issue concessions for using mangrove flats in the mangrove area. The mangrove forests outside the BEMNR are under the jurisdiction of the Forestry Department, which is in charge of issuing grants for cutting mangrove trees and allocating financial funds for mangrove reforestation. The Environment Protection Bureau takes

charge of environment protection and resources management in the mangrove area by taking an overview of all activities by, all agencies. Other government entities, such as city planning, water resources, fishery, and the tourism department, are also involved in the management of mangroves in response to the need of their administrative functions. The establishment of a mangrove management system, including issuance of concessions for access to mangrove and coordination among different government organisations, has improved the overall management of mangroves, but to further reduce sectoral conflicts in mangrove management more effective coordination mechanisms and management systems are required.

8. STAKEHOLDERS

Government: Mangrove forest in China is categorized as ecological non-profit forest. In relevant laws and/or regulations, mangrove is rated as a marine ecosystem that needs special protection. A ten-year programme of mangrove reforestation has already been launched with the support of government investment. By following relevant laws and regulations, Fangchenggang City government has revised the plan (drawn up in 1993) of city expansion into mangrove areas by building an eco-park in the urban mangrove area instead of clearing mangrove for the purpose of urbanization, port construction, and industry. Meanwhile, ecotourism has also been initiated in the mangrove nature reserve for the sustainable development of the mangrove resources. In 2002, a “large scale marine function-zoning scheme” was ratified by Fangchenggang City Government, in which all mangrove forests were defined as resources only for ecological purpose and mangrove land as protection land.

Reserve: BEMNR is a government organ in charge of managing the mangrove forests in the Beilun Estuary and Zhenzhu Harbour. The significance of the reserve is well recognized by central government since it is the only mangrove reserve located at a national boundary. It was established in 1990 and became a national level reserve in 2000 with 16 management staff. As a newly designated national mangrove reserve, it is still under developed and urgently needs assistance, which can improve reserve layout planning, infrastructure construction, training, research, monitoring, and international cooperation.

Enterprises: To date, in Fangchenggang City, only Xindi Co., Ltd is involved in mangrove management. The company obtained a privilege of reclaiming land in mangrove area by offering large payment to local government before 1998. But its land-reclamation scheme has been modified under pressure from government and news media. Now a new investment scheme to build an eco-park in the urban mangrove area has already been approved by Guangxi Government and State Environmental Protection Administration of China (budget of 4.25 million USD).

Local communities: 19 villages with 41,290 residents are scattered in the mangrove demonstration site and the mangrove not only prevents tillable land, fishponds, and houses from being destroyed by tidal surge and typhoon, but also provides measurable economic benefits to pearl farming in the area. Mangroves are regarded as the traditional fishing ground of local residents who engage in environmentally friendly fishing. A comprehensive evaluation analysis indicates that every year mangroves in the site can produce an economic benefit of 2.127148 billion Yuan to local communities. However, pursuit of higher short-term benefit has lead to conversion of some mangrove lands to shrimp ponds and over fishing in mangrove forests, and unsustainable activities such as frequent benthos digging, have resulted in the destruction of mangrove habitats and degradation of mangrove trees.

Volunteers: A youth mangrove protection station was set up in Jiangshan elementary school for the purpose of conserving mangroves in the demonstration site. The youth volunteers of the school have been planting mangrove trees voluntarily for ten years, which is highly appreciated by governments. The Chen family is also widely recognized for their lasting care of the egrets for more than forty years and stories of the three generations of the Chen family have been aired several times in CCTV (China Central TV).

Tourists: The potential mangrove demonstration site is located on an international tourism route (China to Vietnam), through which many Chinese tourists and government officers go to Vietnam. The rapidly growing number of tourists (about one million in 2002) implies that more and more people will have opportunities to see mangrove. Those tourists who come to appreciate mangrove will support governments' efforts to protect existing mangrove forests and provide more facilities for mangrove

viewing, research and education. Government officers who come to view the mangrove in the site will further realize the significance of mangroves and the problems being faced in mangrove conservation. See Annex 2 For a stakeholder analysis

10 THREATS

Shrimp farming in mangrove areas has already posed threats to some mangrove species, such as the estuarine species of *Heritiera littoralis* (endangered species in China), and terrestrial vegetation in transition zones along mangrove coasts (habitats of mangrove birds).

Digging commercial benthos and grazing animals in mangrove forests also causes some disturbance and destruction of mangrove habitats, damage to mangrove roots and seedlings. Such disturbance hinders regeneration of mangrove and results in the occurrence of dwarf, low-density mangrove forests. Mangrove logging and subsequent land erosion have caused hardening of intertidal soils, which makes it difficult for propagules to establish and prop roots to develop. As a result, natural *Rhizophora stylosa* populations in Fangchenggang site were depleted in the 1980s, such that now all *R. stylosa* forest at the site represents re-planted trees. Such practices are common in the demonstration site because:

- No alternative livelihoods for local residents;
- Low awareness of the international significance and features of mangrove resources; consequently, no plan or initiative to develop wise use of mangrove resources. It is poor public education and insufficient financial support that results in such a situation.
- Shortage of funds to develop more sustainable techniques, collect data, and install facilities for mangrove conservation. Lack of monitoring data used to set concrete goals, formulate management programme, and develop an action plan.
- Compensation is too low to motivate local residents to protect mangroves and mangrove management and enforcement are insufficient, which leads to destruction of mangroves and encroachment into mangrove habitats. Now, it is a historic and critical moment to initiate a more proactive plan for mangrove conservation and restoration in the demonstration site.
- Inappropriate regulations. Traditional practices, such as digging and grazing in mangroves, are not banned or regulated under existing mangrove regulations and laws and there exists no policy to encourage private investment for the conservation and sustainable use of mangrove.
- The absence of ownership or tenurial rights to mangroves has lowered investment willingness, hindered technology transfer and mangrove use, and reduced access to capital, hence slowing down mangrove development.
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Obviously, the causes of the threats to mangroves are varied and reflect the social-economic aspects of the region (see Annex 3 causal chain analysis). It is impossible to reverse the trend of mangrove degradation with single measures or only through one management agency. Therefore, integrated approaches are proposed with the following aims:

- Demonstrate wise use technologies and sustainable management patterns of mangrove resources to raise public appreciation and financial support.
- Strengthen capacity building to manage mangrove more efficiently and enforce regulations more effectively.
- Establish a network to boost training, public education, and information dissemination. Reduce costs of mangrove protection and enforcement by raising public awareness on mangroves.
- Lobby for legislation on mangroves to ensure legally enforceable long-term conservation of mangroves and spread the successful outcomes of demonstration site.

10. GOALS & PURPOSE

The overall goal of activities at this site are to: control, and if possible reverse the degradation trends in the mangrove system; encourage participation of all stakeholders in sustainable management and use; and to develop appropriate cross-sectoral management mechanisms that will result in the establishment of a model mangrove reserve to serve as a centre for training, research, international co-operation and exchange.

11 RATIONALE AND OBJECTIVES:

Mangrove ecosystems are one of the four most productive tropical coastal marine habitats. The mangrove forest in Fangchenggang is a unique trans-boundary mangrove forest in China with high species richness. This mangrove forest is of global significance as a flyway for international migratory

birds and a suitable habitat of fishes. It provides ecological services, including disaster alleviation, water purification, endangered mangrove species protection, and ecological security for pearl farming and near-shore fishing, by local communities. Mangroves are highly valued by the Chinese government, which in 1990 approved the establishment of the Beilun Estuary Provincial Level Nature Reserve to protect the mangroves in Fangchenggang. The reserve was promoted to be a national level reserve in 2000.

China is a large developing country with economic development being its major task. Compared with great achievements in economy, the progress in ecological conservation, such as effective mangrove management, in China still leave much to be desired. So far, no practical mangrove wise-use example has been developed in China that could be used to promote official appreciation and public awareness of the wise use of mangrove resources. This is why ecological stresses posed by shrimp farming, digging, grazing, land erosion, and city expansion on mangroves in Fangchenggang had become more and more serious since 1980s.

China shares common objectives with the GEF in mangrove protection. International cooperation in addressing environmental issues is strongly supported by the Chinese government and International cooperation and assistance will facilitate the removal of the threats and improve the conservation and management of mangroves in Fangchenggang, and elsewhere in China.

The immediate objectives of implementing this GEF demonstration site project are to: reverse the degradation trends in the mangrove habitat; encourage the participation of all stakeholders, and develop a cross sectoral management mechanism with adequate financial and technical support. A subsidiary but no less important objective is to build a model mangrove reserve that will become an important facility for training, research, and even international cooperation and exchange.

The specific objectives of the project are:

- (i) develop, test and adopt an appropriate cross-sectoral management framework with participation of all stakeholders and decision making systems based on includes appropriate databases;
- (ii) develop and implement a business plan that includes a complete stakeholder analysis, identification of potential revenue streams, and full economic valuation of all mangrove goods and services;
- (iii) develop as appropriate, and harmonise existing legislation regarding the protection and use of mangrove areas and ensure that adequate capacity exists at all levels to enforce existing regulations;
- (iv) develop the Fangchenggang mangrove system as a centre for enhancing the capacity of all stakeholders to sustainably use mangrove habitats and resources through public awareness campaigns, training, programmes of visits and exchange of personnel with other centres of mangrove expertise in the countries bordering the South China Sea.
- (v) Restore biodiversity in the area by reforesting 60 ha the mangrove species *Heritiera littoralis* in Fangchenggang mangrove areas, to demonstrate the technical consideration and practical implementation in biodiversity conservation.

12 OUTCOMES: By the completion of project activities the following outcomes are anticipated:

- The trend of mangrove degradation and habitat destruction will be halted in the demonstration site
- Rational use techniques and production patterns will be developed and applied in mangrove areas
- Mangrove management and conservation capacities will be enhanced in the demonstration site
- Public awareness raised regarding the significance of mangroves
- Legislative and financial support for mangrove conservation in the site obtained to ensure financial sustainability
- Good example for mangrove protection, wise use, and community education in China
- Foundation for domestic and international cooperation to protect the trans-boundary mangroves established

Milestones in project execution are envisaged as follows:

By June 2005

- (i.i) Management Board operational, with defined membership, and terms of reference

	<p>established by appropriate regulatory authority;</p> <p>(i.ii) Site manager appointed and detailed work plans prepared and approved;</p> <p>(ii.i) Draft Stakeholder analysis completed, reviewed and accepted by all parties;</p> <p>(ii.ii) Draft economic valuation of mangrove goods and service prepared and potential revenue streams identified.</p> <p>(iii.i) Review of existing legislation completed and initial discussions regarding harmonization held with management board, stakeholders and local government</p> <p>(iv.i) Draft programme of training and personnel exchange prepared and discussed with management board and stakeholders.</p> <p>(iv.ii) Content of initial public awareness materials drafted and under review by management board and stakeholders.</p> <p>By December 2005</p> <p>(i.iii) Management Board meets monthly</p> <p>(ii.ii) Stakeholder analysis completed and full plan for stakeholder participation, drafted and approved by management board and local government;</p> <p>(ii.iii) Economic valuation completed and all uses and services identified and quantified;</p> <p>(ii.iv) Potential revenue streams quantified and financial management plan drafted and approved by management board and local government</p> <p>(iii.ii) Drafts of new legislation, or amendments to existing regulations prepared and submitted to the competent authorities for approval;</p> <p>(iv.iii) Public awareness campaigns initiated; quarterly newsletter published and distributed locally; materials produced and distributed; training courses held and visits of personnel from other sites arranged according to a schedule approved by the management board</p> <p>By December 2006</p> <p>Management system (including management board) functioning;</p> <p>Public and stakeholder awareness of significance and benefits of mangroves enhanced;</p> <p>Revenues streams coming on line, financial management system in place;</p> <p>By end of June 2007</p> <p>Demonstration site fully operational with minimal external inputs (either financial or human)</p>
12	<p>PLANNED ACTIVITIES TO ACHIEVE OUTCOMES:</p> <p>Planned Activities In order to achieve the objectives and outcome, the activities have been grouped into five major components as follows:</p> <p>1 Cross-sectoral management</p> <ul style="list-style-type: none"> - Establishment of Management Board (MB). A Management Board will be established for the demonstration activities with participation of (i) relevant governmental agencies from Fangchenggang city government, NGOs, and other local communities, with the Vice Mayor as the Chairperson. The Management Board is the decision-making body for the demonstration activities to be implemented in the demonstration site; - Selection & Appointment of Site Manager. A demonstration Site Manager will be appointed by the Management Board, in charging of the implementation of the demonstration activities as agreed by the Management Board; - Detailed work plans on implementation of the demonstration activities in Fangchenggang site will be prepared by the Site Manager, in consultation with the SEA focal point for mangroves. The work plans will be submitted to the management board for consideration and approval; - Mangrove management plan for Fangchenggang will be prepared, and submitted to the management board and other stakeholders for consideration and approval including zoning & planning, design of urban mangrove eco-park, BEMNR general management planning, including protection of coastal mangrove bird habitats, wild <i>Heritiera littoralis</i> <p>Website development The demonstration site will establish & publicise a local website to distribute project information, and outcomes and outputs of the demonstration project; in addition elements of the open access management support system will be developed as an integral part of the website; and</p> <p>Monitoring and Evaluation. During the implementation phase of the demonstration activities, the Site Manager will (i) prepare monthly report to the Management Board and SEA; (ii) prepare semi-annual report to UNEP/GEF in consultation with the focal point of SEA; and (iii) prepare annual report to the National Mangrove Sub-committee, SEPA, and the Regional Working Group on Mangroves</p>

