

# **ROLEPLAY INTERNATIONAL RIVERS**

## ***SHARED VISION AND STRATEGY DEVELOPMENT***

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## **0. ABSTRACT**

An international river basin shared by 7 riparian countries with very different cultural and physical characteristics is described in its socio-political, economical and physical background. Kicked-off by a random process of de-colonisation a situation was created in which the unavoidable common utilisation of water and related natural resources is providing a breeding ground for either conflict or intensified co-operation.

Participants of the roleplay are invited to imagine themselves in the situation of the representatives of the riparian nations of the international river basin and as tutors of the specific interests of the main actors in the basin. These actors are united in a fragile institutional arrangement for international river basin management. Glued together by considerable financial capacities provided by donors and internal and external actors from the public and private sector, participants are representing specific territorial and functional interests. Together, they try to come up with a shared vision, a water resources management strategy and a balanced budget distribution and financial control mechanism for the efficient and sustainable utilisation of commonly shared water resources.

## 1. GENERAL DESCRIPTION AND BACKGROUND

The Rondo River, one of the longest rivers in the world, traverses more than 6,700 kilometres from its farthest source at the headwaters near Lake Diana in Epsom and Fontenegro to its delta in the country of Alfa. Seven countries share the basin of the Rondo River (see map). It is one of the largest basins on earth with an approximate catchment area of 3 million km<sup>2</sup>.

The Rondo region is politically one of the most sensitive and volatile regions in the world. The whole region was a former colony of Zephyr. In 1950 all the countries became independent.

In the de-colonisation process the government of Zephyr arranged with the new governments of Alfa and Bata that a piece of land was to be given to the former citizens of Zephyr, thus becoming the new state of Changa. Many of those citizens were born and bred in the region. They had and have been living there for generations. The new state is prospering, but very dependent on Alfa since it is landlocked. The river Rondo in Changa is used for transport and water supply.

During the process of de-colonisation a treaty was signed between Alfa, Bata, Changa and Zephyr with the following main characteristics:

- At all times the sovereignty and territorial integrity of Changa is to be respected.
- At all times Changa is allowed to use the river for normal functions of transport etc. An equitable share of the water resources of the river is to be allocated to the country Changa.
- As compensation Zephyr puts a grant at the disposal of Alfa to build Rockport Dam, thus given origin to Lake Tanner (the only water supply of Alfa). Alfa will become the owner of the dam. Bata will offer a servitude for the part of Lake Tanner which is located on its territory (see map).
- Bata will pass on a minimum amount of 50 billion m<sup>3</sup> of water to Alfa annually to replenish Lake Tanner. In exchange Bata may use the volume of 5 billion m<sup>3</sup> of water annually from Lake Tanner, free of charge. In case of surplus inflow in to Lake Tanner, the water is to be shared equally between Alfa and Bata.

Many problems have originated from the implementation of the treaty, especially since the upstream riparian state of Doria has solved its internal problems and is intending to rapidly develop the water resources of the Blue Rondo. The Blue Rondo is the most productive tributary to the Rondo, good for over 70% of inflow in lake Tanner (see map). Two major dam development projects were identified on the Blue Rondo, which could give an enormous boost to the economy of Doria. One of the dams would also be very useful to the state of Epsom, another upstream riparian state.

Recently the Government of Doria has publicly announced its intention to build the largest dam (dam A) on the Blue Rondo near to its capital city. The dam would serve to supply the capital city with drinking water and to generate sufficient power supply for 1 million households and further to generate a reliable source for the irrigation of 1 million ha of farm land.

In reply Alfa has announced that it will secure its annual water supply at all costs and with all means.

**MAP**

## Rondo River Basin



The Security Council of the United Nations decided to undertake an ad-hoc mediation. A commission was launched to mediate between all the riparian countries of the Rondo River Basin, but of course especially between Alfa and Doria. The outcome was very successful. An international agreement was signed by all the riparian countries to establish an International River Basin Authority. The main objective of the IRBA (the International Rondo River Basin Authority) is to develop and implement a Shared Vision on the equitable and sustainable utilisation of the resources of the Rondo.

Apart from a balanced international water distribution, the actual trigger for the establishment of the IRBA, another very structural problem is threatening the river basin of the Rondo: catchment degradation and the loss of valuable bio-diversity. Another recent negative development is that the water quality of the lake has become under severe pressure. Intensified industrialisation has caused a sharp increase in water pollution. Especially the petro-chemical and textile industries contribute substantially to the increase of chemical pollution in the lake. Also the level of organic pollution is increasing dramatically. The sewage systems of the cities are virtually draining untreated waste on the lake. This also counts for the individual agro-industries.

Of late, also the flow of the White Rondo has become highly variable and more and more unpredictable. The traditional floods are becoming rare and are alternated by prolonged periods of drought. The flood regime has become more capricious. The floods are not coming regularly anymore, but when they come they come with devastating force. It is not clear how the water and land use of the upstream states Epsom and Fontenegro influences this process. There is a plan to build a weir in the natural outlet of the large upstream Lake Diana to regulate the water level in the lake and the water level and water transport to the downstream White Rondo. A further plan has been designed to channel the White Rondo in Bata South, thus enhancing an increase in discharge in that part of the river and at the same time taking care of the drainage of the Baral Marshes (see map). Somehow, the IRBA will have to find a solution for these problems.

The IRBA has two main institutional arrangements:

- (i) A Board: the Board is composed of the water ministers of all the riparian Rondo states: Alfa, Federal Republic of Bata, State of Bata South, Changa, Doria, Epsom and Fontenegro. The Board is supported and advised by a permanent donor consortium with an advisory role. Fixed members of the Consortium are Wetlands International (NGO), Development Bank, International Tourist Board, International Chamber of Commerce and Overseas Development Minister of Zephyr.
- (ii) A Management Unit: the Management Unit is a professional organisation to implement a Shared Vision and is headed by its Director who is employed by the Board.

The Constitution, ratified by all the riparian states, of the IRBA is describing among others (in a nutshell):

- Membership: water ministers of all the riparian countries (voting members)
- Chairperson: Director of the IRBA (professionally employed executive and in charge of the Management Unit of the IRBA)
- Process of decision making: decisions are taken unanimously, but in case of continuous indecisiveness by a majority of 2/3.
- The rate of financial contribution to the operational costs of the IRBA: all voting member countries contribute equally.

