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“Restoring European rivers while Latin America countries (and many others) are spoiling theirs at an unprecedented pace: comparative reflections from the EU FP7 “SERELAREFA” project”

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IRSES "SERELAREFA" **(UE FP7 Marie Curie 2009)**

***Semillas REd Latino Americana de
REcuperacion Fluvial y de
ecosistemas Acuaticos***

***Seeds of a LA network for the
restoration of river and aquatic
ecosystems***

(www.serelarefa.com)





...RATIONALE for the project:

- 1) avoid "European mistakes"**
- 2) act before big changes of "development"**

ACTIONS:

- scientific-cultural exchanges**
- triggering case studies**
- collection of experiences**



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SERELAREFA

UE FP7 Marie Curie 2009



PARTNERS

- 1- **Italia:** CIRF Centro Italiano per la Riqualificazione Fluviale (coordinador)
- 2- **España:** UPM Universidad Politécnica de Madrid, Escuela de Ingenieros de Montes
- 3- **Chile:** DOH: Dirección de Obras Hidráulicas, Ministerio Obras Públicas
- 4- **Chile:** UdC: Universidad de Concepción, sede Chillan
- 5- **Mexico:** UdG: Universidad de Guadalajara
- 6- **Brazil:** PEU-POLI: Escola Politécnica – Universidade Federal do Rio de Janeiro



RF y LATINO AMERICA



Universidade Federal
do Rio de Janeiro
Escola Politécnica

ENGENHARIA AMBIENTAL
ENGENHARIA CIVIL
ENGENHARIA DE PETRÓLEO

BRAZIL



RR in LATIN AMERICA



Brazil (RDJ and MatoGrosso States)

- wild land use, deforestation and very fast urbanization ("earth filling" of floodable areas, "favelas")
- harsh urban flooding and pollution problems (Rio, S.Paulo,...) and hydro-morphological risk



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Brazil (RJ and MatoGrosso States)

- hydro-power companies politically powerful and little sensitive to environmental issues
 - advanced legislation on water use and basin management; there are basin committees, but... weak and lacking “enforcement” power
 - confusion in the definition of fluvial domain
 - main problems perceived: *loss of agricultural soil (erosion), pollution from agro-chemicals and urban loads of water supply, loss of reservoirs capacity due to sedimentation, increasing urban flooding hazard*
- + great energy on the RR ideas

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Brazil: ex. Sesmaria river (Paraiba do Sul)

- unsustainable use of basin → hydro and morphological changes + wild urbanization → flooding risk increased downstream
- Master thesis (→ Poster in Geomorphology 2013 in Paris)
- investigates the externalities
- tries to predict trends



An aerial photograph of a river flowing over a rocky bed, creating significant white foam. To the left, there are ruins of industrial buildings, possibly a sugar mill. The background shows a hillside with sparse vegetation and some distant structures.

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MEXICO



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Mexico (Jalisco and Colima States, NW):

- Pollution is a key issue
- rapid urbanization is increasing flood risk
- water use: irrigation \leftrightarrow riverine ecosystem conflict





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Mexico:

- Law does not ask for river basin management plans;
 ⊃ possibility of participatory planning thanks to law of “Equilibrio Ecológico”, but does not act over water basins and has no clear relationship with Land use planning, the programs of Urban development, the “ordenamiento comunitario”...
- ⊃ “Comisiones de cuenca” (river basin committees); but just with a consulting role; scarce funding; lack of autonomy



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Mexico:

“Fortunate” institutional-administrative situation:
Comisión Nacional del Agua (act as river basin
authority): unitarian vision, integrated mandate.

Paradoxically this is however a serious weakness:

- scarce contact with local reality: water uses not formalized, but existing → wrong water balance and water right concessionsunfeasible → dry rivers
- lack of ecosystem view of the river and its corridor and basin

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Mexico

- Strong role of University fostering dialogue
- Amazing RR experience in the Ayuquila river: *through a fight against a highly polluting sugar factory, a bottom-up participatory committee (JIRA) has been created and got legal status!and the river has highly improved*
- Real self-conducted and live participative initiatives: garbage recycling, riverine Feria ambiental,.. ..



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Mexico: RR short time challenges

- water pollution and water use/allocation
- on-going process of introducing ecological regime requirements in the water concession framework (pilot “easy” basins, with high environmental value and low pressure; first step with just annual volumes reserved, no time pattern...)
- preserving nature: in particular, biodiversity, fish fauna (including fishing pressure management) and coastal wetlands (connected with rivers)

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CHILE

A wide-angle landscape photograph showing a river winding through a lush green valley. The river is surrounded by dense green trees and shrubs. In the background, there are rolling hills and mountains under a clear blue sky. The foreground shows a grassy slope with some dry grass and small plants.

A landscape photograph showing a town with several houses in the middle ground, a large mountain in the background, and some trees in the foreground. The sky is blue with some clouds.

