



Water in Africa: Hydro-Pessimism or Hydro-Optimism?

Água em África: Hidro-pessimismo ou Hidro-optimismo

Centro de Estudos Africanos da Universidade do Porto
Porto, Portugal, 2-3 October 2008



LABORATÓRIO NACIONAL
DE ENGENHARIA CIVIL

How worth is so much water?

Risks and opportunities of water resources management in Angola

Álvaro Pereira

Social Ecology Division/DED

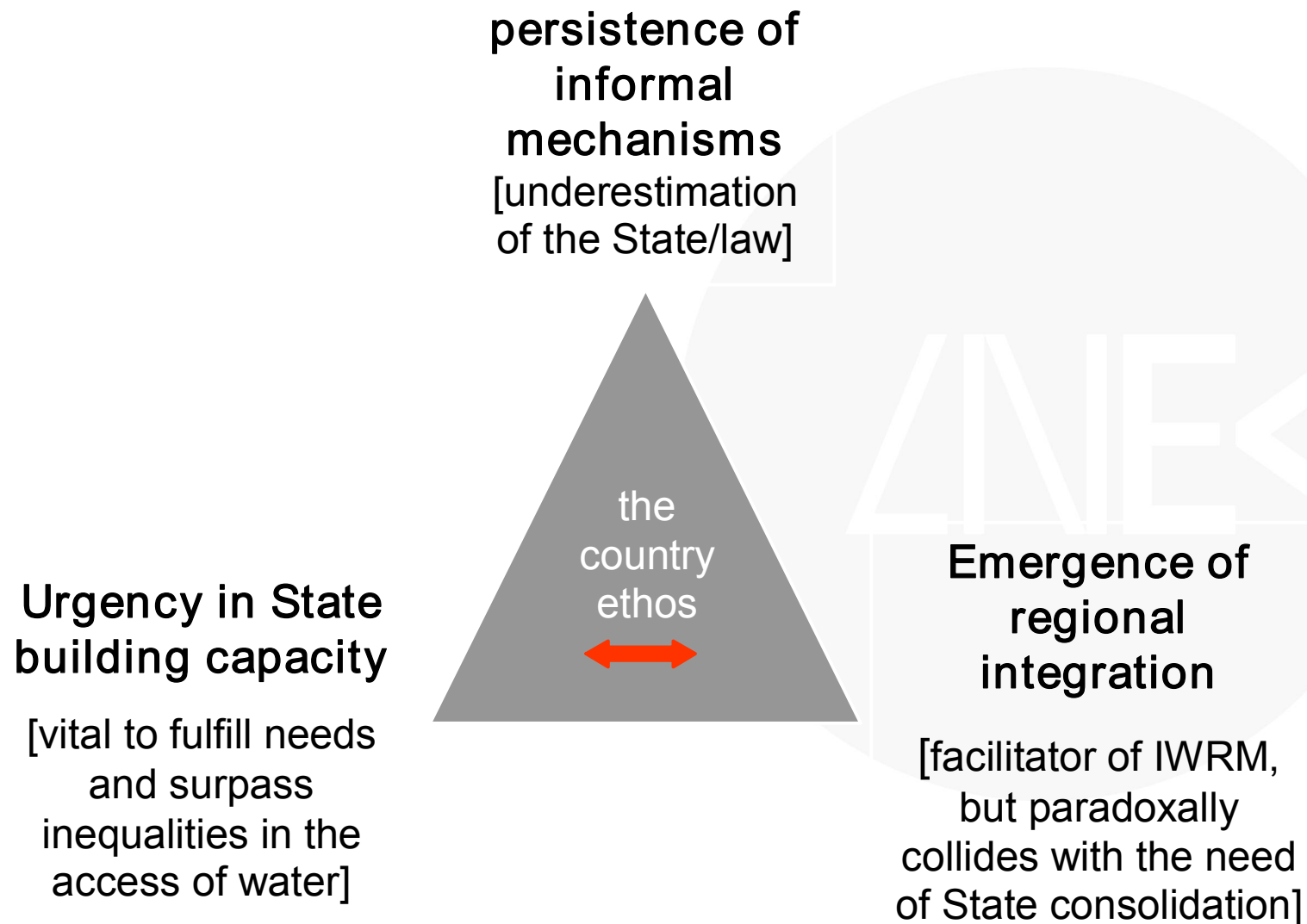
LNEC (Portugal)

1. Introduction: why Angola?
2. The problem of water in Angola, in the context of SADC region
3. Challenges to institutional system
4. Conclusion: risks and opportunities in the management of water resources in Angola

1. Why Angola ?

- > Angola emerges as an ideal type for the analysis of water resources governance in developing countries
- Great potential of water resources;
- Difficulties of access to water with great impact on populations, specially the poorest groups;
- Incipient institutional system;
- Potential for political tensions in the management of transboundary rivers.