2 Financial Sustainability

In order to establish a financial sustainable mechanism for the Fangchenggang demonstration site, following activities have been planned:

- **Stakeholder Analysis** a further more detailed stakeholder analysis will be carried out to identify the stakeholders of the Fangchenggang mangrove areas; what are the major activities, and the level of dependence on mangrove resources; what kind of management schemes of the stakeholders, etc. The result of analysis will provide base for the consideration of sustainable financial management to be prepared by the project.
- **Economic valuation** Appropriate economic valuation will provide valuable information for any consideration in conservation, protection and sustainable use of mangrove resources. Under the general guidance of the Regional Task Force on Economic Valuation (RTF-E), the relevant economic valuation activities will be carried out in the Fangchenggang site, based on the social and economic conditions at the local level.
- **Revenue streams & Financial management** It is anticipated that a mechanism will be established at the Fangchenggang to identify source and streams of revenue general, and to management financial resources generated from the mechanism.
- **Develop alternative livelihoods** including planning and test of eco-farming without cutting mangroves (2years) involving the local community and guards eco-tourism based on mangrove coastal birds, involving monitoring of major bird population & migration(3years) and workshops on conservation of bird habitats

3 Legislation and enforcement

- **Review of legislations** Based on the general information provided in the Review of National Legislation prepared during the preparatory phase of the project, a detailed review of existing legislation at the local level will be carried out, to provide detailed information on what is the legal situation in Fangchenggang city regarding the protection of mangroves, and to prepare a recommendation on possible harmonisation, amendments of the existing regulation.
- **Drafts of new legislation, or amendments to existing regulations prepared** Based on the information and recommendation provided from the previous activity, it is anticipated that the necessary actions will be taken to prepare new legislation. All the draft documents prepared within this activity will be submitted to the Management Board for consideration, and to the respective government for approval.

4 Capacity building

There are various activities planned in the area of capacity building, including, training education and public awareness programmes.

- **Training Programme** Preparation of draft programme of training and personal exchange (training for trainers, training for managers, etc. regional personnel exchange), approval of the training programme by the Management Board and subsequent training of senior research and management staff (30 persons, 3 courses)
- **Establish a mangrove education centre**, including planning and construction of the education centre (building cost), collection of necessary photos and biological specimens of mangrove ecosystem, drafting commentary preparation of the posters & displays for the public
- **Educational Programme including School visits** - short (1 day) courses. At least one per month; Education for villagers and urban residents; Local NGO activities 6times per year; Provincial NGO 1times; Press conferences 6times; prepare reports of NGO activities; Lecture for government officers 4 times per year; establish and support Mangrove friendly association (stakeholders and NGO) of demo site
- **Public awareness** Preparation and publication of 30000 copies of 3 brochures; 4,000 copies of 4 posters; Notice boards (12); Preparation of education material in the format of DVD; Preparation of education material in the format of CDROM; Edit, publication and release of the bimonthly newsletters (18 issues) Conservation, Management & Wise Utilization Forum of China Mangroves and Associated Resources (ca 80 officials, managers and experts for 3 days-meeting)

5 Biodiversity conservation

It is planned to restore *Heritiera littoralis* to previous levels of abundance in the area and enhance and enrich degraded areas of mangrove and other coastal vegetation. The activities will include collection of propagules and nursery growth of seedlings of *Heritiera littoralis*, for restoration of 60 ha in the area.

- **Biodiversity conservation and enrichment in the urban areas**; planning for reforestation of

60 ha of endangered mangrove in the Fangchenggang urban areas, training of volunteers and local community stakeholders in re-planting; collection of 30,000 hypocotyls of *Rhizophora*, *Bruguiera* & other species, maintenance of plantation areas and monitoring of seedling growth.

- **Re-establishment of *Heritiera littoralis*** including construction of nursery collection grow-out of 10000 seedlings; training and planning; planting of seedlings and tending (3yrs)
- **Development of nursery techniques** to reproduce mangrove coastal plants to restore bird habitats over 3 years, including rental of area to establish nursery, construction of nursery, operation and experimental planting, and demonstration involvement local community and reserve staff.

OUTPUTS

- Published reports of meetings of the management board and stakeholder meetings
- Quarterly newsletter from January 2005 to June 2007 (10 issues)
- Open access management support system based on a GIS database of resource distribution and productivity, stakeholder use and economic values;
- Published, agreed and adopted business plan
- Constituted body with appropriate expertise for financial management of site related income and expenditure
- Published Management plan including approved regulations
- Training materials for use with different stakeholder groups
- Public awareness materials
- Established urban mangrove education centre
- Reforested 60 ha mangrove *Heritiera*, which is currently endangered in Fangchenggang areas.

13 SUSTAINABILITY ANALYSIS AND RISK ASSESSMENT

Sustainability

The results of field surveys during the preparatory phase revealed that the economic benefit of mangroves in Fangchenggang totalled 25,721.2 USD ha⁻¹.yr⁻¹; of which the contribution of mangroves to fishery was valued at 10,961.4USD ha⁻¹.yr⁻¹. In this sense, mangroves in Fangchenggang can be viewed as a “green bank” of local inhabitants. Thus, conservation of mangrove will benefit sustainable socio-economic development in Fangchenggang City.

Eco-farming and ecotourism, new approaches to reduce stresses on mangroves that have resulted from conversion of mangroves to shrimp ponds, will be practiced in the demonstration site to find a solution to the problems of wise use of mangrove resources and to train qualified manpower. To ensure sustainability of financial support, enterprises will be invited for the first time to join in to conduct the demonstration project of “Fangchenggang urban mangrove marine ecological experiment park”.

Creation of Demonstration Site Community Friendship Association and China Mangrove Nature Reserve Association, and encouragement of community involvement will be conducive to promoting longer-term sustainable mangrove conservation and management.

Implementation of the GEF project will improve the abilities of mangrove workers, raise the awareness of local villagers regarding nature conservation, and enhance sustainable conservation and management.

Local government as the coordinator of the project, will be more involved in therefore pay more attention to the sustainable use of mangroves. Local legislation on mangroves will be a long-term guarantee to mangrove development and sustainable management.

RISKS

No financial risks are expected in implementing the demonstration site project. So far, Fangchenggang City Government has already provided financial support of 250,000 Yuan in preparing the project. Recently, a financial allocation of 600,000 Yuan has been approved by the Ministry of Finance for capacity building in BEMNR. The Chinese government has also promised 1:1 matching funds for the conduct of GEF demonstration site projects in China.

The new central and local government elections were held in 2002 and the newly elected governments assumed power in 2003 with a period in office of five years, which exceeds the duration (2004-2007) of Fangchenggang GEF demonstration project. China government's commitment to support GEF mangrove demonstration site project is therefore unlikely to change. So the administration system risks can be excluded.

The major risk to the project is the possible loss caused by strong typhoon, which could damage or

destroy installations in the demonstration site. To reduce this risk, precautions and emergency measures will be adopted. Revaluation of Chinese currency RMB is another risk. Appreciation of RMB would lead to short falls in the project budget. Therefore, greater reliance should be placed on seeking more domestic co-financing to reduce the impact of a possible re-valuation of the RMB will be encouraged.

14 BUDGET AND FINANCIAL PLAN

Budget summaries by component and source; and by major category of expenditure and source are presented in tables 1 and 2 whilst the complete budget is presented by activity and source in Table 3 and by Object of Expenditure in Table 4. Overall the majority of funds are directed towards the development of cross-sectoral management mechanisms (Table 1) and associated capacity building. In line with this 44 percent of the budget is directed towards capacity building activities when the overall total is considered from the perspective of the major categories of expenditure (Table 2).

Table 1 Summary budget [RMB] by major component and source in US dollars

Activities	Total					
	GEF	%	Gov	%	Total	%
Cross sectoral management	1469300	46.21	2106350	58.20	3575650	52.59
Financial Sustainability	304100	9.56	308000	8.51	612100	9.00
Legislation	26000	0.82	33000	0.91	59000	0.87
Capacity building	716500	22.53	892800	24.67	1609300	23.67
Biodiversity Conservation	663800	20.88	279000	7.71	942800	13.87
Grand total	3179700	100	3619150	100	6798850	100

Table 2 Summary budget [RMB] by major category of expenditure

	GEF	%	Gov	%	Total	%
Personnel	679300	21.36365	1015000	28.04526	1694300	24.92039
Sub-contracts	1590000	50.00472	1429000	39.48441	3019000	44.40457
Training & Meetings	476600	14.98884	423700	11.70717	900300	13.24195
Equipment & Premises	81700	2.569425	486300	13.43686	568000	8.354354
Miscellaneous	352100	11.07337	265150	7.326306	617250	9.078741
	3179700	100	3619150	100	6798850	100

Table 1 Budget by component and activity and UNEP budget component [1000 = personnel; 2000 = contracts; 3000 Training and workshops; 4000 = Equipment and premises; 5000 = Reporting & Miscellaneous]

Budget line	Activities	GEF					Central & Local Government					Total		
		1000	2000	3000	4000	5000	1000	2000	3000	4000	5000	GEF	Gov	Total
	Cross sectoral management	594,000	461,000	126,200	75,600	212,500	972,500	436,000	48,200	444,300	205,350	1,469,300	2,106,350	3,575,650
	Establishment of Management Board (MB)	0	0	28,800	0	0	0	0	30,800	0	0	28,800	30,800	59,600
1101	Identification of the Board members	0	0	0	0	0	0	0	0	0	0	0	0	0
1101	Preparation of ToR, Rules and Procedure for the management board	0	0	0	0	0	0	0	0	0	0	0	0	0
3317	Formal establishment of the Management Board by FCG city government	0	0	0	0	0	0	0	0	0	0	0	0	0
3317	Quarterly Meetings of the Management Board (MB)	0	0	28,800	0	0	0	0	30,800	0	0	28,800	30,800	59,600
	Publish Management Board meeting reports via website & local press	0	0	0	0	0	0	0	0	0	0	0	0	0
	Selection & Appointment of Site Manager	152,000	0	0	14,000	35,400	175,500	0	0	121,000	40,800	201,400	337,300	538,700
3317	Appointment of the Site Manager and other project personnel by MB	0	0	0	0	0	0	0	0	0	0	0	0	0
1103	Task manager 36w/m	90,000	0	0	0	0	108,000	0	0	0	0	90,000	108,000	198,000
1104	Assistant 36w/m	36,000	0	0	0	0	36,000	0	0	0	0	36,000	36,000	72,000
1601	Travel on official business	26,000	0	0	0	0	31,500	0	0	0	0	26,000	31,500	57,500
4102	Office expendable supplies 36 month	0	0	0	14,000	0	0	0	0	7,000	0	14,000	7,000	21,000
4203	Office non-expendable equip	0	0	0	0	0	0	0	0	60,000	0	0	60,000	60,000
4301	Rent and maintenance office	0	0	0	0	0	0	0	0	54,000	0	0	54,000	54,000
5303	Cost of communication 36 month	0	0	0	0	11,400	0	0	0	0	10,800	11,400	10,800	22,200
5305	Translation	0	0	0	0	24,000	0	0	0	0	30,000	24,000	30,000	54,000
	Focal point Administration and Management costs	414,000	0	97,400	21,600	128,100	775,000	0	17,400	253,300	103,550	661,100	1,149,250	1,810,350
1101	Focal Point (24w/m)	96,000	0	0	0	0	414,000	0	0	0	0	96,000	414,000	510,000
1102	Technical assistants to Focal Point (72w/m)	180,000	0	0	0	0	180,000	0	0	0	0	180,000	180,000	360,000
1208	Consultant 2w/m for general management	12,000	0	0	0	0	14,000	0	0	0	0	12,000	14,000	26,000
1301	Secretariat to Focal Point (36w/m)	54,000	0	0	0	0	54,000	0	0	0	0	54,000	54,000	108,000
1602	Travel on official business (Focal Point)	72,000	0	0	0	0	113,000	0	0	0	0	72,000	113,000	185,000
3201	Group training on Project management (3 times)	0	0	32,000	0	0	0	0	12,000	0	0	32,000	12,000	44,000
3318	Meetings of China National Mangrove Committee (12times)	0	0	60,000	0	0	0	0	0	0	0	60,000	0	60,000
3319	Press Conference (3 times)	0	0	5,400	0	0	0	0	5,400	0	0	5,400	5,400	10,800
4103	Office expendable supplies (Focal Point)	0	0	0	21,600	0	0	0	0	13,300	0	21,600	13,300	34,900
4204	Office non-expendable equip (Focal Point)	0	0	0	0	0	0	0	0	150,000	0	0	150,000	150,000
4302	Rent and maintenance office (Focal Point)	0	0	0	0	0	0	0	0	90,000	0	0	90,000	90,000

