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Coconut Risk Management and Mitigation Manual for the Pacific Region



Compiled by R. Bourdeix, J. M. Sourisseau and J. Lin

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39. ADOPTION OF AGRICULTURAL INNOVATIONS

By J. M. Sourisseau, R. Tautua and R. Bourdeix

Description

The risk is that the first farmers who decide to try or apply an innovation find themselves in a difficult situation because their community or some of its members do not appreciate the changes brought by this innovation. This may happen because the innovation did not work as expected, but also in cases where it worked perfectly.

Agricultural innovation is a socially constructed process. Innovation is the result of the interaction of a multitude of agents and stakeholders. If agricultural research and extension are important to agricultural innovation, so are markets, systems of government, social norms, and, in general, a host of factors that create the incentives for a farmer to decide to change the way in which they work, and that reward or frustrate their decisions. Combined with the highly volatile cultural dynamics of the Pacific Society, this influences the whole dynamics of adoption of innovation.

Occurrence and severity

Introducing changes in agricultural practices most often means introducing changes in interpersonal relationships and in the global social organization of a community. This social and cultural dimension may be risky for the farmers implementing the innovation, but may also, indirectly, change the farmer's exposure to other diverse risks, and their capacity of prevention, mitigation and adaptation to risks.

An example from Samoa illustrates an innovation not applied in the right way that could have caused serious problems. In Upolu Island, a dozen coconut palms, located in a small farm and around, started to die. Trapping *Oryctes* beetle with pheromones is a widely used method, for oil palm and coconut, in many countries but not yet in Samoa. It generally works perfectly. In this farm, the first pheromone beetle trap in Samoa that was tested.

This trap proved to be very efficient with up to 80 beetles trapped per week. Only a single trap in the middle of the coconut plantation was first tested. So, many beetles were attracted, and a few of them remained in the palm's crowns; where they fed and killed many coconut palms from the poor farmer and his neighbours, creating in fact an unexpected event and introducing a new risk. Our recommendation was installing the traps close by but *out* of the coconut plantations, and preferably to install several traps simultaneously in the same zone.

Such a situation illustrates the need for very careful communication and implementation. Otherwise, it may jeopardize the national acceptance of this innovation, and create community troubles for both the farmers and extension services. In the case of inappropriate communication, this example could have resulted in all the farmers refusing to use pheromone traps, compromising a crucial part of the beetle risk mitigation strategy. The farmers may also ask for compensation for the palms killed because of the trap.

Other examples illustrate the possible negative impact of a successful adoption of an innovation. In French Polynesia, we observed that seedlings of rarest varieties of coconut (Compact Red Dwarfs) were stolen overnight in farms and gardens, as too many people had been informed of their great interest. Elsewhere, a Pacific farmer who decided to grow Dwarf coconut varieties with Brazilian or Thai advanced techniques, would probably become very rich if they succeeded in both cultivation and marketing their production with tourism

industry. But accomplishing this, they will jeopardize the existing trading system, in which harvesters climb Tall palms with great effort to get only a few tendernuts. Some of these climbers may lose their business and conflict may result.

The success can generate tensions and new social risk exposure. An innovation resulting in the emergence of commercial success for one single farmer can introduce social disparity and inequalities. The risk of a too fast commodification by innovative farmers can be seen as severe and undesirable by traditional authorities. Therefore, a social control may constrain the innovative farmers and generate economic and social risks of exclusion for these farmers.

The same mechanisms can occur in the adoption of a wide range of innovations: new coconut varieties, new inputs, new techniques, new trading practices, etc. For instance, in the Solomon Islands, coconut palms serve as ancestral landmarks and heritage proof. This sometimes jeopardizes replanting programs: since the old palms possess an ancestral significance the clan may decide to isolate the farmer trying to replant, as punishment.

Mitigation and adaptation

Mitigation and prevention may rely on a careful choice of the mode and the timing of the communication regarding innovation. For the first risk described, it is important to anticipate the possible negative impacts of a change of practices, and to communicate them. This requires multi-dimension analyses: agronomic knowledge is not sufficient and needs to be complemented by social understanding of the possible consequences of changes.

In the same vein, recognition and reward processes should be implemented for those who first dare to try innovation. Mitigation of the marginalization process needs progressivity, precaution, and a prior effort to understand the socio-economic dynamics of the targeted society.

Actions to undertake

Socially marginalized people or groups are defined as those who are typically disadvantaged or excluded from certain activities of programs and projects because of environmental, economic, social or cultural characteristics. Even though social marginalization is a key aspect of poverty, it is difficult to create and sustain coordinating organizations that include marginalized actors, especially women and landless farmers. Such organizations are often opposed by civil servants, politicians, intermediaries, or wealthier farmers who see their power challenged. Despite opposition, they can offer some solutions to facilitate the social acceptance of innovations.

- Improve ability of extension staff to mediate between the conflicting principles of farmers' self-organization and government control. This is a key challenge for increasing innovative capacity. The idea could be to introduce a participatory progressive process, through platforms or other mechanisms, in innovations diffusion and promotion.
- Run workshops to enlighten local people and talk separately with people negatively affected by innovation. Example: Local healers who may be negatively affected by a recently introduced health product based on coconut
- Make sure that benefits of new innovations/developments are shared equally with the local community. More broadly, to avoid marginalization, collective action should be enhanced and reinforced. When an innovation and changes are brought collectively, respecting the customs pathways and rules, the social reception and acceptance are improved.

References

- O'Flynn, T., Macken-Walsh, Á., Lane, A., & High, C. (2018). Farmers doing it for themselves: how farmer-inventors are frustrated by their interactions with the Agricultural Knowledge and Innovation System. In *13th European International Farming Systems Association (IFSA) Symposium, Farming systems: facing uncertainties and enhancing opportunities, 1-5 July 2018, Chania, Crete, Greece* (pp. 1-15). International Farming Systems Association (IFSA) Europe.
- Biemans, W. (2018). *Managing innovation within networks*. Routledge.
- Akullo, D., Maat, H., & Wals, A. E. (2018). An institutional diagnostics of agricultural innovation; public-private partnerships and smallholder production in Uganda. *NJAS: Wageningen Journal of Life Sciences*, 84(1), 6-12.