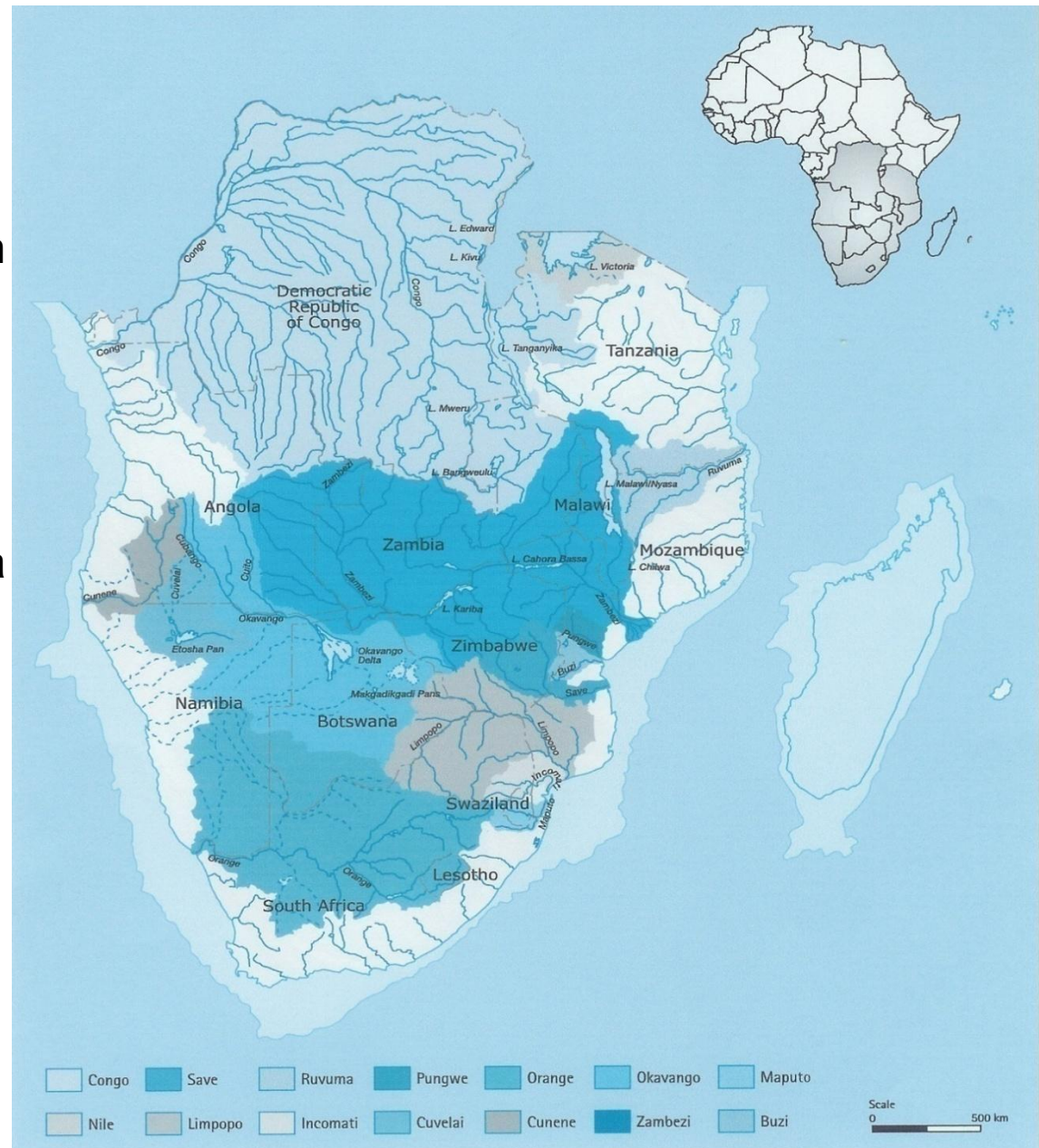
1. *ethos* of de country



General framework

- > Existence of shared river basins obliges to cooperation [SADC Water Protocol]
- > SADC is the intergovernmental organization for the integration of Southern Africa Countries
- > SADC joins countries with socio-economic disparities and different institutional and scientific capacities.