Budget line	Activities	GEF					Central & Local Government					Total		
		1000	2000	3000	4000	5000	1000	2000	3000	4000	5000	GEF	Gov	Total
5102	Operation and maintenance of office equip (Focal Point)	0	0	0	0	9,500	0	0	0	0	9,500	9,500	9,500	19,000
5202	Publication of the reports	0	0	0	0	30,000	0	0	0	0	15,000	30,000	15,000	45,000
5302	Communication (Focal Point)	0	0	0	0	21,600	0	0	0	0	14,400	21,600	14,400	36,000
5303	Audit expenses 3 years	0	0	0	0	12,000	0	0	0	0	0	12,000	0	12,000
5304	Freight and installation of notice boards to villages	0	0	0	0	0	0	0	0	0	4,500	0	4,500	4,500
5501	Monitoring & Evaluation	0	0	0	0	0	0	0	0	0	48,150	0	48,150	48,150
5502	Mid-term & terminal evaluation					40,000					0	40,000	0	40,000
5306	Translation (Focal Point)	0	0	0	0	15,000	0	0	0	0	12,000	15,000	12,000	27,000
	Detailed work plans prepared and approved	0	0	0	0	0	0	0	0	0	0	0	0	0
1101/1103	Preparation of detailed site and project work plan (by week) for project personnel	0	0	0	0	0	0	0	0	0	0	0	0	0
3317	Approval of work plan by Management Board	0	0	0	0	0	0	0	0	0	0	0	0	0
	Preparation of a draft management plan for FCG mangroves including Zoning & planning	18,000	310,000	0	0	20,000	12,000	290,000	0	0	30,000	348,000	332,000	680,000
2202	Zoning, Planning and design of urban mangrove eco-park	0	150,000	0	0	0	0	100,000	0	0	0	150,000	100,000	250,000
2203	BEMNR general management planning	0	70,000	0	0	0	0	80,000	0	0	0	70,000	80,000	150,000
2204	Zoning & Planning to protect mangrove coastal bird habitats	0	50,000	0	0	0	0	70,000	0	0	0	50,000	70,000	120,000
2205	Zoning & Planning to protect <i>Heritiera littoralis</i> wild population	0	40,000	0	0	0	0	40,000	0	0	0	40,000	40,000	80,000
1201	Consultants to support zonation and planning 3w/m	18,000	0	0	0	0	12,000	0	0	0	0	18,000	12,000	30,000
5211	Formal publication of 2000 copies of Res. Environ. & Manag. of Fangchenggang city	0	0	0	0	20,000	0	0	0	0	30,000	20,000	30,000	50,000
2202/2203/2204/2205	Preparation of a draft management plan for FCG mangroves (by SEA)	0	0	0	0	0	0	0	0	0	0	0	0	0
3316	Civil society & private sector stakeholder discussion, input to and agreement with draft management plan	0	0	0	0	0	0	0	0	0	0	0	0	0
1102	Revision of the draft to accommodate the stakeholder's inputs	0	0	0	0	0	0	0	0	0	0	0	0	0
3317	Formal approval of MMP by MB & FCG city government	0	0	0	0	0	0	0	0	0	0	0	0	0
2206	Publish Management plan via website & local press	0	0	0	0	0	0	0	0	0	0	0	0	0
	Establish and Publicise local website for the demonstration site & linkage to other demonstration websites	0	36,000	0	0	29,000	0	36,000	0	70,000	31,000	65,000	137,000	202,000
4201	Purchase of computers and equipment	0	0	0	0	0	0		0	70,000	0	0	70,000	70,000
2206	Page design, data collection & monthly updating of website contents	0	36,000	0	0	0	0	36,000	0	0	0	36,000	36,000	72,000

Budget line	Activities	GEF					Central & Local Government					Total		
		1000	2000	3000	4000	5000	1000	2000	3000	4000	5000	GEF	Gov	Total
5301	Payment to web service company 3 years	0	0	0	0	24,000	0	0	0	0	21,000	24,000	21,000	45,000
2206	Initiate site with UNEP/GEF Project and Demonstration site information materials	0	0	0	0	0	0	0	0	0	0	0	0	0
5101	Equipment maintenance & repair	0	0	0	0	5,000	0	0	0	0	10,000	5,000	10,000	15,000
	Open access management support system based on a GIS database	10,000	115,000	0	40,000	0	10,000	110,000	0	0	0	165,000	120,000	285,000
4101	Software	0	0	0	40,000	0	0	0	0	0	0	40,000	0	40,000
2208	Establish local GIS system (Baseline map and basic information)	0	45,000	0	0	0	0	60,000	0	0	0	45,000	60,000	105,000
2207	Collection and processing of science and social-economic GIS data	0	60,000	0	0	0	0	40,000	0	0	0	60,000	40,000	100,000
1202	Technical assistant to help GIS 1w/m	10,000	0	0	0	0	10,000	0	0	0	0	10,000	10,000	20,000
2209	Application of GIS to evaluate changes in mangrove ecosystem	0	10,000	0	0	0	0	10,000	0	0	0	10,000	10,000	20,000
	Monitoring & Evaluation	0	0	0	0	0	0	0	0	0	0	0	0	0
1103	Preparation of monthly report to the management board and SEA	0	0	0	0	0	0	0	0	0	0	0	0	0
1101	Preparation of semi-annual report to UNEP/GEF by site manager in consultation with the SEA	0	0	0	0	0	0	0	0	0	0	0	0	0
1101/1103	Preparation of annual report to national mangrove sub-committee, SEPA, regional working group on mangroves	0	0	0	0	0	0	0	0	0	0	0	0	0
	Financial Sustainability	5,000	245,000	46,000	5,100	3,000	5,000	227,000	34,000	40,000	2,000	304,100	308,000	612,100
	Stakeholder Analysis	0	0	0	0	0	0	0	0	0	0	0	0	0
5202	Prepare print and distribute initial draft stakeholder analysis	0	0	0	0	0	0	0	0	0	0	0	0	0
3316	Discuss and clear initial draft with stakeholder gps	0	0	0	0	0	0	0	0	0	0	0	0	0
1102	Based on the stakeholder analysis, Prepare final stakeholder participation plans	0	0	0	0	0	0	0	0	0	0	0	0	0
3317	Formal Approval of stakeholder participation plan	0	0	0	0	0	0	0	0	0	0	0	0	0
5202	Finalisation and printing of stakeholder participation plan	0	0	0	0	0	0	0	0	0	0	0	0	0
2206	Publish Stakeholder Participation Plan via website & local press	0	0	0	0	0	0	0	0	0	0	0	0	0
	Economic valuation	0	0	0	0	3,000	0	0	0	0	2,000	3,000	2,000	5,000
2201?	Assemble necessary information on economic valuation according to agreed procedures	0	0	0	0	0	0	0	0	0	0	0	0	0
5202	Prepare print and distribute draft economic valuation of FCG mangroves	0	0	0	0	0	0	0	0	0	0	0	0	0
3316	Stakeholder Discussion, inputs and clearance of Economic Valuation	0	0	0	0	0	0	0	0	0	0	0	0	0
5201	Finalization and printing of report on economic valuation	0	0	0	0	3,000	0	0	0	0	2,000	3,000	2,000	5,000

Budget line	Activities	GEF					Central & Local Government					Total		
		1000	2000	3000	4000	5000	1000	2000	3000	4000	5000	GEF	Gov	Total
2206	<i>Publish economic valuation on website and local press</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
	Revenue streams & financial management	0	5,000	0	0	0	0	7,000	0	0	0	5,000	7,000	12,000
2201	<i>Identification & analysis of potential revenue streams, from present and alternative sustainable uses & required revenue collection and management mechanisms</i>	0	5,000	0	0	0	0	7,000	0	0	0	5,000	7,000	12,000
2201	<i>Preparation of quantified revenue streams and income projections</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
2201	<i>Identification & analysis of costs of implementing Management Plan for FCG city</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
5202	<i>Prepare, print and distribute draft Business and financial management plan for FCG mangroves</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
3317	<i>Submission of the Business plan, including procedures for financial management for approval by the Management Board</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
3316	<i>Meetings to establish of necessary financial management mechanisms (revenue collection, disbursement procedures)</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
5202	<i>Printing and distribution of final Business plan</i>										0	0	0	0
	<i>Operation of the fund</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
	Develop alternative livelihood	5,000	240,000	46,000	5,100	0	5,000	220,000	34,000	40,000	0	296,100	299,000	595,100
	<i>Planning and test of eco-farming without cutting mangroves (2years)</i>					0					0	0	0	0
1212	<i>Technical assistance to Plan 1w/m</i>	5,000	0	0	0	0	5,000	0	0	0	0	5,000	5,000	10,000
4304	<i>Rent of test place and habitat</i>	0	0	0	5,100	0	0	0	0	10,000	0	5,100	10,000	15,100
2231	<i>Field Eco-farming experience and demonstration</i>	0	150,000	0	0	0	0	190,000	0	0	0	150,000	190,000	340,000
3213	<i>Involvement of local community and guard</i>	0	0	36,000	0	0	0	0	24,000	0	0	36,000	24,000	60,000
	<i>Eco-tourism based on mangrove coastal birds</i>	0	0	0	0	0	0	0	0	0	0	0	0	0
2219	<i>Monitoring on major bird population & migration (3years)</i>	0	90,000	0	0	0	0	30,000	0	0	0	90,000	30,000	120,000
4202	<i>Purchase camera and tele-lens</i>	0	0	0	0	0	0	0	0	30,000	0	0	30,000	30,000
3321	<i>Workshops on conservation of bird habitats and public hots</i>	0	0	10,000	0	0	0	0	10,000	0	0	10,000	10,000	20,000
	Legislation	0	16,000	10,000	0	0	0	13,000	20,000	0	0	26,000	33,000	59,000
	Review of legislation	0	16,000	10,000	0	0	0	13,000	20,000	0	0	26,000	33,000	59,000
2210	<i>Collection and analysis of national and local mangrove legislation</i>	0	10,000	0	0	0	0	10,000	0	0	0	10,000	10,000	20,000
2211	<i>Preparation of draft recommendations on harmonization of the legislation</i>	0	6,000	0	0	0	0	3,000	0	0	0	6,000	3,000	9,000
3318	<i>Stakeholder discussions regarding legislation and enforcement</i>	0	0	10,000	0	0	0	0	20,000	0	0	10,000	20,000	30,000