- The IRBA is on a temporary base advised and supported by the donor consortium: Wetlands International (NGO), Development Bank, International Tourist Board, International Chamber of Commerce, Overseas Development Minister of Zephyr (advisory roles). The donor consortium may co-opt new members. In the meetings the representatives of the donor community act as non-voting members.

The IRBA has already conducted several meetings, but decision making appears to be cumbersome. In the last meeting the guidelines that will rule the production of a Shared Vision were announced:

- To develop the water resources of the Rondo Basin in a sustainable and equitable way to ensure prosperity, security, and peace for all its peoples.
- To ensure efficient water management and the optimal use of the resources.
- To ensure cooperation and joint action between the riparian countries, seeking win-win gains.
- To target poverty eradication and promote economic integration.

In the coming meeting these guidelines will have to be materialized!

## **2. ROLEPLAY: DEVELOPMENT OF SHARED VISION**

In a special meeting of the recently formed International Rondo River Basin Authority (IRBA), the member countries will try to come up with a Shared Vision on the common, beneficial and sustainable utilisation of the water resources of the Rondo River. Apart from the regular (voting) member countries and fixed advisory members also the donors, who want to put funds at the disposal of the IRBA are invited to clarify the conditions under which funds can be released. The agenda of the (neutral, professional) chairperson is containing the following action points:

- (i) Interpretation of the agreed guidelines and completion of the Shared Vision on the efficient and sustainable use of water resources of the Rondo River. The Vision gives answers on the following questions:
  - a. What are the agreed communal problems in the basin?
  - b. What are possible development and management approaches to tackle those problems?
  - c. Which approach is going to be selected and followed?
  - d. What is the time horizon for implementation of the selected approach?
  - e. What is the justification for the selection of this approach?
  
- (ii) Composition of a water resources management strategy with development and management plan and budget allocation. The following questions and issues should be addressed:
  - a. What are the agreed development and management scenarios to tackle the identified problems?
  - b. What measures are selected in order of priority and which financial means are generated and allocated for the respective measures. (Budget posts should be motivated. Sets of measures are clearly indicated within the agreed financial restrictions.)
  - c. What is the time horizon of the respective measures?
  - d. What trade-offs are going to be made. How are the winners going to compensate the losers (think about power, water and profit sharing)

- (iii) Optional (Design of a financial structure on how to disburse, operate and control the budget.)

This meeting has to be conclusive on all 3 points, in fact preconditions for the disbursement of funds (loan and grant). Time is not on the side of IRBA. These funds have been earmarked a long time ago and the deadline for utilisation is a few days from now. If no agreement is reached today in the combined meeting, the funds will go back to where they came from.

Apart from the regular voting and non-voting members of the IRBA, the meeting is also attended by some donor representatives, who might be interested in certain activities or investment scenarios for the Rondo region. Their intentions will depend on the mandates, transparent or hidden, that they received from their Governments.

The chairman can organise the meeting in whichever way he wants. Of course, he is bound by the consent of the member states. By the end of the meeting, the chairperson or his or hers representative will present the outcome of the meeting to the entire audience. He should cover all the questions that rule the agenda.

### **3. DEVELOPMENT OPTIONS AND BUDGET OF IRBA**

A preliminary budget was identified in the last meeting on the assumption that the respective purposes will be identified and that specific conditions are going to be met.

The (so far) earmarked budget put at the disposal of the IRBA:

- 400 million US dollars in loans at low interest (soft loans to be released by the Development Bank) earmarked for water sector development or new infrastructure. The loans have to be paid back over a period of 30 years.
- 50 million dollars grant and 100 million dollars in loans ( from Zephyr) for support to the process of Shared Vision Development and Capacity Building to be spend in accordance to the overseas development policy of Zephyr
- 100 million dollars grant (from Wetlands International) for the stimulation of environmental sustainability and bio-diversity protection of / in the basin
- 100 million dollars grant from the International Tourist Board for tourism development
- 100 million dollars in soft loans and 50 million dollars grant for sustainable income generation projects through the International Chamber of Commerce.

Naturally, these funds can only be released, if the objectives of the development plan are in line with the policies of the respective donors.

Maybe, more funds could be arrested from the riparian states, foreign investors and donors for special purposes on ad-hoc base, provided that win-win situations between supply and demand could be fostered. An undefined number of donors will be present at the IRBA meeting. They will make themselves known and their priorities and financial contributions have to be assessed. So far, they could not yet be convinced to contribute directly to the IRBA, but on ad-hoc base they might be interested in certain activities.

### **DEVELOPMENT OPTIONS (ON AGENDA CHAIRMAN):**



(Indicated cost are comprising the bare infrastructure only, excluding other development cost for hydropower, irrigation water supply etc.)

**a) Construction of Dam A:**

Safe yield (90% probability) high level dam: 25 billion ( $10^9$ )  $m^3/y$ , cost: 500 million (US\$).

Safe yield (90% probability) low level dam: 12 billion  $m^3/y$ , cost: 350 million.

Potential benefits (high level dam):

- water supply capital of Doria secured
- irrigation up to 1 million hectares (double cropping)
- self-sufficiency in hydropower
- potential water sharing with Changa (but also Bata and Alfa??)
- water price of high level dam relatively low.

Disadvantages:

- potential conflict with downstream states
- water price of low level dam relatively high.

**b) Construction of Dam B:**

Safe yield (90% probability): 12 billion  $m^3/y$ , costs: 300 million).

Potential benefits:

- irrigation of 400,000 ha
- some hydropower
- potential water sharing between Epsom and Doria possible: water supply for Duku City

Disadvantages:

- water price relatively high
- location not very suitable for Doria (not central).

**c) Rockport Dam Raising:**

Extra yield (90% probability): 15 billion  $m^3$ , costs: 150 million

Potential benefits:

- extra irrigation and hydropower
- very crucial for the water supply of Alfa
- potential water and power sharing with Bata
- very cost-effective solution.

Disadvantage:

- only water and power sharing with Bata (North) is possible
- this dam is downstream and the risk for catchment disturbance is high.

