Process Matters

Soft Components of Programming Strongly Affect the Likelihood of Sustained Change and Replication

A case study with a special focus on the projects ‘Increasing Resilience to Climate Change for Farmers in Rural Cambodia: through Climate Smart Agriculture Practices (IR-CSA)’ (implemented by MAFF), and ‘Medium-Scale Biodigester Innovation for Smart Environment (MBI-SE)’ (implemented by the National Biodigester Program)

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Soft Programming Components such as Capacity Development and Ownership Building are Backbones of Sustainability – What Does it Take to Develop Them Effectively?

There are many definitions of capacity, and there is agreement that more than training or knowledge transfer is needed to develop it. CADRI, for instance, says that 'capacity development is the process through which individuals, organizations and societies obtain, strengthen and maintain the capabilities to set and achieve their own development objectives over time' (see also figure 1).

FIGURE 1: COMPONENTS OF THE CADRI CAPACITY MODEL (CADRI, 2016)

Capacity is about growth: growth of the individual in knowledge, skills and experience. There is also growing understanding that capacity must be viewed from three distinct but related perspectives:

- Individual: the skills and knowledge vested in individuals, communities and groups.
- Organizational: the internal policies, systems and strategies that enable an organization to operate and to achieve its goals.
- Enabling environment: the wider society within which individuals and organizations function.

While we now recognize capacity development as critical to overall human development, how capacity emerges, how we develop and evaluate it, and (most importantly) how we sustain it is much less clear. Good approaches may require a mix of interventions and must recognize what individuals or organizations are already good at – such recognition will ensure any new development will build upon existing capacity.

Concepts, models or change processes can only be scaled-up, and hence be sustainable over time and spread geographically, if a significant number of stakeholders perceive ownership of them. As aforementioned there is no one-size-fits-all approach but a fine-tuned process to develop a shared understanding of strategies and objectives. The problem-analysis, concept development, implementation and evaluation cycle should be developed and realized jointly between implementing agencies, communities and businesses involved. If those partners identify with the issue at hand, they will stand up for it, communicate it and win others over to support scaling up. This in turn is a precondition for sustainability and scaling up.

The IR-CSA and the MBI-SE project have demonstrated innovative approaches that others can learn from to build ownership and capacity in a better way.

Simulating, Role-Playing, Learning Builds Capacity and Contributes to Ownership in the Implementation of Selected Climate-Smart Measures

The IR-CSA project successfully implemented an approach that offers an alternative to an expert-driven climate risk assessment and adaptation planning process, while building capacity and ownership among the stakeholders at the same time. The method built on a participatory approach to model current climate change vulnerabilities and simulate potential interventions to overcome. This approach aims at creating a shared understanding of the current vulnerabilities to climate change and potential strategies to increase resilience.

By combining farmers' knowledge and scientific data during debates and discussions inside the community as well as between community members and 'external' stakeholders, the approach supported the identification of the most suitable and sustainable climate resilience-building intervention.

PROTOTYPING THE SERIOUS GAME (GERES, 2016)

The objective was to promote debates, that bring up different perspectives and create shared-vision and common understanding about the vulnerabilities to climate change. In doing so, it assesses while laying the groundwork for planning at the same time.

The used tool puts the key components of participatory approaches into reality. It promotes the strengths of participatory 'approaches and methods to enable rural people to share, enhance and analyse their knowledge of life and conditions to plan and to act' (Chambers 1995).

Given the difficulties to objectively 'measure' climate risks in data-poor environments, this is an effective way to merge the assessment of vulnerabilities and the identification of solutions based on the available data, information and knowledge. It further allows for triangulation and thereby increased credibility of the information.

The approach also included modelling activities that focused on landscape modelling, its land-use, key resources and stakeholders. Then the farmers are invited to represent their current livelihood activities and vulnerability to climate hazards. This baseline-level is then confronted to climate change scenario in the simulation phase using role-playing activities gathering different stakeholders around the board game and bringing debate and conversation about important issues.

In addition, the approach encompassed a so-called 'serious game'. GERES and CCAFS staff state that the game 'was a simple and concrete way to convey the concept, the trends and the potential consequences of climate change on livelihoods'. The game helped to realize, re-think, re-consider views and perceptions while learning about facts as well as others' perceptions. It also stimulated creativity, spirit of initiative and innovation among participants.

Some authors argue that as a conduit for engaged learning, training, and dynamic content delivery, simulation gaming has a long history of development and usage in various fields and disciplines, including foresight (Popper 2008).

At its core, embodied learning provides an opportunity to play-test real-world dynamics, and when deployed as an experimental (in the context of a lab-approach) tool, games can create spaces for novel insights to emerge. As Valkering et al. (2012) note: 'Simulation games [...] can serve both as an analytical tool to gain insight into complex issues (gaming as a 'laboratory') as well as a learning tool for participants offering various forms of support. Following the gaming as a laboratory metaphor, simulation games may lend themselves to the development of scenarios in which societal responses—and hence, environment-society interactions, discontinuity, and surprise—are better represented'.

