

River Basin and Coastal Settlements in Vietnam Mekong Delta



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 Young Professionals Orientation & Training Program
 General Orientation Workshop on Social Housing 2006



Vietnam Facts and Figures...



Land area: **329,560 sq km**
land: 325,360 sq km
water: 4,200 sq km

Population: **83,535,576 (July 2005 est.)**

Main Economy: **Agriculture (rice and shrimp production)**

Borders: **China, Laos, Cambodia**
 Coastline: **3,444 km**



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Facts and Figures con't...

Climate: tropical in south; monsoonal in north with hot, rainy season (May to September) and warm, dry season (October to March)

Vietnam Mekong Delta

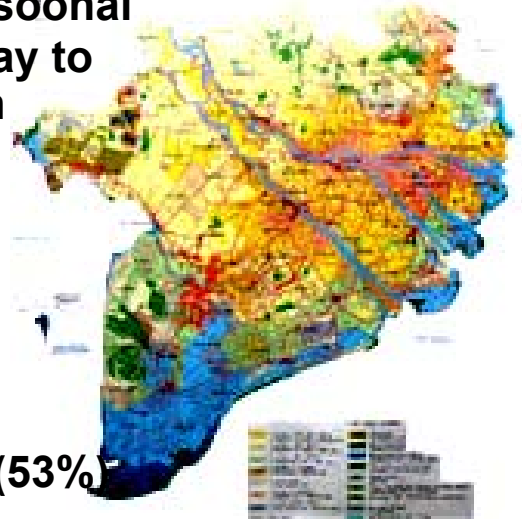
Area: **3.9M hectares**

Flooded area: **1.9M hectares (49%)**

Flooded area above 1m: **1M hectares (53%)**

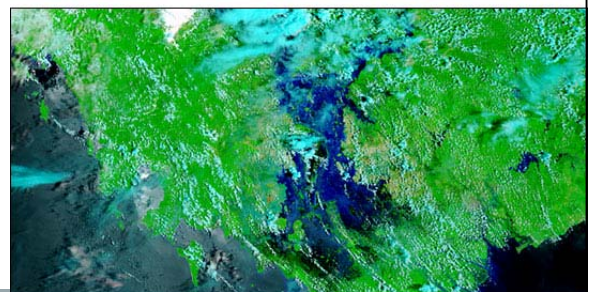
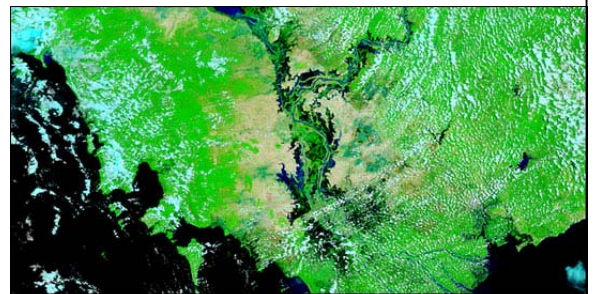
Flooding Months: **May to December**

Highest Flood level: **6m (An Giang)**



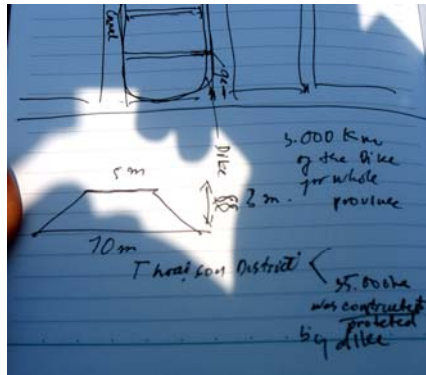
Vietnamese Policy

In the Mekong Delta, the policy of the Vietnamese Government is to “Live with FLOODS and aim at FLOOD CONTROL”.



Structural Measures

- Construction of **dams, dykes and sluices** for early flood preparedness and protection of houses and crops;
- Construction of **residential cluster/dyke** (infrastructure, houses, and schools) for the protection of people and to maintain normal lives in inundation situation.



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Non-Structural Measures

- Strengthen **flood and storm preparedness organization** to monitor the disaster management activities
- **Forecast flood development situation** on rivers in support to forecasting activity
- Provide **warning** to the community on **flood situation** in each area; avoid passive attitude
- Organize **emergency relief** for stricken areas during and after flooding to stabilize people's livelihood as soon as possible and get prepared for the forthcoming floods
- Organize **training courses and workshops on disaster preparedness and mitigation** for disaster management officers
- Improve **public awareness** by propagating, educating, and developing leaflets on disaster management and mitigation



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Non-Structural Measures con't ...