**d) Construction of Lonroe Canal in Bata South**

Extra dependable flow in White Rondo at confluence: 6 billion  $m^3$ , costs: 200 million

Potential advantages:

- extra yield in White Rondo: 6 billion  $m^3$  for any purpose or whatsoever: water supply, irrigation, benefit sharing with Alfa
- very crucial for the development of Bata
- unique facility for conveyance of irrigation water

- draining of Baral swamps: reduction of health risks (malaria)
- transport becomes possible (by ship)

Disadvantages:

- loss of bio-diversity
- environmental degradation?

The construction of the Lonroe Canal would be beneficial for especially the country of Bata for 3 major reasons:

1. It would be able to deliver and increase its share of water to the Tanner Reservoir (6 billion m<sup>3</sup> extra). This would give a direct return in increased water availability for agriculture and hydropower production.
2. It would also harmonise the relations with Alfa, one of the main allies and sponsors of Bata.
3. The Lonroe Canal is crucial as a transport line for the exploitation of oil and minerals from Bata South.

**e) Construction of a weir in the natural outlet of Lake Diana to raise the level of the lake:**

Costs: 100 million for simple dam with weir section

Costs of weir with adjustable gates and outlet pipes: 200 million

Potential advantages:

- Serious improvement to transport by ship
- Hotels around the lake might attract more mass tourism. The water level will be more dependable and muddy shores will disappear
- (Assumption is that) further eutrophication of the Lake might be reduced by dilution (increase of volume 20%)?

Potential disadvantages:

- Extra loss of yield In White Rondo (at confluence) by increases evaporation and reducing dependable flow: 4 billion m<sup>3</sup> per year at an average water level rise of 2 meters.
- Potentially harmful for the restoration of the Fontenegro Wetlands.

**N.B. Not all options and assumptions have been sufficiently investigated. Not every statement is necessarily correct!!**

**f) A subsidy to the establishment and upgrading of waste water treatment plants, in Fontenegro**

Costs: 100 million for the upgrading of the waste water treatment plants of the 2 major cities of Fontenegro.

Advantages

- This will reduce the domestic waste water loading to Lake Diana with 75%

Disadvantages

- No solution for industrial pollution
- It does not lead to a change in behaviour

### **Management options :**

The following categories were identified in the previous meeting. A decision was taken that funds would be allocated to each of these categories. The distribution of funds has to be completed in present meeting:

- **Introduction water saving technology**
- **Reduction of water pollution towards Lake Diana. Introduction licence systems “polluter pays” principle.**
- **Industrialisation (phasing out agriculture!): income generating problems**
- **Restoration of the Fontenegro wetlands**
- **Stimulation of mass tourism**
- **Stimulation of eco-tourism**
- **Capacity building, awareness creation on water saving and environmental protection.**

## **4. COUNTRY DESCRIPTIONS**

### **ALFA**

The state of Alfa is a state in development. It is not a really prosperous state, but its population certainly does not belong to the poorest of the poor. Over the past decades a lot of support was received from its former coloniser of Zephyr. The influence of the people of Alfa for the (in)stability in the region is great. Alfa is also the traditional ally of the citizens of Changa, settlers from Zephyr originally.

A vast majority of Alfarians is still working in the irrigated agriculture. Industrialisation has taken off, but cannot really match the population increase.

Alfa is fully dependent on the water of Lake Tanner. In 5 years time the country will have an absolute shortage of water. In periods of prolonged low (Rondo) river discharge, rationing of water supply is needed from time to time. The level in Lake Tanner is sometimes dangerously low.

Over the years irrigation efficiency has been driven up to the level that salinity is becoming a problem! In order to tackle the problem of unemployment two new irrigation schemes (total of 500,000 ha) have been designed and construction has already started. Unemployment is the major issue in the politics of Alfa.

Because of the complete dependency of Alfa on the water of the Rondo passed on to Lake Tanner through Bata, Alfa has always kept up some very good relations with the Federal Government of Bata. In fact, the Federal Government of Bata is highly dependent on the financial contributions of Alfa for any purpose or whatsoever.

## **BATA**

The Federal Republic of Bata is subdivided in Bata North and Bata South. During the last 30 years Bata was suffocated by civil strife. Over 2 million people, mainly from the South were killed in the civil war. Although mainly carried out in Bata South, the conflict has paralysed the economy of the entire country. The international community enforced a cease-fire by an economic blockade. Negotiation talks are still going on with the liberation army fractions from the South. In the mean time a restricted form of federalism and self-governance has been allocated to the preliminary Government of the main fraction of the Bata South Liberation Army. Its water minister, an army official, is represented in the IRBA. Till now the country is not safe. Some liberation army fractions are still opposing the peace process.

The conflict has a religious character, but is also fed by economic realities. The Southern part has more natural resources (land, water, nutrients, bio-diversity) and on top of that very useful sources of minerals and some oil, although the extent is not known. The Northern part still has a political dominance, but had to do some concessions to the southern "rebels" in the form of a limited federal self-governance.

Although there is a strong central regime, taking care of nearly every important national issue, water is an issue of the federal states. Therefore, there are 2 water ministers in the IRBA, one representing Bata North and one representing Bata South.

As stated before the construction of the Lonroe Canal could be beneficial to Bata for 3 reasons:

1. It would be able to deliver and increase its share of water to the Tanner Reservoir (6 billion m<sup>3</sup> extra by avoiding evaporation losses). This would give a direct return in increased water availability for agriculture and hydropower production.
2. This would also harmonise the relations with Alfa, one of the main allies and sponsors of Bata.
3. The Lonroe Canal is crucial as a transport line for the exploitation of oil and minerals from Bata South.

## **BATA NORTH**

Bata North is a poor area. This is in order of priority caused by the following reasons:

- Direct and indirect consequences of the civil war: economic blockade, insecurity, low capital investments.
- Desertification. The country's productive area is limited to the narrow strip of higher rainfall, bordering Bata South. Human occupation (population growth), overgrazing and harmful agricultural methods have caused an intensified wind and water erosion.
- The vast distances in the country are constraining trade and economic interaction. The transport infrastructure is very restrictive.

Bata North can never develop without access to the wealth of Bata South, a wealth that at present is not exploited (because of the civil strife). Till now Bata North still has managed to maintain the political power in the country and the Federal Government is heavily dominated by Bata North. Without the financial and military support of Alfa this would certainly not have been possible.