Budget line	Activities	GEF					Central & Local Government					Total		
		1000	2000	3000	4000	5000	1000	2000	3000	4000	5000	GEF	Gov	Total
	Drafts of new legislation, or amendments to existing regulations prepared	0	0	0	0	0	0	0	0	0	0	0	0	0
2211	Based on the comments and the results of analysis, preparation of new legislation or amendments to existing laws and regulations	0	0	0	0	0	0	0	0	0	0	0	0	0
3317	Submission of proposals to the appropriate government agency for approval	0	0	0	0	0	0	0	0	0	0	0	0	0
	Demonstration activities in implementation and enforcement of the legislation if approved	0	0	0	0	0	0	0	0	0	0	0	0	0
	Capacity building	38,300	290,000	255,600	0	132,600	29,500	169,000	288,500	0	55,800	716,500	542,800	1,259,300
	Training Programme	0	0	0	0	0	0	0	0	0	0	0	0	0
1101/1102	Prepare draft programme of training and personal exchange (training for trainers, training for managers, etc. regional personnel exchange)	0	0	0	0	0	0	0	0	0	0	0	0	0
3317	Approval of the training plan by MB	0	0	0	0	0	0	0	0	0	0	0	0	0
	Implementation of the programme and personal exchange –Passport, Visa application and domestic travel cost (12 persons in 3 years)	0	0	0	0	0	0	0	0	0	0	0	0	0
	Establish a mangrove education center	5,500	200,000	0	0	6,000	3,500	128,000	0	0	6,000	211,500	137,500	349,000
2228	Construction of the education center (building cost)	0	0	0	0	0	0	0	0	0	0	0	0	0
1209 & 2225	Planning of the education center	2,500	8,000	0	0	0	1,500	0	0	0	0	10,500	1,500	12,000
5204	Collection of necessary photos	0	0	0	0	6,000	0	0	0	0	6,000	6,000	6,000	12,000
2226	Collecting & Creating biological specimens of mangrove ecosystem	0	110,000	0	0	0	0	50,000	0	0	0	110,000	50,000	160,000
1204	Assistance to draft commendatory	3,000	0	0	0	0	2,000	0	0	0	0	3,000	2,000	5,000
2227 & 5207	Produce commendatory of CDROM,DVD,Brochures ect.	0	42,000	0	0	0	0	48,000	0	0	0	42,000	48,000	90,000
2212	Preparation of the posters & frames for the public	0	40,000	0	0	0	0	30,000	0	0	0	40,000	30,000	70,000
	Educational Programme	14,800	0	174,600	0	6,200	16,000	0	188,500	0	1,200	195,600	205,700	401,300
	School visits – short (1 day) courses. At least one per month	0	0				0					0	0	0
1203	Prepare reading materials	10,000	0	0	0	0	12,000		0	0	0	10,000	12,000	22,000
3203	School lectures 30 times	0	0	22,800	0	0	0		13,500	0	0	22,800	13,500	36,300
3204	Seminars of local communities & urban residents (3 times)	0	0	7,200	0	0	0		3,000	0	0	7,200	3,000	10,200
	Education for villagers and urban residents	0	0				0					0	0	0
3209	Local NGO activities 6 times	0	0	17,500	0	0	0		17,500	0	0	17,500	17,500	35,000
3210	Provincial NGO 1 times	0	0	12,000	0	0	0		12,000	0	0	12,000	12,000	24,000
3319	Press conferences 6 times (funds appear in single line)	0	0				0			0		0	0	0

Budget line	Activities	GEF					Central & Local Government					Total		
		1000	2000	3000	4000	5000	1000	2000	3000	4000	5000	GEF	Gov	Total
5209	Prepare reports of NGO activities	0	0	0	0	3,000	0		0	0	1,200	3,000	1,200	4,200
	Lecture for government officers 4times	0	0				0			0		0	0	0
5210	Prepare and print lecture materials	0	0	0	0	3,200	0		0	0	0	3,200	0	3,200
1211	Seniors and experts to make lectures 4 persons	4,800	0	0	0	0	4,000		0	0	0	4,800	4,000	8,800
	Training senior research and management staff	0	0				0			0		0	0	0
3211	Training senior research and management staff (30 persons, 3 times)	0	0	48,500	0	0	0		32,000	0	0	48,500	32,000	80,500
3212	Graduate students study in demo site 6 person-years	0	0	36,000	0	0	0		100,000	0	0	36,000	100,000	136,000
	Mangrove friendly association (stakeholders and NGO) of demo site	0	0				0			0		0	0	0
3322	Meeting 36 times	0	0	21,600	00		0		7,800	0	0	21,600	7,800	29,400
3205	Field trip 18 times	0	0	9,000	00		0		2,700	0	0	9,000	2,700	11,700
	Public awareness	18,000	90,000	81,000	0	120,400	10,000	41,000	100,000	0	48,600	309,400	199,600	509,000
	Preparation and publish 30000 copies of 3 brochures											0	0	0
5206	Publication	0	0	0	0	39,000	0		0	0	12,000	39,000	12,000	51,000
	4,000 copies of 4 posters											0	0	0
1205	Design of the posters	2,000	0	0	0	0	0		0	0	0	2,000	0	2,000
5203	Publication of 4 posters	0	0	0	0	18,400	0		0	0	4,000	18,400	4,000	22,400
	Notice boards (12)											0	0	0
1206	Assistance to design the notice boards	1,000	0	0	0	0	0		0	0	0	1,000	0	1,000
5212	Production of the notice boards	0	0	0	0	42,000	0		0	0	21,600	42,000	21,600	63,600
	Preparation of education material in the format of DVD											0	0	0
2229	Photography and edit	0	50,000	0	0	0	0	20,000	0	0	0	50,000	20,000	70,000
5207	Production (500 disks)	0	0	0	0	0	0		0	0	11,000	0	11,000	11,000
	Preparation of education material in the format of CDROM											0	0	0
1210	Assistants to collecting multi-media material	15,000	0	0	0	0	10,000		0	0	0	15,000	10,000	25,000
2230	Data treatment/edit/software assembling	0	40,000	0	0	0	0	21,000	0	0	0	40,000	21,000	61,000
5208	Edit, publication and release of the bimonthly newsletters/18 issues/	0	0	0	0	21,000	0		0	0	0	21,000	0	21,000
3207	Conservation, Management & Wise Utilization Forum of China Mangroves and Associated Resources (ca 80 officials, managers and experts for 3 days-meeting)	0	0	81,000	0	0	0		100,000	0	0	81,000	100,000	181,000

Budget line	Activities	GEF					Central & Local Government					Total		
		1000	2000	3000	4000	5000	1000	2000	3000	4000	5000	GEF	Gov	Total
	Biodiversity Conservation	42,000	578,000	38,800	1,000	4,000	8,000	234,000	33,000	2,000	2,000	663,800	279,000	942,800
	- Biodiversity conservation and enrichment in the urban areas	37,000	406,000	5,000	0	0	0	159,000	5,000	0	0	448,000	164,000	612,000
2213	Reforestation planning	0	10,000	0	0	0	0	5,000	0	0	0	10,000	5,000	15,000
3202	Training on planting mangrove trees	0	0	5,000	0	0	0	0	5,000	0	0	5,000	5,000	10,000
2215	Collection of Rhizophora, Bruguiera & other hypocotyls(30,000 seedlings)	0	90,000	0	0	0	0	30,000	0	0	0	90,000	30,000	120,000
2216	Pest control and transportation	0	18,000	0	0	0	0	8,000	0	0	0	18,000	8,000	26,000
2217	Mangrove forest plantation	0	198,000	0	0	0	0	66,000	0	0	0	198,000	66,000	264,000
2218	Patching up plantation (ca 40% of the first year)	0	60,000	0	0	0	0	40,000	0	0	0	60,000	40,000	100,000
1207 & 2214	Monitoring and evaluation of newly planted mangroves (3years)	37,000	30,000	0	0	0	0	10,000	0	0	0	67,000	10,000	77,000
	- Re-establishment of Heritiera littoralis	0	42,000	1,000	0	0	0	10,000	0	0	0	43,000	10,000	53,000
3206	Training and planning	0	0	1,000	0	0	0	0	0	0	0	1,000	0	1,000
2222	Collection of seeds	0	3,000	0	0	0	0	2,000	0	0	0	3,000	2,000	5,000
2223	Construction of nursery	0	4,000	0	0	0	0	2,000	0	0	0	4,000	2,000	6,000
2224	Reproduce seedlings and tending (3yrs)	0	35,000	0	0	0	0	6,000	0	0	0	35,000	6,000	41,000
	- Development of Nursery techniques to reproduce mangrove coastal plants to restore bird habitats	5,000	130,000	32,800	1,000	4,000	8,000	65,000	28,000	2,000	2,000	172,800	105,000	277,800
1213	Technical assistance to Plan 1w/m	5,000	0	0	0	0	8,000	0	0	0	0	5,000	8,000	13,000
4303	Rent of place to set up plant nursery	0	0	0	1,000	0	0	0	0	2,000	0	1,000	2,000	3,000
2221	Construction of plant nursery	0	30,000	0	0	0	0	15,000	0	0	0	30,000	15,000	45,000
2220	Reproduce seedling experiences and demonstration	0	100,000	0	0	0	0	50,000	0	0	0	100,000	50,000	150,000
3208	Involvement of local community and guards	0	0	28,800	0	0	0	0	12,000	0	0	28,800	12,000	40,800
5205	Prepare and print report	0	0	0	0	4,000	0	0	0	0	2,000	4,000	2,000	6,000
3320	Meetings on market operation	0	0	4,000	0	0	0	0	16,000	0	0	4,000	16,000	20,000
	Grand total RMB	679,300	1,590,000	476,600	81,700	352,100	1,015,000	1,079,000	423,700	486,300	265,150	3,179,700	3,269,150	6,448,850
	Grand total US Dollars	82,140	192,261	57,630	9,879	42,576	122,733	130,472	51,233	58,803	32,062	384,486	395,302	779,788

GEF total in RMB 3,179,700

Gov total in RMB 3,269,150

GEF total in USD 384,486

Gov total in USD 395,302

Grand Total in RMB 6,448,850

Grand Total in USD 779,788

Table 2 Budget by Object of Expenditure and 6 month period: 2005 to 2007

	Activities	2004 2nd Half Gov	2005 1st half			2005 2nd half			2006 1st half			2006 2nd half			2007 1st half			2007 2nd half			Grand Totals		
			GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total
1000	PROJECT PERSONNEL COMPONENT																						
1100	Project personnel																						
1101	Focal Point (24w/m)	7,255.14	1,935	8,343	10,278	1,935	8,343	10,278	1,935	8,343	10,278	1,935	8,343	10,278	1,935	8,343	10,278	1,935	8,343	10,278	11,608	50,060	61,669
1102	Technical assistants to Focal Point (72w/m)	3,627.57	3,628	3,628	7,255	3,628	3,628	7,255	3,628	3,628	7,255	3,628	3,628	7,255	3,628	3,628	7,255	3,628	3,628	7,255	21,765	21,765	43,531
1103	Task manager 36w/m	1,813.78	1,814	2,177	3,990	1,814	2,177	3,990	1,814	2,177	3,990	1,814	2,177	3,990	1,814	2,177	3,990	1,814	2,177	3,990	10,883	13,059	23,942
1104	Assistant to Task Manager (36w/m)	725.51	726	726	1,451	726	726	1,451	726	726	1,451	726	726	1,451	726	726	1,451	726	726	1,451	4,353	4,353	8,706
1199	Total		8,102	14,873	22,975	8,102	14,873	22,975	8,102	14,873	22,975	8,102	14,873	22,975	8,102	14,873	22,975	8,102	14,873	22,975	48,609	89,238	137,848
1201	Consultants to support zonation and planning 3w/m		2,177	1,451	3,628	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,177	1,451	3,628
1202	Consultant to help GIS 2w/m		605	605	1,209	605	363	967	0	242	242	0	0	0	0	0	0	0	0	0	1,209	1,209	2,418
1203	Prepare reading materials		605	726	1,330	605	726	1,330	0	0	0	0	0	0	0	0	0	0	0	0	1,209	1,451	2,660
1204	Assistance to draft commendatory for education center			0	0	363	242	605	0	0	0	0	0	0	0		0	0	0	0	363	242	605
1205	Design of the posters		242	0	242	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	242	0	242
1206	Assistance to design the notice boards		121	0	121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	121	0	121
1207	Monitoring and evaluation of newly planted mangroves (3years)		242	0	242	3,628	0	3,628	0	0	0	363	0	363	0	0	0	242	0	242	4,474	0	4,474
1208	Consultant 2w/m for general management		726	846	1,572	726	846	1,572	0	0	0	0	0	0	0	0	0	0	0	0	1,451	1,693	3,144
1209	Assistance to design education center		302	181	484	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	302	181	484
1210	Assistants to collecting multi-media material		605	605	1,209	1,209	605	1,814	0	0	0	0	0	0	0	0	0	0	0	0	1,814	1,209	3,023
1211	Seniors and experts to make lectures for training of government officers (4persons)		0	0	0	290	242	532	0	0	0	290	242	532	0	0	0	0	0	0	580	484	1,064
1212	Technical assistance for eco-farming (1w/m)		302	302	605	302	302	605	0	0	0	0	0	0	0	0	0	0	0	0	605	605	1,209
1213	Technical assistance for nursery techniques (1w/m)		0	0	0	302	484	786	0	0	0	302	484	786	0	0	0	0	0	0	605	967	1,572
1299	Total		5,925	4,716	10,641	8,029	3,809	11,838	0	242	242	955	726	1,681	0	0	0	242	0	242	15,151	9,492	24,643
1300	Administrative support																						
1301	Secretariat to Focal Point (36w/m)	1,814	1,088	1,088	2,177	1,088	1,088	2,177	1,088	1,088	2,177	1,088	1,088	2,177	1,088	1,088	2,177	1,088	1,088	2,177	6,530	6,530	13,059
1399	Total		1,088	1,088	2,177	1,088	1,088	2,177	1,088	1,088	2,177	1,088	1,088	2,177	1,088	1,088	2,177	1,088	1,088	2,177	6,530	6,530	13,059
1600	Travel on official business																						
1601	Travel on official business (task manager)	362.76	484	605	1,088	967	1,088	2,056	484	544	1,028	423	544	967	423	544	967	363	484	846	3,144	3,809	6,953
1602	Travel on official business (Focal Point)	1,935	1,693	2,418	4,111	1,451	2,237	3,688	1,451	2,237	3,688	1,451	2,237	3,688	1,451	2,237	3,688	1,209	2,297	3,507	8,706	13,664	22,370
1699	Total		2,177	3,023	5,200	2,418	3,325	5,744	1,935	2,781	4,716	1,874	2,781	4,655	1,874	2,781	4,655	1,572	2,781	4,353	11,850	17,473	29,323
1999	component total		17,291	23,700	40,992	19,637	23,096	42,733	11,125	18,984	30,109	12,019	19,468	31,487	11,064	18,742	29,807	11,004	18,742	29,746	82,140	122,733	204,873
2000	SUB-CONTRACT COMPONENT																						
2200	Sub-contract w non profit organs																						
2201	Ident& analysis of potential revenue streams		0	0	0	0	0	0	604.59	846.43	1,451	0	0	0	0	0	0	0	0	0	605	846	1,451
2202	Zoning, Planning and design of urban mangrove eco-park		9,674	6,046	15,719	8,464	6,046	14,510	0	0	0	0	0	0	0	0	0	0	0	0	18,138	12,092	30,230
2203	BEMNR general management planning		4,837	4,837	9,674	3,628	4,837	8,464	0	0	0	0	0	0	0	0	0	0	0	0	8,464	9,674	18,138