- Develop **research studies** to work out disaster mitigation measures
- Prepare **solutions based on assumed situations** to draw out temporary mitigation measures
- Study on **shift of cultivation timing** aiming to mitigate losses for crops
- Build **master plans** to apply collective preparedness, response, adaptation, and evacuation measures in case no constrains of disaster losses can be made
- **Sum-up disaster situations** and **draw out lessons** for the coming years

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River basin settlement



Coastal area settlement

★ Hoa Binh Resettlement, An Giang

★ Gia Vet Resettlement,
Tra Vinh

★ Ho Gui Resettlement,
Ca Mau

Three Models of Settlements

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Resettlement Action Plan

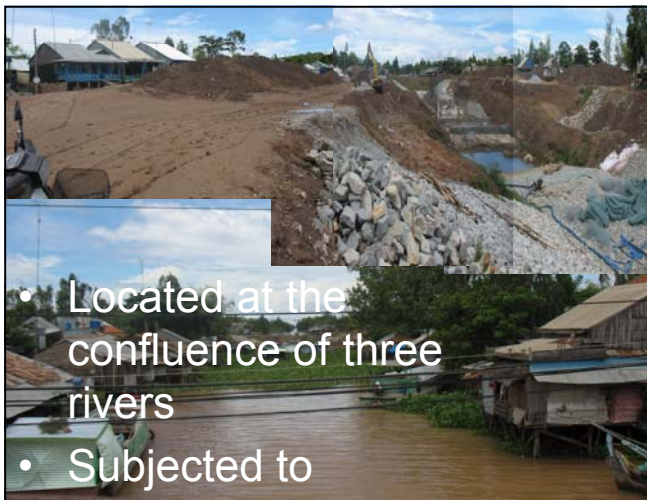
Principle: To improve or maintain the quality of life before resettlement.

- Land use rights certificate (LURC)
- Just Compensation of project affected properties and rehabilitation measures;
- Access to livelihood, basic services and amenities;
- Community participation is limited to agreement on compensation and rehabilitation measures.
- Vietnamese approach is strongly **top-down**. **Government acts as provider.**

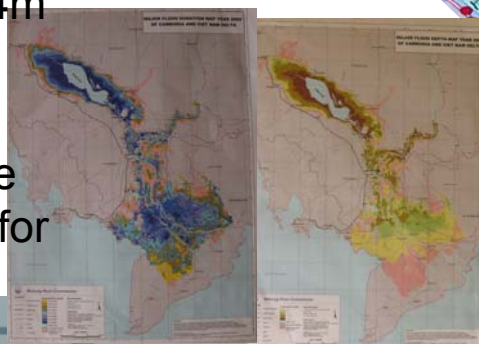
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- Located at the confluence of three rivers
- Subjected to inundation up to 4m for a max. of 6months.
- Site of main sluice gate constructed for flood control.



Hoa Binh Resettlement Project



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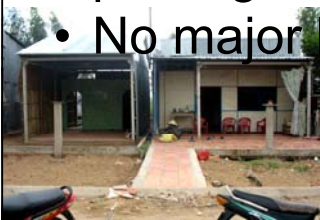
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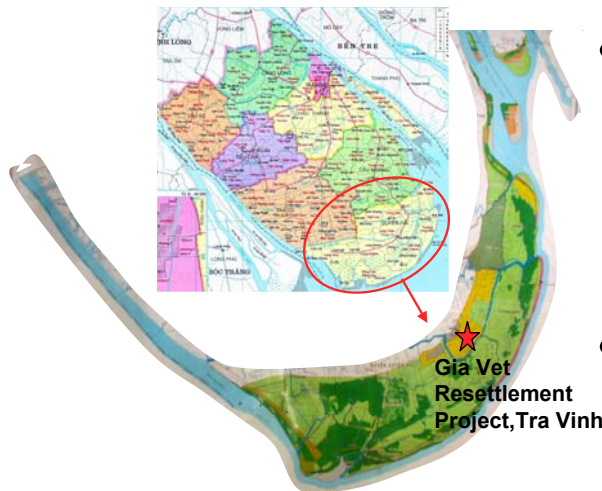
Hoa Binh Resettlement Project

Resettlement Approach

- Residential Cluster construction
- Within or near ((500m) the project site to minimize dislocation.
- Initiated adjustments to the Sluice Gate design to minimize impact on properties.
- House and Lot only compensation package only
- No major livelihood support



