

# Technical Assistance of Traditional Knowledge and Local Technology Transfer

Lessons learned and suggestions  
from Japanese experience of projects combating desertification



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## Importance of the Use of Traditional Knowledge

### 1 | COP Decisions, UNCCD (United Nations Convention to Combat Desertification)

#### Decision1/COP.7 *Strengthening the implementation of the Convention in Africa*

- The conference of Parties, *Invites* developed country Parties and international organizations to support UNCCD programmes in Africa in promoting sustainable land management and poverty alleviation and in assisting the efforts of developing country Parties to **disseminate and use traditional knowledge** and to upscale good practices (para. 14);
- *Urges* the Committee on Science and Technology (CST) to pay particular attention to meeting the knowledge needs of African country Parties, including local communities, to combat desertification and poverty and to manage land sustainably **by applying a mixture of traditional knowledge and modern technology**, including information technology (para. 15).

#### Decision16/COP.7 *Traditional knowledge*

Concerning traditional knowledge, the Conference of Parties,

- 1 *Encourages* Parties to develop initiatives on traditional knowledge in collaboration with other institutions and organizations;
- 2 *Invites* Parties to protect, promote and use traditional knowledge, involving local experts and local communities;
- 3 *Further invites* Parties to foster integration of traditional and modern knowledge in combating desertification.

### 2 | Japan's Experience in Modern Technology Transfer

From 1995 to 2002, Japan constructed a subsurface dam to make groundwater effective use in an arid area of Burkina Faso, and this properly provided local people with 2,700m<sup>3</sup> of water annually. However damage to the solar panels that served as power source to pump water to the surface is currently preventing this dam from operating normally.

This example reveals that when technologies developed in developed countries are transferred to arid areas of developing



Stolen solar panels

countries, there is a possibility that problems might arise in the maintenance and application of these technologies. The use of traditional knowledge and existing technologies that have the capacity to develop the know-how necessary for maintenance, for supplying materials and for application to other areas, will be of utmost importance.

When introducing modern technology, it is important to do preliminary groundwork in order to understand the target area's characteristics, local technologies and existing transferred-technologies, and then to explore the applicability of the new technology to be introduced in the area. Empowerment of the local people must at the same time be a appropriate. Hence Ministry of the Environment, Japan put some points for consideration of the use of traditional knowledge and local technology together in this report.

Note) The expression, 'traditional knowledge' in this report means not only knowledge transmitted from the past within the area concerned, but also knowledge and technologies currently available there including technologies imported from abroad.

## Outline of the Pilot Project of Japan

A pilot project for transfer of traditional knowledge and local technology was conducted in a village affected by desertification (Tokabangou, Burkina Faso) between 2004 and 2007. During project implementation, the traditional knowledge, technologies and know-how that had been used effectively against desertification in neighboring areas were identified, and through workshops and study trips, the local residents themselves decided what knowledge, technologies and know-how they

wanted, and made efforts to master the desired technologies and then disseminated and established these in their village. The lessons learned from this experience are shown in the following sections.

While working on the project, there was discussion of how various supporting institutions should cooperate and what their roles should be as well as how local people should be encouraged to involve themselves in technology transfer.

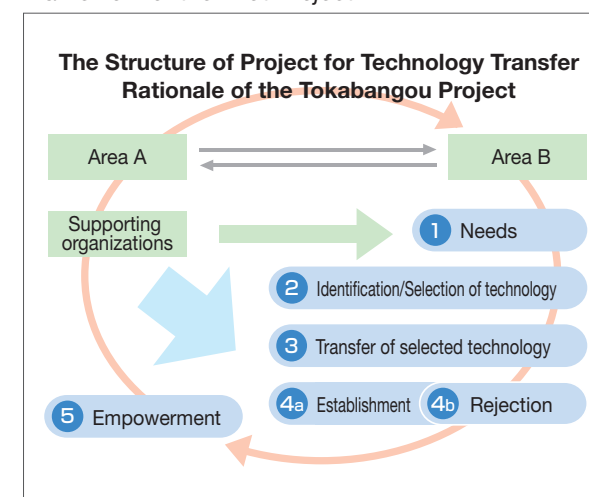


Sewing training

Trial Group members digging Zai



#### Framework of the Pilot Project



- 1 Identification of desire necessary to solve problems in the area concerned
- 2 Identification and selection of technologies that could meet desire
- 3 Transferring the technology (person, knowledge) from its original area to the target area
- 4 Establishment of the technology: trial of transferred technology, modification to suit the target area, re-trials, dissemination within village, establishment
- 5 Residents' empowerment (\*) through stages 1~4

