

Interactive session – Virtual Connet4WR Workshop for South Africa

25-04-2022

A virtual stakeholder workshop, organized under the [Connect4 Water Resilience](#) project as part of the wider [SHEAR programme](#), was held on the 25th of April. The workshop provided an opportunity to present and discuss the latest project results as well as to stimulate dialogues between stakeholders on the topic of drought and flood management strategies, related barriers and implications in the Limpopo river basin. The discussion took place in two sessions. First, a general overview of the project's path was provided, followed by presentations on key findings with a focus on the South African portion of the Limpopo River Basin. Stakeholders then took part in an interactive session where they first identified current limits to the flow of information between government institutions and communities and then, they examined possible recommendations for improvement. Strategies to mitigate the impact of drought and flood events were then discussed.

Interactive session summary

Information flow

Current state and limitations:

- National government agencies share various technical information via email with local authorities, such as graphical representation of the GW level or geotechnical information such as soil profile or information on dams' water level;
- Quarterly, the department of water and sanitation (DWS) meets with municipality institutions (local councils), in order to provide information concerning GW level, GW availability, etc.. There might be also other platforms to engage with communities;
- The information provided to the local communities and institutions are technical and are not being explained and translated in possible recommendations. Hence, local communities and institutions struggle to understand what this information (such as decreasing GW levels) entails and what could be done to mitigate potential impacts;
- There is no formal link between regional officers and extension officer

Recommendations:

- Scientific knowledge needs to be complemented with local knowledge and expertise;
- Scientific knowledge need to be translated into potential actions to undertake;

- Importance of having technical staff working at local level, in closer contact with communities and local institutions;
- Prepare an information booklets (in pictures format) on possible actions to undertake during drought and flood events (for instance: decrease number of cuttle during drought, increase efficiency of irrigation systems, etc.);
- Gather information on community actions to increase resilience or mitigate impacts in the event of drought and floods;

Upstream/downstream connection:

- The groundwater system is currently analysed locally without considering the influence from / to the neighbouring countries with which they share the aquifer;
- There is some awareness of the interactions between surface and groundwater. This awareness comes mainly from the experiences of local communities;

Drought & flood adaptation/mitigation actions

Drought and flood adaptation mitigation strategies missing from the list provided (Figure 1):

- An effective management of the GW (considering GW extractions, land use type in relation to pollution) allow to mitigate the events of drought and floods;
- The strategies studied in Connect4WR can be combined. For example, the increase in GW extractions can be enhanced along with an increase in GW recharge;
- A strategy recently implemented consist in the collection and infiltration of runoff / streamflow into shallow wells. This technique is economic and easy to maintain. This strategy has been already implemented alongside several rivers without looking at soil type. The collected water is then injected only in the upper subsurface aquifer, allowing to reduce installation cost and prevent possible contamination of groundwater from injected water.

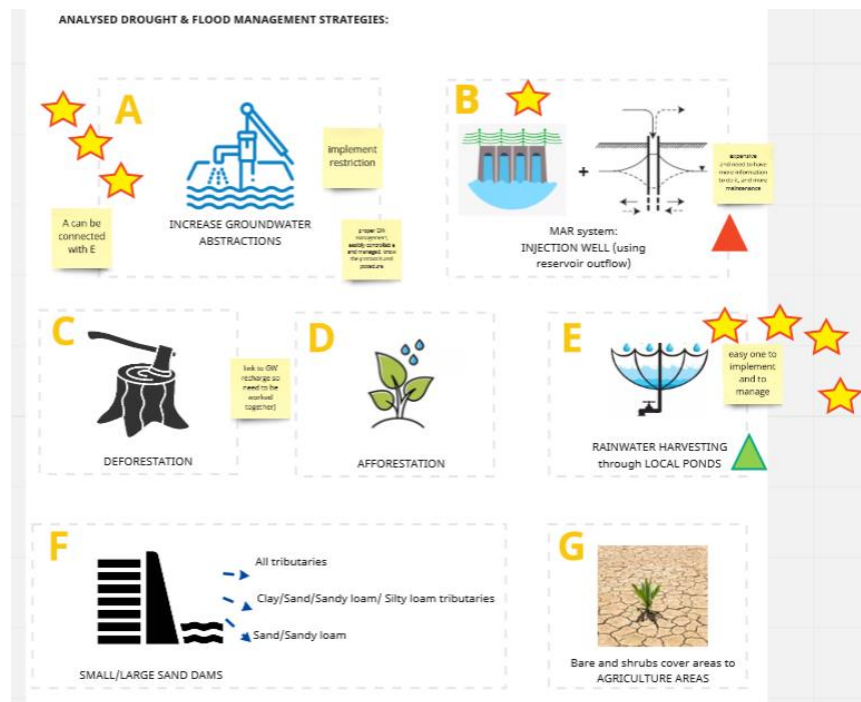


Figure 1. Analysed drought and flood management strategies in the Connect4WR project

Which strategy can and which cannot realistically be implemented in South Africa in the next 10 years?

- Rainwater harvesting through local ponds scored the highest, followed by increased GW withdrawals. Both strategies can be implemented together in order to mitigate the impacts of increasing GW extractions. Further an increase in GW extractions can happen in combination with an increase in GW recharge through the implementation of rainwater harvesting and / or the implementation of proper GW management. The establishment of effective protocols and procedures, concerning for instance restrictions in the GW extractions as well as limitations in land use type close to GW recharge sensible areas, can allow an effective maintenance of the GW system;
- Implementation of injection wells that use reservoir outflow as recharge water was considered too expensive and would require more information to be implemented and managed effectively. Maintenance would also be a problem;
- Sand dams were not mentioned as possible strategies by stakeholders. When we explicitly asked stakeholders about them, they replied that it is not a very common strategy in South Africa (SA), but it has been used in neighbouring countries. There are some concerns in relation to the necessary environmental flow;
- Finally, the conversion of bare soils into agricultural areas was not considered a feasible scenario over the next 10 years in SA if water management was not improved. Currently, SA has seen the opposite and therefore the transformation of agricultural areas into bare soils due to climatic

extremes. If communities are informed and trained on the sustainable use of water sources and if infrastructures are implemented and accessible, agricultural areas could develop further. But it is difficult to see this option in the current situation;

- As final remarks: interventions (or strategies) can be categorized in short, medium and long term interventions according to the budget needed, the personnel and the needed training. There are some strategies like the rainwater harvesting through local ponds that just need simple training of communities. Therefore, it can be categorised as short intervention.

Discussion/Analysis of the rainwater harvesting strategy through local ponds:

