WAHARA - Report Series

MEETING NOTES of the RESEARCHER WORKSHOP

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on 17 and 18 September 2012

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SEVENTH FRAMEWORK PROGRAMME

Minutes WAHARA researcher workshop Wageningen, 17&18 September 2012

Minutes

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Minutes of the Wahara Researcher Workshop

Date: September 17-18, 2012
Venue: Hotel Hof van Wageningen, Wageningen
Agenda: Technologies and Approaches described with WOCAT, Quick Scan tool, Set-up of stakeholder meeting

Day 1 (September 17)

Chair: Rudi Hessel
Minute: Berhane Grum

Participants:

1. Rudi Hessel (Alterra)
2. Mike Kirkby (UNIVLEEDS)
3. Frank van Steenbergen (MetaMeta)
4. Francesco Sambolini (MetaMeta)
5. Mohamed Ouessar (IRA)
6. Mongi Sghaier (IRA)
7. Kifle Woldearegay (MU)
8. Aad Kessler (WU)
9. Violette Geissen (WU)
10. Kaushali Dave ((UNIVLEEDS)
11. Simon Chevalking (MetaMeta)
12. Berhane Grum (MU)
13. Arthur Chomba Eldred (GART)
14. Eyasu Yazew (MU)
15. Erik van den Elsen (Alterra)

The workshop composed of 7 partners with 15 participants started in the morning at 9:00 A.M. Due to flight problems Hamado Sawadogo (INERA) could not attend on the first day. The presentation from all study sites were delivered after an introduction was made from Rudi Hessel from Alterra, the Wahara project manager. Each presentation, including the discussions is briefly described below, and all presentations are available on the WAHARA website. An action list in included in the Annex.

1. **Introduction to workshop (**by Rudi Hessel**)**

The introduction to the workshop started with Rudi Hessel, revising previous activities and reportings and later on discussing the main aim of the researcher workshop being to establish or develop Water Harvesting (WH) selection Methodology.

Discussions:

Discussions were going within and after the introductory presentation. Frank, from MetatMeta pointed out that there is a valuable list of WH techniques in Kenya and can be an additional input for selection in addition to the lists available in WOCAT data base. Frank will provide this document and will, per study site, give some suggestions for WHT that are not included in the WOCAT database (actions 1, 2).

2. **Explanation Quick Scan tool (** by Mike Kirkby**)**

The presentation continued with the explanation of quick scan tool for selection of WH technologies, which could be used to survey about the suitability and potential of the whole of Africa, but also to a point survey based on the availability of local data. The presentation focused on the potential of WH technologies based on the ration between rainfall and potential evapotranspiration and on the catchment area to cropping area ration criteria for the whole Africa. A spread sheet for a point quick scan tool was also provided to the participants and it was explained that with a given coordinate, it is possible to look to the potential of a WH technologies and delivers further on hydrology and future scenarios of climatic conditions.

Discussions:

It was asked by Eyasu Yazew whether the quick scan tool can be used at daily temporal scale and the presenter explained that it only uses monthly climate. After that, it was pointed out by Aad Kessler that the monthly average rainfall is not the determinant factor, instead it is the intensity of rainfall and the occurrence of dryspell periods which influence the necessity of WH technologies. It was explained from the presenter that the spread sheet can only manage to deliver rough assessment not exactly with site specific conditions and not detailed climatic conditions and can be more developed with the availability of detailed data.

Moreover, it was suggested by Violette Geissen that it is important to incorporate site specific factors so as come up with refined outcomes of the quick scan tool. It was also recommended by Frank that, we shall not only focus on WH technologies that collect runoff but also look into techniques that could enhance or improve infiltration rates into the soil.

3. **Technology and Approaches described with WOCAT, Tunisia (**by Mohammed Ouessar**)**

The presentation from the Tunisian side focused on WH technologies adopted in the country including cisterns, Jessour, Tabia, recharge wells, burried stone pockets. In the presentation, it was asked by Aad if Jessour can be used to various crops in addition to fruit trees. It was explained from the presenter that it was also used for barley growing.

