

Opportunity for Practice Change (OPC)

Country/region

Vietnam /5 pilot provinces

Title

Improved manure management through increased utilization of manure including bio-slurry

Situation analysis OPC

The Biogas Program for the Animal Husbandry Sector of Vietnam (BP) has developed a nationwide domestic biogas value chain and supported the construction of more than 142,000 digesters out of an estimated total of 500,000 digesters in Vietnam. Under the BP information is passed down from central to provincial and to district government (DARD) officials. SNV and the Department of Livestock Production (DLP) manage this BP, and train provincial and district government technicians who are in charge of both information campaigns on biogas solutions and execution of a quality control mechanism for the market.

Currently, there are about 6 million domestic animal farms most of which are smallholder farms with more than 6 pigs (on average about 20 -30 pigs) or 2 cows. In farms without digesters, manure is often not used and dumped in open lagoons or washed into the environment. In farms with digesters, manure is flushed twice a day directly into digesters, with therefore short storage times. But there is still limited use of bio-slurry from digesters. Currently around 40% of the farm households use bio-slurry. The others discharge it into rivers, ponds and sewers. BP's annual User Surveys show that barriers to utilization of bio-slurry include: limited knowledge (e.g. about its economic benefits) and distance from digesters to crop fields (application sites) which prevents households from making additional investment in bio-slurry storage, transport and pump systems. Some households do not have land where they can apply bio-slurry and lack space for composting.

Furthermore, an overall barrier to the adoption of biogas systems as a solution for manure management (MM) is an underdeveloped (micro) finance mechanism leading to limited access to finance for farmers with interest to improve their manure management system. There are now only a few small pilot farms with access to the micro finance mechanism. In addition, the results of the scoping study on enabling environment for MM indicate that the average knowledge level about MM is relatively low among smallholder farms. The result from the global assessment on MM can improve understanding about other relevant barriers, but the assessment is still being conducted.

Opportunity

Connected to the BP this is an opportunity to optimize manure management of farmers by raising awareness and knowledge about the effective use of manure including bio-slurry which also prevents pollution. With funding from LMMC: SNV and DARD will develop a training module on integrated manure management that, when successful, can become part of future trainings for new technicians and farmers with and without a bio-digester. This new module will be tested in pilot provinces.

Objective(s) OPC (*what achieved*)

Manure is optimally used for crop growth (including algae in aquaculture).

Target group(s) OPC (with whom)

Livestock farmers (1) with a bio-digester and (2) without a bio-digester in 5 provinces in Vietnam.

Method & Activities OPC (how)

The bottlenecks to improve current manure management including the use of bio-slurry, will appear in the region-specific in-depth part of the global assessment. This information will be partly used as a basis for addressing the bottlenecks in trainings for the current farmers in the BP which will take place in communities.

In preparatory phase, a Training of Trainers (ToT) on the benefits and methods of the use of manure including bio-slurry for government district and provincial technicians is foreseen. These government technicians will in turn pass knowledge to farmer households through on-site schooling sessions where one household as a good example is selected and 20 other households are invited to get on-site training.

A training of 3 to 4 days is foreseen, in which several training blocks will be presented by SNV and BP staff to the technicians from 5 selected provinces within the program. The training blocks will at least cover:

- (1) Creating awareness on the importance of manure management and the effects untreated manure and bio-slurry has on its environment.
- (2) Increasing awareness and knowledge on the use of manure and its income-generating benefits, for instance, on how to apply manure or bio-slurry in different crops. It will be as concrete as possible, directly instructing what mixture ratios are necessary, and how to collect and apply it.
- (3) Developing clear business models and providing micro entrepreneurship skills for farmers to translate the knowledge into additional income for the farmers.
- (4) Improving their communication skills for transferring knowledge to farmers.

Implementers (by whom)

SNV and DLP manage the existing national Biogas Program and are therefore well positioned to train relevant stakeholders and raise awareness of integrated manure management which may also influence future policy development.

SNV will work with the Vietnam Biogas Association (VBA) which has relevant experts and strong networks to develop and evaluate the trainings with regard to manure management. After the project ends the VBA can offer these trainings commercially to sustain themselves and sustain knowledge levels in the sector. For SNV this is a one-time event. In the end, none of the implementers will be responsible for the current practice problems and proposed solutions. They will merely facilitate the process to increase awareness and knowledge.

