

NWRM 2° Mediterranean workshop
Torino, 12 September 2014



Key issues to be addressed for the
implementation of NWRM to tackle
flood risk in Italy

Andrea Goltara

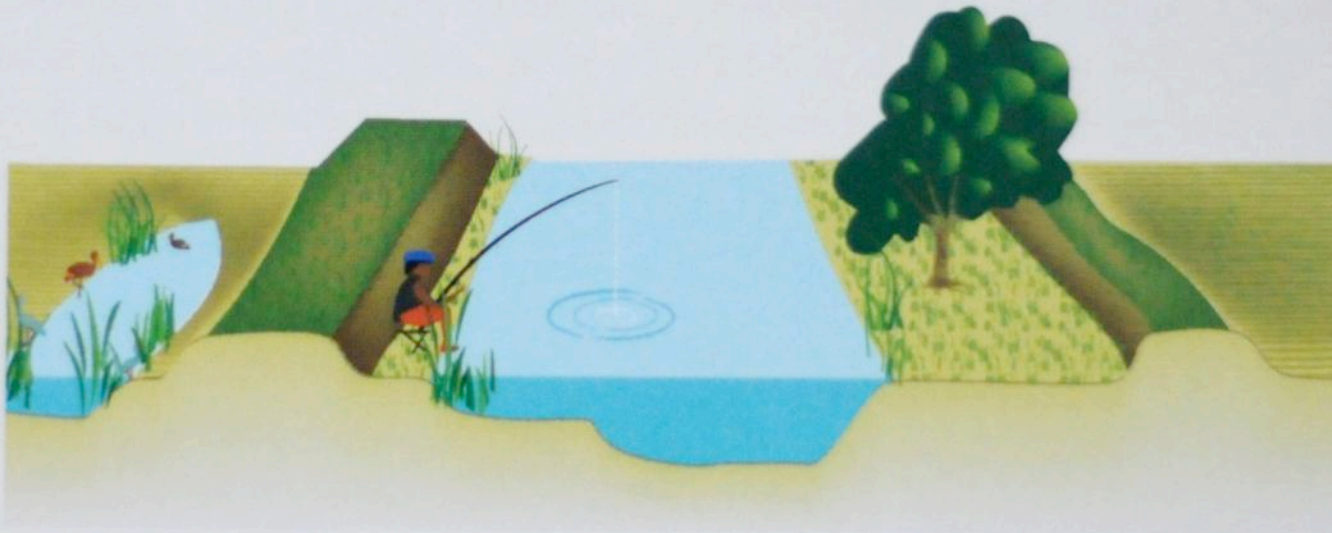
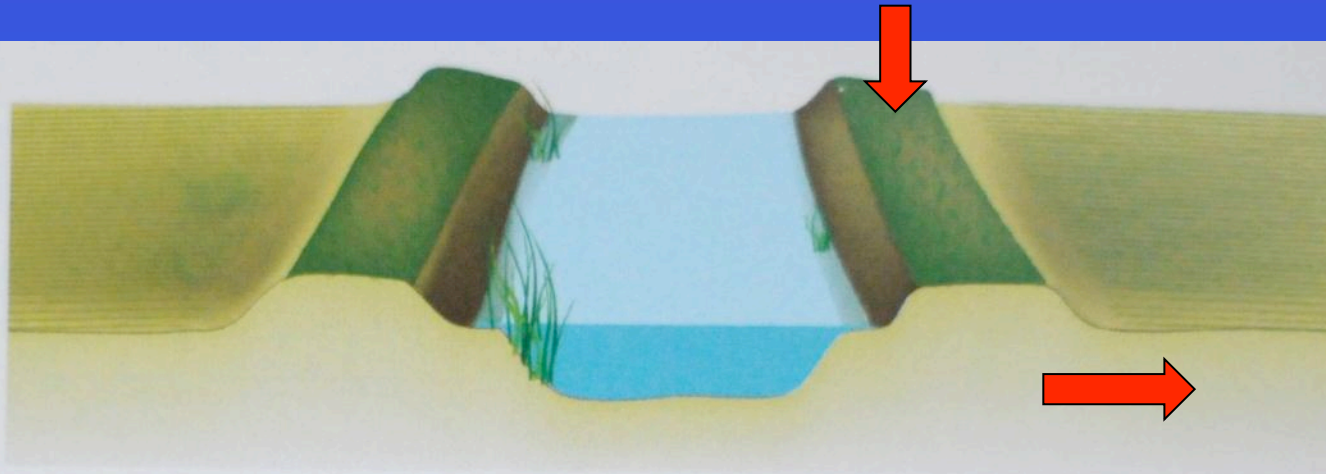


