



### A4Labs annual meeting held in Tigray, Ethiopia - March 2017

Representatives from all 3 labs and the Dutch team gathered in Wukro, Ethiopia from 13-17 March for the first A4Lab annual meeting. All participants were warmly welcomed by Dr. Eyasu (Mekelle University) and Dr. Tesfamichael (Tigray Bureau of Water Resources). We visited the wonderful mountainous area of Tekeze, where we were impressed and inspired by the 600ha Adha irrigation scheme, the Koraro and May Gobo sand dams, and soil and water conservation activities in the Abraha Asbaba watershed. For some, it was the first time to see a sand dam functioning in practice and we learned from the successes and challenges in implementation and management. Back in Wukro we had lively discussions on the way forward in the project. Mr. Cor Jan Zee advised the team on how to link up with the already existing institutional and marketing structures. We have further strengthened project focus and working plans towards testing new (solar) technologies for abstracting alluvial water in the three labs. Preparations for hydrological and meteorological monitoring took place. On the final 2 days Ms. Anne Oudes from Oxfam Novib gave a training on developing Stories of Change. The aim is to monitor and learn from the impact of the project on the livelihoods of the farmers, and to record learning with involved stakeholders and within the project team.



### Short announcements

- On March 3 a successful inception meeting was held in Matobo district, Zimbabwe, where the A4Labs project received full support by the local authorities.
- Student research in Ethiopia is ongoing: Mr. Yemane Welday from Mekelle University (impact of climate change on the recharge of shallow groundwater aquifers); Mr. Lorenzo Villani from University of Florence (crop and economic water productivity in May Gobo irrigation scheme); Mr. Michele Zatelli from University of Florence (impacts of small irrigation scheme on rural livelihood in May Gobo Tabia).

### Stakeholder workshop Guijá Mozambique - February 2017

On February 27 Limpopo Lab organised the second stakeholder workshop in Guijá district to strengthen the partnership and to share the project ideas with the district governments (Serviços Distritais de Atividades Económicas/SDAE e os Serviços Distritais de Planeamento e Infraestruturas/SDPI). Potential research sites for A4Labs were discussed. The Lab will focus on individual farmers with plots around 0,5ha to be equipped with mobile solar pumps. Tasks between project partners have been further specified. A Terms of Reference will be set up for technical studies for the installment of the Lab sites and scoping of locally available solar pumps.

### Hydrological and meteorological monitoring has set off! - April 2017



To assess sustainable abstraction rates from sand rivers and identify techniques to increase water availability, it is essential to understand the functioning of the hydrological system. Therefore, a.o. water levels and rainfall will be measured on a continuous basis. Part of the data will be sent through a telemetric system, so that it can be showed live online. Acacia Water is supporting the three labs in this regard and will develop the A4Labs-dashboard. Acacia Water co-developed a monitoring plan with the Mzingwane and Tekeze Labs. Mzingwane Lab installed a weather station and two groundwater sensors end of March (see below). Limpopo Lab will install two divers, a hand-held water level sensor and an Ec-meter in May/June. Tekeze Lab purchased a weather station, three groundwater sensors, and four soil moisture measurement devices to record the soil water content on the fields. Once the A4Labs dashboard is ready, this will be announced in A4News!

### Hydrological monitoring internship in Mzingwane Lab - Tanneke Blok - January-April 2017

Tanneke Blok, a hydrogeology student from Utrecht University, is researching the hydrogeological characterization of Shashani sand river in the Mzingwane Lab. Tanneke is doing her internship at Acacia Water in close collaboration with Dabane and IHE Delft. Her main research question is: "How do the spatial distribution, quantity and quality of groundwater in the Shashani sand river at the living lab site change over time?" Tanneke visited the field in Zimbabwe for 4 weeks. The fieldwork consisted of measuring soil parameters (hydraulic conductivity, porosity, soil type and specific yield), measuring climate parameters (temperature, precipitation and evaporation), and river dimensions (probing, satellite imagery). The data collected in the field is used to validate the water balance and groundwater model. From the groundwater model the abstractable volume of water will be calculated. She is now back in the Netherlands and working on the data analysis.