## **BATA SOUTH**

Bata South is virtually devastated. For generations civil war has been going on. A lot of active people have been killed in the war and many people are displaced. Many of the former citizens of this area live in refugee camps in neighbouring countries, notably in Doria, Epsom and Fontenegro. Although a Preliminary State Government has been formed out of representatives of the main Liberation Army fraction, the truce is fragile and the region is still very insecure. Disarmament has not been taken place. Agricultural production, if at all present, is heavily hampered. Most of the 2 million deceased were not direct victims of war, but simply died of starvation. Transportation lines or any other infrastructure has been completely destroyed.

The dominant rebel fraction in the mean time has reached a cease-fire with Bata North, be it under severe international pressure. Some representatives of the Liberation Army have joined the Federal Government, although not whole-heartedly. They are under great risk of not being supported, or worse, being depicted (executed) as collaborators. History has also learned that they cannot really trust their colleagues from the North, who are to their opinion so different and who have conflicting interests. To co-operate in the field of water development is not seen as a real threat by any of the rebelling fractions.

## **CHANGA**

The state of Changa was formed in 1950. It is an enclave in the southern part of Alfa and the eastern part of Bata North. The country originated as a compromise in the process of de-colonisation. The former colonisers of the entire region, who had been living there for generations were in need of a base. The very fertile plateau of Changa, formerly within the boundaries of Alfa and Bata North was negotiated between the former coloniser Zephyr and the newly founded Governments of Alfa and Bata to become the new home of the former citizens of Zephyr.

The arrangement has not remained undisputed. Especially the recent Governments of Bata have felt tricked out of the most productive part of their country. Especially, when Bata was isolated from a great part of the world through an economic blockade supported by Zephyr, the tension was high. In the mean time, however, Changa has built up an impressive military force. In the past also Changa threatened Bata to give up its traditional neutral position and to support the "rebels in the South"

The economy of Changa, stuffed with international capital investment, is flourishing. The economy is agriculturally based. Changa probably has one of the most efficient agricultural systems in the world. Also industry adds heavily to the high standard of living in the country. Even the prospects of tourism would be good. The country, however was continuously hampered by the poor security situation in the region. Changa has been and is often target of terrorist actions (both from Bata and from Doria extremists). Another problem is the fact that Changa is landlocked. It is heavily depending on the Rondo River as means of transportation. In the mean time, now that Doria seems to have ended its history of internal civil strife Changa is prepared to cover the total investment for the development of a road through Doria, thus reaching the sea.

For its water supply Changa depends on the water from the blue Rondo. The river is perennial and dependable while flowing through Changa. Changa's water requirements

are not too high, because of the efficient water use in agriculture and industry and because of the relatively good and reliable rainfall pattern. Changa's population is very literate and has access to any kind of modern technology. Though Changa is proud of its neutral position towards all its neighbours, it has an impressive army with nuclear arms.

## **DORIA**

As all Rondo riparian states Doria originated in 1950. The country is composed of 4 very different ethnic groups. Since then intermittently civil unrest has pestered the country, culminating in a massive ethnic civil war from 1985 till 1995. A Government of National Reconciliation was formed 4 years ago with representatives of all major ethnic groups. This Government is heavily supported by most of the international community. The problems in Doria have hampered the development of the entire region.

With the help of massive international investments Doria is rebuilding its country. Economy is still weak but the capacity of these proud people is great. In its strife for restoration Doria came in to conflict with Alfa, especially when it revealed its plans for the water resources management of the Blue Rondo.

Doria is intending to construct two major dams A and B (in order of priority) with a Safe Yield of 25 billion and 12 billion m<sup>3</sup> respectively. The first would supply the capital with drinking water and would cater for at least 1 million ha of irrigation and for a near self-sufficiency in hydropower. The water of the second dam could be shared with Epsom and used for irrigation and hydropower. The economic viability of dam B is lower than of dam A (less hydropower and less productive irrigation, remoteness). There is an option to build dam A at a lower spillway level with a substantially lower Yield (approximately: 12 billion m<sup>3</sup>). The unit price of water and electricity, however, would increase substantially.

## **EPSOM**

Half of the country consists of National Parks and wildlife areas. Tourism is a main economic driving force especially for the central and southern part of the country. There are 3 main tourist attractions: the beach, national parks and wildlife and the area around and on Lake Diana. All these categories of tourism could be qualified as mass tourism (hotels, airports, specialised companies in safaris, boat-trips etc.). Some eco-tourism is developing around the Fontenegro wetlands, but in monetary terms this is still very limited. The tourism is organised from some big cities on the plateau.

In this respect the exploitation of Lake Diana as a main destination for mass-tourism is a lifeline for Epsom. Main bottleneck in that development is the fact that Lake Diana gets more and more polluted by the development of industries at the Fontenegro side who discharge polluted waste water directly or indirectly on the lake: food related industries as sugar and dairy, fertiliser industry, a huge electroplating industry and some smaller textile industries. The discharge of domestic waste water of two bigger cities from the Fontenegro side is considerable too. Although treatment plants have been recently established, the capacity of those plants is by far not enough. Further, the Lake gets silted up and the water level is highly variable. All these factors contribute to the fact that foreign investors do not want to come in to really kick-start the tourism industry around Lake Diana.

One of Epsoms main problems is the North of the country. The North is very drought prone and that is not only a social, but also a political problem. The North is relatively densely populated by the opposition ethnic group, the Dukus, in fact a minority, but a very powerful one, also in terms of preparedness to fight and military strength. The present Government is under continuous pressure from the Dukus to invest in the development of the North. Many threats have been issued already by the Duku leaders that the organised Duku people will not hesitate to sabotage the tourist activities, from which they are not benefiting anyhow. Indeed the major city of Duku in the dry North has no reliable drinking water source and there is even no reliable energy supply. There are very limited means of existence in the North. Quite some agricultural potential along the border river of the Blue Rondo is present in terms of fertile soils, but rainfall is insufficient and erratic. A reliable source of irrigation would help in the struggle against the famine, which strikes the Duku people from time to time.

The construction of dam B would be an interesting option to solve this social and political problem. However, an international agreement with Doria on the mutual utilisation of the water resources of the Upper Blue Rondo is a precondition in that case.