Discussions:

It was a concern from Mike if the use of the WH could result to conflicts in a watershed. The presenter explained that it is possible that a conflict occurs between upstream and downstream users and it must be dealt with by considering the whole system and by looking for a balance. Frank explained about the WH technologies which could have larger impact. Furthermore he described that the technologies that could have larger impact depend on specific site conditions, should be combination of many techniques and some of them work well at farm level but for some others the government should be involved. Finally, he recommended that it is important to look for technologies which could be sustained by farmers themselves instead

of depending on governmental intervention for investment. Kaushali asked about property rights. Mohamed explained that for jessour the farmer owns the whole system, meaning that if he builds a jessour the catchment that drains to it is also his.

4. **Technology and Approaches described with WOCAT, Burkina (**by Hamado Sawadogo**)**

Due to flight problems, the Burkina representative could not arrive on time to attend the first day of the meeting and Rudi Hessel had to present to the audience instead. The presentation generally focused on locally used WH technologies such as half-moons, Zai pits, Banka and Grass Field. It was explained that the ponds (Banka) relatively need high initial investment and it came into practise because the government had already set it as its policy to supplement rain-fed agriculture.

Discussions:

Further explanation was given by Frank how the ponds generally work. He pointed out that most ponds are lined either by plastics or concrete to reduce infiltration. The treatment of the ponds depend for which purpose they are used, some are constructed to enhance infiltration to the ground water.

It was a concern from Violette whether the ponds could have health problems such as malaria. It was indicated from the audience (e.g. Kifle) that the health problems are unavoidable but in the case of Ethiopia, health extension programs distribute malaria protection devices at household level. It was also further explained by Kifle that the ponds in Ethiopia failed not because of health problems but due to the lack of scientific research outputs regarding their implementation.

It was also a concern from Eyasu that the dimensions for the Zai pits and half-moons are fixed values and he recommended that the values need to be with some ranges so as to accommodate several environmental factors and site variations. Rudi said that the values given in the presentation should probably be taken as average or representative values.

Frank added a point to the discussion that the Zai pits not only improve water availability, it also improves soil fertility because of the use of manure. On the other hand Violette thought that the use of manure could result in the growth of micro-organism such as Escherichia Coli which are harmful to health.

5. **Technology and Approaches described with WOCAT, Ethiopia (**by Kifle Woldearegay and Eyasu Yazew**)**

First, Kifle presented on the overall activities regarding the project from the Ethiopian study site and what preparations have been done to the stakeholders workshop. Eyasu continued to present about the WH technologies which are not available in the WOCAT database and newly introduced by the Ethiopian team of the Wahara project.

Discussions:

It was asked from Berhane if the semi-circular bunds, which are used for tree growing can also be used for cropping. Eyasu then explained that they are mainly used for tree growing but can be used also for cropping. Eyasu further explained about deep trenches that there was farmers adaptation to plant fruit trees on the downstream part of the bunds and in-between the trenches. Finally, Frank recommended that no cattle walk around in places where there are trenches, to avoid that they fall in.

The morning session ended at 12:40 and agreed further presentations and discussions to be continued in the afternoon.

6. **Technology and Approaches described with WOCAT, Zambia (**Arthur Chomba)

The afternoon session started with the presentation from the Zambian study site. The presentation emphasized on in-situ or water conservation measures mainly because the study site has a sub-humid climate.

Discussions:

In the application of reduced tillage, pesticides known as lymphocytes are used and are supposed to increase crop production. But it was pointed out by Violette that we should be careful with their use because recent findings show that they have a long term negative impact. The pesticide can move with water and wind and can affect aquatic life in ponds and it is supposed to have a chronic effect on health. Its short-term effects cannot be easily observed.

After all presentations from the study sites were over, most part of the afternoon session was used for discussions on a Draft Setup for Stakeholders Workshop.