# A4News - Arid African Alluvial Aquifers

## Kick-off workshop Tekeze Lab

March 2017

A kick off workshop was convened on March 6-7 2017 in Hawzein to officially launch the A4Labs project in Ethiopia. A total of 36 participants were present, representing the major stakeholders: Regional (Mekelle University, Regional Government, Tigray Bureau of Agriculture and Rural Development, Relief Society of Tigray and Tigray Agricultural Research Institute), District (Administration, Office of Water Resources, Office of Agriculture and Rural Development and Office of Relief Society of Tigray) and Local (Administration and Farmers). The workshop was officially opened by Mr. Haile Asfeha, Economic Advisor to the President of the Regional Government of Tigray. Mr. Haile stressed that alluvial aquifer water resources development and management are among the top priorities of the regional government in its effort to enhance agricultural productivity and ensure food security, and he confirmed full support of the regional government to the A4Labs project. After the presentations and discussions, a joint field visit to the project area was made. The workshop accomplished the following results: selection of the study sites; identification of various areas of intervention under three major intervention categories (development, action oriented research, and knowledge and technology transfer and market linkage), and assignment of lead partners to the major intervention categories.



## Investments and benefits from sand dams - MSc Kidist Ketema in Ethiopia

Nov 2016-April 2017

During my field work at May Gebo Tabia, I was fortunate to experienced the daily lives of farmers whose lives are dependent on sand dams and comprehend the meaning of investing in irrigation from Edagabatat sand dam. I explored the questions: who invests in sand dams, how and for what reasons or expected benefits? I travelled to May Gebo Tabia, where I first observed the sand dam, the wells, and the irrigated fields. The farmers were very open to my questions, which instantly made me feel comfortable and welcomed. Although these were the most memorable days of my field work, they were also the most tiring, as I was overwhelmed by the work, the visits and language barrier did not help, but soon enough I managed to arrange for

and a translator to help me out. It seems that the sand dams is paying off to the beneficiaries; 30 households located above an aquifer are currently investing in irrigation from the sand dam on the total land of 10 ha. These households are growing mainly fruits such as mango, orange, papaya, and vegetables. Working on the field was enjoyable for me as it made me appreciate efficient water management, particularly in the agricultural sector, as a future water manager. I successfully defended my thesis on April 11.

## Gardening with sand rivers - MSc George Mhlope in Zimbabwe

Nov 2016-April 2017

150 kilometres south of Bulawayo Dabane Trust has set up gardens that make use of alluvial water in vegetable production. They can now enjoy higher income and a richer diet with spinach, chomolia, cabbages, rape, tomatoes, carrots, beetroots, butternuts and green pepper. Having worked in the north-eastern part of Zimbabwe for the past 12 years were sand rivers are not common, it was amazing to see the amount of water that could be exploited from these aquifers. My thesis title is 'Impact of organisational, marketing and technical factors on successful community gardening along Shashane River. The findings indicate that sand rivers are providing adequate water for irrigation which lasts up to the end of the season. Although there was no significant difference in yields, solar pumps increase garden bed utilisation, which increases crop output. Despite these benefits, gardens face challenges in financial and conflict management for sustaining the schemes. The experience was invaluable and it motivated me to continue doing research in alluvial water abstraction for agriculture after IHE life. I successfully defended my thesis on April 7.



### Upcoming events

- 15 May, 2017: A4labs launch meeting in Guijá, Mozambique. Limpopo lab, with stakeholders and representatives from IHE Delft.
- May, 2017: A scoping study for site selection in the Shashane and Shashe sub-catchments will be held by the Mzingwane team.

### More information

Visit: [a4labs.un-ihe.org](http://a4labs.un-ihe.org)

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Any news to share? Send it to Annelieke Duker