	Activities	2004 2 nd Half Gov	2005 1 st half			2005 2 nd half			2006 1 st half			2006 2 nd half			2007 1 st half			2007 2 nd half			Grand Totals		
			GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total
	2204 Zoning & Planning to protect mangrove coastal bird habitats		3,628	4,837	8,464	2,418	3,628	6,046	0	0	0	0	0	0	0	0	0	0	0	0	6,046	8,464	14,510
	2205 Zoning & Planning to protect <i>Heritiera littoralis</i> wild population		2,418	2,418	4,837	2,418	2,418	4,837	0	0	0	0	0	0	0	0	0	0	0	0	4,837	4,837	9,674
	2206 Page design, data collection & page renew	604.59	1,935	1,935	3,869	605	605	1,209	605	605	1,209	605	605	1,209	605	605	1,209	0	0	0	4,353	4,353	8,706
	2207 Collection and processing of GIS database		2,418	1,209	3,628	1,511	907	2,418	1,511	907	2,418	605	605	1,209	605	605	1,209	605	605	1,209	7,255	4,837	12,092
	2208 establishing 1:10000 local GIS system		3,023	3,628	6,651	2,418	3,628	6,046	0	0	0	0	0	0	0	0	0	0	0	0	5,441	7,255	12,696
	2209 Application of GIS to evaluate changes in mangrove ecosystem		0	0	0	0	0	0	605	605	1,209	0	0	0	605	605	1,209	0	0	0	1,209	1,209	2,418
	2210 Review existing laws and regulations		605	605	1,209	605	605	1,209	0	0	0	0	0	0	0	0	0	0	0	0	1,209	1,209	2,418
	2211 Preparation of draft recommendations on harmonization of the legislation		0	0	0	0	0	0	726	363	1,088	0	0	0	0	0	0	0	0	0	726	363	1,088
	2212 Preparation of the posters & displays for the education center		0	0	0	4,837	3,628	8,464	0	0	0	0	0	0	0	0	0	0	0	0	4,837	3,628	8,464
	2213 Reforestation planning	241.84	1,209	605	1,814	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,209	605	1,814
	2214 Monitoring and evaluation of newly planted mangroves (3years)	604.59	605	242	846	605	181	786	605	181	786	605	181	786	605	181	786	605	242	846	3,628	1,209	4,837
	2215 Collection of Rhizophora and Bruguiera hypocotyls (30,000 seedlings)	1,209.19	3,628	605	4,232	3,023	1,209	4,232	3,023	1,209	4,232	1,209	605	1,814	0	0	0	0	0	0	10,883	3,628	14,510
	2216 Pest control and transportation	604.59	605	242	846	605	242	846	605	242	846	363	242	605	0	0	0	0	0	0	2,177	967	3,144
	2217 Mangrove forest plantation	2,418.38	6,046	2,418	8,464	6,046	1,814	7,860	6,046	1,814	7,860	2,902	967	3,869	2,902	967	3,869	0	0	0	23,942	7,981	31,923
	2218 Patching up plantation (ca 40% of the first year)		0	0	0	0	0	0	3,628	2,418	6,046	0	0	0	3,628	2,418	6,046	0	0	0	7,255	4,837	12,092
	2219 Monitoring on major bird population & migration (3years)		1,814	605	2,418	1,814	605	2,418	1,814	605	2,418	1,814	605	2,418	1,814	605	2,418	1,814	605	2,418	10,883	3,628	14,510
	2220 Experience & demons of reproducing seedlings of coastal rare plants		2,418	1,209	3,628	2,418	1,814	4,232	2,418	1,814	4,232	2,418	605	3,023	2,418	605	3,023	0	0	0	12,092	6,046	18,138
4000	2221 Construction of coastal plant nursery		0	0	0	906.89	453.45	1,360	906.89	453.45	1,360	906.89	453.45	1,360	906.89	453.45	1,360	0	0	0	3,628	1,814	5,441
	2222 Collection of seeds of <i>Heritiera littoralis</i>		363	242	605	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	363	242	605
	2223 Construction of nursery for <i>Heritiera littoralis</i>		484	242	726	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	484	242	726
	2224 Reproduce seedlings and tending of <i>Heritiera littoralis</i> (3yrs)		605	242	846	786	121	907	786	121	907	786	121	907	786	121	907	484	0	484	4,232	726	4,958
	2225 Design of the education center		967.35	0	967	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	967	0	967
	2226 Collecting & Creating biological specimens of mangrove ecosystem		2,418	1,209	3,628	2,418	1,209	3,628	2,418	1,209	3,628	2,418	605	3,023	1,209	605	1,814	2,418	1,209	3,628	13,301	6,046	19,347
	2227 Produce commendatory of CDROM, DVD, Brochures ect.		1,451	1,209	2,660	2,418	3,386	5,804	1,209	1,209	2,418	0	0	0	0	0	0	0	0	0	5,079	5,804	10,883
	2228 Cost of building center	4,232.16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2229 Collection of photographs and edit for DVD		1,209	1,209	2,418	1,814	605	2,418	1,814	605	2,418	1,209	0	1,209	0	0	0	0	0	0	6,046	2,418	8,464
	2230 Data treatment/edit/ software assembling (CDROM)		2,418	1,209	3,628	2,418	1,330	3,748	0	0	0	0	0	0	0	0	0	0	0	0	4,837	2,539	7,376
	2231 Field Eco-farming experience and demonstration		3,023	2,418	5,441	3,023	7,255	10,278	3,023	3,628	6,651	3,023	3,628	6,651	3,023	3,628	6,651	3,023	2,418	5,441	18,138	22,975	41,112
	2234 Total		57,799	39,420	97,219	55,200	46,524	101,723	32,346	18,833	51,179	18,863	9,220	28,083	19,105	11,397	30,502	8,948	5,079	14,027	192,261	130,472	322,733
2999	component total		57,799	39,420	97,219	55,200	46,524	101,723	32,346	18,833	51,179	18,863	9,220	28,083	19,105	11,397	30,502	8,948	5,079	14,027	192,261	130,472	322,733

	Activities	2004 2nd Half Gov	2005 1st half			2005 2nd half			2006 1st half			2006 2nd half			2007 1st half			2007 2nd half			Grand Totals		
			GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total
3000	TRAINING COMPONENT																						
3200	Group training																						
3201	Group training on Project management (3 times)	1,814	1,935	726	2,660	1,935	726	2,660	0	0	0	0	0	0	0	0	0	0	0	0	3,869	1,451	5,320
3202	Training on planting mangrove trees	242	302	302	605	302	302	605	0	0	0	0	0	0	0	0	0	0	0	0	605	605	1,209
3203	School visits and lectures (30 times)		665	544	1,209	574	272	846	574	272	846	943	544	1,487	0	0	0	0	0	0	2,757	1,632	4,389
3204	Seminars of local communities & urban residents (3 times)		0	0	0	290	121	411	290	121	411	0	0	0	0	0	0	290	121	411	871	363	1,233
3205	Field trips of Mangrove friendly association		181	54	236	181	54	236	181	54	236	181	54	236	181	54	236	181	54	236	1,088	326	1,415
3206	Planning and training for breeding seedlings of <i>Heritiera littoralis</i>		121	0	121	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	121	0	121
3207	Conservation, Management & Wise Utilization Forum of China Mangroves and Associated Resources (ca 80p/ 3 days)		0	0	0	0	0	0	0	0	0	9,794	12,092	21,886	0	0	0	0	0	0	9,794	12,092	21,886
3208	Training for local community on nursery of costal rare plants		484	242	726	906.89	302	1,209	906.89	302	1,209	605	302	907	580	302	883	0	0	0	3,482	1,451	4,933
3209	Local NGO activities 6 times		302	302	605	302	302	605	302	302	605	605	605	1,209	302	302	605	302	302	605	2,116	2,116	4,232
3210	Provincial NGO 1 times		242	242	484	242	242	484	242	242	484	242	242	484	242	242	484	242	242	484	1,451	1,451	2,902
3211	Training senior research and management staff (30 persons,3 times)		1,995	1,451	3,446	1,935	1,209	3,144	1,935	1,209	3,144	0	0	0	0	0	0	0	0	0	5,865	3,869	9,734
3212	Graduate students study in demo site 6person-years		726	0	726	726	2,418	3,144	726	2,418	3,144	726	2,418	3,144	726	2,418	3,144	726	2,418	3,144	4,353	12,092	16,445
3213	Training of local community and guards for eco-farming		726	484	1,209	726	484	1,209	726	484	1,209	726	484	1,209	726	484	1,209	726	484	1,209	4,353	2,902	7,255
3299	Total		7,678	4,347	12,025	8,120	6,433	14,553	5,883	5,405	11,288	13,821	16,741	30,562	2,757	3,803	6,560	2,467	3,622	6,088	40,726	40,351	81,076
3300	Meeting/Conference																						
3316	Meetings of Stakeholders		1,209	0	1,209	1,209	0	1,209	1,209	0	1,209	1,209	0	1,209	1,209	0	1,209	1,209	0	1,209	7,255	0	7,255
3317	Management Board Meetings (12)		1,161	1,064	2,225	580	532	1,112	580	532	1,112	580	1,064	1,644	580	532	1,112	0	0	0	3,482	3,724	7,207
3318	Meetings to collect & review associated laws and regulars		0	0	0	605	1,209	1,814	0	0	0	605	1,209	1,814	0	0	0	0	0	0	1,209	2,418	3,628
3319	Press Conference (6 times)	523	157	181	339	109	109	218	109	109	218	109	109	218	109	109	218	60	36	97	653	653	1,306
3320	Market operation for nursery tech.		0	0	0	242	725.51	967.35187	0	0	0	242	725.51	967	0	0	0	0	484	484	484	1,935	2,418
3321	Workshops on conservation of bird habitats and public hots		0	0	0	605	605	1,209	0	0	0	605	605	1,209	0	0	0	0	0	0	1,209	1,209	2,418
3322	Meetings of Mangrove friendly association		435	157	593	435	157	593	435	157	593	435	157	593	435	157	593	435	157	593	2,612	943	3,555
3399	Total		2,963	1,403	4,365	3,785	3,337	7,122	2,334	798	3,132	3,785	3,869	7,654	2,334	798	3,132	1,705	677	2,382	16,904	10,883	27,787
3999	component total		10,641	5,750	16,391	11,904	9,770	21,675	8,216	6,203	14,420	17,606	20,611	38,216	5,091	4,601	9,692	4,172	4,299	8,470	57,630	51,233	108,863
4000	EQUIPMENT & PREMISES COMPONENT																						
4100	Expendable equipment																						
4101	Software (GIS)		4,837	0	4,837	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,837	0	4,837
4102	Office expendable supplies (task manager)	181	484	242	726	242	121	363	242	121	363	242	121	363	242	121	363	242	121	363	1,693	846	2,539
4103	Office expendable supplies (Focal Point)	484	435	230	665	435	230	665	435	230	665	435	459	895	435	230	665	435	230	665	2,612	1,608	4,220
4199	Total		5,756	472	6,227	677	351	1,028	677	351	1,028	677	580	1,258	677	351	1,028	677	351	1,028	9,141	2,455	11,596
4200	Non Expendable equipment																						
4201	Purchase of computers and equipments (GIS)		0	8,464	8,464	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,464	8,464
4202	Purchase camera and tele-lens		0	3,628	3,628	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,628	3,628