Source: SADC, IUCN, SARDC, IBRD (2002). Defining and Mainstreaming Environmental Sustainability in Water Resources – A Summary (citation: Hirji, R., Mackay, H., Maro, P.); Maseru, Harare, Washington DC.



2. The problem of water in Angola, in the context of SADC region

Annual Renewable Freshwater Resources, Population and Water Availability in SADC States, 1995-2025: Water Scarcity Index*

Table

Country	Year of estimate and source	Annual renewable water resources (cu km/yr)	Population (000)			Population pressure on water availability (people/M cu m/year)			Water scarcity index		
			1995	2000	2025	1995	2000	2025	1995	2000	2025
Angola	1987 b	184	11 558	13 302	25 940	63	72	141	1	1	2
Botswana	1992 c	14.7	1 459	1 651	2 270	99	112	154	1	2	2
DRC	1990 c	1 019	43 900	50 730	102 830	43	50	101	1	1	2
Lesotho	1987 b	5.2	1 930	2 140	3 400	371	412	654	2	2	3
Malawi	1994 c	18.7	9 374	10 160	18 695	501	553	1000	2	2	4
Mauritius	1974 c	2.2	1 122	1 205	1 410	510	548	641	2	2	3
Mozambique	1992 c	216	15 400	17 245	26 730	71	80	124	1	1	2
Namibia	1991 c	45.5	1 590	1 817	2 460	35	40	54	1	1	1
Seychelles	-	n/a	75	82	110	-	-	-	-	-	-
South Africa	1990 c	50	39 477	44 000	50 160	790	880	1003	3	3	4
Swaziland	1987 b	4.5	908	1 046	1 800	202	232	400	2	2	2
Tanzania	1994 c	89	28 400	32 422	56 090	319	364	630	2	2	3
Zambia	1994 c	116	9 100	10 755	18 285	78	93	158	1	1	2
Zimbabwe	1987 b	20	11 526	13 485	17 395	576	674	870	2	3	3
SADC		1 784.8	175 820	200 040	327 525	98.5	112	184	1	2	2

*Water Scarcity Index 1 Adequate 2 Quality and dry season problems 3 Water stress 4 Absolute scarcity 5 Water barrier

Index from Falkenmark, 1993: <100=1; 100-600=2; 600-1000=3; 1000-2000=4; >2000=5

Recalculated using water availability data from Gleick 2000, as indicated above b/Belyaev 1987 and c/UN FAO 1995. Population figures 1995 from SADC, projected for 2000 using 1999 population and annual growth rates in *SADC Statistics 2000*. Population projections for 2025 based on projections 2000-2025 from UN Population Division 1998, in UNFPA 2000, and recalculated at the same rate using SADC data for 2000. Population projections to 2025 rely on the UN calculations which are not uniform by country, and show unadjusted figures for Angola and DRC.

Table 2.1 in technical report

2. The problem of water in Angola, in the context of SADC region

- SADC water context is marked by an increase of demand, accompanied by a retreat of water storage, leading to water stress in some areas.
- In the next 25 years a worsening of this scenario is foreseen in some countries with serious risk of absolute scarcity.



2. The problem of water in Angola, in the context of SADC region

2. The problem of water in Angola, in the context of SADC region

- > Adverse regional context
- > Southern African Hydropolitical Complex should be envisaged as an element of *Regional Security Complex* (Turton et al, 2004)
- > It is wise to deepen principles underlying *virtual water*, within water resources planning and management.

2. The problem of water in Angola, in the context of SADC region

- Apparently with considerable water supplies, but revealing the lowest patterns of water consumption in the region;
- Expectable improvement of water distribution systems;
- population growth;
- Announced Development Projects, namely in farming sector.

Increase of pressure
on water resources,
inducing on a
decrease of water
availability *per*
capita.

