

***Promote Coastal Environmental and Ecological  
Conservation with Mechanism Innovation :Case study of  
Ningbo Water and Environment Project***

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# Current status

## ❖ Ningbo/Cixi

❧ Location

❧ Coastline / inter-tidal mudflat and marsh area (788.3 km / 940 km<sup>2</sup> )

❧ abundant wetland resources of Cixi ,a home to great varieties of plants, fish and animals .

## ❖ Environmental and Ecological status

❧ Land-based pollution (point and non-point source)

❧ Loss of wetland and habitats for wildlife

❧ Overexploitation of clams, shrimp, fish

❧ Slow development of mudflat vegetation

❧ red tides



# GEF NWEF Project

## ❖ Background

- ❧ WB Ningbo Water and Environmental Project (NWEF) (US\$ 290.4 million, the co-financing project )
  - ❖ Cixi Wastewater (US\$128.0 million) associated with GEF project
- ❧ The first project under the “Strategic Partnership Investment Fund for Pollution Reduction in the Large Marine Ecosystems of East Asia” (GEF grant US\$ 5 million with counterpart fund of US\$12.1 million provided by local government )



# GEF NWEF Project

## ❖ Project Components

- ❧ Constructed Wetland for Tertiary Treatment of the 100,000 m<sup>3</sup>/d Cixi Wastewater Treatment Plant (US\$7.10million);
- ❧ Establishment of a Wetland Center (US\$8.00 million)
  - ❖ Development of a Wetland Center, including: i) enhancement and restoration of degraded wetland and tidal mudflats (43.5 sq km); ii) Visitor Center Building and associated facilities
  - ❖ Adjacent to new Ningbo-Shanghai bridge, so will be highly visible
- ❧ Design and Management support, including(US\$2.00million) :
  - ❖ i) a Wetland Center Management Assistance Contract with a NGO/university Consortium;
  - ❖ ii) Engineering Design; and
  - ❖ iii) Training and Dissemination of Project Experience