7. **Draft Setup for Stakeholders Workshop**

After all presentations from the study sites were over, the afternoon session was used for discussions on a Draft Setup for Stakeholders Workshop.

Discussion Part I: Use of Quick scan tool

The discussion started with Aad asking how the procedure would be and which technologies to implement. Rudi declared that the technologies shall be small scale which can be easily adopted by farmers and the number of techniques shall be small in number. Violette recommended that it is better to set criteria for selection based on different climatic conditions. On the other hand Rudi claimed that the application should be based on cost , biophysical and socio-economic conditions.

Aad asked the study sites for their ideas regarding preferences for certain technologies. From the Ethiopian study sites, Kifle explained that the selection is not straight forward. He recommended that each study site need to pre-select like 5 technologies according to their preferences and the decision can be made later in the stakeholders workshop. The criteria for selection shall include technical issues and socio-economic factors. Frank stated that it must be possible to select the technologies from WOCAT and also from other sources.

A new idea then came from Mike to use the summary report of the WP1 and continue the selection process instead of using the Quick Scan Tool because the tool lacks details for site specific conditions. Kifle then discussed that the Quick Scan Tool can be used for up-scaling. He added it may be useful to select combinations of technologies. Mohammed also emphasized that we can start the selection process with the techniques we are familiar with and let's see the possibility of improvements, adaptations in congruence with the landscapes, the farmers behaviours, engineering applications, scale of understanding and government policies. Mongi supplemented that for successful evaluation of the techniques in the field, the selection process shall consider the upstream/downstream interests. Frank noticed that MetaMeta can help with the distribution of information on the WH technologies to be presented in the workshop (action 3).

Mike advised that lets have some set of criteria, with additional WH technologies outside WOCAT, and a short list of key categories (insitu, micro-catchments and macro-catchments). Frank recommended to somehow combine the WOCAT and the Quick-Scan Tool. Afterwards, the participants had divided ideas about the use of the categories and finally it was suggested to assign some group of people from the participants to select categorization or draft list of WH technologies (action 13). The selected team consisted Mike Kirkby (Leeds), Francesco Sambolini (MetaMeta), Rudi Hessel (Alterra), and Eyasu Yazew (MU). Then the afternoon session of the first day workshop was concluded with an invitation for dinner in the MetaMeta office.

After dinner the MetaMeta team showed some tools that can be helpful for dissemination. In particular they showed the flashcarts that they use to provide information on technologies and they explained about the use of the Camtasia software, which can be used to make videos of presentations (see picture 1). The presenter just needs to sit in front of a laptop with webcam, and then his presentation is recorded. Several WAHARA partners recorded their presentations of earlier in the day using this software. The resulting videos can be found at www.thewaterchannel.tv.

Picture 1. Frank explaining the Camtasia software. Picture by E. van den Elsen

Day 2 (September 18)

Chair: Violette Geissen
Minute: Berhane Grum

Participants:

1. Rudi Hessel (Alterra)
2. Mike Kirkby (Alterra)
3. Mohamed Ouessar (IRA)
4. Mongi Sghaier (IRA)
5. Kifle Woldearegay (MU)
6. Aad Kessler (WU)
7. Violette Geissen (WU)
8. Kaushali Dave ((UNIVLEEDS)
9. Simon Chevalking (MetaMeta)
10. Berhane Grum (MU)
11. Arthur Chomba Eldred (GART)
12. Hamado Sawadogo (INERA)
13. Eyasu Yasew (MU)
14. Erik van den Elsen (Alterra)
15. Francesco Sambolini (MetaMeta)

The second day workshop consisted of 15 participants, started at 9:00 AM and continued with the second part of the discussion chaired by Violette Geissen.

Discussion Part II: which WHT to introduce as "innovative" in Stakeholders workshop?

The discussed started with Violette asking the study sites which techniques are already selected for the stakeholders workshop. The Tunisia study sites listed out the following technologies to be presented in the Stakeholder Workshop. The following table is a summary of the discussion. Not all the tables for all the site could be completed and therefore it was agreed that Alterra will provide a template of the table (action 4), after which study sites will fill it (action 5).