NOTE) This project's aim is strengthening the local residents' capacity to find and use technologies to combat and address desertification and to improve people's adaptability.

#### Main actors in the project

- Village residents** main role in charge of identification of needs, identification/selection of technology, transfer/establishment of technology
- Village residents (Area A):** providing technology, giving instruction
- Local coordinator** AGS- Japan (Action for Greening Sahel, Japanese NGO, operating in the project area)
- Local Follow-up** OOS (Operation Oasis Sahelienne)
- Project supervisor** Global Environmental Forum (coordinator in Japan, project monitoring)
- Project planning/donor** Ministry of the Environment, Japan

# 3 Lessons Learned and Suggestions

**1** In terms of securing ownership, it is important to encourage local residents in the project area to visit other communities that possess and apply traditional knowledge, and to urge them to identify and select the technology for their own use through traditional decision-making processes. When necessary, complementary methods should be also introduced in order to make traditional decision-making fully participatory, especially for women.

- Preliminary survey is necessary to fully understand the current situation before the project starts: for example, whether or not the local people already know about traditional knowledge available, what sort of knowledge exists and where it can be found.
- Sufficient discussion is needed on the potential medium/long term effects for desertification control and improvement of their livelihood by introducing another area's traditional knowledge; after its necessity is fully understood, the project must be carried out by local people's own initiative (with a sense of ownership grown among them).
- Addressing poverty and improving people's adaptability by creating new sources of income (making soap, sewing, etc.) not dependent on land-based industry such as agriculture is essential. It is also necessary to adopt technologies

that will mitigate development pressure on land through the introduction of appropriate agricultural practices, etc. and that will directly contribute to the recovery of degraded soil through tree planting, etc.

- Direct involvement by residents in study visits for first-hand collection and understanding of information is effective, in order that the traditional knowledge to be introduced can be explained and fully understood. (Selection of participants for study visits can be an important issue here.)
- Arranging the preparatory process so as to stimulate local people's initiative is vital. This includes holding review meetings after the study visit and making consensus through traditional decision-making process. (In the past, some troubles were caused when aid agencies dealt directly with the individual members of the local community.)

## Example Traditional Decision-Making in Tokabangou

### < Decision-Making Method >

After prayers at the mosque, everyone gathers to hold a meeting for decision-making. There is a seniority system under which older villagers' opinions tend to carry most weight. Women are excluded from village decision-making. To complement this process, in parallel with men's plenary meeting, women's meetings were held in three areas of the village.

**[Comment]** Representatives from each district attend a general assembly and are responsible for passing on the results of discussion at the district meetings. Selection of the representatives for the meetings and study visits was done fairly, based on criteria of honest and responsible character, and ability to explain details clearly. Among the women, also, suitable people were nominated, the decision-making process therefore, was felt to be rational.



Soap making group

**2** Review and evaluation of the activities conducted by a trial group, which applied the newly introduced technology in advance, is important in order to determine whether the technology transfer should be stopped, continued or expanded. When activities have achieved good results, it is important that they are reported widely, to expand the activity; however, the group that applied the technology in advance is likely to exclude newcomers. A mechanism is needed to prevent one particular group from monopolizing technology and profiting exclusively from it.