## **FONTENEGRO**

Fontenegro is in a process of rebuilding its economy after having solved its internal problems of civil war. The country is landlocked and very dependent on neighbouring countries for economic development. Fontenegro is a very poor country, because of the political problems that pestered the country for decades. But Fontenegro is on the way back up. The present Government has organised all the fractions under a Government of national unity. The approach may not be very democratic, but is very effective.

The investment climate is secure and foreign investment is taking place in various forms of industry, mainly agro-industries, petrochemical and textile industries. To a lesser extent also tourism is developing, slightly around Lake Diana, and also the market for eco-tourism is growing. Fontenegro has a rich variety of ecological life forms varying from tropical rainforests in the South to open savannah in the East and extended natural wetlands in the North. Further, Lake Diana is a special attraction, although it gets more and more polluted by the newly established industries and infested by water hyacinth.

## **5. DESCRIPTION OF SPECIAL NATURAL FEATURES**

### **BARAL MARSHES**

The Baral Marshes are situated in Bata South near the border with Bata North. These marshes form a unique flood plain of over 10 million hectares with many different forms of aquatic life and wildlife. The ecosystems and specific life forms of these natural wetlands are very rare. The semi-arid to semi-desert environment is in glaring contrast with the abundant vegetation of the marshes.

On the other hand the area is very inaccessible, and is a blockage to transport connections from the South to the North and from the East to the West and vice versa. A lot of water is evaporating from these marshes. Also, the area around the marshes is densely populated by peasant farmers who try to benefit from the available water and the good soils. In fact, the border area of the extended marsh area is very suitable for

agriculture and could be transformed in to small scale irrigation schemes either pumped or by gravity. For that reason the marshes would have to be opened.

The marshes, as they are, are heavily infested by cultures of mosquito's, indeed a threat to public health and a major actor of the spread of the deadly malaria disease, the main cause of death in this area.

Plans were designed to dig a canal right through the marshes for the purpose of enabling transport by ship and to increase water availability in the northern branches of the White Rondo. The canal could also enable water abstraction for irrigation purposes.

The projected construction of the canal has not remained uncontested. Especially the international environmental organisations are heavily opposed to the construction of the canal, which would induce the complete drainage of the Baral Marshes.

To find a balance between the international environmental interests and the domestic needs of the people of Bata and indirectly of Alfa is one of the heaviest assignments of the newly formed International Rondo River Basin Authority.

## **LAKE DIANA**

Lake Diana is a natural lake that has undergone huge changes over the past decade by all kinds of human interferences. The inflow pattern in the lake has changed substantially. The higher peaks interchange over the year with more prolonged periods of low inflow in the lake. Also the incidence of dryer and wetter years seems to be on the increase as well as the incidence of longer sequences of dry and shorter sequences of wet years.

This has caused some problems around the lake. The volume and consequent level of the lake was always relatively stable over the past. Of late, prolonged periods of reduced volume and lower levels interchange with incidental but less frequent high peaks in this relatively shallow lake. This has caused some damage to especially the tourist industry around the lake, but it also hinders other human occupation and more importantly shipping transport connections. Great shallow parts of the lake are silting up and form a serious hindrance to transport by ship.

Muddy shores appeared frequently around the lake, indeed not very favourable for either tourism or transport by ship.

This problem could be tackled by the decision of the states riparian to the lake (Fontenegro and Epsom) to build a huge weir in the 3 km long natural outlet of the lake so as to raise the level of the lake and to enable or facilitate tourism and transport. This manmade support to nature might work, but has not thoroughly been investigated. Also downstream countries are not too fond of the idea, because this solution will certainly reduce the dependable flow in the White Rondo.

Another recent negative development is that the water quality of the lake has become under severe pressure. Intensified industrialisation mainly at the side of Fontenegro has caused a sharp increase in water pollution. Especially the petro-chemical and textile industries contribute substantially to the increase of chemical pollution in the lake. Also the level of organic pollution is increasing dramatically. The sewage systems of the cities are virtually draining untreated waste on the lake. This also counts for the individual agro-industries.



Eutrophication problems in the lake are sharply on the increase. Of course, this has a serious impact on the bio-diversity of the lake. Water hyacinth is now infesting the entire lake, thus enhancing problems for tourism, transport and even water supply and water management. The cities that take in water for water supply directly from the lake are virtually recycling waste. Last year the natural outlet channel of the lake was completely clogged by water hyacinth.

To solve the water pollution problem of Lake Diana is high on the list of political and social priorities of the states of especially Epsom and to a lesser extent of Fontenegro.

### **FONTENEGRO WETLANDS**

This (, so called) inner-delta of the Rondo River is the nursery and home of many rare birth and plant species as well as unique in terms of aquatic life. Over 5 million hectares of flood plain constitute one of the most unique but vulnerable ecosystems of the world. These natural wetlands are of crucial importance for the preservation of bio-diversity in the entire region and beyond.

The wetlands also support a combination of traditional land use practices that are well adapted to the dynamic and capricious environment, and which yield a variety of products: fish, meat, milk, rice and other cereals, wild grains and seeds, medicines, timber, firewood and game.

The balance in the system, however, is very critical. When floodwaters inundate the plains, large quantities of nutrients from the soil dissolved in the water, and silt and minerals from beyond the floodplain are deposited, inducing vigorous vegetation growth. During periods of drought the wetland areas become under heavy pressure. The intensified exploitation of wetland resources leads to changes in the regeneration capacity and can lead to a decline in productivity. When peak inflow takes place and the intensity of exploitation is reduced, recovery takes place.

In recent times the wetlands are also becoming an important target for the development of eco-tourism.

However, this balance between nature and human occupation is severely under pressure. The Fontenegro wetlands are drying out. Many explanations have been formulated over the years varying from changing climate to catchment destruction by human occupation and advancing desertification. The peaks that inundated the flood plain are not coming through in the same frequency anymore and that might be the end of the wetlands.



## **ANNEX 1: DISTRIBUTION AND DESCRIPTION OF ROLES**

### **CHAIRPERSON AND DIRECTOR OF THE INTERNATIONAL RONDO RIVER BASIN AUTHORITY (IRBA)**

The chairperson of the International Rondo River Basin Authority is a professionally employed non-voting River Basin Manager. He is employed by the Board of Water Ministers of the member countries, in fact the decision making body of IRBA. In his Terms of Reference the following is expressed:

- To develop the water resources of the entire Rondo Basin in a sustainable and equitable way to ensure prosperity, security, and peace for all its peoples.
- To ensure efficient water management and the optimal use of the resources.
- To ensure cooperation and joint action between the riparian countries, seeking win-win gains.
- To target poverty eradication and promote economic integration.