Tunisia:

Technique	Level of Technology/ Cost	Link	Scale of effect/impact	Where to apply (position)	Innovation (adapted from)	Remark
Tabia	low	--	farm level	Flat area	Indigenous	
Jessour	low	--	farm level	Hillside	Indigenous	
modified recharge wells	medium	Recharge wells from Saudi	Sub-watershed	Hillside	Indigenous+Saudi Arabia	
Deep trenches	low	--	farm level	Flat area	Ethiopia	
Stone pockets	low	--	farm level	Flat area	Indigenous	
Zai pits	low	--	farm level	Flat area	Burkinafaso	

The selected techniques will be applied in the upstream, middle, downstream of the watershed and will be integrated with the national plan and involve other sectors (Mohammed).

Ethiopia: Potential WHTs (presentation)

Technique	Level of Technology	Link	Scale of effect/impact Monitoring	Where to apply (position)	Innovation (adapted from)	Remark
Hillside cisterns	Medium	bench terraces	Direct/watershed	Hillside/sub watershed	Tunisia/India	
Trench bunds	low	Improvement /participatory	farm level	Flatlands	Indigenous	
Hillside conduits with community ponds	low		Sub - watershed	Hillside	Indigenous	
Percolation ponds	low				Indigenous	
Infiltration pits	low				Indigenous	
Gully treatments	low				Indigenous	
Mulching	low				Indigenous	
Sub-surface dams	Medium				Indigenous	
Compost	low				Indigenous	
Cactus/moringa	low				Indigenous	

Zambia:

Technique	Level of Technology	Link	Scale of effect/impact	Where to apply (position)	Innovation (adapted from)	Remark
Reduced tillage	low	--	farm level	Anywhere in the watershed	Indigenous/ Magoye Ripper	
No tillage	low	--	farm level	Flatlands	Indigenous	

It was recommended form Violette that it could be good to study the transport of lymphocytes in the watershed.

Burkinafaso:

Technique	Level of Technology	Link	Scale of effect/impact	Where to apply (position)	Innovation (adapted from)	Remark
Zai Forestry	low		farm level	Flat/hillsides	Indigenous	
Half moons	low		farm level	Flatlands	Indigenous	
Dykes						
Grass lands (Tapis Herbache)	Medium		Farm level	Hillsides/flatlands	Indigenous	
Banka	low	Natural banka	Farm level	Farm level	Indigenous	

It was finally suggested that each study site use the above format and send a complete list and description of the Techniques to be presented to the stakeholders workshop (action 5).

Discussion part III: Participatory Selection of WH Technologies (guide lines)

After study sites presentations concluded, it continued with a presentation from Hamado about the participatory selection of WH technologies. Then the discussion continued.

Discussions:

It was pointed out that Luuk Fleskens could give the criteria to validate in the stakeholders workshop for the choice experiment and the criteria from the workshop can be used for choice experiments. Kifle stated that in addition to the guideline of the selection of WH technologies presented, there are more issues which can help the stakeholders workshop. Those include databases, experiences and further discussions. The logistics for the stakeholders workshop shall consider cost sharing, e.g. cost for stakeholders and hence some

should be covered from EU. A response to the concern raised by Kifle, Rudi explained that there will be a possibility to cover reasonable costs from EU. Rudi will check the budget to see how much budget is available for implementation (including preparations that are needed for implementation, such as the stakeholder workshop) (action 6).

It was a concern from Aad that the costs of some of the WHT might be high during implementation and hence need to take care of it. In response to the concern Kifle replied that there is a possibility costs can be integrated with local development agencies and the government. Violette added that it is always good to avoid or deal with conflicts among farmers participations in experiments. Hamado also emphasized that there should not be farmers conflict as there should field visit/demonstration to farmers to experiment sites and farmers have to be open to share to others for bigger impact. Arthur pointed out farmers are sometimes scared to participate in field experiments, hence compensation is always required.