Furthermore, active cooperation will be sought with other domestic biogas initiatives in Vietnam like the IFAD funded “*Adaptation in the Mekong Delta (AMD) in Ben Tre and Tra Vinh Provinces*” project focusing on the role-out of the Kenyan domestic biogas design as well as the ADB funded Low Carbon Agriculture Support Project (LCASP).

(Expected) Results & Impact OPC

With increased awareness and knowledge about the utilization of manure and its income-generating opportunities, the majority of households are expected to start properly storing and using manure after training. The field-based-schooling sessions will directly enhance the capacity of 4,000 farmers with and without bio-digesters. Annually the program constructs 15,000 new digesters of which the majority of households will also directly benefit from the enhanced knowledge of the technicians, as they play a quality control and knowledge transfer role during the construction.

It is expected that the knowledge transferred through this training will not only be used by farmers with digesters but also by farmers without digesters and those who will construct one in the future.

The OPC may also contribute to better food security in cases of currently no or sub-optimal use of synthetic fertilizers. The improved use of manure including bio-slurry leads to increased crop (and algae) production and improved nutrient recycling, which also results in the reduction of SLCPs.

Risks & Assumptions OPC

Considering the political support to improve waste management in general and use of manure including bio-slurry in particular the risk is deemed small. OPC ties to an existing 11-year program. National level government strongly supports this initiative to increase the knowledge about proper manure storage and use and the associated benefits. Government technicians will be involved with extra work, however, with their strong and supportive leadership and financial compensation from the program for the out-of-pocket costs, experience shows that the activities will be executed in a very careful and high quality manner. The aim is to pilot the approach in the 5 provinces with possibilities to scale up to all 53 provinces that are currently active in the domestic biogas sector in Vietnam, however, such scale-up cannot be guaranteed through this program.

As with all policy development and capacity building of the Government, it is difficult to measure direct impact and assumptions will need to be made about the impact of the work of the technicians.

Added value LMMC

This project will make a significant contribution to increased use of manure for crop production and to moving the domestic biogas sector further towards a fully commercial market by increased income generation through bio-slurry application – which is what makes the project sustainable.

Whilst biogas technology is a solution for proper manure management, without the proper application of bio-slurry, there would still not be a full system in place securing the manure management from a to z. There are still many (environmental) benefits to be gained from the proper storage and use of bio-slurry, an activity that has been researched, but never disseminated in Vietnam (due to lack of funds). The LMMC contribution will go directly towards the dissemination of existing and newly collected information, and through the potential involvement of the network of the LMMC, additional existing international knowledge can be obtained.

Multiplier/Leverage

There are both national and international opportunities for replication and scaling up. Both opportunities are significant. Nationally: the project has a large potential for replication at scale, since market demand for improved manure management systems (including biogas technology) and government support for this has already been established (several policies in place, existing interest

in improved manure management). Due to the sustainable set-up of the sector in Vietnam, the market potential could be all household size animal farmers with a bio-digester. The number of domestic farmers is estimated in Vietnam around 6 million, of which currently an estimated 250,000 to 500,000 (different sources give different estimations) have purchased a biogas digester, of which 142,000 households have purchased through the SNV supported program. According to SNV's estimations less than 3% of this total market has been reached. The aim at (higher) impact level is to reach at least 40% of farms with biogas systems, and 1,000 farms without manure management systems in place. Better manure treatment has the potential to significantly reduce the livestock disease burden. With the natural link to food security this creates large scale potential positive impact for Vietnam.

Internationally: SNV has offices in 39 countries and domestic biogas programs in 20 countries. With SNV Vietnam being the second country to start implementing the domestic biogas program (after Nepal), it has automatically become the example for SNV offices worldwide.

With its market based approach the project is aiming at the development of a commercial sector including bio-slurry application, this approach is based on the fact that this is seen as one of the only ways that its efforts will continue beyond the funds available through LMMC and other donors.

Communication

Nationally: in addition to the findings and trainings from the project being shared between DARD officials, the VBA will play an active role in distributing them through its communication materials (online and in print).

Internationally: SNV Vietnam has actively disseminated findings from their program to peers, for example SNV Asia hosts annually a large knowledge exchange workshop in cooperation with Energy for All (ADB), EnDev and other partners (a 3 day event with one full day dedicated to field visits and on-site knowledge exchange), and this was hosted in 2013 in Vietnam. Furthermore, there is an internal knowledge sharing system (through an intranet portal) through which all findings are shared within the international Renewable Energy teams in 39 countries.