Moving from Assessment to the Climate-Smart Agriculture Demonstration Actions with a Coherent and Transparent Process

Based on the previously described process, a long list of climate-smart agriculture options has been proposed by farmers in 9 different villages of Peam Koh Sna Commune. The original 59 options proposed were then clustered into 14 CSA options. Furthermore, the long list of options was critically assessed by the GERES/CCAFS team, using "Beta Matrix Tool". The team conducted review missions and re-visited selected farmers, and eventually shortlisted 4 main potential interventions to receive an in-depth review by PDAFF. The shortlisted demonstration actions were further ranked against their performance in the following categories: (a) adaptation/resilience, (b) low-emissions development/ mitigation; (c) productivity; (d) food security; and (e) viability. Additionally, the CCAFS CSA prioritisation tool was used to cross-check the ranking. At last, 3 or 4 options were selected and designed.

IMPROVEMENT OF EXISTING SMALL PONDS USING LINING TARPAULIN AND DRIP-IRRIGATED VEGETABLE FARMING IN ONE OF THE PROJECT SITES

As part of the design, an ex-ante economic analysis was conducted that calculated net present value (NPV) and investment rate of return (IRR).

MBI-SE Project Implemented A Comprehensive Learning Agenda Spanning Across all Components

The MBI-SE Project trialled a similarly promising approach to capacity development and sensitization that enhances the likelihood of replication of the tested low-carbon technologies such as medium-scale biodigesters (MSB). The project was implemented by the National Biodigester Programme in partnership with Kampong Speu Provincial Department of Agriculture and the Kampong Speu Provincial Biodigester Programme Office (PBPO). The main objective was to test and demonstrate the viability and promote medium-scale biodigester technologies and bio-slurry composting at pig farms and thereby contribute to the reduction in greenhouse gas emission from manure management and diesel consumption.

A comprehensive process of learning and capacity development underlaid the general purpose of testing the technical and economic feasibility of MSB plants.

The capacity development approaches comprised:

- On-site skill training on how to construct, maintain and manage MSBs and generators;
- Exchange visits between pig farms;
- Sharing and dissemination workshops to share R&D results;
- Farmer field schools to train potential adopters of bio-slurry composting (non-biogas and biogas farmers) supported by information, education and communication (IEC) materials;
- Production of demonstration videos;

PRODUCTION OF DEMONSTRATION VIDEO

- Reflection workshop focused on promotion and marketing of MSBs.

For the long-term sustainability of slurry compost application, neighbouring farmers benefitted through agreements with MSBs owners who guaranteed the purchase of slurry for several years.

The overall learning agenda is interwoven with the research and development components of the programme. The market survey and credit assessment were important pillars of this agenda.

While the market survey (a) mapped the landscape of medium and large-scaled biodigesters (MSLSB) currently operating in Cambodia, (b) identified the current suppliers of MSLSBs in both local and international markets, and (c) discussed the potential markets for scaling up, the credit need assessment explored the financing strategies for MSLSB.

A wide range of actors were involved in consultations and interviews for the survey:

- pig farm owners and managers who are the existing and potential users of MSLSBs, as well as the farms having installed the bio-digesters under the pilot support from the project
- financial institutions and NGO;
- other related stakeholders including representatives from the Department of Animal Health and Production (DAHP) of the Ministry of Agriculture, Forestry and Fisheries (MAFF), Offices of Animal Health and Production (OAHP) of the Provincial Departments of Agriculture (PDAs) in the selected provinces, C.P. company, and the Cambodia Livestock Raisers Association.

The survey concluded that there is still room to grow for the market of MSLSBs given the current limited number of commercial farms (estimated 30% of the farms under cooperation scheme with C.P., a Thai agro-industry company) having the covered lagoon biogas system with the plastic cover supplied from Thailand and biogas generators locally modified or imported from Vietnam. However, higher incentive is limited to EVAP[1] farms. In addition, there is also the potential in effective enforcement of the technical standard on animal manure management by using covered lagoon biodigesters. There is also the issue of limited knowledge and utilization of the available biogas. While there are farms with covered lagoon which do not use any biogas generator, there is a limited number of the surveyed farms using biogas for daily cooking and using bio-slurry for crop production.

INSTALLATION OF COVERED LAGOON AT ONE OF THE SELECTED FARMS

While a number of farms showed interest in installing the biodigesters, only few were willing to invest at the NBP's estimated prices. Although the investment cost is high, farms with cooling systems were found to be the ones most suitable regarding return on investment. The biodigester cost recovery period was calculated by considering the cost savings resulting from the biogas usage as a substitute or complement source of energy as the negative cash outflow to cover the initial investment of the biogas system. For EVAP farm using electricity and EVAP sow farms using generators, the cost of

[1] EVAP is commonly used to refer to the type of pig pen having been equipped with cooling system (fans) to keep the pig pen cooler, the farm cleaners, and the feed-meat conversion better.

one biodigester could be possibly recovered or paid back in 1 to 2 years respectively. However, the recovery period extended all the way up to 18 years for an open farm.[2]

Conclusions

The approach pursued in the IR-CSA and the MBS-SE projects clearly demonstrates the relevance and the importance of the 'soft' components of programming as an important mean to achieve sustainability. It strongly matters how well the various activities are connected through a well-crafted interplay of smart ways to implement sensitization processes, awareness raising and capacity development activities and communication and outreach efforts. This increases ownership and participation and as a result the likelihood of sustained change. These approaches require attention by project designers and implementers to partly intangible aspects such as empowerment and ownership, while an unambiguous set of engagement principles should be established and followed.

Lessons along those lines should be integrated in upcoming programming approaches, and ways of monitoring these soft components should be enhanced.

[2] For more information: Market Survey and Credit Need Assessment for Medium and Large Scaled Biodigesters in Cambodia – Final Report (2019).

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