The agenda of the (neutral, professional) chairperson is containing the following action points:

1. Interpretation of the agreed guidelines and completion of the Shared Vision on the efficient and sustainable use of water resources of the Rondo River. The Vision gives answers on the following questions:
  - a. What are the agreed communal problems in the basin?
  - b. What are possible development and management approaches to tackle those problems?
  - c. Which approach is going to be selected and followed?
  - d. What is the time horizon for implementation of the selected approach?
  - e. What is the justification for the selection of this approach?
2. Composition of a water resources management strategy with development and management plan and budget allocation. The following questions and issues should be addressed:
  - a. What are the agreed development and management scenarios to tackle the identified problems?
  - b. What measures are selected in order of priority and which financial means are generated and allocated for the respective measures. (Budget posts should be motivated. Sets of measures are clearly indicated within the agreed financial restrictions.)
  - c. What is the timeframe of the proposed measures?
  - d. What trade-offs are going to be made. How are the winners going to compensate the losers (think about power, water and profit sharing)?
3. Optional (Design of a financial structure on how to disburse, operate and control the budget.)

This meeting has to be conclusive on all 3 points, in fact preconditions for the disbursement of funds (loan and grant). Time is not on the side of IRBA. These funds have been earmarked a long time ago and the deadline for utilisation is a few days from now. If no agreement is reached today in the combined meeting, the funds will go back to where they came from.

One by one the development and management options should be discussed:

- Dam construction: Dam A and to which level and or Dam B
- The raising of Rockport Dam and the pros and cons thereof
- The construction of the Lonroe Canal
- The construction of a weir (with adjustable gates?) in the Lake Diana outlet
- A subsidy to the establishment and upgrading of waste water treatment plants, mainly in Fontenegro

Management options:

- Introduction water saving technology
- Reduction of water pollution towards the Lake. Introduction of a licence system based on the “polluter pays” principle. Initial investments will have to be done.
- Industrialisation (phasing out agriculture!): income generating problems
- Restoration of the Fontenegro wetlands (artificial control through lake level Lake Diana?)
- Stimulation of mass tourism
- Stimulation of eco-tourism
- Capacity building, awareness creation on water saving and environmental protection.

As financial structure a Development Fund, administered by the chairperson of IRBA (and his staff), with earmarked budget posts for the approved activities would be the least cumbersome in administration and would give maximal flexibility. The donors might resist to contribute directly to a fund beyond their financial control, because they have their own rules of accountability!

It goes without saying that one of the policies of the chairperson is to maximise the contribution of the donors to the IRBA Development Fund, who did not earmark funds yet as well as the contributions of the riparian states themselves.

The chairperson is a very professional manager who will make sure that maximum harmony under the member countries will be preserved.

## **WATER MINISTER ALFA**

The political survival of the water minister of Alfa depends on the implementation of the following guidelines:

- Extra water for the irrigation of 500,000 ha has to be found. Preferably this should be realised through the raising of Rockport Dam. Any other solution would result in a greater dependency on other nations. Alfa does not have the money itself, but international investors expressed substantial interest. For the IRBA, this would be a budget neutral investment to be carried by the Government of Alfa.
- By no means the present water supply to Rockport Dam can be jeopardised. The Treaty of 1950 should be respected. The whole economy of Alfa depends on this treaty. The construction of Dam A in Doria would be a disaster to the (hydrologic) viability of the present Rockport Dam, let alone to a raised Rockport Dam.
- The possible raising of the outlet in Lake Diana is illegal. No consultation took place with the downstream riparian states. (Alfa might approach the International High Court to get the weir removed, if no consultation will take place (argument: prior appropriation of the water in Rockport Dam))
- Friendly relations with Zephyr and Changa are important, but the development plans of Doria in the catchment of the Rondo River should not be implemented, or as

minimal as possible or as remote as possible. (Argument: prior appropriation of water for Rockport Dam). The construction of Dam B could in last resort be tolerated, since it does not affect the viability of Rockport Dam too much.

- At all times the plans of Bata to construct the Lonroe Canal should be supported, preferably through the IRBA. Alfa could also provide private soft loans or even a grant of 50 million for the development of the Canal (in exchange for a guarantee for more water passed on to the Rockport Dam reservoir, say another 3 to 4 billion m<sup>3</sup>).
- The people of Bata North are of the same ethnic unity as the people of Alfa. Alfa has supported them in the past and will continue doing so in the future.

The water minister of Alfa will do his level best to make sure that a maximum volume of water will flow to Alfa.

### **WATER MINISTER OF THE FEDERAL GOVERNMENT OF BATA AND BATA NORTH**

The water minister of Bata North is also representing the Federal Government of Bata. (The water minister of Bata South is a state minister and responsible to the federal minister, although he has an independent vote in the IRBA Board.) The Terms of Reference the minister received from the Federal Government for this very special meeting are the following:

- The construction of the Lonroe Canal is of the highest priority. The Canal will give access to the Baral Marshes. It will enable some irrigation and also a part of the water could be traded to Alfa. Besides, the Canal is absolutely necessary as transport facility and it has a very strategic military function. Without the Canal it will be very difficult to control the rebel fractions in the South.
- To retain as much as possible trans-boundary water through the Rondo from Fontenegro and Epsom is another option to be able to fulfil the obligations that result from the treaty with Alfa.
- After having fulfilled the obligations towards Alfa, the most important ally, Bata wants to remain with as much as possible water for its own irrigation and domestic water supply plans. Of course, the dry Bata North and not the wetter Bata South is the first priority as well as the water supply for the Capital, which is in the North.

Further development plans:

1. Restore and increase security
2. Increase area irrigated rice
3. Exploitation of oil and minerals in Bata South.
4. Industrialisation.

### **WATER MINISTER OF BATA SOUTH**

The water minister of Bata South is a state minister and is supposed to look after the interests of Bata South. This implies:

- The Lonroe Canal should be built, but by all means the water should be used for the benefit of Bata South. The ownership and the operation of the Canal should be given to the State Government of Bata South. (This would also restrain the military aspirations of Bata North).