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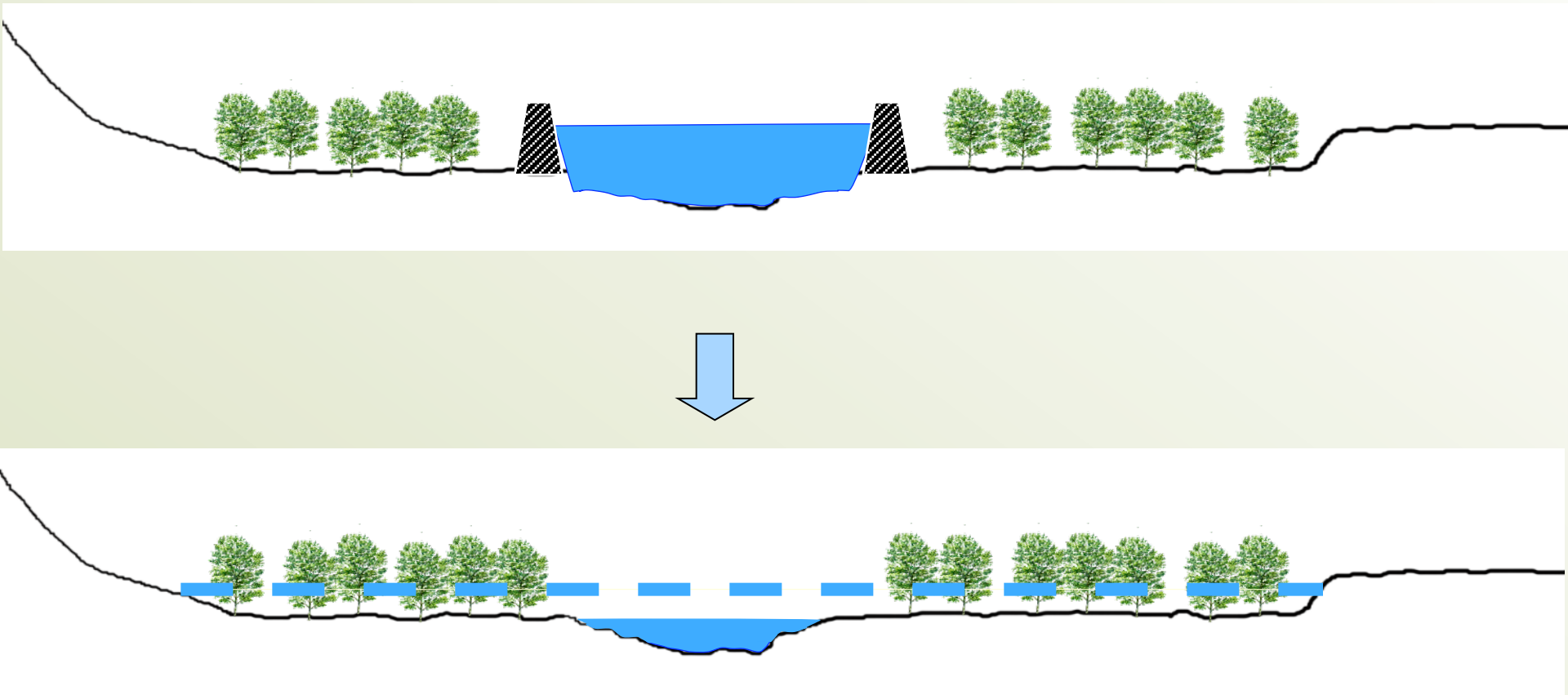
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Key NWRMs for flood risk mitigation (\cong hydromorphological River Restoration measures) aim at slowing down flow peaks and restoring the connection with and flood retention capacity of FLOODPLAINS