# Wetland Center

慈溪市 GEF  
湿地中心  
范围示意图

43.5 km<sup>2</sup> 管理区

4.3 km<sup>2</sup> A1

1.4 km<sup>2</sup> A3

1.8 km<sup>2</sup> A5



3 1.5 0 3 km

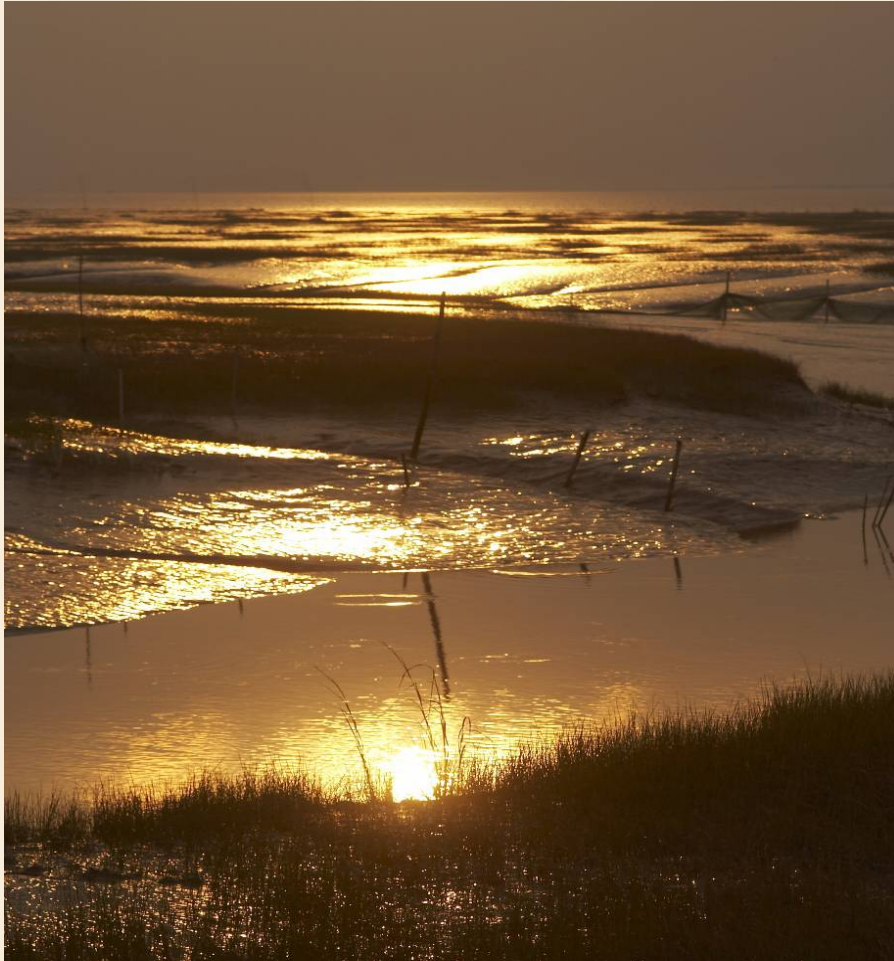


# Innovations of the project

- ❖ **Simplify Wastewater Treatment for tertiary treatment by constructed wetland (89ha)(ecological and environmental consideration)**
- ❖ **Partnership of stakeholders including government agencies, NGOs, Research institutes and universities**
- ❖ **Integration of pollution reduction with environmental education, wetland conservation and eco-tourism**
- ❖ **Multilateral investment, including government, grants, loans, donations etc.**
- ❖ **Sustainable project operation mechanism – Government agency supervision, independent wetland management company operating within a consortium**



# Challenges for Sustainability



- ❖ **For the project**
  - ❧ Maintaining the financial sustainability of the Wetland Center
  - ❧ Ensuring the Wetland Center is ecologically sustainable
  - ❧ Designing the constructed wetland to achieve specified treatment targets
- ❖ **For the whole area**
  - ❧ Shortage of water and land resources
  - ❧ Pressure from industrialization and population growth

# Measures to meet the challenges (for project )

## ❖ Financial

- ❧ Financial commitment and capability of the Government
- ❧ a variety of sources including user fees, grants and donations, and funding from the government
- ❧ Business plan

## ❖ Ecological

- ❧ land (43.5 km<sup>2</sup>) and important wetland ecosystems: non-tidal, tidal marsh, tidal mudflats, and island
- ❧ The non-tidal wetland (Plot A1) will be enhanced
- ❧ The establishment of Cixi Wetland Center Management Company
- ❧ Environment management plan

## ❖ Target to meet

- ❧ 86 ha of reclaimed lands to be used for constructed wetland
- ❧ wastewater tariffs
- ❧ Sewerage company and TA



# Strategies to meet the challenges (for the area)

- ❖ Related laws and regulations for environmental protection, land use and law enforcement
- ❖ Shift from extensive economy to intensive economy
- ❖ Institutional and capacity building
- ❖ Partnerships (local ,domestic an international )
- ❖ Public awareness and participations
- ❖ Ecological city planning



## Active steps to be taken

- ❖ The introduction and enforcement of land development policies that not only promote economic growth, but also promote environmental protection and social benefit.
- ❖ The adoption of integrated water environment planning and management – involving integrated policies and practices related to water resources, industrial pollution control, and point and non-point wastewater discharges
- ❖ The effective separation of government and enterprise roles and responsibilities
- ❖ The development of a widespread, performance based “business” culture within government agencies .
- ❖ The adoption of pricing policies based on the full cost of providing a service





# Opportunities for the future

- ❖ **Demonstrates an innovative technical mechanism to combat land-based water pollution;**
- ❖ **Institutional mechanisms for multi-sectoral environment management;**
- ❖ **Financing mechanism for the sustainable operations**
- ❖ **Replication mechanism for the project.**
  - ❧ i) a series of workshops in Ningbo to share experiences for both the constructed wetland and natural wetland conservation.
  - ❧ conferences sponsored by GEF or PEMSEA,
  - ❧ ) the proposed Wetland Center will serve as a comprehensive source of information center
  - ❧ In collaboration with GEF and PEMSEA, the environmental education center can also present exhibits about other efforts throughout East Asia to reduce marine pollution and protect marine eco-systems.
- ❖ **greatly improve quality of natural habitat for international migrating birds and other species.**





# Contacts

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