- There is no affiliation between Bata South and Alfa. The treaty with Alfa was organised by representatives of Bata North. In the past Liberation War, Bata North was always strongly supported by Alfa, at that time the worst enemies of the people of Bata South. Together they are responsible for the slaughtering of 2 million of the inhabitants of Bata South. The State Government of Bata South does not feel bound by the treaty of 1950.
- Bata South is not very depending on trans-boundary water from the Rondo. It will respect the opinion of its allies, Fontenegro and Epsom. The people of Fontenegro are considered very related to the people of Bata South.

Further development plans:

1. Maximising self-governance and repatriation of refugees
2. Exploitation of oil and minerals from Bata South for the restoration of Bata South
3. Increase of agricultural production.

### **WATER MINISTER OF CHANGA**

It is of the utmost importance for Changa to preserve its neutrality. In the past Changa was strongly allied with Alfa and Bata North. The downstream Rondo River traversing Bata North and Alfa is still heavily used for transport from Changa. In the past also the transport by road went that way.

However, in recent times, now that Doria ended its civil war the situation has changed considerably. There are two major reasons why Changa now also needs to ally with Doria:

- Changa is landlocked and needs a transport line by road and or rail to the sea via Doria. This would be very cost effective and it would enable a more independent stand from other states.
- The water supply through the Blue Rondo is expected to become more erratic. It would be useful to have some storage capacity upstream. Changa has no real suitable dam sites. (Also, Changa is bound by the treaty. A dam in Changa would directly jeopardise the water supply to Rockport Dam and could heavily frustrate the relations with Alfa.)

Changa has a sound economy. It could afford a subsidy of say 100 million US\$ (grant) in order to get a water security of say 2 billion m<sup>3</sup>. Of course this should come in a package together with the approval to build a road through Doria (to be fully financed by Changa with an operation and maintenance contract with Doria). This transport connection is of the utmost importance!

### **WATER MINISTER OF DORIA**

The water minister of Doria got in order of priority the following instructions from his Government:

- Make sure that the construction of Dam A is approved by IRBA. Try to generate as many funds as possible for the construction of the dam at the highest possible level. Treasury does not have the money, so support in grant or soft loan is unavoidable. To cover the costs by commercial loan only is not possible. A Build-Operate-Transfer contract is a possibility, but is politically very hazardous. Socially this is the most

sensitive water and power supply in the country, a too vulnerable asset for the private sector to play around with. The political head of the water minister of Doria depends on a full Dam A.

- The construction of Dam B is also very welcome. For the financing of this dam the same counts as for the financing of Dam A. There are no funds with Treasury. The priority for Dam B is less than for Dam A and so is the cost-effectiveness thereof.
- Doria does not feel bound by the Treaty of 1950. It was and is no partner to the treaty. The relation of Doria with Epsom is crucial. There are many Duku people in the South of Doria, in fact relatives to the Duku people in the North of Epsom. Jeopardising the Duku interest would have far reaching internal political consequences.

### **WATER MINISTER OF EPSOM**

Epsoms water management and development policy has the following priorities in sequential order:

- (i) By all means Dam B has to be built. A solution for the water supply of Duku minority in the North has to be found at all costs.
- (ii) High priority is also to preserve the attractiveness of Lake Diana for mass tourism. Water pollution towards Lake Diana has to be stopped or considerably reduced by all means.
- (iii) The control of the level of the lake is crucial. Therefore, the weir in the natural outlet has to be built.
- (iv) Epsom is interested in the exploitation of other forms of tourism.

### **WATER MINISTER OF FONTENEGRO**

Fontenegro's water resources management strategy hinges on the following priorities:

- (i) Water management is a function of creating an interesting investment climate. In order to escape from the poverty trap, the focus is on a pro-active industrialisation policy. Lake Diana is crucial for regional transport of industrial products.
- (ii) The water minister of Fontenegro cannot allow that too many environmental constraints are hindering the new lifeline of the country: chemical and food-industry!
- (iii) The weir in the natural outlet of Lake Diana has to be built. It will ease water level control in the lake and on the long term (gravity) irrigation with lake water is an option, although this scenario has not been thoroughly investigated yet.
- (iv) One of the corner-stones of the economy is tourism especially mass-tourism.

For this and other reasons you want to be able to maintain Lake Diana at the required level and volume.

### **WATER SPECIALIST DEVELOPMENT BANK**

The IRBA was established under auspices of the Development Bank. The Bank, of course, had a strong say in the formulation of the guidelines expressed in the Constitution of the IRBA and by all means the Bank will stress the importance of the implementation of the guidelines.

A summary of the guidelines:

- To develop the water resources of the Rondo Basin in a sustainable and equitable way to ensure prosperity, security, and peace for all its peoples.
- To ensure efficient water management and the optimal use of the resources.
- To ensure cooperation and joint action between the riparian countries, seeking win-win gains.
- To target poverty eradication and promote economic integration.

However, the Bank is not only interested in efficient and effective water management and development. The Bank will also use the IRBA as a means to prevent or resolve conflicts and its investment policy will also depend on that.

Another criterion for the Bank to appraise investment projects will always be the capacity of sound economic management and the subsequent expectation of the solvability.

The Bank's mandate for 400 million in loans is irrevocable. However, any loan can only be awarded in connection with a substantial contribution of the loan recipient or in case of co-financing. (The Bank may not exceed the loan budget of 400 million).

The Bank is concerned about the capabilities of the IRBA to manage funds. The Bank will insist on applying its own accountancy rules and would rather see that financial management of the Bank's loan funds (and any other funds) would be carried out by specialists of the Bank. Although a development organisation the Bank is also very concerned about the financial returns and pay-back potential of projects for infrastructure development. The financing of infrastructure projects should be cost effective!

## **OVERSEAS DEVELOPMENT MINISTER OF ZEPHYR**

The priorities of Zephyr are in fact the guidelines as reflected in the Constitution of the IRBA:

- To develop the water resources of the Rondo Basin in a sustainable and equitable way to ensure prosperity, security, and peace for all its peoples.
- To ensure efficient water management and the optimal use of the resources.
- To ensure cooperation and joint action between the riparian countries, seeking win-win gains.
- To target poverty eradication and promote economic integration.

