

Replicable Participatory Water Harvesting Selection Methodology

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DELIVERABLE 2.2:
Replicable Participatory WH selection methodology

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1 Introduction

There is a wide variety of WH technologies that could potentially be of interest for a given area to a given group of land users, but how could these land users be assisted to select promising and innovative technologies? WP2 designs, implements and validates a participatory WH technology selection methodology. Within WAHARA, participation of stakeholder is crucial. Only by involving them is it possible to select water harvesting technologies (WHTs) that are not only effective from a bio-physical or technical point of view, but that are also supported by stakeholders. If stakeholders do not feel ownership of WHTs selected for testing in WAHARA, it is unlikely that such WHT would be adopted more widely. As a result of the participatory approach used in WAHARA, stakeholders are involved in all WPs of WAHARA. This document focusses on the methodology that was used to arrive at a selection of WHT for testing. The methodology applied in WAHARA was developed from that used in the DESIRE project (Schwilch et al, 2009, 2012).

2 General methodology

The overall methodology that is used in WAHARA is shown in Figure 1, and can be summarized as follows:

- Find out what stakeholders think about WHT. Whether they are familiar with it, what they would like to achieve with it, what criteria they apply to decide whether to use is etc. This was done in the first stakeholder workshops held in WP1 (deliverable 1.3)
- Select some technologies to describe with WOCAT questionnaires in each country based on the feedback received at the first stakeholder workshop.
- Fill the WOCAT questionnaires for technologies as well as for the approaches associated with these technologies, with input from stakeholders (see deliverable 2.1).
- Search the WOCAT database for any other technologies that seemed promising for the study sites, based on the aims the stakeholders have. Generally, each practice should have an impact on yield of crops; on livestock; economics or vegetation
- Organization of a stakeholder meeting to select WHT according to a standardized methodology. Stakeholders always included local land users, but also (in varying degrees between sites) provincial or communal extension services; political leaders; local authorities; researchers and farmers organisations.

The next section describes the standardized methodology that was developed for the stakeholder workshops. This methodology was discussed with study site partners during a meeting that was held in Wageningen, on 17th and 18th of September, 2012. This meeting also served to maximise cross-pollination between sites, and to help researchers to gain a thorough understanding of each others' sites technologies (and also of the third party contributed technologies) before conducting the selection workshop with stakeholders in their own sites.

