



OP-010 [Section I: Land and Water]

FARMING STRATEGIES IN INLAND AQUACULTURE OF JAKARTA METROPOLITAN AREA

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Farming in metropolitan areas is challenging due to the economic pressure of other economic activities, typically associated with urbanization. Farmers in urbanized areas tend to adopt three types of strategies for more sustainable farming: sustainable intensification, valorisation and diversification. Sustainable intensification focuses on intensifying food production, using technological solutions to deal with economic, environmental and social issues. Sustainable valorisation focuses on opening up niche markets such as regional or biological products, using shorter connections between producers and consumers. Sustainable diversification focuses on new markets by offering other services, for instance care, leisure and educational activities. The strategies are context specific and need to be adapted to the type of farming and area. While studies have been done in the Netherlands, India and China, studies in many other countries are lacking. The objective of this study was to analyse the strategies taken by farmers in the metropolitan area of Jakarta, Indonesia, focusing on a case study of inland aquaculture in Bogor Regency. The different perspectives of stakeholders in the food chain of inland aquaculture were analysed. Therefore, a qualitative approach was chosen, using document study and semi-structured interviews. The document study focused on policy documents at two administrative levels, Bogor Regency and JMA. The interviews were held with individual farmers and representatives of farmer associations, local and regional government and a consumer organization. In total 15 interviews were conducted. The document study revealed that the total production of consumption fish in Bogor regency grew from 40,000 tons in 2010 to 120,000 tons in 2015. In the same period, the area of fish ponds grew from 600 ha to 1560 ha. The fish market is dominated by small farmer households, on average with 0.2 ha fish pond for the fattening stage and 0.5 ha for the spawning stage, while the average farm size grew with 18% and 35% respectively between 2010 and 2015. The interviews confirmed the findings of the document study, and showed that the farmers primarily focus on enlarging and intensifying production. Main reason for choosing more intensive methods of fish production is that farmers aim to reduce the production costs in order to get enough income from their farming activities. However, the results also showed the farming practices are not entirely sustainable. Fish farming activities are exempted from tax and the government supports members of farmer associations with local subsidies. Most members of these associations rely heavily on these subsidies, threatening the financial robustness on inland aquaculture. Moreover, some experts identified animal welfare issues due to overcrowded fish ponds, as a result of intensification of production. There is a general lack of domestic animal welfare standards and enforceable animal welfare regulations in Indonesia. The interviewees revealed that the stocking density of fish ponds can raise up to three times the amount of fish compared to traditional fish farms in the region. At present, the implications are low since the majority of consumers are merely interested in the price of fish. Moreover, the fish farms obtain the required water from the existing irrigation system, seepage water or spring water. In the dry season, which lasts for seven months, this results in a competition for water between fish farms and crop farms who also rely on water from the irrigation system. Furthermore, wastewater from fish ponds is discharged to the surface water without being properly treated, which is an issue of environmental concern, especially in the dry season. The local government aims to improve the sustainability of inland aquaculture by offering training programs. The interviewees from the local government claimed these programs increase the dissemination of innovative fish farming practices. Although this was confirmed by representatives of four farmer associations, individual farmers complained that the current training programs are too generic and not addressing their specific needs. However, the training programs seem to be a promising starting point for capacity building and improving the sustainability of inland aquaculture in JMA.

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