Removal/retreat/lowering of EMBANKMENTS

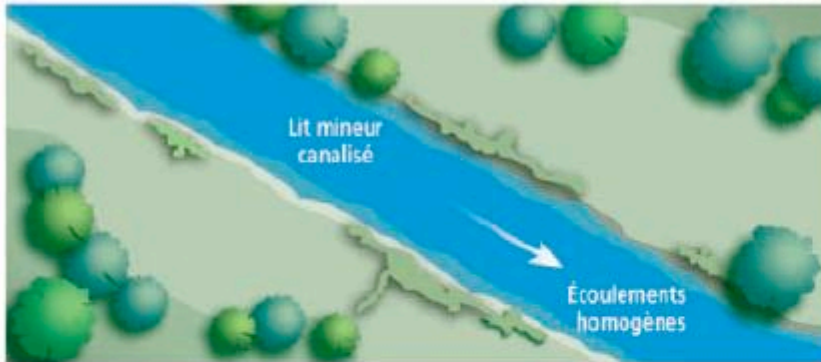


Removal/retreat/lowering of EMBANKMENTS

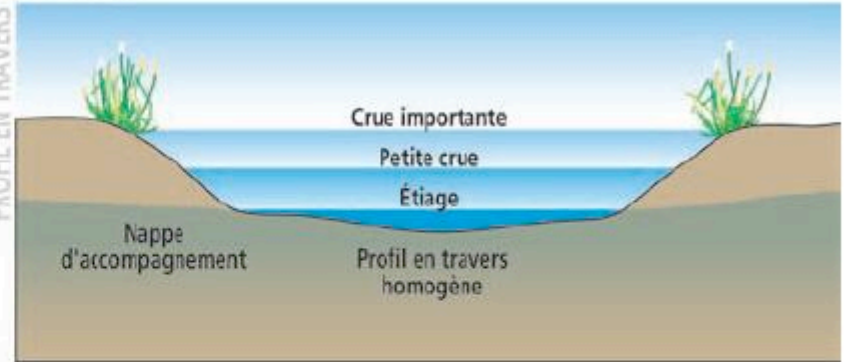


