

Challenges

In many South-East Asian cities, urban and peri-urban aquaculture - including fish and aquatic vegetable production, processing and marketing - is widely practiced, historically with little regulation and government support.

Processes of urbanisation however, are putting increasing pressure on land and water-bodies used for aquatic production systems, resulting in the loss of livelihoods of many aquatic farming families. To reconcile the needs posed by urban growth with the need for activities of high economic and social value, urban aquaculture should be included and regulated in urban development plans and strategies.

National and local governments and community leaders should:

- Recognise peri-urban aquaculture as a legitimate use of land and water bodies in and around their cities,
- Target and incorporate aquatic production systems in their city development and land use plans,
- Guarantee aquaculture producers access to land and safe water,
- Set up and develop a programme or unit with the specific mandate to coordinate interventions related to peri-urban aquaculture development; and
- Enhance support and further research leading to sustainable and safe forms of aquatic production and marketing systems.

Integrating aquaculture into urban planning and development

Decades of unprecedented urban growth

In Asia, urban areas today account for 35 percent of the total population. An increasing number of the region's poor live in urban areas, while also the projected urban water scarcity will demand cities to develop sustainable systems which can re-use water more effectively, whilst also producing safe, healthy food, providing income and employment and developing greener and more attractive cities.



Aquatic production systems: a beneficial and forward thinking strategy for urban management

Aquaculture produces fresh vegetables and fish which are consumed daily by millions of city dwellers as a regular and nutritious part of their diet, and helps to improve the environment, by recycling urban waste and wastewater. It also provides significant income and employment for thousands of lower-income urban producers, middlemen and vendors, with women being particularly involved in the cultivation of edible aquatic plants and marketing of all peri-urban aquatic produce.



Recognising the value of aquaculture

Urban planners and decision makers often lack information about the relative importance of urban produced fish and aquatic plants to their communities. Once recognising the value of integrating aquatic production systems into modern, functional and environmentally friendly cities, increasingly planners will begin to target and incorporate growing fish and aquatic vegetables into their urban development strategies and agendas.



Integrating aquaculture into urban planning and development

1 Incorporating aquaculture in city development and land use plans

There is limited provision for future development or even maintenance of urban fish and vegetable cultivation in current City Development Plans. Through zoning, areas in and on the periphery of the city could be set aside for aquaculture, as is currently done in Ho Chi Minh City and to a lesser extent Hanoi (Vietnam). Multifunctional land use should be promoted by combining aquatic production with recreation, water and landscape management. There is still little planned integration of aquaculture into other water users' activities, e.g. leisure, city parks lakes, although urban recreational angling is for example proving a popular and lucrative income earning activity in Bangkok (Thailand). Also, aquaculture, linked to wastewater treatment and reuse systems, could become an integral part of greenbelts required to make the peri-urban areas of rapidly expanding cities socially as well as environmentally sustainable.

2 Securing access to land

The terms of access to land can also restrict the long-term sustainability of the aquatic production systems. In Hanoi, many fish farmers can obtain at most a 5-year lease for land rented from the commune or acquired by auction. In Phnom Penh (Cambodia), women renting plots in Boeung Cheung Ek Lake can be forced to move their plots after a warning period of only two weeks. Depending on the local situation, legal instruments that guarantee land tenure for 10-15 years should be put in place. Securing longer-term access, for example by issuing occupancy licenses, has the advantage of allowing producers to maintain and modernize their systems, stimulating them to use more resource-conserving farming technologies, or grow higher-value crops and fish.

3 Promotion of safe re-use of urban wastewater in aquaculture

Aquatic farmers do not only have to find and retain access to the necessary area of land, but also obtain a source of water that is reliable both in terms of

seasonal availability and quality. In collaboration with the urban producers, health and food safety institutes, governments should establish quality criteria for wastewater use in aquaculture, promote separation and treatment of household and industrial wastewater and educate farmers, vendors and consumers regarding health risks and ways to mitigate those risks (see also Brief 3). The intensive use of wastes and by-products of food and other industries in aquaculture can cause pollution of waterways and also requires appropriate control strategies.

4 Strengthen institutional support and coordination

In many cities however, aquatic vegetable growers have an almost non-existent voice in the urban planning process and are often uncertain as to which government ministry or department is responsible for them. Peri-urban fish farmers are better represented through the Fisheries Department but overall have still little influence. Both the departments of agriculture and fisheries should set up and develop a specific programme or unit for the development of peri-urban aquaculture and invite aquatic producers to the joint analysis of the presence, role, problems and development perspectives of aquaculture production systems in their city and coordinate processes of interactive policy formulation and action planning. They should specifically improve the coordination among research institutes, agricultural extension, NGO's and producers, whilst developing peri-urban aquaculture within the educational and research curricula, and improving access of producers to training, extension and technical assistance.



DFID Department for International Development

AFGRP
aquaculture and fish genetics
research programme

ETC
URBAN AGRICULTURE



PAPUSSA
Production in Aquatic Peri-Urban
Systems in Southeast Asia



UNIVERSITY OF STIRLING

This is one of a series of 5 Policy Briefs produced under the EU funded PAPUSSA (Production in Aquatic Peri-urban Systems in SE Asia) project, a collaborative research project of European organisations and Asian partners in Hanoi and Ho Chi Minh City in Vietnam, Phnom Penh in Cambodia, and Bangkok in Thailand (www.papussa.org). Elaboration: Marielle Dubbeling, ETC Urban Agriculture (m.dubbeling@etcnl.nl), Language editing: William Leschen; Graphic design: Zonacuario, Quito-Ecuador. For further contact: David Little, Institute of Aquaculture, University of Stirling, Scotland (dch@stir.ac.uk)