2 The problem of water in Angola, in the context of SADC region

DISTRICT CAPITAL	Production capability (m ³ /day)	Estimate population	Per-capita[2004] estimate (litres/person/day)
Mbanza Congo	518	50 000	5
N'Dalatando	1728	95 000	9
Ondjiva	1536	63 000	9
Huambo	12000	400 000	15
Lubango	17500	300 000	29
Luanda	356000	4 000 000	37
Benguela	35600	400 000	44
Dundo	11000	50 000	50

Source: Caracterização do Sector de Águas (Resolução CM nº 10/04 de 11 Junho)

2. The problem of water in Angola, in the context of SADC region



Grubbed pit in a dry stream in Cunene River Basin
(Grande Reportagem, n.º 57, 1995 | Foto de Afonso Mejia)



Water sale in a Luanda Street (2006)

2. The problem of water in Angola: the informal sector

- > Informal sector is the main source of water supply;
- > Deficiencies of access to water and sanitation are one of the main causes of public health problems [One of most serious outbreak of cholera in subsarian Africa occurred in Angola in the year of 2006]
- > Strong factor of social inequalities and barrier to poverty reduction

3. Challenges to institutional system

[Expected] Role of institutions:

- > Reduction of uncertainties underlying human relation with water (i.e. public access to freshwater, flood control, sewerage and wastewater treatment);
- > Regulation of different water uses;
- > Institutional arrangements designed to promote coordination between institutional actors and public participation.

3. Challenges to institutional system

To promote forms of management aware of present water governance crisis and of the need to invest on:

- Anticipatory environmental policies which have incorporated long range aims and compromises towards future generations;
- Fulfillment of different water uses without compromising ecosystems protection;
- Users and public participation;
- Connection of expert systems (from water capitation to water delivery) and inter-sector needs (domestic, industrial and agriculture uses);

3. Challenges to institutional system

> Some indicators

- Average water use per person per day: 30 litres [1982-2002];
- Sanitation coverage: 30%;
- Infant mortality rate [per 1000]: 133,5;
- Life expectancy at birth: 41.4 years old;
- Human Development Index: 161^a [in an universe of 177 countries].

3. Challenges to institutional system

- > **Unplanned urban sprawl and uncontrolled growth of urban population; [urban population : 19% in 1975 and 53% in 2005]**
- > **Deficits of water delivery systems and sanitation**
- > **unregulated proliferation informal water sector**

3. Challenges to institutional system : permanencies and paradoxes



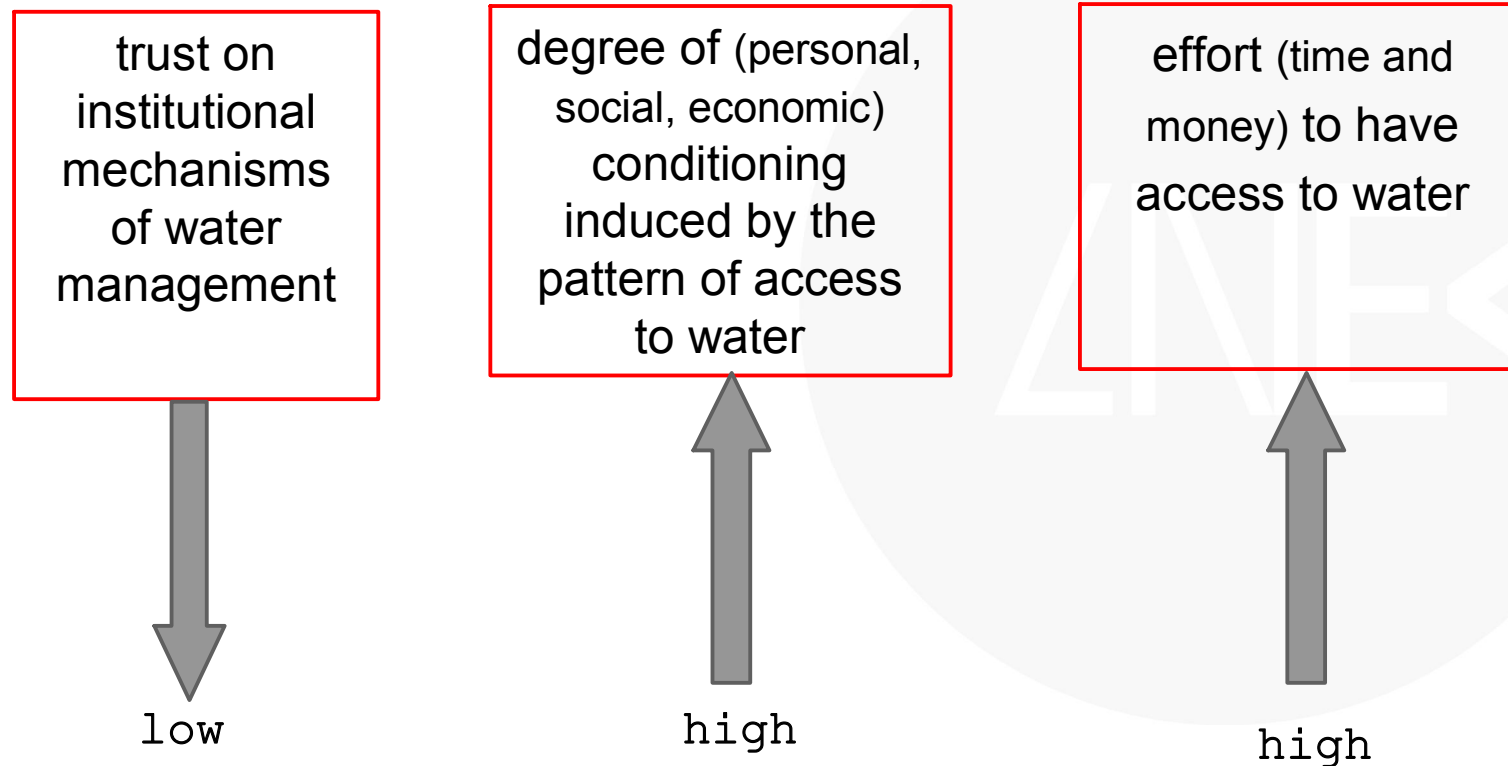
Urban flooding in Luanda (2006)