Violette opened a new discussion point by asking the participants if all the stakeholders have similar knowledge. The participants started to reply to the question, Mohammed claiming the moderator have a big role to adapt with the participants of the stakeholders workshop. Berhane thought that the evaluation criteria set for selection of WHTs is mainly socio-economic and he recommended more biophysical factors to be added to arrive at a good selection of the WHTs to be implemented. Rudi also added that some biophysical criteria are available in WOCAT, some criteria may come from the participants of the stakeholders workshop.

Aad asked if there is any format of the selection process to be presented to the stakeholders. Simon replied to the question saying that it is possible to communicate with guide videos, flashes etc. Someone from the study sites should be responsible (action 7) and can communicate with MetaMeta and MetaMeta can take the initiative together with the study sites (action 3).

Aad and Violette advised the study sites to communicate with MetaMeta especially in the preparation of a material about the new WHTs for each study sites. Arthur also explained that more information is required about the new technologies. Rudi reminded that information is available in the WOCAT database.

Kaushali from Leeds reminded the study sites to send the list of potential WHTs and their criteria for selection so that she can use it for choice experiment (action 9). On the other hand, Violette and Kifle talked if there is a possibility that some criteria of selection could come from the Leeds team working in the choice experiment (action 8). Kaushali then replied that she can discuss with Luuk and she could respond in the mid of October. It was also agreed that each study site prepare the outline of the stakeholders workshop and must be ready by early November (action 10). The workshop itself should be held before the end of November (action 11) to make sure that there is enough time to adapt selected technologies to be able to implement them before the next rainy season.

Aad was concerned that a one day stakeholders workshop is a bit of rush to accomplish a participatory workshop. The Tunisian team replied that there is plenty of experience from the DESIRE and other projects and it is a matter continuing the process with the Wahara project.

Simon reminded again that the study sites can prepare any material necessary for the project and send to MetaMeta so that it can be processed and can be shared back to the study sites. Mongi explained the necessity of organizing a single day workshop by MetaMeta on training of communication methods. Rudi replied that the main task of MetaMeta is in WP6 so that if they think that a separate WP6 meeting is needed this is in principle possible (action 12). Simon also described that MetaMeta can prepare communication methods, hardcopies and possibly Footage and make them available to the study sites (action 3).

Finally, the meeting ended at 13:00 PM before lunch and the participants were invited for an excursion to a Museum and Water Management Infrastructure near Wageningen. The weir/sluice system at Driel was visited, and Rudi explained how it is used to regulate the discharge in the IJssel river. During periods of low flow the weir is lowered, which results in increased flow through the IJssel River, and towards Lake IJssel. Lake IJssel is one of the major sources of fresh water in the Netherlands, so that in fact the weir is harvesting water from the river Rhine. Picture 2 shows the weir at Driel.

Figure 2. Rudi giving explanation at the weir of Driel, picture by E.van den Elsen.

Annex: Action List

No.	Action	Who	Deadline
1	Provide document about WHT in Kenya	Frank	1 Oct
2	Suggestions for some WHT that are not in the WOCAT database	Frank	10 Oct
3	Providing formats and assistance for presenting WHT to stakeholders	MetaMeta	15 Nov
4	Template for summarising WHT	Alterra	1 Oct
5	Fill template for summarising WHT	SS	10 Oct
6	Check available budget for implementation and preparations needed for implementation	Rudi	1 Oct
7	Assign responsible person for dissemination	SS	10 Oct
8	Some criteria for selection of WHT	Choice experiment team	15 Oct
9	Information on method and results stakeholder workshop to choice experiment team	SS	5 Dec
10	Outline of stakeholder workshop	SS	5 November
11	Stakeholder workshop	SS	30 November
12	Decision on having a WP6 meeting	MetaMeta	1 Nov
13	List of WHT to include in Quick Scan tool	Rudi, Mike, Francesco, Eyasu	1 Oct