

## Fact Sheet 5 Negative Impacts of the Dike Systems in Can Tho City

by PHAM CONG HUU

Flood control constitutes an important aspect of water resources management in the Mekong Delta, in particular in flood-prone areas, where annual floods pose a potential risk for people's livelihoods. The local population actively manages floods in order to protect production and assets. The Vietnamese government has also invested substantial sums of money in the construction of so-called "flood control dikes", which have had severe impacts on the water environment and natural flooding schemes and, to a certain extent, threaten the sustainable development of the Mekong Delta.

Drawing on participatory methods and household surveys, the study investigated people's perceptions of the impacts of the dike systems in Can Tho City – an average flood area in the Mekong Delta.

The flooded area of Can Tho City is divided into five flood management sub-zones, which are managed through two kinds of dikes. The first is the 'high dike' (also called a 'radical anti-flood dike'), which is built higher than the peak levels experienced in the severe flood years of 1961 and 2000. These dikes aim at year-round flood control in order to ensure absolute safety for agricultural production and people's daily lives. The second kind is a 'low dike' (also known as the 'semi anti-flood dike' and 'August dike'). Its height is generally lower than the peak of the annual average flood, but it protects rice production from early and late seasonal floods.

Although dike system planning by the government envisaged the construction of high dikes for most of the flooded sub-regions, the research and observations

### Road infrastructure as high dike



Photograph: Gabi Waibel (2010)

found that, for most of the flooded areas in Can Tho City, low dikes were constructed to control annual floods and protect over 90 per cent of the mainly rice farming agricultural production sites. High dikes were only constructed in some flood management sub-regions, such as *O Mon – Xa No*, and in fruit production and aquaculture areas.

The question of which kind of dike should be selected for flood control in Can Tho City is still a controversial subject amongst local residents and managers of state institutions responsible for flood control. In our research, the personal experiences, opinions and expertise of many different actors were collected.

The findings reveal that, according to the local population, state agents and scientific staff, the dike system – more than six years following its construction – has caused a great number of negative impacts on the environment and therefore people's livelihoods.

The many years of building high dikes to control floods in Can Tho City have reduced free water exchange in protected areas, with districts such as Vinh Thanh, Co Do, Phong Dien and Thoi Lai suffering particularly badly. These districts are characterised by low terrain and their downstream location relative to other districts along the Hau River (Bassac River). This has resulted in surface water pollution because sediment and waste products often accumulate in low-lying areas. The dike systems reduce water flow over the rice fields during the flood season. As a result, the by-products of agricultural production such as pesticides, pathogens and viruses concentrate over two rice crops (winter-spring and summer-autumn) and over many cultivation years.

Wild fish resources have been depleted in protected flooding areas since the construction of the dikes, and many local people have lost their income from the flood season – especially the poor who depend on it for subsistence fishing.

Soil fertility (silt volume) is increasingly diminishing in agricultural production areas protected by dike systems due to the lack of water exchange between these areas and the canal system during flooding time. Particularly, the third rice production cycle (summer-autumn) completely depletes wild fish stocks and severely reduces soil fertility.

In short, dike systems ensure the safety of agricultural production. However, they degrade the water and land, thereby negatively affecting the livelihoods of people in rural areas. Poor people, who depend on wild fish resources, are especially vulnerable. Therefore, in order

to effectively manage floods in the Mekong Delta and Can Tho City, further studies are required to re-evaluate the methods of flood control and management, as well as dike system planning, and minimise the negative impacts of floods and dikes in the future.

#### Triple cropping versus open floodplain



Photograph: Gabi Waibel (2008)

#### Further Reading

PHAM, CONG HUU (2011): Planning and Implementation of the Dike Systems in the Mekong Delta. Lit Verlag. (forthcoming)

PHAM, CONG HUU, EHLERS, E. & S.V. SUBRAMANIAN (2009): Dike System Planning: Theory and Practice in Can Tho City, Vietnam. ZEF Working Paper Series No 47. Bonn. Center for Development Research (ZEF). University of Bonn.

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