However, the Prime Minister of Zephyr has expressed some national political sensitivities to his water minister for special consideration in this meeting:

- The Green Party is part of the Government of Zephyr. Developments that are not in line with international principles of sound environmental management and wise use of water resources cannot be supported.
- Many citizens of Changa still have strong family ties with their families in Zephyr. The interests of the people of Changa should never be jeopardised. This would certainly backfire in to the internal politics of Zephyr.
- As former coloniser of this region Zephyr cannot afford to be involved in regional conflicts. Always, diplomatic efforts should be undertaken to preserve the political balance in the region: "No decision is better than a wrong decision".



The grant to the International Rondo River Basin Authority (50 million) has been given conditionally and the disbursement is subjected to the (tacit) approval of the Minister of Overseas Development. There is also a mandate to disburse 100 million in loans. A loan agreement can be treated with slightly more flexibility, since it is Zephyr's policy not to mix in to local national politics.

### **CHAIRPERSON WETLANDS INTERNATIONAL**

Wetlands International is a very powerful global NGO with a lot of financial resources. Wetlands International depends on donations from individuals as well as organisations and various Governments. The mission of WI within the IRBA is simple: to stimulate sound environmental management and wise use of water and to preserve as much as possible bio-diversity. This organisation is strongly against the construction of the Lonroe Canal and strongly in favour of the restoration of the Fontenegro Wetlands. Whether the wetlands can be restored by constructing a weir in the natural outlet of Lake Diana is very dubious. You have scientific indications that this is not the case, unless mammoth's adjustable gates will be built in the weir (costs: 200 million US \$) and then only when operation is optimised independent of the available lake level. Dam development is only appreciated where it will stimulate the wise use of water. A main task is the promotion of education and research and the application of tools as Environmental Impact Assessments.

Wetlands International should never be seen as an organisation contributing in any way to activities that might not be environmentally friendly. The earmarked contribution of 100 million US\$ to the development budget of the IRBA is strongly depending on that condition! Wetlands International even has another 50 million US\$ (grant) silently earmarked for the preservation of wetlands.

The chairperson of Wetlands International is a very inspired person who will oppose anything that can be harmful for nature!

### **REPRESENTATIVE OF INTERNATIONAL CHAMBER OF COMMERCE (DIRECTOR INTERNATIONAL COOPERATION)**

The International Chamber of Commerce is representing the international world of trade and industry (existing and future).

The allocation of the loans earmarked by the International Chamber of Commerce are subject to the criterion of economic viability and solvability. To that respect the Chamber has no different policy than a bank would have (although the loans are soft). The grant is meant to start processes of economic development through viable income generating projects. The grant funds are also specifically earmarked to create goodwill and it could be used to develop infrastructure of any kind. The Chamber will not mix in internal or regional politics of the member countries of the IRBA. Nevertheless, the Chamber is interested in making strong economic allies in the Rondo region, in fact a very promising area for economic investment.

The Director of the Chamber is opposed to the many hindrances that are raised by especially contemporary "environmentalists" to investments in industry. The area is very poor and it is difficult enough to raise any investment at all.

The mandate of the Director International Co-operation of the Chamber does not go further than the allocation of 50 million in grant and 100 million in loans.

### **DIRECTOR OF INTERNATIONAL TOURIST BOARD**

The Director of the International Tourist Board is representing the world of international tourism. The main contributors are the multinational hotel chains, but also semi-public and private tourist organisations active in the Rondo region and beyond.

The grant to the IRBA of 100 million is meant to create goodwill and to safeguard the interests of the tourist industry of whichever kind in the region.

### **DONORS: MINISTER OF DEVELOPMENT COOPERATION OF FITRE**

Fitre is a rich oil state west of Alfa. It is not part of the river basin of the Rondo and it has no seat in the IRBA. The sympathy of Fitre is with the development plans of Alfa and Bata North. Fitre 's population consists of Moslems just like Alfa and Bata North. Fitre will do anything to support its religious neighbours.

However, Fitre is selling at lot of oil to both Zephyr and Changa. It cannot afford to make enemies under these nations. Also the relation with the Bank is of crucial importance, since the Bank is also representing many oil clients of Fitre.

The Minister of Development Co-operation of Fitre is having a budget of 150 million of grant funds.

### **DONORS: MINISTER OF DEVELOPMENT COOPERATION OF LOWLAND**

Lowland is a country in the North with no real connection to the Rondo River Basin. The country has an active development policy hinging on the following priorities:

- Poverty alleviation through capacity building
- Environmental protection and preservation of bio-diversity
- Participation of women in decision making.

The available budget for the Rondo region is 100 million (in grant). Special request of the Government is to focus on awareness creation in the field of environmental sustainability, preservation of bio-diversity and participation of women in decision making. The Government of Lowland has a strong aversion of dam development.

The minister wants to use this platform predominantly to create awareness among the stakeholders with regard to the issues that are considered important in the development policy of Lowland.

## ANNEX 2: GENERAL DATA (AVERAGES) PER COUNTRY

Country/Issue	Alfa	Bata North	Bata South	Changa	Doria	Epsom	Fontenegro
Population (10 <sup>6</sup> )	70	14	8	4	60	30	12
Religion	Islam	Islam	Christian	Christian	Coptic/islam	Islam/Christian	Christian/animist
Political structure	Islam Republic	Islam Republic	Federal State	Democracy	One party	Republic	One party
GDP (US \$/a)	800	200	80	4000	200	500	300
Growth rate (pop.) %	3,5	3	3	1,5	2,5	2,5	2,5
Irrigation (10 <sup>5</sup> ha)	50	1	0	10	30	20	10
Staple-food	Rice	Millet	Maize	Various	Enyera	Maize	Maize
Unemployment %	30	40	50	2	40	30	30
Literacy %	80	60	50	99	50	60	50
Rainfall (mm/a)	50	150	600	800	1500	1500	2000
Evaporation (mm/a)	2500	2500	1800	1200	1500	1500	1500
Water availability(km <sup>3</sup> /a)	55	?	?	60	?	?	Plenty
Water demand (km <sup>3</sup> /a)	55	?	?	15	30	Add. 6	?
Altitude (mean in m)	50	300	500	1200	1500	500	1500
Means of existence	Agriculture, Industry	Agriculture	Agriculture	Industry, Tourism	Agriculture	Tourism, Agriculture	Agriculture, Tourism