REMEANDERING

SITUATION INITIALE



PROFIL EN TRAVERS



SITUATION PROJETÉE

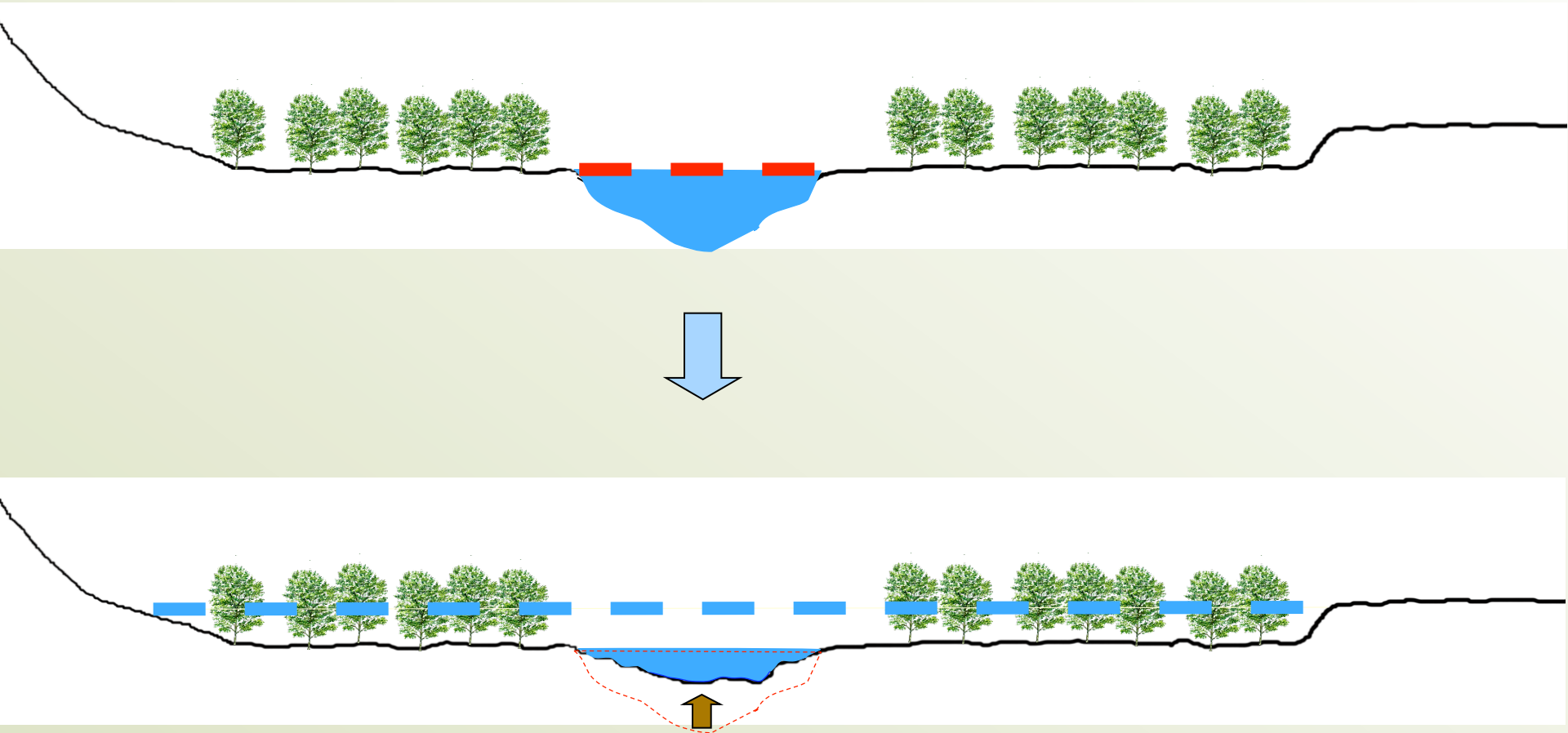


PROFIL EN TRAVERS



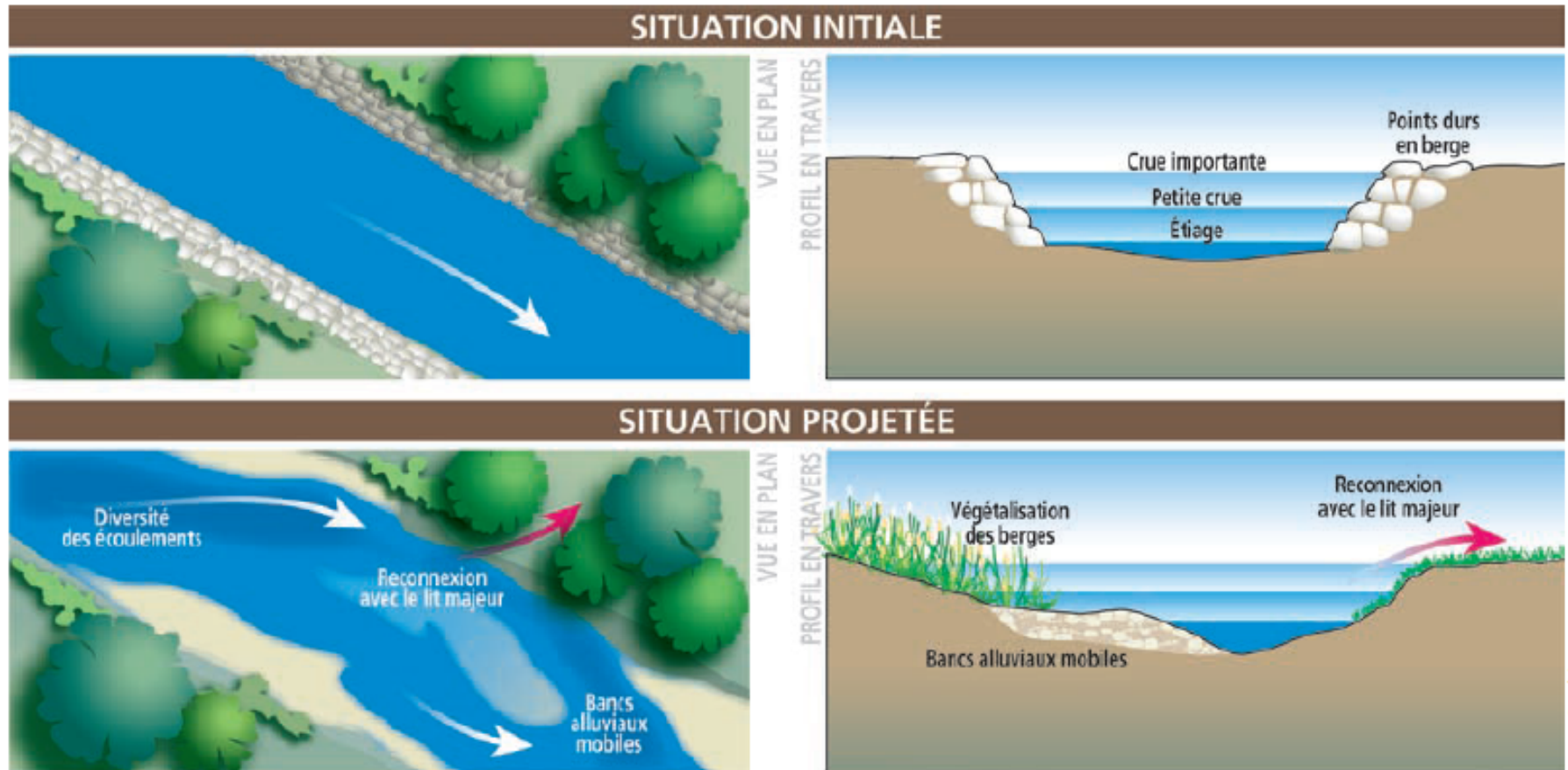
