

**User Manual**  
**LIFE**  
**Model**

**additional item 2**

**Manual of the fight against lavakas**

## Introduction

The development project of the Integrated Approach to Rural Development and Environmental Restoration Morarano Chrome (hereinafter referred to as "PRODAIRE") started in February 2012 with the aim of establishing a model for large-scale (hereinafter referred to as the "LIFE Model") to promote integrated manner rural development and soil conservation in upstream areas degraded in Madagascar. To build the model, PRODAIRE has implemented various activities in the Alaotra Mangoro Region and Bongolava Region over the past four years, has developed a methodology and accumulated know-how for the implementation of the LIFE model. The user manual of the LIFE model (hereinafter the "User Manual")

Among the activities of PRODAIRE, stabilizing lavaka<sup>43</sup> is one of the most important for soil conservation in upstream areas degraded Madagascar. In fact, it is fact that erosion lavakas is the one that most affects watersheds in the regions mentioned above, often causing significant damage to the surrounding communities. The upper watershed being seriously degraded lack of fertile land, and the population can not afford to work on such soils within add investments such as fertilizers. Moreover, the degradation of watersheds causes flood, floods, droughts and many downstream sedimentation with adverse effects on agricultural production. It thus proves crucial to fight against these lavakas to improve the livelihoods of the population living in these areas.

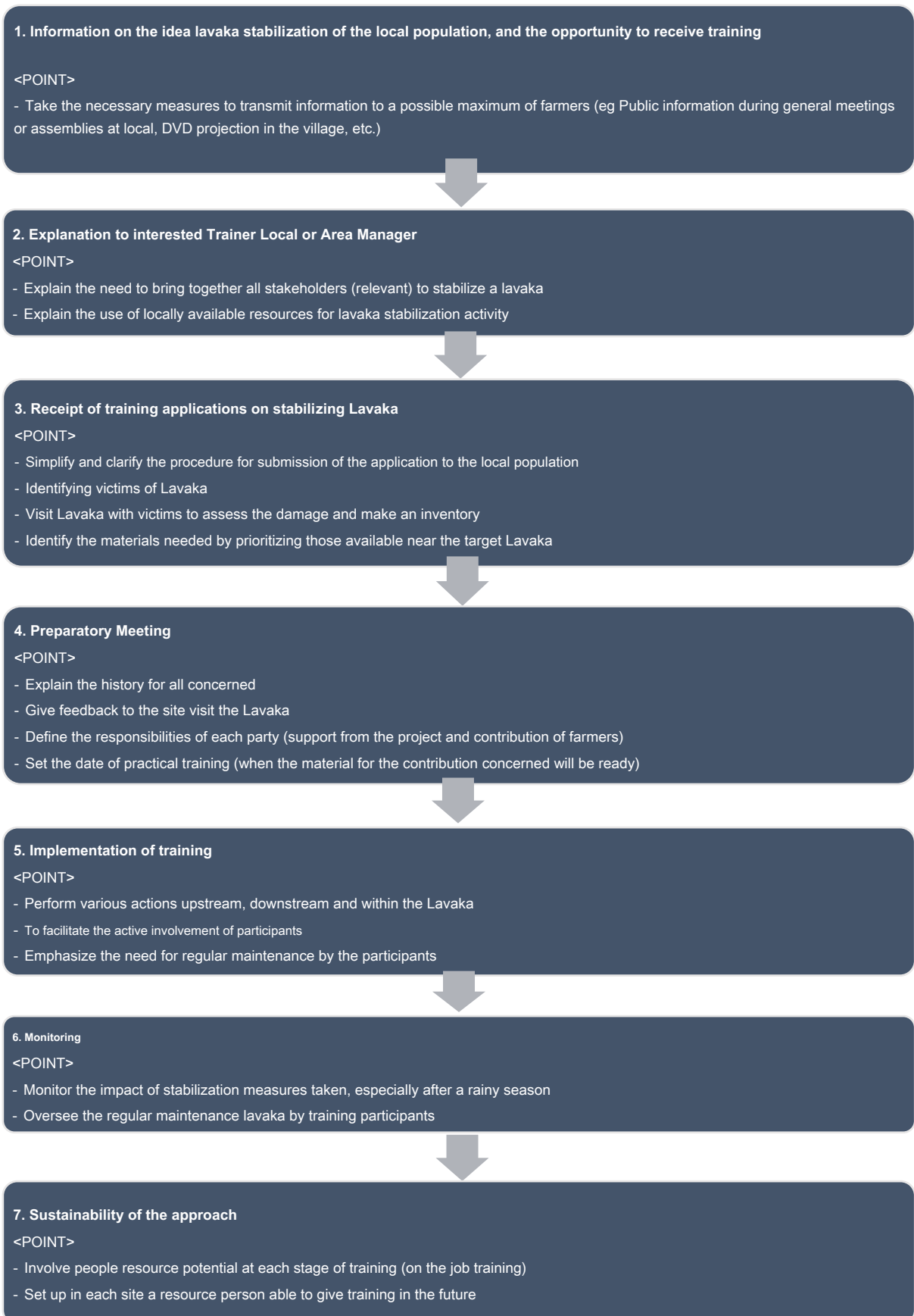
According to this history, this handbook for participatory fight against lavaka was developed in Annex user manual LIFE model, based on experiences in Alaotra Mangoro region. The objectives of the manual is to help you manage a lavaka stabilization project (hereinafter referred to as "the project") in i) helping you understand the objectives and methodology for extension of control techniques against lavakas and ii) providing the sustainability of such activities initiated by the local population. The popularization of struggle against lavakas activities, as well as the sustainability of these activities can be carried out mainly through the training provided to the local population as well as monitoring of their activities according to the five principles of PRRIE ( "*Participatory Rural Development and Resource Management by Integrated Training for Equal Opportunity* ") :

