



TESTING THE WATERS

Despite significant government infrastructure investment, efforts to encourage smallholders in East Nusa Tenggara province to grow profitable vegetable crops have not been successful due to a series of contradictions that drive farmers' decision-making

BY WARREN PAGE

Villagers in Indonesia's East Nusa Tenggara province face high levels of poverty. Smallholders in villages such as Tupan, Manutapen and Oemasi grow maize as a staple crop, while also raising small numbers of cattle.

The Indonesian Government has been keen to help these farmers make the transition to growing vegetables to meet rising domestic

demand and to help reduce poverty in the area. To do so the government developed water storages to equip smallholders with robust systems to help make the transition to vegetable farming.

Significant government investment centred around the construction of embungs—small water storages designed to capture sufficient water during the wet season to allow vegetable production in the dry season. Embungs are

used for storing water for cattle and, in some cases, for human consumption.

The creation of the water storages should have resulted in more vegetables being grown but this was not the case.

An ACIAR-funded project focusing on the economic and social aspects of villagers' thinking was undertaken, with the aim of identifying the constraints to adopting vegetable production.

(Opposite page) Management of embungs is shared cooperatively by villagers.

The project conducted surveys and focus groups with farmers in Tupan, Manutapen and Oemasi villages, and immediately found a conundrum: 53% of these farmers said profit was the main reason for choosing a crop.

So why then is maize—a less profitable crop than vegetables—favoured over vegetables? And why has the construction of water storages, essential to production, not achieved the desired result?

The project team had a number of ideas for why this could be, including labour availability, capital and access to credit, market prices, risk, costs for maintenance of embungs, land and property rights, and limited knowledge of vegetable production.

Surveys and field interviews were used to test these ideas, ruling out some issues, while revealing a series of contradictions and conflicts that dent the confidence of farmers. Several issues were ruled out as constraints to changes in practice.

For example, labour is not seen as a major constraint, with an average of three out of five members of smallholder farming families available for work. In addition, these families did not rank labour availability as a problem that influenced decisions on growing vegetables.

Capital and access to credit were broad issues, particularly as more than 70% of farmers interviewed have no access to any type of credit facility and high levels of poverty make saving difficult. Despite this, 88% of survey and

interview respondents are willing to contribute financially to maintaining embungs.

However, the survey team discovered that another factor, related to capital and credit, is more important. Most farmers have little ability to save and no access to credit, resulting in limited attention being paid to future planning, and making production and consumption for immediate needs the priority. This affects both capital accumulation and consumption patterns.

Another issue, identified by farmers as a major constraint, is lack of knowledge relating to vegetable production. In turn, this lack of knowledge affects the confidence of farmers, raising questions about pest and disease management, postharvest handling and basic production skills undermining their willingness to plan to grow vegetable crops.

This is compounded by a lack of understanding of markets and marketing, including logistical challenges relating to high transport costs, all of which extension services could answer. Yet only 5% of survey respondents had not met with extension services, and of those that did, 79% received training in water management and/or vegetable production.

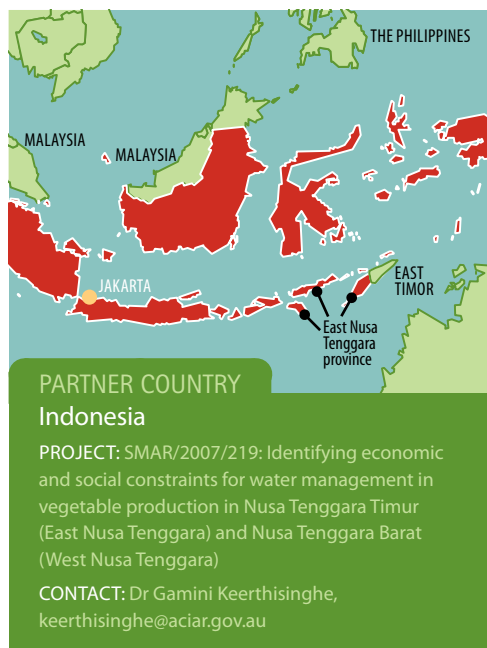
The answer to this puzzle was revealed to be who was targeted by extension officers. Typically men were the group who met with extension services, but women are responsible for vegetable production and, to a lesser extent, water management. Extension services also focus on larger farms, where vegetable production is less profitable, rather than smallholders who stand to profit from changes in practice.

Water itself was cited by 74% of respondents as being available through embungs, yet lack of water for irrigation of vegetables is seen as a constraint. Much of this thinking relates to confusion over who owns embungs, and the water within.

Many embungs were built without sufficient consultation with village communities, creating a lack of clarity in terms of property and ownership rights, and who can use the water for what purposes. Most villagers see the embungs as the property of the government, rather than as communal property. This also impedes maintenance of embungs, which is needed to slow and then manage sediment build-up over time.

This mix of issues, plus the complex relations between them, has been revealed as the main barrier to increased vegetable production. Food security and traditional practices that create a bias towards certainty have undermined government efforts to create change. The knowledge from this project will be essential in addressing the social and economic issues, which have proven to be more important than water, in holding back farmers. ■

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Sediment at the bottom of embungs is just one of a range of issues in water management.