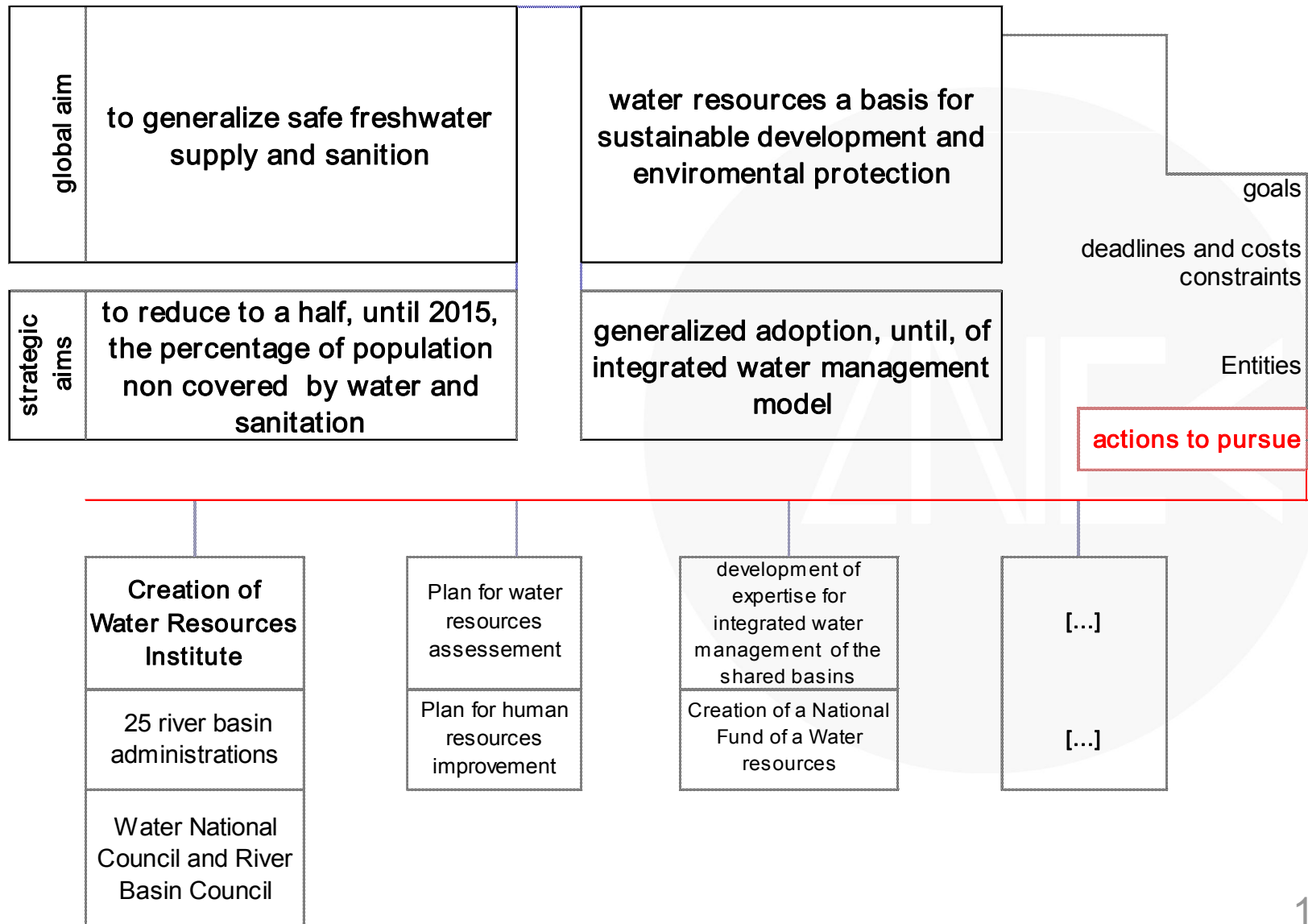
Alvalade neighborhood: Early morning car cleaning (2006)