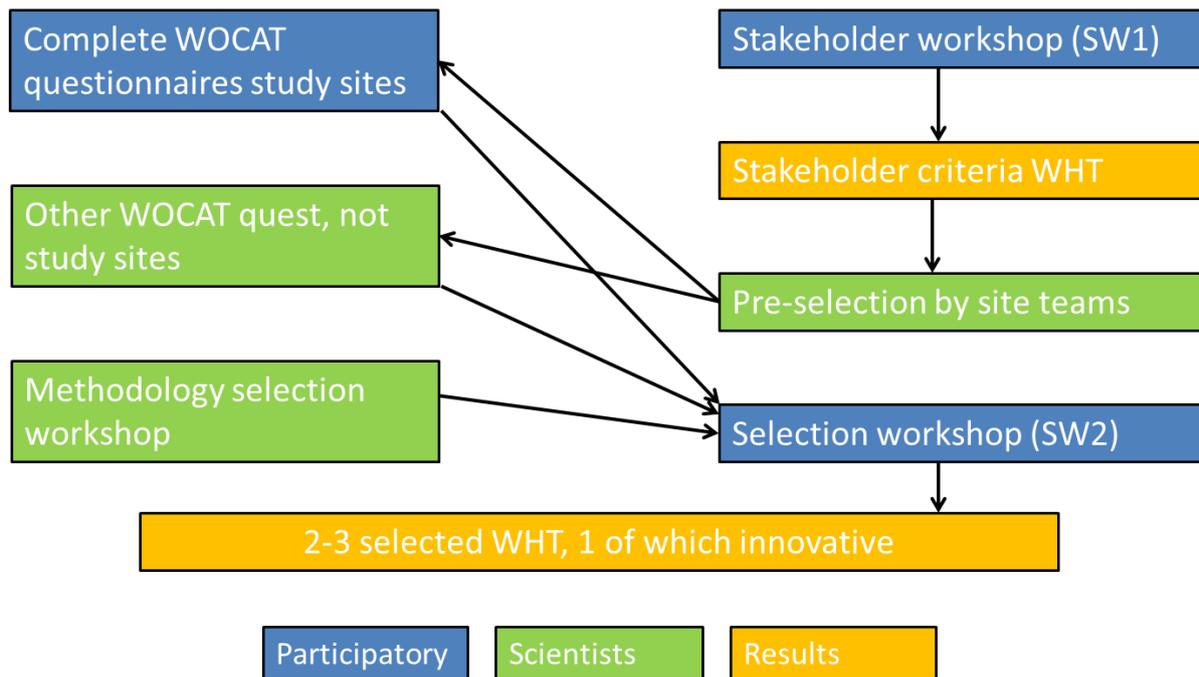


Figure 1. Overview of selection methodology

Experience with participatory selection methodologies has shown a bias towards the known and therefore the assignment of the researcher workshop also was to identify a technology not locally known, that will be selected alongside with technologies prioritized by local stakeholders for inclusion in performance monitoring experiments (WP3).

3. Workshop methodology

The objectives of the stakeholder workshop are:

- To Select 2-3 options of the WOCAT database to implement in each study site
- To strengthen the collaboration between stakeholders in the site, including between researchers and stakeholders

The methodology regarding the stakeholder workshop to select WHT for test implementation consists of 3 parts: preparation, workshop and reporting. The intention is that the formats are standardized as far as possible, so that the methodology followed in the 4 WAHARA sites is comparable. Nevertheless, site specific adaptations might be necessary based on site specific circumstances. A much more extensive description of how such a workshop might be organized can be found in report 17 of the DESIRE project (Schwilch et al, 2008). The methodology described here is partly based on the DESIRE work, and partly on partner experience within WAHARA.

3.1 Preparation

First workshop

Read the report of the first workshop (held in WP1, see deliverable 1.3) again to ensure that what was said there is taken into account.

Pre-selection of water harvesting techniques

Make a pre-selection of WHT based on WHT described in the site, WOCAT database, input from other WAHARA sites, scientist. 4-8 WHT can be suggested. For these you need to be able to provide stakeholders sufficient information.

Need to decide how to present information on pre-selected WHT to stakeholders; prepare materials for this

Constitution of groups

Invitations for the workshop should include all stakeholders that have a concern in the local and regional situations. Invited people should be representative for the different stakeholder groups, such as policymakers, researchers, extending services of agriculture, breeding and environment, projects and NGOs, transformation and food manufacture (industrial)

In practice, here are the major actors:

- Farmers, pastoralist, farmers who do agroforestry

- Leaders of farmers organization

- Association of each activity

- Organization of microfinance and rural credit

- Traders of inputs (fertilizers and chemical products) and improved seeds

Agrodealers

Traders of equipment like tractors, motorpumps, ploughs, etc

Technical services of agriculture, breeding and environment

Major development Project and NGOs

Researchers

Etc..

For sake of continuity with the first stakeholder workshop (held in WP1) it is also important to invite participants of that workshop again.

Moderator

Who should moderate the stakeholder workshop? Moderators play a crucial role during the meeting. As mentioned in DESIRE report 17 (Schwilch et al 2008), they should meet the following requirements:

- to be familiar with moderation techniques and participatory methods;
- to have expert knowledge on Soil and Water Conservation (SWC) / WHT;
- to have good knowledge of the study site and be familiar with local conditions (socio-cultural, bio-physical, land use, land degradation and conservation, etc.);
- to have trustful relationship with involved stakeholder groups;
- to have communication skills; speak the local language of the study site;
- to have didactical skills;
- to have conflict management skills;
- to have skills in advisory work (advises in sustainable land management).

Logistical issues

- a. Where should the meeting be held? Preferably in the study site itself. What are the circumstances there? Electricity? Water? Food?
- b. Computers, flip-chart, tape, markers (overhead projector pens), post-it notes, sticky dots, camera,
- c. Empty list of participants (name, organization, contact details) to be filled on the day of the workshop.
- d. Logistics: cars, meals, ...

3.2 Workshop

The following steps are proposed for the workshop

Step 1 Review and comment of the objectives

Step 2 Presentation of the technologies

Step 3 Identification of criteria for the evaluation of the technologies

Step 4 Analysis of the technologies

Step 5 Prioritization of the technologies to implement

Step 6 Definition of the content of the experiment

Step 7 Evaluation

The workshop will take a full day. Each of these steps is described in more detail below and an estimated duration for each step is given. Take into account that a lunch break will be needed (lunch provided by you).