Graphies

Reverting riverbed incision



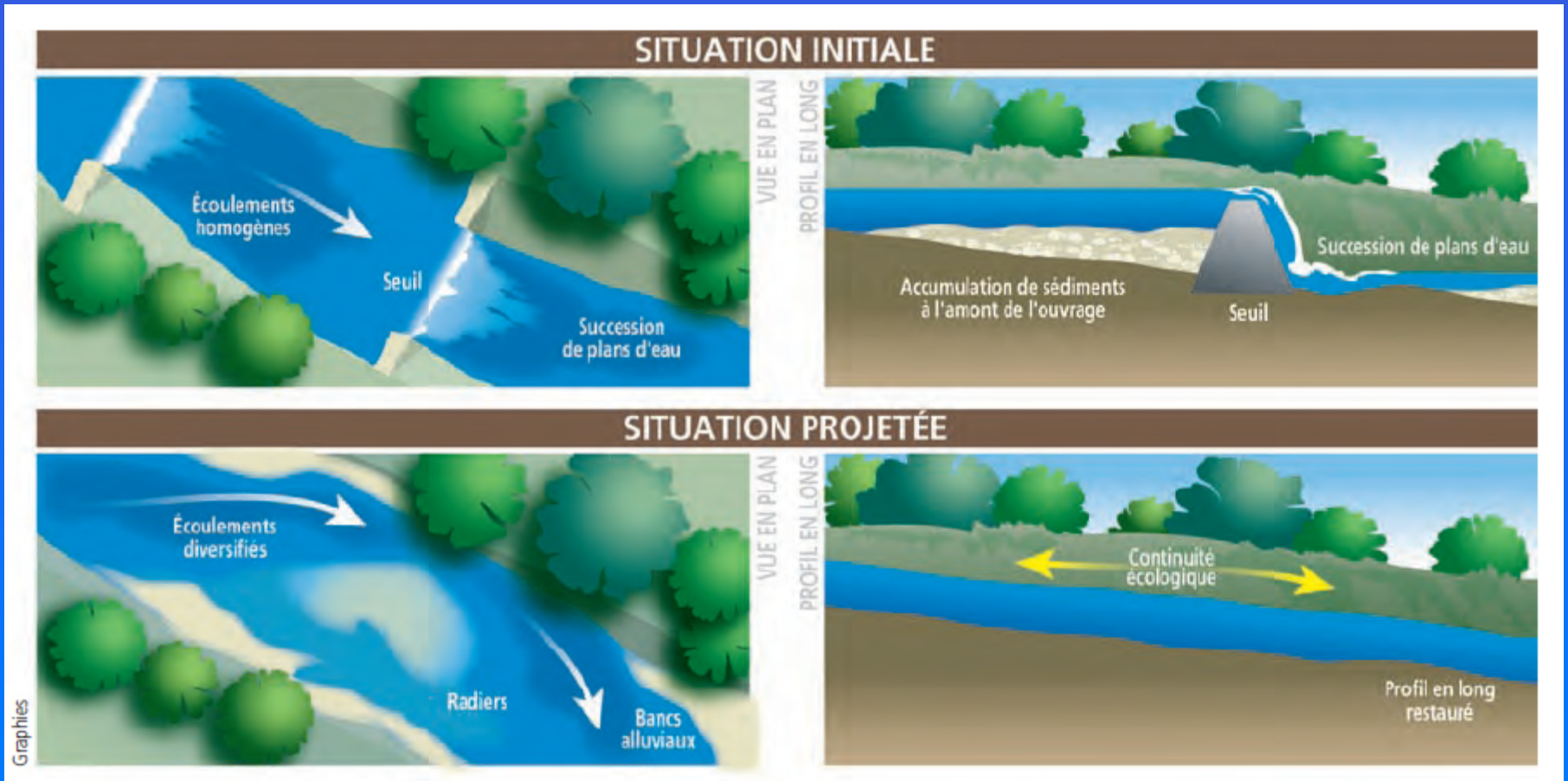
Reverting riverbed incision

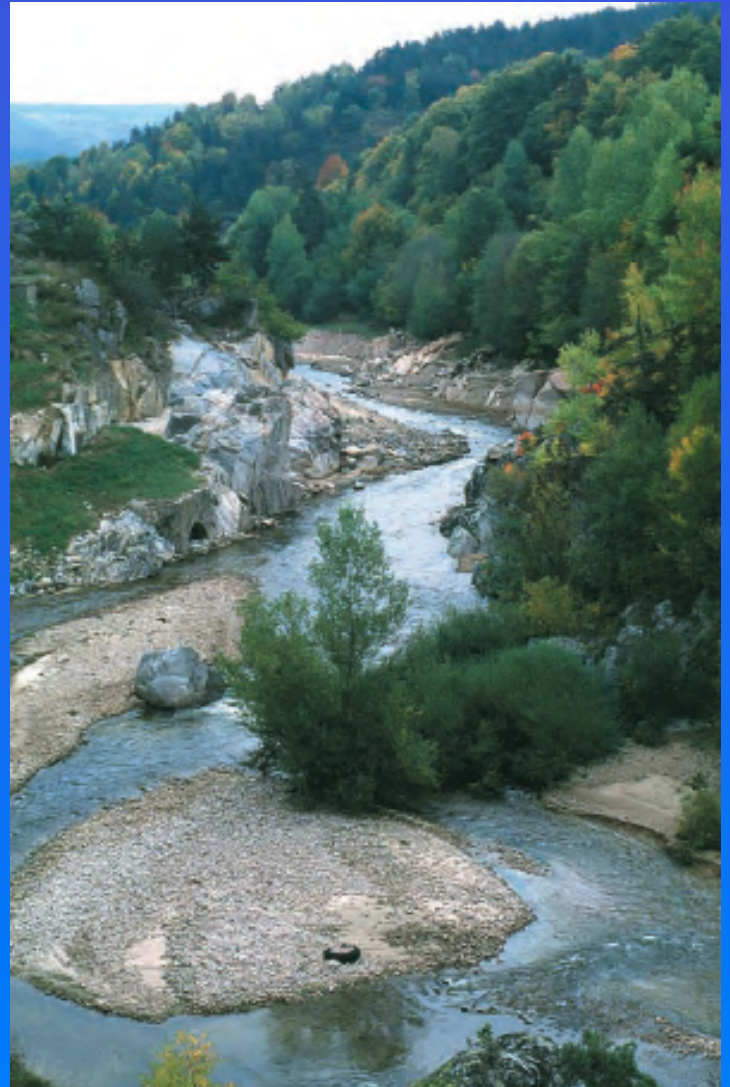
