

# Supporting Livelihoods with New Varieties of Cassava for the Yali Reservoir



## MAIN OUTCOMES

- ✓ Proof of concept of a new cassava variety adapted for reservoir recession areas
- ✓ Active involvement and increased capacity of local authorities
- ✓ Increased income for farm households
- ✓ Better communication between local farmers, communities and dam operator

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## Outcome Stories

Completed in 2003, the 720 megawatt Yali Falls Hydropower Dam in the central highlands of Viet Nam resulted in the resettlement of 1,149 farming households and the loss of 1,933 hectares of farmland. Land limitations remain a challenge for affected farmers. With the construction of the dam and filling of the reservoir came the creation of an approximately 1,900-hectare, fertile drawdown zone—the land intermittently revealed after water level in a reservoir drops. Farmers quickly adapted to the presence of the new reservoir by planting crops in the drawdown zone during the dry season. Just as quickly, however, they realized that their crops were subject to flooding when the reservoir filled up again at the onset of the rainy season.

The short duration of land exposure (7 to 8 months) and the possibility of a sudden flood occurring just prior to the crops reaching maturity makes cultivating crops in the drawdown zone a high-risk activity for local farmers.

One CPWF-Mekong research project (MK1) led by the International Water Management Institute helped to improve sustainable agricultural production in the Yali drawdown zone by introducing a variety of cassava that was appropriate for the reservoir's hydrologic behavior, as well as climate characteristics and farmer preferences.

Broad-scale and livelihood surveys conducted by the MK1 project in four



Above: Land preparation for cassava cultivation in seasonal flooded land around Yali reservoir

Right: Harvesting new cassava variety KM 98-7



The district plans to increase the area of KM98-7 cassava cultivation to 420 hectares in the coming years.

communes around the reservoir demonstrated the high productivity and importance of the drawdown area for local livelihoods, but also revealed the risks associated with cultivating crops in the area. The primary cassava variety used in the drawdown area required more than 10 months to reach maturity, which increased the risk of the crop being flooded prior to harvest. Of the 1,900 hectares of drawdown area available, 500 households cultivate only 600 hectares annually; another 1,000 hectares are deemed to have agricultural potential.

Improving drawdown zone cassava production is of high importance to the local Department of Agriculture and Rural Development (DARD). DARD seeks to improve farmers' incomes and contribute to the supply of raw cassava to the local processing plant. In collaboration with DARD, MKI worked through its project partner, the Soils and

Fertilizer Research Institute (SFRI), to introduce new varieties of cassava and rice with a shorter growing season. Farm-based experimental trials tested and demonstrated the advantages and disadvantages of these short-term varieties.

Due to the limited availability of cassava KM98-7, the first year of the pilot (2012) was limited to three households who cultivated a total area of one hectare. The following year, 36 households in two communes cultivated 20 hectares of trial cassava. Yield was estimated to be between 60 and 89% higher and net income was 100% higher than that received for the most common variety of cassava planted in the drawdown area. Improved net income is due in part to KM98-7's lower input costs. The team also introduced the practice of growing transplanted cassava seedlings on upland slopes to take advantage of the growing demand.



Mrs. Hoa displays her stems of cassava variety KM-98-7 before planting for replication in Sa Thay district



Preparing cassava to transport to the processing factory

The higher yield and higher starch content of cassava KM98-7 has met the expectations of both DARD and pilot farmers. The district aims to increase the land coverage of KM98-7 cassava to 70% of the 600 hectares currently used for cassava cultivation in the next few years. According to farmers, the main challenge to this expansion is the dissemination of seedlings, as the stems used for replanting KM98-7 cassava that is grown in the drawdown area must be replicated in the upland areas. It is expected that the spread of KM98-7 cultivation will occur voluntarily from farmer-to-farmer as word of its higher yield and economic value spreads, with some technical facilitation required by DARD.

Through the project's training activities, staff from DARD gained new knowledge and improved their capacity to monitor the project in the field and to organize project activities. By assigning a DARD staff

member to the project for the entire duration of the pilots, DARD's sense of ownership over the project was increased, and its outcomes were strengthened.

Five hundred and fifty farmers benefited from the transfer of information on new approaches that occurred through project training sessions. The materials produced for these events can be used in future trainings of farmers in the district. According to one of the participants, the visual aids were especially helpful in overcoming language barriers or limited technical knowledge. Written explanations would have been difficult to understand for Kinh ethnic households, who generally do not speak Vietnamese.

The project had one additional, unanticipated outcome. In February 2012, the Coordinating Office of Viet Nam Electricity (EVN) ordered the Yali Dam operators

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to close the sluice gates in order to generate power to compensate for a shortfall in supply caused by unusually dry weather in Viet Nam's Red River Basin. The unexpected filling of the Yali reservoir resulted in severe damage to the crops that had just recently been planted in the drawdown zone. The project team advised farmers and local authorities to undertake consultations with the Yali Hydropower Company, based on a regulation drafted by DARD with contribution from MK1.

The consultations resulted in a signed agreement between the district and Yali Dam operator, mandating the operator's obligation to provide local communities with a reservoir water level calendar and compensate for labor and seedlings in the case of crop damages by the hydropower company.

Access to information about water level is crucial for farmers and is a main factor in the success or failure of the cassava culture in the drawdown area. Increased communication between DARD and the Yali Hydropower Company as a result of MK1 project activities has improved the ability of farmers to confidently cultivate crops in the drawdown area.

The MK1 project demonstrated the viability of cassava KM98-7 in drawdown areas of reservoirs. The development of agriculture in fertile areas should be considered as an option for livelihood diversification in other reservoirs too, as cultivation of drawdown areas can prove beneficial to local communities.

## References

Tran Duc Toan, Nguyen Duy Phuong, Nguyen Duc Dung, Ngo Duc Minh, Sonali Senaratna-Sellamuttu, Chu Thai Hoanh. *Increased land Use Efficiency in Semi-Flooded Area for Livelihood in Yali Reservoir*. Journal of Vietnam Agricultural Science and Technology. No.4 (43) 2013.

### About CPWF Outcome Stories

The CPWF Outcome Stories document changes in knowledge, attitudes and practices that have emerged through CPWF-funded research. Outcomes occur when research outputs foster engagement processes that result in changes in practice or changes in behavior. These stories capture outcomes at a specific point in time; outcomes may have evolved since the completion of these projects.

Cover photo: CPWF / Chu Thai Hoanh



Seasonal flooded land around Yali reservoir. Photo: CPWF

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## Mailing address

CGIAR Challenge Program  
on Water and Food  
P.O. Box 2075, 127 Sunil Mawatha  
Pelawatta, Battaramulla, Sri Lanka  
T: +94 11 288 0143  
F: +94 11 278 4083  
E: [cpwfsecretariat@cgiar.org](mailto:cpwfsecretariat@cgiar.org)