	Activities	2004 2 nd Half Gov	2005 1 st half			2005 2 nd half			2006 1 st half			2006 2 nd half			2007 1 st half			2007 2 nd half			Grand Totals		
			GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total
4203	Office non-expendable equip (Task Manager)		0	3,628	3,628	0	2,418	2,418	0	1,209	1,209	0	0	0	0	0	0	0	0	0	0	7,255	7,255
4204	Office non-expendable equip (Focal Point)	15,719	0	6,046	6,046	0	6,046	6,046	0	6,046	6,046	0	0	0	0	0	0	0	0	0	0	18,138	18,138
4299	Total		0	21,765	21,765	0	8,464	8,464	0	7,255	7,255	0	0	0	0	0	0	0	0	0	0	37,485	37,485
4300	Premises																						
4301	Rent and maintenance office (Task Manager)		0	1,088	1,088	0	1,088	1,088	0	1,088	1,088	0	2,177	2,177	0	0	0	0	1,088	1,088	0	6,530	6,530
4302	Rent and maintenance office (Focal Point)	1,814	0	1,814	1,814	0	1,814	1,814	0	1,814	1,814	0	3,628	3,628	0	0	0	0	1,814	1,814	0	10,883	10,883
4303	Rent of place for nursery		0	0	0	121	242	363	0	0	0	0	0	0	0	0	0	0	0	0	121	242	363
4304	Rent of test place for eco-farming		151	242	393	151	181	333	151	181	333	82	121	203	82	121	203	0	363	363	617	1,209	1,826
4399	Total		151	3,144	3,295	272	3,325	3,597	151	3,083	3,235	82	5,925	6,007	82	121	203	0	3,265	3,265	738	18,863	19,601
4999	component total		5,907	25,381	31,288	949	12,140	13,089	828	10,689	11,518	759	6,505	7,264	759	472	1,230	677	3,615	4,293	9,879	58,803	68,682
5000	MISCELLANEOUS COMPONENT																						
5100	Operation and maintenance of equipment																						
5101	GIS equipment maintenance & repair		0	0	0	121	242	363	121	242	363	121	242	363	121	242	363	121	242	363	605	1,209	1,814
5102	Maintenance of office equip (Focal Point)		0	0	0	230	230	459	230	230	459	230	230	459	230	230	459	230	230	459	1,149	1,149	2,297
5199	Total		0	0	0	351	472	822	351	472	822	351	472	822	351	472	822	351	472	822	1,753	2,358	4,111
5200	Reporting Costs																						
5201	Report on economic valuation		0	0	0	363	242	605	0	0	0	0	0	0	0	0	0	0	0	0	363	242	605
5202	Publication of the reports (Focal Point)		605	302	907	605	302	907	605	302	907	605	302	907	605	302	907	605	302	907	3,628	1,814	5,441
5203	Publication of 4 posters		1,112	242	1,354	1,112	242	1,354	0	0	0	0	0	0	0	0	0	0	0	0	2,225	484	2,709
5204	Collection of necessary photos for education center		363	363	726	363	363	726	0	0	0	0	0	0	0	0	0	0	0	0	726	726	1,451
5205	Report for nursery techniques		0	0	0	0	0	0	0	0	0	242	121	363	0	0	0	242	121	363	484	242	726
5206	Publication of brochures (3)		1,572	363	1,935	1,572	363	1,935	0	0	0	1,572	726	2,297	0	0	0	0	0	0	4,716	1,451	6,167
5207	Production of DVD (500 disks)		0	0	0	0	726	726	0	0	0	0	605	605	0	0	0	0	0	0	0	1,330	1,330
5208	Edit, publication and release of newsletter		423	0	423	423	0	423	423	0	423	423	0	423	423	0	423	423	0	423	2,539	0	2,539
5209	Reports of NGO activities		60	24	85	60	24	85	60	24	85	60	24	85	60	24	85	60	24	85	363	145	508
5210	Print lecture materials for training of governmental officers		0	0	0	387	0	387	0	0	0	0	0	0	0	0	0	0	0	0	387	0	387
5211	Formal publication of 2000 copies of Res. Environ. & Manag. Of FCG city (by SEA)		0	0	0	2,418	3,628	6,046	0	0	0	0	0	0	0	0	0	0	0	0	2,418	3,628	6,046
5212	Production of the notice boards(12)		5,079	2,612	7,690	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,079	2,612	7,690
5299	Total		9,214	3,906	13,120	7,304	5,889	13,192	1,088	326	1,415	2,902	1,778	4,680	1,088	326	1,415	1,330	447	1,778	22,926	12,672	35,599
5300	Sundry																						
5301	Web service		484	423	907	484	423	907	484	423	907	484	423	907	484	423	907	484	423	907	2,902	2,539	5,441
5302	Communication (Focal Point)		435	290	726	435	290	726	435	290	726	435	290	726	435	290	726	435	290	726	2,612	1,741	4,353
5303	Communication (Task Manager)		230	218	447	230	218	447	230	218	447	230	218	447	230	218	447	230	218	447	1,378	1,306	2,684
5304	Freight and installation of notice boards to villages		0	0	0	0	302	302	0	242	242	0	0	0	0	0	0	0	0	0	0	544	544
5305	Translation (Task Manager)		363	484	846	484	605	1,088	484	605	1,088	484	605	1,088	484	605	1,088	605	726	1,330	2,902	3,628	6,530
5306	Translation (Focal Point)		0	484	484	302	242	544	302	242	544	302	242	544	302	242	544	605	0	605	1,814	1,451	3,265
5307	Communication of Mangrove friendly association		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5399	Total		1,511	1,898	3,410	1,935	2,080	4,015	1,935	2,019	3,954	1,935	1,778	3,712	1,935	1,778	3,712	2,358	1,657	4,015	11,608	11,209	22,817

		Activities	2004 2nd Half Gov	2005 1st half			2005 2nd half			2006 1st half			2006 2nd half			2007 1st half			2007 2nd half			Grand Totals		
				GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total	GEF	Gov	Total
	5500	Evaluation																						
	5501	Monitoring & Evaluation		0	967	967	0	967	967	0	967	967	0	967	967	0	967	967	0	985	985	0	5,822	5,822
	5502	Mid-term & terminal evaluation		0	0	0	0	0	0	0	0	0	2,418	0	2,418	0	0	0	2,418	0	2,418	4,837	0	4,837
	5503	Audit expenses (3years)		363	0	363	0	0	0	363	0	363	0	0	0	363	0	363	363	0	363	1,451	0	1,451
	5599	Total		363	967	1,330	0	967	967	363	967	1,330	2,418	967	3,386	363	967	1,330	2,781	985	3,767	6,288	5,822	12,110
	5999	component total		11,088	6,771	17,860	9,589	9,407	18,996	3,736	3,785	7,521	7,606	4,994	12,600	3,736	3,543	7,279	6,820	3,561	10,381	42,576	32,062	74,637
		Total		102,727	101,022	203,748	97,279	100,937	198,216	56,252	58,495	114,746	56,853	60,798	117,651	39,755	38,755	78,510	31,620	35,296	66,917	384,486	395,302	779,788
		Total in US \$		102,727	101,022	203,748	97,279	100,937	198,216	56,252	58,495	114,746	56,853	60,798	117,651	39,755	38,755	78,510	31,620	35,296	66,917	384,486	395,302	779,788
		US dollars																						
		Total GEF budget		384,486.09																				
		Total Government budget		395,302.30																				

16. IMPLEMENTATION PLAN

	2004				2005				2006				2007			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Components																
- Sub-components																
Activities																
Cross sectoral Management																
- Establishment of Management Board (MB)																
Identification of the Board members																
Preparation of ToR, Rules and Procedure for the management board																
Formal establishment of the Management Board by local government																
Quarterly Meetings of the Management Board (MB)																
Publish Management Board meeting reports via website & local press																
- Selection & Appointment of Site Manager																
Appointment of the Site Manager and other project personnel by local government																
Task manager day to day management																
Focal point day to day advice and guidance																
- Detailed work plans prepared and approved																
Preparation of detailed site and project workplan (by week) for project personnel																
Approval of workplan by Management Board																
- Preparation and approval of Mangrove Management Plan																
Zoning, Planning and design of urban mangrove eco-park							X									
BEMNR general management planning							X									
Zoning & Planning to protect mangrove coastal bird habitats							X									
Zoning & Planning to protect <i>Heritiera littoralis</i> wild population							X									
Consultants to support zonation and planning 3w/m																
Formal publication of 2000 copies of Res. Environ. & Manag. of Fangchenggang city									X							
Preparation of a draft management plan for FCG mangroves (by SEA)																
Civil society & private sector stakeholder discussion, input to and agreement with draft management plan																
Revision of the draft to accommodate the stakeholder's inputs																
Formal approval of MMP by MB & FCG city government																
Publish Management plan via website & local press																
- Establish & Publicise local website for demonstration site																
Purchase of computers and equipment																
Page design, data collection & monthly updating of website contents				X	X											
Payment to web service company 3years																
Initiate site with UNEP/GEF Project and Demonstration site information materials																
Equipment maintenance & repair																
- Open access management support system based on a GIS database																
Software																
Establish local GIS system (Baseline map and basic information)							X									
Collection and processing of science and social-economic GIS data																
Technical assistant to help GIS 1w/m																
Application of GIS to evaluate changes in mangrove ecosystem																
- Monitoring & Evaluation																
Preparation of monthly report to the management board and SEA					X	X	X	X	X	X	X	X	X	X	X	X
Preparation of semi-annual report to UNEP/GEF by site manager in consultation with the SEA						X		X		X		X		X		X
Preparation of annual report to national mangrove sub-committee, SEPA, regional working group on mangroves								X			X					X

	2004				2005				2006				2007			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Financial Sustainability																
- Stakeholder Analysis																
<i>Preparation of initial draft stakeholder analysis</i>																
<i>Discuss and clear initial draft with stakeholder gps</i>																
<i>Based on the stakeholder analysis, Prepare stakeholder participation plans</i>																
<i>Formal Approval of stakeholder participation plan</i>																
<i>Publish Stakeholder Participation Plan via website & local press</i>							X									
- Economic valuation																
<i>Assemble necessary information on economic valuation according to agreed procedures</i>																
<i>Preparation of a draft economic valuation of FCG mangroves</i>																
<i>Stakeholder Discussion, inputs and clearance of Economic Valuation</i>																
<i>Finalisation of report on economic valuation</i>																
<i>Publish economic valuation on website and local press</i>							X									
- Revenue streams & financial management																
<i>Identification & analysis of potential revenue streams, from present and alternative sustainable uses & required revenue collection and management mechanisms</i>																
<i>Preparation of quantified revenue streams and income projections</i>							X									
<i>Identification & analysis of costs of implementing Management Plan for FCG city</i>							X									
<i>Preparation draft Business and financial management plan for FCG mangroves</i>								X								
<i>Submission of the Business plan, including procedures for financial management for approval by the Management Board</i>																
<i>Meetings of establish of necessary financial management mechanisms (revenue collection, disbursement procedures)</i>																
<i>Operation of the fund</i>																
- Develop alternative livelihoods																
<i>Planning and testing eco-farming without cutting mangroves (2years)</i>																
<i>Technical assistance to Plan 1w/m</i>																
<i>Rent of test place and habitat</i>																
<i>Field Eco-farming experience and demonstration</i>																
<i>Involvement of local community and guard</i>																
<i>Eco-tourism based on mangrove coastal birds</i>																
<i>Monitoring on major bird population & migration (3years) and publication of results</i>							X			X					X	
<i>Purchase camera and tele-lens</i>																
<i>Workshops on conservation of bird habitats and public hots</i>																
Legislation																
- Review of legislation																
<i>Collection and analysis of national and local mangrove legislation</i>																
<i>Preparation of draft recommendations on harmonisation of the legislation</i>																
<i>Stakeholder discussions regarding legislation and enforcement</i>																
- Drafts of new legislation, or amendments to existing regulations prepared																
<i>Based on the comments and the results of analysis, preparation of new legislation or amendments to existing laws and regulations</i>																
<i>Submission of proposals to the appropriate government agency for approval</i>																
<i>Demonstration activities in implementation and enforcement of the legislation if approved</i>																