- When selecting which technology should be introduced, reviewing the results in advance is possible through a trial activity. Even if it has been already determined that a particular technology is to be applied, the scale on which it should be introduced will depend on the assessment and review of the trial activities. A determination not to proceed is also possible as a result of this review. As the project activities require investment, in terms of funding and labor, to maintain them on a continuous basis, it is important to conduct regular self-assessment and to become self-reliant. (A certain amount of training is necessary for this assessment process so that the local people keep written records of the details of their activities, the rents paid (for project sites), account balances, and maintain these responsibly.)
- If a trial group achieves a successful result, publicity of this news widely is indispensable for extending the

project. For this, regular reports at the local meetings are important. In order for technology transfer to develop, it is important to decide in advance the rights to a transferred technology what should be and how to allocate the profits gained. Creating a permanent mechanism for sharing technology transferred within the village is also necessary. (In some cases in the past, it was found that certain trial groups excluded others who wanted to join the project, in order to monopolize the profits from the project and also the transferred technology.)

- For improving the sustainability of the project and securing a sense of ownership, it is important to introduce a benefit approach principle, through a loan system (micro-credit, etc.) available to newcomers from a fund created from the profits gained by the trial groups while applying technology transfer activities in the project area in advance.



## Example Cases where exclusion occurs

### 1 Exclusion related to the use of machinery

Individuals cannot afford to buy sewing-machines (to improve their livelihood). The machines are managed on a group basis from the beginning. In order to minimize risks, therefore, these groups are likely to be exclusive.

### 2 Exclusion for economic reasons

As a result of activities by a group, profit would be generated sometimes, and it is sometimes necessary to pool it in order to

prepare for keeping group's activity. Exclusion occurs in terms of limiting the right to use such funds.

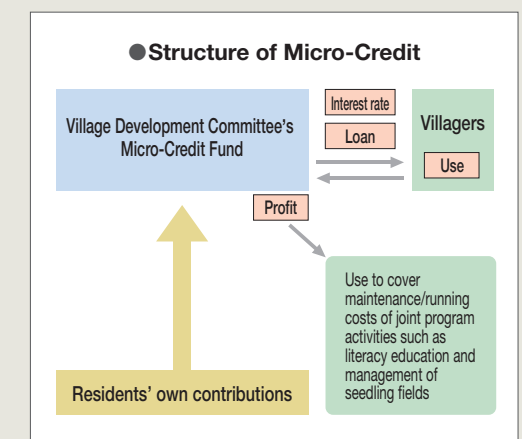
### 3 Exclusion based on social factors

Sometimes exclusion occurs in order not to disturb the solidarity of a group.

## How to improve the sustainability of a project: from a participatory research

Since 2000, 60 villages (total population 40,000) in southern Segou, Republic of Mali, have been involved in a comprehensive rural development program that was organized by mainly JICA, and which also addressed interconnected problems such as desertification, poverty and gender. In this program, activities that will bring benefit after long-term are combined with small-scale projects that will bring immediate effects in improving livelihood of local residents. The former include afforestation, and the latter, the promotion of thermal-efficient cooking stoves to reduce the use of firewood, and the installation of wells for safe drinking water. In implementing the program, emphasis is placed on training village instructors and residents' leaders. At the same time, local people are taught how to read and write so that they can keep records of the results of their meetings and of their action plans.

To make the project sustainable, a micro-credit system has been introduced, funded by the residents' own contributions. This has provided loans to the local residents' businesses, and the profit generated has been used to hire teachers for literacy education, and to cover management costs of seedling fields.



Source: Japan Green Resources Agency

**3** Technology to be introduced cannot be expected to have a uniform effect everywhere, if the conditions are different, such as topography, vegetation and soil. Sometimes applying the same technology in certain area is difficult due to different socio-economic conditions. **Some adaptation/improvement is necessary to make the technology being introduced suitable to the local geography, or to physical and socio-economic conditions in the target area. It is also important to advertise various possibilities of methods how to improve/adapt them.**

- In general, people are likely to think that 'learning' a technology means making an exact copy of it. But differences between localities, in physical conditions like land/soil and in access to necessary materials/equipment, can make the transfer of exactly the same technology work less effectively than expected. The same investment also can cause different results in different places.
- Adopting new technology can become easier or more effective by fully understanding elements of the technology transferred, and adapting/improving it in order to make it suitable to the physical conditions of land and the community's social/economic/cultural condition, and also by making use of

locally existing resources.