Chile:

- rapid urbanization (real state investments
- scarce coordination in land use planning due to institutional setting) → “rellenos” (earth fillings) and quest for defense works (DOH-MOP) → quick increase of hydro-morphological risk
- lack of financial resources for maintenance → future will be worse



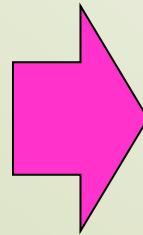
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Chile:

- sediment mining and geomorphic disruption: Maipo (S.tgo) and Simpson (Coyhaique) emblematic rivers.
- Municipality gives concession → myopic vision by definition

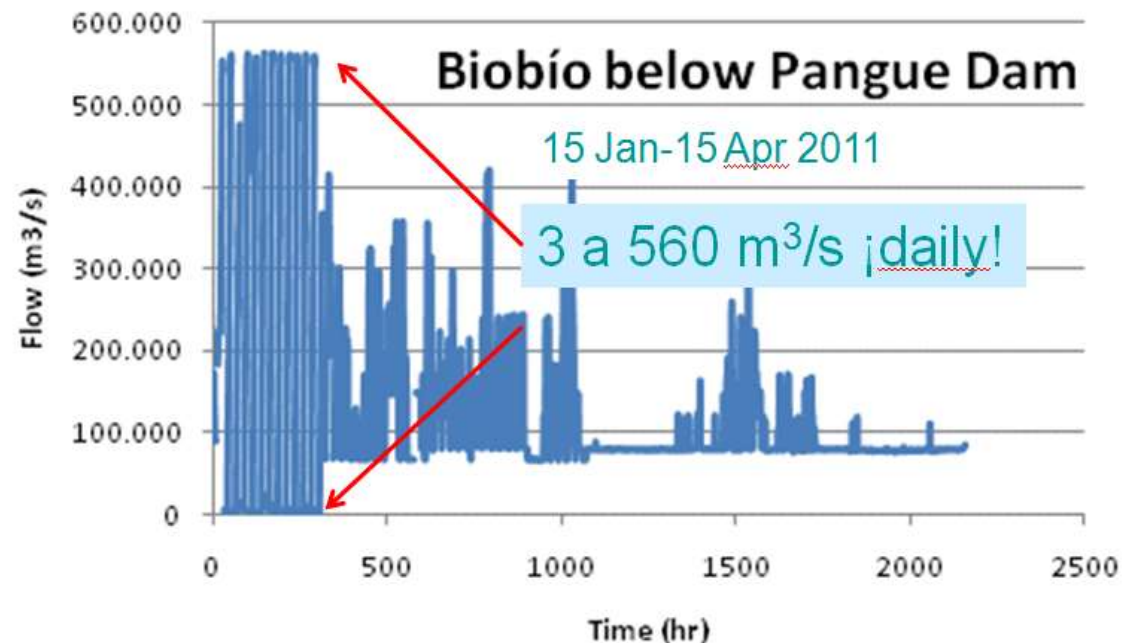


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Chile: the power of hydropower

- hydropower exploitation: virtually every river has some hydro plant existing or planned and water rights are already all assigned
- typical impacts of damming are everywhere. EIA/SEA hyper weak
- ecological flows? Not yet. Just *minimum minimorum* (since 2005)
- **hydropeaking** is perhaps the main manifest problem



Run-of-river plant ??



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Chile: the “privatized country”

there cannot be river basin management (indeed legislation does not foresee it):

- land is owned by mining and forestry or vineyard companies;
 - water is a “public good”, BUT in practice privately owned (water rights do not expire and can be traded: from farmers to mining or hydropower)
 - water resource is already “exhausted” in most of the country
- no space for ecological flow, nor for optimizing allocation
- no one is willing to face a basin management plan



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what does it mean?

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- Hard to imagine giving up some uses or spend significant money in order to enhance ecological status “per se” → conservation, rather than restoration (except afforestation).
- Mainly seen as a mean to solve or avoid use problems (water supply, soil conservation, reservoir volume) and to orient future development (urbanization); meaningful to exploit environmental services (← MEA; → “Fondos de Agua” –TNC).
- Urban RR on-going, but mostly driven by economic enhancement of urban setting paradigm (although with significant exceptions and growing sensitivity to sustainable drainage to face flooding problems).

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What can it be?

TWO strong points:

- accomplish with a growing demand for recreation and leisure associated with river waters, partly conflicting with classic uses (hydropower in primis): rafting, fishing,...
- stronger role if RR can demonstrate that a more natural management of rivers is able to spare money to combat flood risk, particularly introducing the concept of river corridors, but...legislation and institutional setting very far to support it now

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Fluvial corridor

Ex. Chile: *case study on the
TINGUIRIRICA river (VI Region)*



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Recommendations:

→ **“NETworking”**: sensibilibize, inform, educate; create alliances to face common problems

→ **“national RR STRATEGY”**:

at several scales, promoting a RR approach and first of all the creation of river corridors as the best investment for future safety and quality of life

→ **“COOPERATION programmes”**:

great benefit from interaction with European experience including capacity building and pilot case development