

**HONOURABLE KITSO MOKAILA, MINISTER ENVIRONMENT, WILDLIFE AND
TOURISM**

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INSTITUT**

**DR EBEN CHONQUICA, EXECUTIVE SECRETARY, OKAVANGO RIVER BASIN
COMMISSION**

**DR BERTRAND MEINIER, TRANSBOUNDARY WATER MANAGEMENT,
SOUTHERN AFRICAN DEVELOPMENT COMMUNITY**

**PROFESSOR WELLINGTON MASAMBA, ACTING DEPUTY DIRECTOR,
OKAVANGO RESEARCH INSTITUTE**

**MR FELIX MONGGAE, CHIEF EXECTIVE OFFICER, KALAHARI CONSERVATION
SOCIETY**

DR CASPER BONYONGO, CO-ORDINATOR, SASSCAL

Honorable MinisterMokaila,

Dignitaries, Ladies and gentlemen,

All protocol has been observed

Thank you for the very warm welcome and introduction, here in Botswana. I have the great pleasure and the privilege to give you a short introduction on the background and the structure of the TFO project (TFO = “The future Okavango”), the WHY, the WHAT and the HOW.

So WHY does TFO exist?

The REAL background is a success story: The successful development of us humans on this planet, developing technologies which allow us to control, to manipulate and to change the environments around us, to our advantage.

This is good, however, our success seems to grow out of dimension: We are now drastically changing even those natural resources which – in the past – were believed to be of unlimited dimension.

Now, in more and more countries, suddenly we get aware that the seemingly endless forests and savannas are shrinking and get fragmented, that all landscapes with fertile soils have already been ploughed in the past and are already now used for agriculture and that no more new fertile land is available.

We get aware, that fertile acres used for local food production since generations are now turned into plantations for bio-energy production or they are replaced by rapidly growing megacities and transport ways. At the same time, the global demand for and grabbing of raw minerals, food and timber has intensified the competition for “land”, land, which in the end is nothing but the surface of this planet and therefore the most clearly limited resource, we are using.

Similarly, in many countries the available water resources are getting less and less, and, during the last decades we had to learn that even the climate has been changed by us in a dimension which becomes more and more measurable and threatening.

All these environmental and social global changes also impact on the conditions and the livelihoods of humans, and: there are always winners and losers.

Because of the global dimension, partly driven by processes far away, on other continents, it is not easy to mitigate the intensity of the changes. Even if we don't like it: In most cases it will be necessary to adapt to the new conditions, by shifting agricultural production to climatically advantaged provinces, by

stopping water consuming or water polluting industries, by establishing National Parks and Ecotourism in new landscapes, following the animals or plants that migrate with the changing climate etc.

Unfortunately, such adaptation measures are very expensive and they take a lot of time. And: Often there are several options how to adapt to new environmental, economic and social conditions,

Therefore, governments all over the planet face the increasing need to base their decisions on robust scientifically sound knowledge regarding the values of natural resources, the threats they are facing, the vulnerability, but also the values and trade-offs which are connected with several alternative adaptation targets. Because of the growing risks and the immense values involved, a higher and higher quality is required regarding “Knowledge for decision making” and “Science for development”.

This knowledge encompasses difficult questions: What is the value of a forest compared to the value of soil soil fertility compared to the value of a herd of elephants compared to a copper mine compared to availability of pure water and clean air and compared to unspoilt sites of cultural value? And – if there should be a common currency for all these values – how will these values grow or decline in future?

To answer such questions the concept of “ecosystem services” has been developed: This concept allows to calculate for example the value of a forest area if the forest provides nutrients or water or attractive wildlife for neighbouring agricultural use or ecotourism, which would become impossible, once the forest would be cleared.

It was the central idea of a global research programme initiated by the German Federal Ministry of Education and Research (BMBF) under the title “Sustainable Land Management” **to use the concept of ecosystem services** for a re-assessment of land use in many different land use systems **and considering different scenarios of future development.**

In 2009, a team of scientists from Angola, Namibia, Botswana, South Africa, Brazil and Germany responded to the call and submitted a proposal for the project “The Future Okavango” to the BMBF.

Why was the Okavango Basin an attractive subject for such a study?

There are a number of reasons which – together – make the Okavango Basin a unique large scale ecosystem:

- The **Okavango** is the only perennial river in Africa that flows eastward without reaching the ocean,
- ... is one of the last near pristine aquatic ecosystems on the African continent, and indeed on earth and
- ... is the only exploitable perennial river that flows through the territories of Angola, Namibia and Botswana.
- The **Delta** is the largest freshwater swamp south of the equator
- ... which inhabits an enormous biodiversity (e.g. 71 species of fish, 33 amphibians, 64 reptiles, 444 birds & 122 mammals)
- ... and thus is of extraordinary importance for nature conservation – and tourism.
- The **catchment** covers an area of about 413.550 km² and is home for 1.1 Mio. People.
- In direction of the water flow the **climate** changes markedly (e.g. 1300 mm annual rainfall in Huambo, 450 mm in Maun)
- Thus, the Angola portion provides 95 % of the total water runoff.