1. Responding to local needs
2. Developing local human and material resources
3. held locally
4. Open to all
5. Aiming possible majority of the population

The table below shows the seven steps of lavaka stabilization activities in the LIFE model.

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<sup>43</sup> Lavaka is a Malagasy word meaning literally hole; used to describe deep excavations roughly ovoid with very steep walls, shaped in the weathering of crystalline and metamorphic rocks by runoff and sub-flows. (Source: "Lavaka" <http://fr.wikipedia.org/wiki/Lavaka> , January 10, 2017)



The process of training the stabilization Lavaka in the LIFE model

## 1. Information of the local population on the idea of lavaka stabilization and the opportunity to receive training

It is difficult for an outsider to identify the persons concerned by a lavaka without investing time and money because the ownership of surrounding areas lavakas is quite complex in Madagascar. The LIFE model addresses this challenge by informing all farmers in the target region of the opportunity to fight against lavaka well as equal opportunities for training to identify qu'euxmêmes among relevant to stabilize a lavaka. Therefore, it is essential to take effective measures to disseminate information to as many people as possible in the target area. These measures would be the dissemination of information at local level meetings fokontany or DVD projection on your project on the fight against lavaka. Precisely for this purpose,

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- Take the necessary measures to inform the many people as possible the idea of struggle against lavaka well as equal opportunity to receive training.

## 2. Explanation for those interested in the Local Trainer Manager or Area

In this step, the Local Trainer or Area Manager discuss with the persons who are interested in the fight against lavaka and reminds them that they are not the only ones affected. This is to involve and collaborate all relevant affected by the lavaka, even if they live far from the lavaka area. They all interest in collaborating because the responsibility for maintenance of the site lavaka after training by the Project upon them. Local Trainer or the Zone Manager will also explain to them that your project will use locally available materials, and support from your project is only the technical instructions.

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- Explain the need to involve all concerned to work together in the fight against Lavaka.
- Explain the use of locally available resources to stabilize lavaka.

## 3. Receipt of training applications and targeting Lavaka

The interested local people mentioned above will submit your project a training request. Your project must simplify as much as possible the training application process and explain the procedure known to the target population. The PRODAIRE has used a "correspondence book" in Alaotra Mangoro Region in which all training requests from villagers are saved and transmitted to the area through the Local Manager Trainer. However, the tool for the transmission of applications as part of your project must be updated and adapted to any situation. After receiving the request



A resource person observing a Lavaka

training, the next step is to identify the lavaka to treat. The Zone Manager, the (s) Person (s) Resource (s) <sup>44</sup> Local Trainer and identify victims lavaka informing the local population's visit lavaka where everyone is invited to participate. Then they visit

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<sup>44</sup> Contact Person: A resident who has the expertise and technical experience to the fight against lavaka.

lavaka sets the site to assess the damage (issues) and observe the situation of the premises. At the same time, the resource person will list the materials that are both necessary for the formation and unlikely to be stolen, giving priority to those available around the lavaka. The resource person will provide the necessary technical knowledge.

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- Simplify and clarify the training application process by locals.
- Identifying victims of lavaka.
- Visit the venue's lavaka with victims to assess the damage and monitor the situation of the premises.
- List the materials needed, prioritizing those available near the targeted lavaka. (This activity is performed by the resource person who will provide the training.)