- The local residents might not be able to adapt/improve the transferred technology voluntarily, because the technology is not already known to them. The careful presentation of various possibilities of methods on how to improve/adapt the technology is necessary, taking into consideration the local physical and socio-economic conditions.
- The materials/equipment necessary for the transferred technology should be obtainable locally. If the technology aims at improving adaptability of the local residents and increasing income, careful market research is also important.

**4** In order to make technology transfer sustainable, it is important that **the project be established as a part of national/local government policy, that the activities/training related to technology transfer be systematized, and that a cooperative partnership is also established with other aid institutions in the area (including NGOs working onsite).**

- In some cases, one aid organization is unable to maintain its base in the same area and continue supporting technology transfer permanently there. It is important to make the projects more efficient and to secure their continuation, through establishing partnerships with international aid organizations/agencies such as WFP, UNHCR, UNDP, World Bank and AfDA, and with various national organizations/institutions such as JICA, USAID, DFID and GTZ.
- It is also important to encourage the national/local governments in the

country concerned to make technology transfer a priority policy as a measure for desertification control, and eventually to mainstream the relevant activities/training to combat desertification within their own governmental system.

- To achieve this, it is important to promote empowerment of local governments by the national government and simultaneously to develop the capacity of local government officers to enable them to cope with decentralization.

### External Actors as Facilitators in Improvement Projects (A Lesson from Japan's Experience of Post-WWII Reconstruction)

In Japan, accumulation of social improvement activities called Life Improvement that were implemented in rural areas after the World War II laid the foundation for the later high economic growth on the macro level, by a quick and equal distribution throughout the country. In Post-War Japan, funds were very limited, and therefore the operative strategy was 'more ideas, less money' (\*).

In Tokabangou village, too, the initial attitude was to wait for in-put from the supporting institutions, rather than, by trial and error, to look for methods suitable to their community that would use the village resources. Villagers were more focused on 'what will the supporters do for them?' or 'how much salary is paid for participating in the project?' It thus became apparent that the aid institutions were depriving them of the opportunity to take their own initiatives.

During this project, at workshops and the planning stage, villagers were told that the transfer and promotion of technology should be done without spending much money, and by making the most of their local resources. Evidence of improvement in equipment procurement, etc. was already appeared in the trial group activities.



Training of cultivation methods ©AGS-Japan

(\* Source: Kan Sato, 'Feature: Japan's Experience of Rural Development of Post WWII' 2002, 'International Development Study' Vol.11/No.2, 2002 佐藤寛(2002)「特集:戦後日本の農村開発経験」, 国際開発研究 11(2), 国際開発学会

### Roles of Intermediary Organizations in the Project

The intermediaries in technology transfer projects include NGOs and consultants, and their roles are categorized as below.

| Category          | Role of Intermediaries   |
|-------------------|--|
| Service Provision | Intermediary organizations provide services to programs implemented by governments or aid organizations/agencies.  |
| Promotion         | Intermediary organizations encourage the villages to establish residents' organizations, by providing resources, and also support aid organizations/agencies.                              |
| Contact Points    | Intermediary organizations serve as contact points between aid organizations/agencies and local residents as these make approach to each other.  |
| Facilitation      | Intermediary organizations serve as facilitators for both aid organizations/agencies and local residents.  |
| Assistance        | In response to local residents' requests, intermediary organizations obtain resources and services from the market and aid organizations/agencies, etc. according to the residents' needs. |

Source: "Analysis of Participatory Development Systems: reviewing studies on the functions and mechanism of intermediaries", N. Takeda, 1998 武田長久(1998)「参加型開発の制度分析: 仲介組織の機能とメカニズムに関する諸研究のレビューを中心として」, 国際開発研究 7(1), 国際開発学会

This project's intermediary, the Action for Greening Sahel (AGS) served as a promoter and a service provider at the beginning, and during the last half of the project term, it became a contact point and a facilitator. At the end of the project, OOS, which had been involved in the project from the beginning, replaced the AGS and served as an advisor to support the project.