	2004				2005				2006				2007			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Capacity building																
- Training Programme																
Prepare draft programme of training and personal exchange (training for trainers, training for managers, etc. regional personnel exchange)																
Approval of the training plan by MB																
Implementation of the programme and personal exchange -Passport, Visa application and domestic travel cost (12 persons in 3years)																
- Establish a mangrove education center																
Construction of the education center (building cost)																
Planning of the education centre																
Collection of necessary photos																
Collecting & Curating biological specimens of mangrove ecosystem																
Assistance to draft commendatory																
Preparation of the posters & displays for the public							X	X	X	X	X	X	X	X	X	X
- Educational Programme																
School visits - short (1 day) courses. At least one per month																
Education for villagers and urban residents																
Local NGO activities 6times																
Provincial NGO 2 times																
Press conferences 6times																
Prepare reports of NGO activities																
Lecture for government officers 4times																
Prepare lecture materials																
Seniors and experts to make lectures 4persons																
Training senior research and management staff																
Training senior research and management staff (30 persons, 3 times)																
Graduate students study in demo site 6person-years																
Mangrove friendly association (stakeholders and NGO) of demo site 36 meetings 18 field trips																
- Public awareness																
Preparation and publish 30000 copies of 3 brochures							X			X	X					
4,000 copies of 4 posters							X	X								
Notice boards (12)							X									
Preparation of education material in the format of DVD									X							
Preparation of education material in the format of CDROM									X							
Edit, publication and release of the bimonthly newsletters// 18 issues//																
Conservation, Management & Wise Utilization Forum of China Mangroves and Associated Resources (ca 80 officials, managers and experts for 3 days-meeting)											X					
Biodiversity Conservation																
- Biodiversity conservation and enrichment in the urban areas																
Reforestation planning																
Training on planting mangrove trees																
Collection of Rhizophora, Bruguiera & other hypocotyls (30,000 seedlings)																
Pest control and transportation																
Mangrove forest plantation																
Patching up plantation (ca 40% of the first year)																
Monitoring and evaluation of newly planted mangroves (3years)																

	2004				2005				2006				2007			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
- Re-establishment of <i>Heritiera littoralis</i>																
<i>Training and planning</i>																
<i>Collection of seeds</i>																
<i>Construction of nursery</i>																
<i>Reproduce seedlings and tending (3yrs)</i>																
- Development of Nursery techniques to reproduce mangrove coastal plants to restore bird habitats																
<i>Technical assistance to Plan 1w/m</i>																
<i>Rent of place to set up plant nursery</i>																
<i>Construction of plant nursery</i>																
<i>Reproduce seedling experiences and demonstration</i>																
<i>Involvement of local community and guards</i>																
<i>Community training</i>																
<i>Prepare report</i>																
<i>Meetings on market operation</i>																

17. PROPOSED MANAGEMENT OF THE ACTIVITIES:

An implementing group and local government coordination committee will be formed for the implementation of the GEF demonstration site project (see the chart below)

Project-implementing group

- Guangxi Mangrove Research Centre: the executing agency of the project, bearing the responsibilities loaded by GEF to conduct financial management and technical guidance. Coordinator of National Technical Working Group and Regional Technical Working Group
- Beilun Estuary Marine Nature Reserve: responsible for implementing the projects conducted within BEMNR
- Fangchenggang Xindi Co., Ltd: responsible for implementing the projects conducted in urban mangrove area
- Contracted units: composed of qualified research facilities and experts that will be in charge of academic and technical work

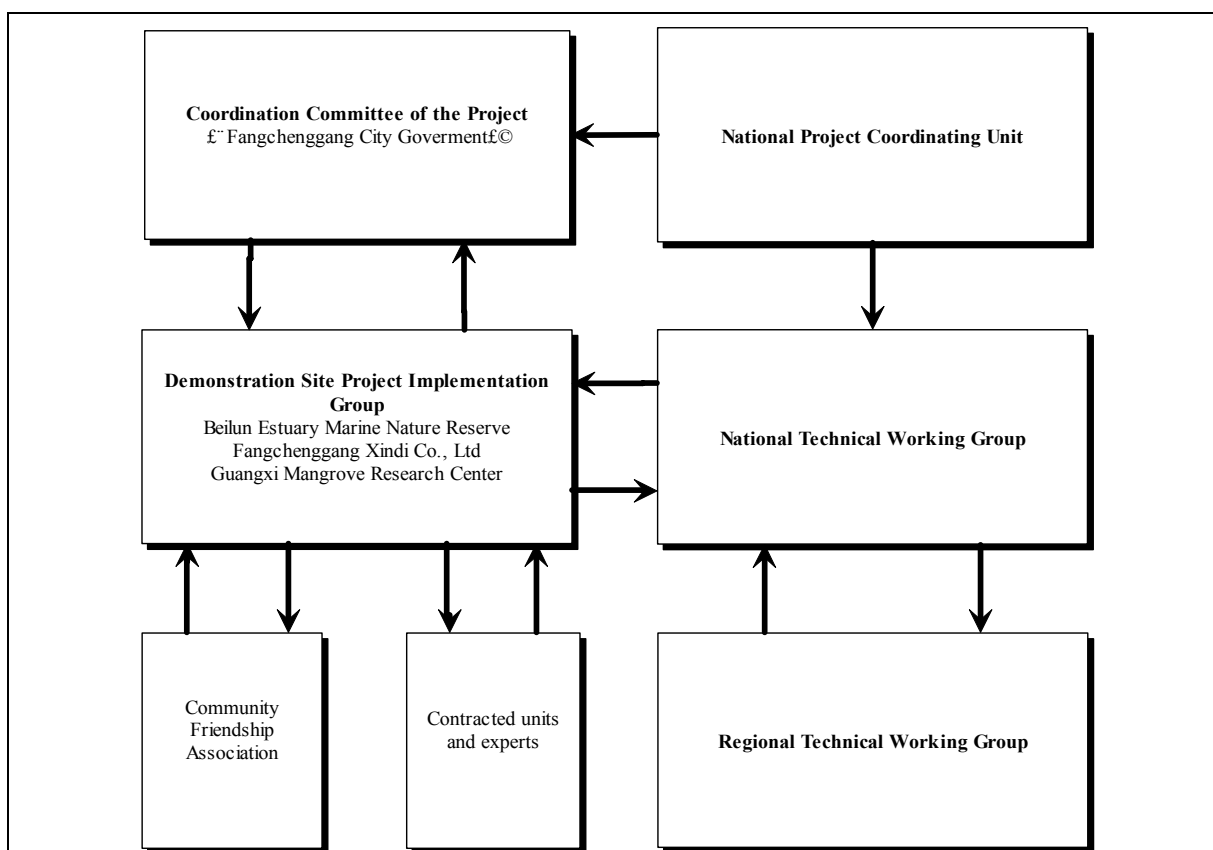
Local Government Coordination Committee

Responsible for coordination of different government organs that involved in the project, exchange of date and information share, and conducting survey for mangrove legislation

Demonstration Site Community Friendship Association

Participating in decision making and lobbying for mangrove legislation

The following organigram illustrates the relationships between the entities concerned with implementation and execution of the demonstration site activities and the entities concerned with regional co-ordination, namely the Regional Working Group on Mangroves which has responsibility for oversight of the mangrove demonstration sites and co-ordination of the planned programme of inter site training and exchange.



18. INFORMATION ON PROPOSED EXECUTING AGENCYIES:

Guangxi Mangrove Research Centre (GMRC)

Guangxi Mangrove Research Centre was found in 1991. It is the only one government approved research facility focused on mangrove research. Now in the centre there are 28 working staff with the expertise in botany, marine biology, oceanography, environmental sciences, mariculture, and chemical analysis. So far, GMRC has accomplished over 20 domestic research projects and 3 international projects. It is also a key consultant agency of government in respect to mangrove issues. GMRC has established a good relationship with mangrove reserves and mangrove experts in China.

Guangxi Mangrove Research Centre (judicial entity)

No.92 Eastern Changqing Road, Beihai, Guangxi, P. R. China 536000
Tel: 86-779-2065609 2055294
Fax: 86-779-2065609 2058417
E-mail: gmrc2003@china.com

Beilun Estuary National Level Marine Nature Reserve (BEMNR)

Beilun Estuary National Level Marine Nature Reserve was established in 1990 as a provincial level reserve, and promoted to be a national level reserve in 2000. It covers an area of 30 km² and has 16 managing staff. To protect mangrove ecosystem and mollusc habitats are the major task of the reserve. Since the reserve became a national level reserve in 2000, development and management of the reserve have been improved greatly because government has offered more and more supports.

Beilun Estuary National Level Marine Nature Reserve (judicial entity)

Tianma Building, Neihuan Road, Fangchenggang, Guangxi, P. R. China 538001
Tel 86-770-2833785
Fax 86-770- 2820105 2836534

Fangchenggang Xindi Co., Ltd

Fangchenggang Xindi Co., Ltd is a company authorized by government to manage urban mangroves in Fangchenggang City. The "Urban Mangrove Park" project, which was planned by Xindi Co., Ltd, has already been approved by, the State Environment Protection Administration. The company also joined in and offered some financial support to apply for the demonstration site project.

Fangchenggang Xindi Co., Ltd (judicial entity)
 No. 1, Chuhai boulevard, Fangchenggang, Guangxi, P. R. China 538001
 Tel 86-770-2826386
 Fax 86-770-2821867

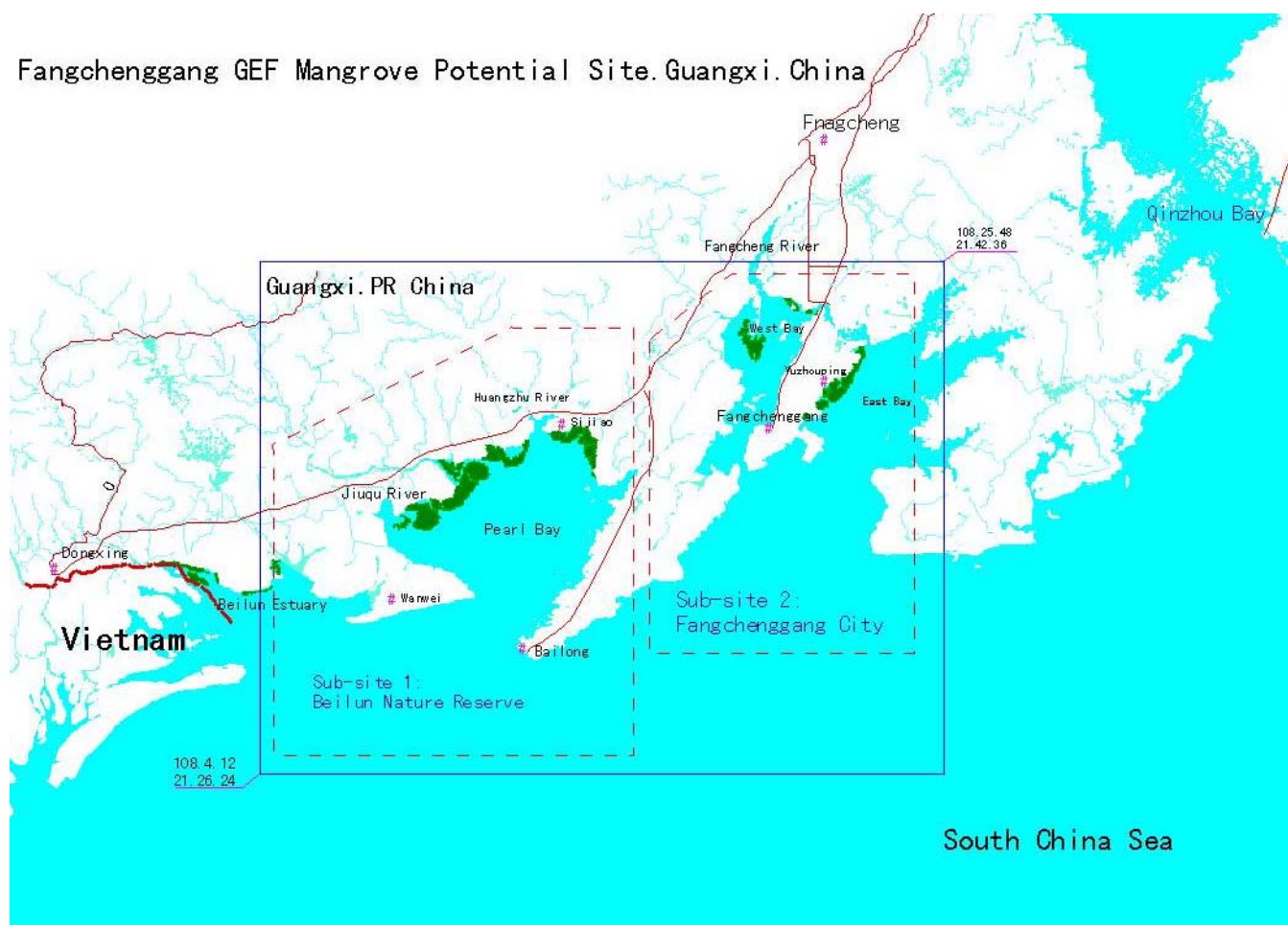
Executing Agency contact person:

Dr. Fan Hangqing
 Guangxi Mangrove Research Centre
 Eastern Changqing Road No.92, Beihai, Guangxi, PR China 536000
 Tel: 86-779-2065609 2055294 Mobile: 13367798181
 Fax: 86-779-2065609 2058417
 Email: Fanhq@ppp.nn.gx.cn (small box of 2M); fanhangqing@vip.sina.com (big box of 30M)

Annex 1

Location of the Mangrove Demonstration site

Fangchenggang GEF Mangrove Potential Site, Guangxi, China



Mangrove Name: Guangxi Fangchenggang (FCG) Mangroves

The geographical coordinates (latitude and longitude) of the approximate centre of each mangrove, sub-site expressed in degrees and minutes.

