



CuveWaters – sustainable use of scarce water resources in Namibia

Integrated Water Resources Management: From Research to Implementation – IWRM

Namibia is the most arid country in southern Africa. The effects of climate change, a rapidly growing population and the rural exodus are increasing the pressure on scarce water resources. This is especially true of the Cuvelai-Etосha-Basin in northern Namibia. Weather extremes, such as extreme drought or torrential rainfall and floods, determine the pattern of everyday life. The goal of the German-Namibian joint project is to improve living conditions over the long term through regionally adapted Integrated Water Resources Management. During many years of research work, pilot plants for harvesting rain- and floodwater, for water reuse and for groundwater desalination were established in the Cuvelai-Etосha-Basin. A vital factor which has contributed to the success of the project is the close cooperation between the local population and Namibian partners from government and industry.

Up till now, a long-distance water supply system from Angola has supplied northern Namibia with water. This makes Namibia dependent on the neighbouring country and its political situation. However, not all the settlements in the region are connected to the supply system. The rapidly growing population and continuing urbanisation are exacerbating the situation – in a region in which nearly half of the Namibian population lives.

Against this backdrop, the research project CuveWaters relies on solutions that adapt themselves flexibly to current needs and that use various sources, types and qualities of water for different purposes. The aim is to give the population long-term and reliable access to clean water, and also to reduce poverty and disease.

Needs-oriented solutions...

To ensure that this goal is reached, various technologies have been adapted to local conditions: Solar-driven desalination plants treat the groundwater so that up to four cubic metres of fresh drinking water are available daily at the respective sites. Until now, the population only had access to water from traditional hand-dug wells. Microbiological contamination and high salt concentrations brought with them significant health risks. Desalination reduces these risks.

During the summer months, rain- and floodwater is collected with the help of novel harvesting and storage plants, which also allow the newly-established vegetable gardens to be irrigated year round. This enables several families to grow vegetables to sell at local markets, thus tapping into new sources of income.



Desalination plant: Cleaning the solar panels

...for sustainable development in the region...

The energy-efficient sanitation and wastewater concept implemented in a pilot plant since 2013 is also innovative: A vacuum system pipes the wastewater from settlements to a treatment plant. Together with the nutrients, the purified water is then used for irrigation. A farmers' cooperative uses it to farm agricultural areas and sells the crops at local markets. Biogas is also generated during the wastewater treatment process, which in turn is used to generate electricity and heat. This concept opens up new perspectives for small settlements in rural areas, but also for fast-growing urban districts.

...to benefit the population

CuveWaters' success is based in large part on integrating the population on the ground, with German and Namibian partners discussing and developing the technical implementation together with local inhabitants. In addition, technological innovations always go hand in hand with conveying the necessary expertise – so called “capacity development”. This strengthens local people's sense of responsibility for “their” plants and reduces unemployment and poverty at the same time. The project team also develops concepts for “good governance” and supports regional institutions in establishing structures for sustainable water resources management. Concomitantly, the researchers study the social-ecological conditions within the project area.

In view of the globally increasing pressure on the resource water and the growing consequences of climate change, the results of this research are highly relevant. They give valuable insights into how to successfully implement IWRM in other regions of the world with similar issues. The results also show the positive impact that IWRM has on food security, on health, and on combating poverty.

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Integrated Water Resources Management:
From Research to Implementation – IWRM

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