#### **4. Preparatory Meeting**

The trainer, ie d., Resource Person, will hold a preparatory meeting with the concerned. This preparatory meeting includes: i) an explanation of the history of the fight against lavaka; ii) the report of the visit of lavaka; iii) sharing of responsibilities between the project and the population; and iv) the decision on a date for the training. This is the decisive step to confirm the genuine will of the local population to continue or not the activities against the lavaka, taking into account various factors such as the availability of resources.

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- Giving a history of the fight against lavaka with the project, objectives and approach.
- Giving an account of the visit of the places targeted lavaka.
- Define responsibilities of your project and the local population concerned.
- Set a date for the training to which all concerned will be ready with the necessary materials.

#### **5. Implementation of training**

After the preparatory meeting, the Contact Person will conduct training at the place of lavaka to treat. The training consists of the following activities:

a) Distribution of tasks among the following participants:

- Placing holes on all lavaka rim to plant trees
- **Implementation of erosion control devices<sup>45</sup> to slow downstream sedimentation**
- Favoring the existing vegetation within the lavaka

b) Establishment of a monitoring visit program

c) Identifying Potential Resources People for the fight against lavaka among the participants of the training

In step a), tasks are allocated to participants in the different parts of lavaka Treaty. First, there is the upstream part of lavaka the edge of lavaka. There has to be by planting fast-growing trees. To do this, it is important to observe the surroundings of lavaka to identify the type of vegetation that is already there, and nurture them by adding them and adding if necessary other vegetation available on site. Species such as acacia, Grevillea, pine, eucalyptus, and azedarach mélia are recommended according to need and availability.

Then downstream of lavaka the sediment runoff should be held back and slowed down. To reduce stormwater flow that carries debris to rice paddies and downstream farming land, it is

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<sup>45</sup> The anti-erosion devices include fascines about 70 cm in height which are used to slow down the sediment carried by the runoff crafted with local materials such as round wood, bamboo or other shrubs.

necessary to install erosion control devices known as "fagots" along the canal. These "fagots" will be crafted with locally available materials, and their structure resembles a low wall 70 cm high. Usually roundwood as well as gaulettes are used. It is also strongly recommended to use bamboo or other local shrubs. Thanks to the high water flows, the growth of these shrubs will be promoted, and eventually they will stand like a wall against the alluvium.

Finally, inside the lavaka, the main actions that follow are to promote the development of existing vegetation; fertilize the soil; planting no-till seed capable of growing even in a harsh environment; to be ground fixing plants like banana and sisal. All these actions must be combined to achieve the goal mentioned above.

In most cases it is not possible to perform these actions in a single day because of the large size of lavakas. So training mainly consists of both a demonstration and encouragement of participants to combine practical training with theoretical explanations. In exceptional cases where training could be completed in one day, the trainer should emphasize the need for regular maintenance by the participants.

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- Driving the erosion control measures upstream, downstream and within the lavaka.
- To facilitate the active involvement of all participants in the training.
- Emphasize the need for regular maintenance by the participants.



**Training Scenes**

## 6. Monitoring

The fight against lavaka in itself is not a one-time activity but requires ongoing monitoring and actions. There are two main points to be confirmed: i) the effects of actions against the lavaka during training; and ii) conducting regular maintenance by the participants of the training. During the rainy season, "fagots" installed will be filled with debris or buried underneath. Also, they must be regularly monitored, especially after the passage of the rain, to ensure they are working properly. Likewise, check the trees planted around and inside the lavaka.

Regular maintenance by the participants of the training is the other point to check. It is necessary to ensure the voluntary involvement of participants in i) regular reinforcement and / or repair of "fagots" and ii) planting continues in both lavaka rim and also along the path of runoff debris inside the lavaka.

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- Check lavaka effects of stabilizing actions especially after the passage of rain.
- Follow regular maintenance lavaka by the participants of the training.



Photos of Fascines

## 7. Sustainability of the approach

Your project like any other has an end. Thus, the sustainability of activities against the lavaka entirely on the level of integration of concerned even more vulnerable. In this sense, the local availability of person (s) Resource (s) is of paramount importance. Even after the start of your project, these people can assist local resources involved to continue the activities against the lavaka over the long term. It is also important to transfer simple techniques to Potential Resources Persons identified during training, by involving them in all successive stages of formation. This will help them acquire skills, to improve their capabilities in all aspects, including social mobilization.

The cascade training is the most appropriate form to transfer technical knowledge from external trainer to level the Fokontany and the local population.

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- Involving People Potential Resources in each step of the training, through training on the job.
- Set up in each site a (the) Person (s) Resource (s) capable (s) to conduct training in the future.