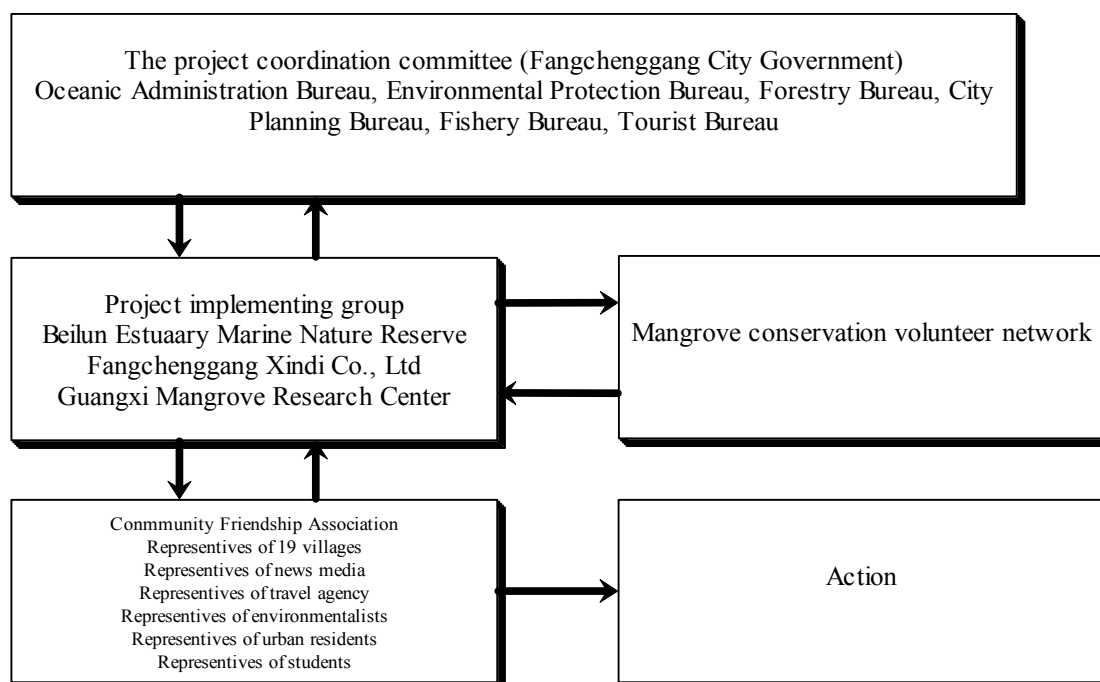
Latitude: 21°26'24" 21°42'36"N - Beilun Nature Reserve

Longitude: 108°4'12" 108°25'48"E – Fangchenggang City Mangrove

Annex 2

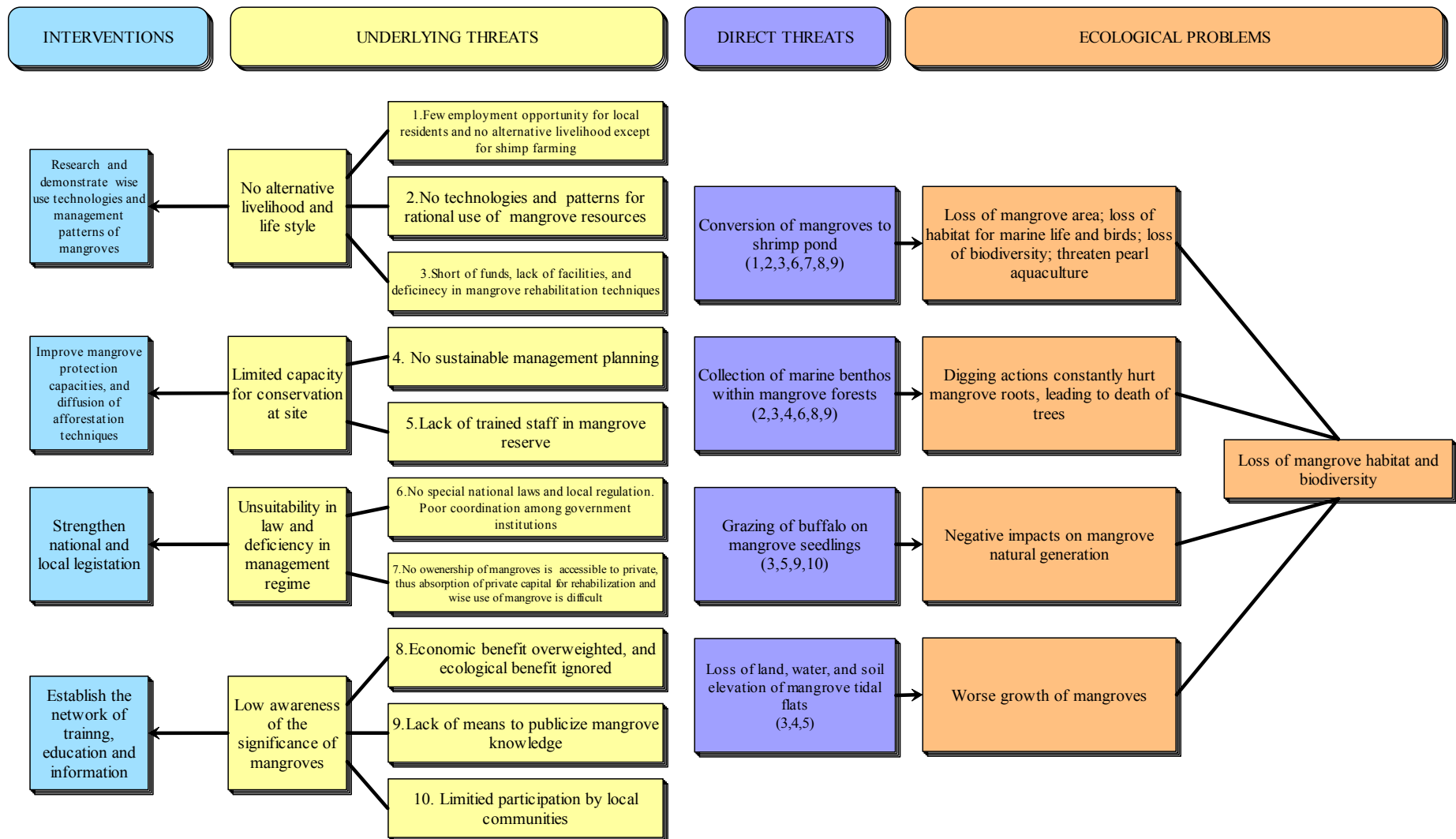
Stakeholder involvement plan for Fangchenggang GEF potential demonstration site

- Plan 1 Community Friendship Association: Establish a friendship association office under the project-implementing group. Members of the association comprise of people from all walks of life. Representatives of villages should be selected from those people respected by villagers. The commission of the association will consist of one chairman and 3-5 standing members, whose duties include communicating between the project-implementing group and communities and offering assistance in mangrove education activities. Any opinion and suggestion from community friendship association are welcome and highly valued, and those constructive suggestions will be incorporated into mangrove resources management plan.
- Plan 2 Create a mangrove conservation volunteer network with 19 forest rangers from each of the 19 villages
- Plan 3 Reforestation activity with community involvement: organize voluntary villagers and students to plant 100 ha mangrove by supplying them seedlings and techniques
- Plan 4 Eco-farming practice participated by local farmer: Teach farmers to conduct environmental friendly farming in transition zone by providing them technologies and funds.
- Plan 5 Key habitat protection with public participation: circle two core zone in mangrove area to strengthen the protection of migratory birds and endangered trees of *Heritiera littoralis*. Invite local residents to participate in the protection and management of the core zones.
- Plan 5 Mangrove Week: Organize a mangrove education activity “mangrove week” once every year to attract more public attention and participation on the GEF project. Essays, photos, lectures, posters, videos, net chatting, and questionnaire will be used to publicize mangrove knowledge in mangrove week.



Annex 3

Causal Chain Analysis



Annex 4 Sub-Contract details (RMB)

Tentative Sub-contract institute to support GEF Demo Site

Beilun National Nature Reserve	BNNR
Fangchenggang Xindi Company limited	FXCL
Guangxi University	GUNI
Guangxi Forestry Survey and Planning Institute	GFSPi
Guangxi Marine Environment and Coastal Wetland Research Center	GMECWRC

2200	Sub-contract w non profit organs	GEF	Other	Total	
2201	Ident& analysis of potential revenue streams	5,000	7,000	12,000	FXCL
2202	Zoning, Planning and design of urban mangrove eco-park	150,000	100,000	250,000	FXCL
2203	BEMNR general management planning	70,000	80,000	150,000	BNNR
2204	Zoning & Planning to protect mangrove coastal bird habitats	50,000	70,000	120,000	GMECWRC
2205	Zoning & Planning to protect <i>Heritiera littoralis</i> wild population	40,000	40,000	80,000	BNNR
2206	Page design, data collection & page renew	36,000	36,000	72,000	GMRC
2207	Collection and processing of GIS database	60,000	40,000	100,000	GFSPi
2208	Establishing 1:10000 local GIS system	45,000	60,000	105,000	GFSPi
2209	Application of GIS to evaluate changes in mangrove ecosystem	10,000	10,000	20,000	GFSPi
2210	Review existing laws and regulations	10,000	10,000	20,000	BNNR
2211	Preparation of draft recommendations on harmonization of the legislation	6,000	3,000	9,000	BNNR
2212	Preparation of the posters & displays for the education center	40,000	30,000	70,000	BNNR
2213	Reforestation planning	10,000	5,000	15,000	GMECWRC
2214	Monitoring and evaluation of newly planted mangroves (3years)	30,000	10,000	40,000	GMECWRC
2215	Collection of Rhizophora and Bruguiera hypocotyls (30,000 seedlings)	90,000	30,000	120,000	FXCL
2216	Pest control and transportation	18,000	8,000	26,000	FXCL
2217	Mangrove forest plantation	198,000	66,000	264,000	FXCL
2218	Patching up plantation (ca 40% of the first year)	60,000	40,000	100,000	FXCL
2219	Monitoring on major bird population & migration (3years)	90,000	30,000	120,000	GUNI
2220	Experience & demons of reproducing seedlings of coastal rare plants	100,000	50,000	150,000	GMECWRC
2221	Construction of coastal plant nursery	30,000	15,000	45,000	GMECWRC
2222	Collection of seeds of <i>Heritiera littoralis</i>	3,000	2,000	5,000	BNNR
2223	Construction of nursery for <i>Heritiera littoralis</i>	4,000	2,000	6,000	BNNR
2224	Reproduce seedlings and tending of <i>Heritiera littoralis</i> (3yrs)	35,000	6,000	41,000	BNNR
2225	Design of the education center	8,000	0	8,000	BNNR
2226	Collecting & Creating biological specimens of mangrove ecosystem	110,000	50,000	160,000	GMECWRC
2227	Produce commendatory of CDROM, DVD, Brochures ect.	42,000	48,000	90,000	GMECWRC
2228	Cost of building center	0	0	0	BNNR
2229	Collection of photographs and edit for DVD	50,000	20,000	70,000	GMECWRC
2230	Data treatment/edit/software assembling (CDROM)	40,000	21,000	61,000	GMECWRC
2231	Field Eco-farming experience and demonstration	150,000	190,000	340,000	GMECWRC&BNNR
		1,590,000	1,079,000	2,669,000	