Step 1 Review objectives (30 min)

- Recall results of stakeholder workshop 1
- Define the aims of the meeting & what should be achieved. Meeting should result in selection of 2-3 WHT for test implementation, 1 of which should be innovative (meaning from WOCAT, from other study site, or brought in by scientists). More than 1 innovative is encouraged where it is possible.
- Need to explain that different options can also be combined, and that selected options will still be adapted to local circumstances before they are implemented (this is done in WP3).
- Be clear about what will be possible to implement to avoid that WHT are selected that are not feasible for testing (e.g. because of scale or cost). It is OK if these are considered in the procedure, as long as participants know that these cannot be implemented.

Step 2 Presentation of technologies (1 h 30 min)

The WAHARA project will experiment innovative water harvesting technologies against the effects of climate change in rainfed Africa. The technologies can be applied at individual level (household) and are meant to increase the crop production or improve the income of the household. However, Water harvesting technologies implemented by organized groups at the basin level like small dams will also be considered. WAHARA will not be able to work on large catchments, or to implement very costly WHT.

You will need to present the 4-8 pre-selected WHT to stakeholders. Some of these they will know very well, as they are already in use in their own study site, but others will be new.

For example, for the specific case of Burkina Faso, the usual technologies are Zaï, half moons, stones lines, filtrable dykes, use of compost, ados, bouli, banko and agroforestry. Each study site team knows well what the appropriate technologies are that are already implemented and adapted to their context (ecological and socio economic). However, for stakeholders to be able to make a choice between innovative technologies, they will need to be given relevant information concerning e.g. applicability, principle (what does the WHT), cost/benefits etc. WOCAT questionnaires of innovative technologies are a good source of information for this.

In addition to the WHT pre-selected by researchers, stakeholders should be able to add other technologies that they feel should be included.

Step 3 Identification and definition of the criteria (1 h)

One of the main steps during the meeting is the identification of criteria that can be used to evaluate the different technologies. The participants describe the important things which need to be taken for the analysis. At the first time, it is a listing without hierarchisation. For a specific case in Burkina Faso, for example, 10 criteria were listed by the participants:

1. Improve of the crop yield
2. Regeneration of trees
3. Improve water availability
4. Improve fodder availability (cattle feeding) like crop residues and grass cover
5. Increase of cultivated land availability

6. Reduce of conflicts related to the land
7. Reduce land pressure
8. Improve farmer's incomes
9. Reduce soil erosion
10. Improve soil fertility

Another list of criteria that can be used for WHT is given by Teshome et al (2010):

- Have wide applicability
- Be well designed
- Be cheap (low investment cost)
- Be labour intensive rather than money intensive
- Solve a problem felt by stakeholders
- Be supported (e.g. by government)
- Have a high success rate (low risk of failure)
- Be profitable
- Allow diversification (of crops)
- Use low season labour
- Not compete with staple food crops
- Reduce workload for fetching water

DESIRE report 17 (Schwilch et al, 2008) also provides a long list of possible criteria to use on pages 33/34.

Note: these lists are useful for you as reference material, but the idea is that stakeholders define the criteria themselves. We advice, however, to use 3 categories of criteria, as explained in DESIRE report 17: economic, ecologic and socio-cultural criteria based on SS specific conditions. Rank categories and criteria by giving them a weight. As other parts of WAHARA look at off-site effects too, it would be good if something about that could be included in the criteria too.

In conditions in which not all participants of the meeting are a specialist of WHT, it is better to use not too many criteria, as that might be confusing. It is a necessity to retain few criteria (5 criteria where used in Burkina Case mentioned above) for the analysis. This step can be

done with consensus or by application of Active and Participative Research Method (MARP).

In Burkina Faso case, here are the criteria in 2011 at Ziga site study

- 1 Improve the crop yield
- 2 Regeneration of trees
- 3 Improve water availability
- 4 Improve fodder availability (cattle feeding) like crop residues and grass cover
- 5 Improve farmer's incomes

In DESIRE report 17 it is proposed to use not more than about 3 criteria for each category, so not more than 9 criteria in total. This number could e.g. be reduced to 6 (2 for each category) if necessary.

Step 4 Analysis of technologies (2 h)

The aim of the analysis is to rank the pre-selected WHT. Usually, the work can be done directly on the soil by the groups or using craft paper and marker on a blackboard. A double entry table is needed and the marks go from 1 to 10 for each criteria. In case of analphabetism of the majority of the participants, little stones are used in each case for notation.

In this step one should also look at the feasibility of WHT. An analysis of the best technologies retained is made to be sure that the implementation will be possible and can be expected to give a good result. Sometimes, the question is the kind of the WHT to use (field technology means household level or basin level like small dams management, pastoralism road delimitation is used for collective natural resource management etc). The role of technical services, NGO's and projects is crucial at this step. The means to use in the implementation are defined and the correct role of each group is determined.