3. Challenges to institutional system

How to revert these indicators?



3. Challenges to institutional system : Strategic Action Plan 2004-2016



4. risks and opportunities in the management of water resources in Angola

OPPORTUNITIES

- Existing water supplies;
- Legal framework at the national level;
- Existence of planning instruments and management at the regional level;
- Know-how and expertise centers in neighbor countries and CPLP;
- Existence of a Water Strategic Plan;
- Investment on infrastructures of water delivery and sanitation
- Fast growth of GDP.

4. risks and opportunities in the management of water resources in Angola

RISKS

- Institutional system fragility
- No regulation and no application of water law;
- No development of formally established planning instruments;
- Delay in the creation of Water Resources Institute;
- Expertise scantiness;
- No action directed to the establishment of river basin as unit of planning and management ;
- Establishment unrealistic goals jeopardizing trust in institutions

4. risks and opportunities in the management of water resources in Angola

But the higher risk is perhaps...

Alert of congô historian Elikia M'Bokolo

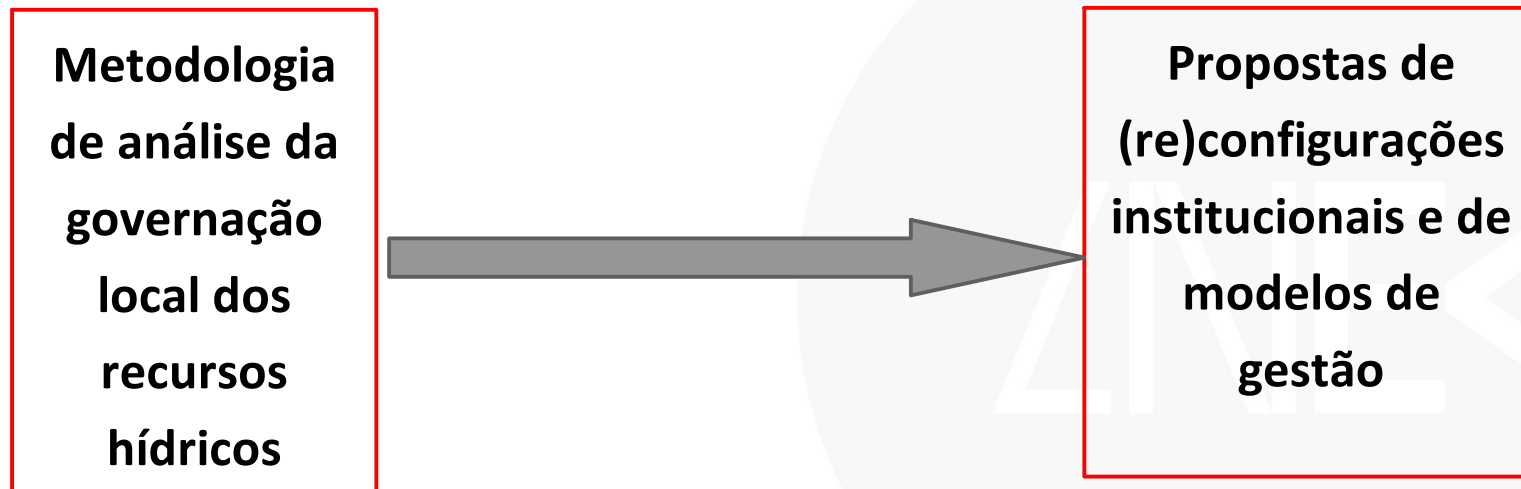
**“Africa content oneself with having chiefs
when
strongly needs structures”**

(Público newspaper, 16/11/2007)

Thank you!



proposta de projecto de investigação-acção



3. O problema da água em Angola: a lei de águas de 2002