Gia Vet Resettlement Project



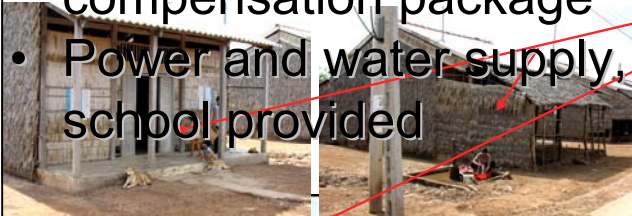
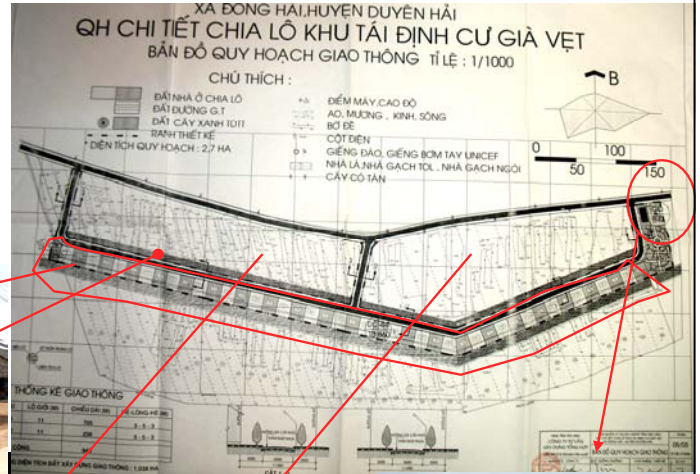
- Within the Coastal Wetland Protection and Development Project
- Relocated from Full Protection Zone to Buffer Zone



Resettlement Approach

- Raised foundation on protected dike
- Integrated Livelihood Project
- House and Lot compensation package
- Power and water supply, school provided

Gia Vet Resettlement Project



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Ho Gui Resettlement Project

Resettlement for households in erosion and landslide prone areas (near the confluence of Ho Gui River and South China Sea)
Poorest settlement in the District.



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Ho Gui Resettlement Project

Resettlement Approach

- Disaster-resistant house design
- Provision of wind/storm buffer
- Raised mound/foundation
- Inner channel construction
- Power and water supply, and health clinic, primary school, market provided



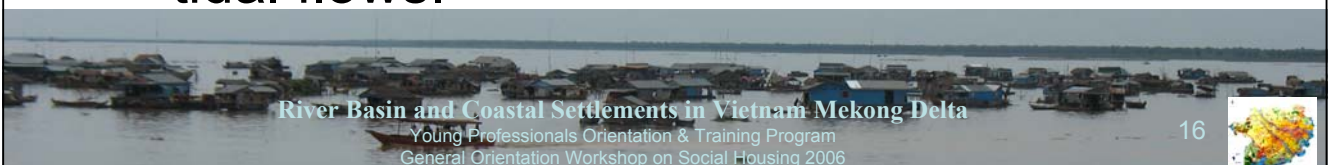
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Learnings

1. The Vietnamese approach to settlements in the Delta is strongly influenced by the **structural flood mitigating measures**.
2. Settlements development is guided by the **Resettlement Action Plan**.
3. Site development is guided by the **up-to-date information on flood levels** taken from gauging stations, typhoon path and tidal flows.



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Learnings con't ...

- Houses are **built on engineered site** and is assumed to be on safe ground. Hence, design is typical and does not consider presence of water.
- **Livelihood component** is significant in the sustainability of the settlers.
- There is **no clear minimum standards** for planning and design in coastal and river basin and rural sites.
- House materials are **temporary and lightweight**.



Learnings con't ...

- **Structural measures immediately address impact of flooding to life and property but ...**
 - Disrupts natural processes in the Delta resulting to adverse impact on marine ecology (ie. natural overbank flows, exposure of acid sulphate soils, acidification of soil and water, rapid sedimentation causing channel migration)
 - Increases salt water intrusion affecting agricultural production.



Conclusion

Sustainable Development is the ability of the present generation to provide its own needs without compromising the ability of the future generations to provide their own needs. **SD is supported by 3 pillars:**

1. Social development
2. Economic development and
3. Environmental preservation



Conclusion

Sustainable settlements development in river basin and coastal areas require:

1. Socio-Economic Considerations

- Integrate provision of access to material and financial resources; and services and amenities;
- Maintenance of social structure that provides support in times of crisis;
- Maintenance or improvement of quality of life;



Conclusion

2. Considerations for Environmental Preservation - “**Work with nature**”

- Protection/rehabilitation of mangrove forests;
- Provision of environment-friendly flood mitigation measures that allow natural ecological processes to take place;
- Application of organic riverbank erosion control measures to avoid sedimentation and rapid bank erosion;
- Waste management



Conclusion

3. Physical Considerations

▪ Site conditions

Surface water level, volume, source and direction of flow, quality; Climatic conditions influencing wind speed and direction; Soil bearing capacity;

- Presence or provision of buffer zone in environmentally sensitive sites
- Provision of basic services and amenities
- Accessibility to water or land and limited mobility
- Use of light weight materials for construction



Conclusion

It is also important for a team of specialists to work together to have a better understanding of the coastal and river basin environments and formulate possible solutions.



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