Example: Farmer can give the land for the experiment, improved material can be furnished by researchers, Government will give subsidies on fertilizers and agrodealers can give equipment with the support of local banks etc. For the WHT that are finally selected, such task divisions are dealt with again in step 6.

The result of this step is that all the WHT are ranked for the selected criteria, and that those WHT that would not be feasible are removed from the list.

Step 5 Prioritization (1 h)

By combining scores of the different WHT in the different categories a final selection is made. This may require negotiation when different WHT score differently in different categories. For example, if a certain WHT is scoring well on economic criteria, and poorly on socio-cultural ones, is it better or worse than another WHT which scores poorly on economic criteria, but well on socio-cultural ones? Different stakeholder might have different opinions on this, and might disagree on which category of criteria is more important. Hence, the prioritization may take some discussion, unless you can rank the categories beforehand (which might not always be possible as things only become concrete when discussing actual WHT). The results of this step is the selection of the 2-3 best-ranked WHT for test implementation. Make sure that at least 1 of the selected WHT is innovative.

Step 6 Definition of the content of the experiment (30 min)

Investigate whether there are stakeholders that are willing to make commitments for the selected WHT. Could e.g. be that you can use their land, their machines, contribute to costs (direct or in kind) or that they are willing to monitor something etc.

Ideally, different tasks in the implementation of these WHT could be assigned at the stakeholder workshop. For example, it could be decided who is going to provide what kind of assistance (or service), whether some training is necessary etc. The more practical and concrete agreements you can reach, the better it is, and the larger the chance that implementation can be achieved smoothly.

Step 7 Evaluation (30 min)

The moderator will summarize the outputs of the workshop for validation by the participants and will collect feedbacks and evaluation of the workshop.

3.3 Reporting

Internal meeting of the SS team: 30 min

We recommend a quick self-evaluation of the workshop by the Study Site (SS) team after the meeting ends. Important lessons will be drawn in order to be better prepared for the other

steps of the implementation of the project. In addition, the team will agree (who will do what by when) on the elaboration of the workshop report.

Workshop report

Study sites will need to provide a report in English to the WP2 leader. A template for this report was provided by the WP2 leader. A synthesis of the workshop reports is given in deliverable 2.3.

3 Conclusion

The developed methodology for the selection workshop can be summarized as shown in table 1. The developed methodology ensures that the stakeholder workshop are executed in similar fashion in all 4 study sites, which will make it easier to compare workshop results between study sites. It should be noted that study site partners do need to ensure that the methodology that is followed fits into the local context and circumstances; therefore the developed methodology may be adapted on details to better suit local conditions.

Table 1. Summary of methodology selection workshop

Step	Objectives
Step 1: Review and comment of the objectives	Define the aims of the meeting & what should be achieved
Step 2: Presentation of the technologies	In this step, the WAHARA project will experiment innovative water harvesting technologies against the effects of climate change in rainfed Africa. The technologies can be applied at individual level (household) and are meant to increase the crop production or improve the income of the household. Some of these they will know very well, as they are already in use in their own study site, but others will be new.
Step 3: Identification of criteria for the	It is important that the participants describe the important

evaluation of the technologies	things which need to be taken for the analysis
Step 4: Analysis of the technologies	The aim of the analysis is to rank the pre-selected WHT
Step 5: Prioritization of the technologies to implement	By combining scores of the different WHT in the different categories a final selection is made
Step 6: Definition of the content of the experiment	Investigate whether there are stakeholders that are willing to make commitments for the selected WHT
Step 7: Evaluation	What are positive points, disadvantages or inconveniences

References

- Schwilch, G., F. Bachmann, H. Liniger, 2008. Guidelines for WB3 Part III: Stakeholder workshop 2. Selection and decision on prevention and mitigation strategies to be implemented. DESIRE report 17, 69 pp.
- Schwilch G, Bachmann F, Liniger HP. 2009. Appraising and Selecting Conservation Measures to Mitigate Desertification and Land Degradation Based on Stakeholder Participation and Global Best Practices. *Land Degradation & Development* 20: 308-326. Doi 10.1002/Ldr.920
- Schwilch, G., F. Bachmann, S. Valente, C. Coelho, J. Moreira, A. Laouina, M. Chaker, M. Aderghal, P. Santos, M. S. Reed, 2012. A structured multi-stakeholder learning process for Sustainable Land Management *Journal of Environmental Management* 107, 52-63
- Teshome et al 2010. Impact of water harvesting ponds on household incomes and rural livelihoods in Minjar Shenkora district of Ethiopia. *Ecohydrology and Hydrobiology* 10, 315-322