While these features define a unique combination of values there are also quite drastic threats and vulnerabilities:

- A strong growth of **human population** with changing consumption patterns causes an expansion of land use.

- **Climate change scenarios** forecast an increase of water stress and extreme events for the catchment. There are very problematic projections regarding climate change resulting in increasing temperatures, losses of water availability, desertification and degradation processes, resulting into a shift of agriculture.
- What will it mean for the region if within 50 years the southern limit for rainfed agriculture in Namibia should shift from the Otavimountains to the Angola border. Will Angola and Zambia become the breadbaskets for the region, attracting migrants from the drier countries?
- The global **demand for resources** is most likely to severely affect formerly peripheral regions due to rapid increase of land use.
- The decline of the dry woodland (Miombo) belt due to degradation is regarded as one of the **global tipping point** regions regarding loss of biodiversity, impacts on climate and on biogeochemical cycles of other regions.

For the scientists, the Okavango Basin also forms a model system because of its clear limitations within an endorheic basin. Such a clearly defined system allows calculations of budgets and fluxes better than other systems.

AND: Because of the global visibility of the famous Okavango Delta the world will know in 10, 20 or 50 years, whether Angola, Namibia and Botswana have successfully been able to solve the usual conflicts between upstream and downstream users of the river or whether the Delta disappeared like other wonders of nature in other countries (Dead Sea in the Jordan valley).

In spite of all the drastic threats and the strong increase in land use there are some indicators which support an optimistic view. Most important: Angola, Namibia and Botswana have already started to jointly care for this vulnerable ecosystem of global significance by setting up the OkacomThe Okavango River Basin Commission! Okacom.

The existence of Okacom is a very clear expression of the will of the three countries to turn their responsibility into action and to jointly care for a

sustainable, limited and wise use of the available water, in a SADC environment of cross-boundary cooperation.

Because of the earlier mentioned threats the three countries have defined a quite ambitious goal. To meet this goal scientific support will be of great importance. Therefore, all the cooperating scientists of the Future Okavango project regard it as a privilege to support the great political idea to combine the development of sustainable land use and the improvement of livelihoods in the upstream area with the continued conservation of the Delta.

10 Subprojects will deal with a wide range of studies to understand the Okavango ecosystem better. SP 1 to SP 5 will deal with climate change, freshwater, soils fertility and the role of bacteria to improve soil fertility, crop production and the different roles of the natural savannah and grassland vegetation. SP6 and SP7 will deal with the users perspective looking at the valuation and use of ecosystem services at the local level, but also understanding the developing mechanisms of the regional transboundary governance, which shall harmonize the interests of the upstream and the downstream land users. SP08 will deal with the economic valuation of ecosystem services. SP09 will create the whole seamless picture for the whole Okavango basin by combining information with satellite information and GIS methods. Together, all the subprojects will deal with a variety of potential scenarios driving the future development. They will consider global scenarios, which will be provided by an overarching umbrella project (GLUES) e.g. of rising energy prices and food prices at global markets, however, they will also include regional and local scenarios, e.g. considering the consequences of a major loss of the forest ecosystem due to overexploitation.

All the results will be made available to stakeholders including the local land user as well as Okacom as well as the Ministries, in order to support their decisions. It is the explicit idea of the project NOT to remain in the academic ivory tower but to make sure that scientific knowledge will be used. Therefore, we have established a separate subproject dealing with the involvement of stakeholders and policy implications and there is a strong component of capacity development.

To achieve these goals, a very close cooperation between all the relevant stakeholders with the scientists will be necessary. This first large workshop of the project shall make sure that the research program meets the needs and demands of the stakeholders of the region in their attempt to make sustainable use of the ecosystem services.

During the next 3 days stakeholders and scientists will have a unique opportunity to improve mutual understanding and to express their mutual expectations, thereby improving the quality of the joint project. Luckily one of the strongest players in the TFO team the ORI of UB is hosting this workshop and has set up ideal conditions for an excellent workshop.

In this context I would like to express your deep thankfulness to the Honorable Minister to attend this meeting in his capacity as being the ultimate stakeholder being responsible for sustainable ecosystem use and protection of ecosystem services. Thank you very much!

I hope that during the next years we will be able to deliver to you quite a bit of science products, not only in the frame of TFO but also in the frame of the new initiative to set up a Regional Science Service Center in cooperation between Angola, Zambia, Namibia, Botswana, South Africa, and Germany, called SASSCAL, in which Botswana also plays a key role!

As a symbol of these planned products I already now would like to give the products of a similar project BIOTA AFRICA as a present to the Honorable Minister.

By doing this I now wish you all a productive and enjoyable workshop!