Removal/retreat of BANK DEFENCES



Reverting riverbed incision

Removal of dams/weirs





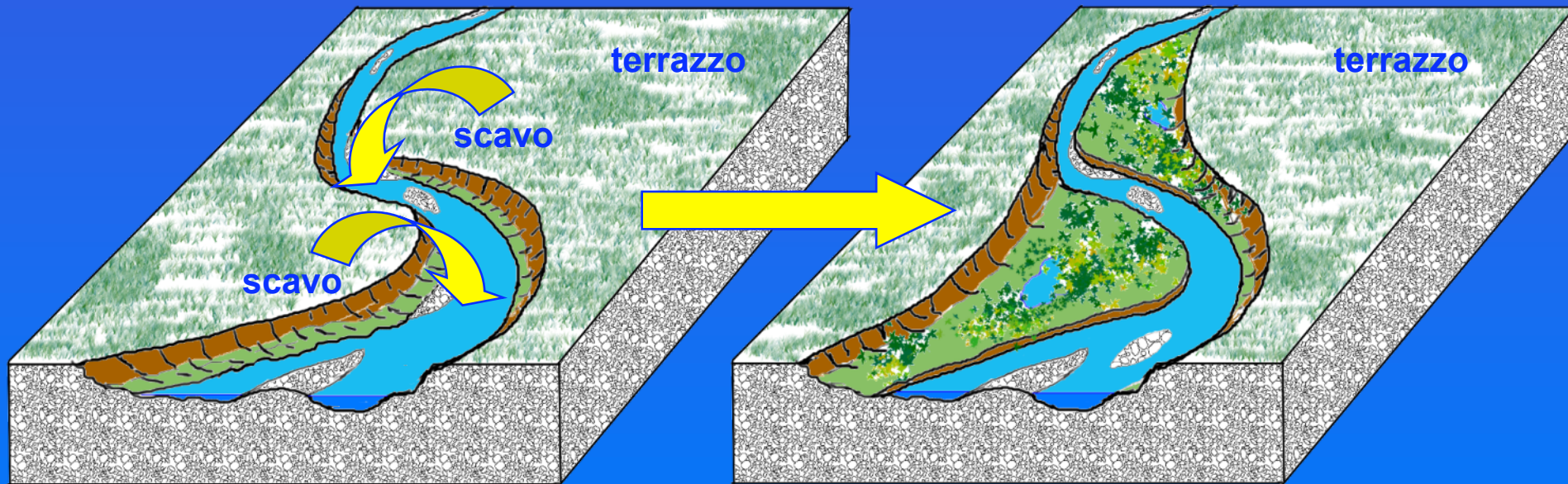
Removal of the Saint-Etienne-du-Vigan dam, on the Allier river, France
© ONEMA - image from *La restauration des cours d'eau - retour d'expériences sur l'hydromorphologie*

Reverting riverbed incision

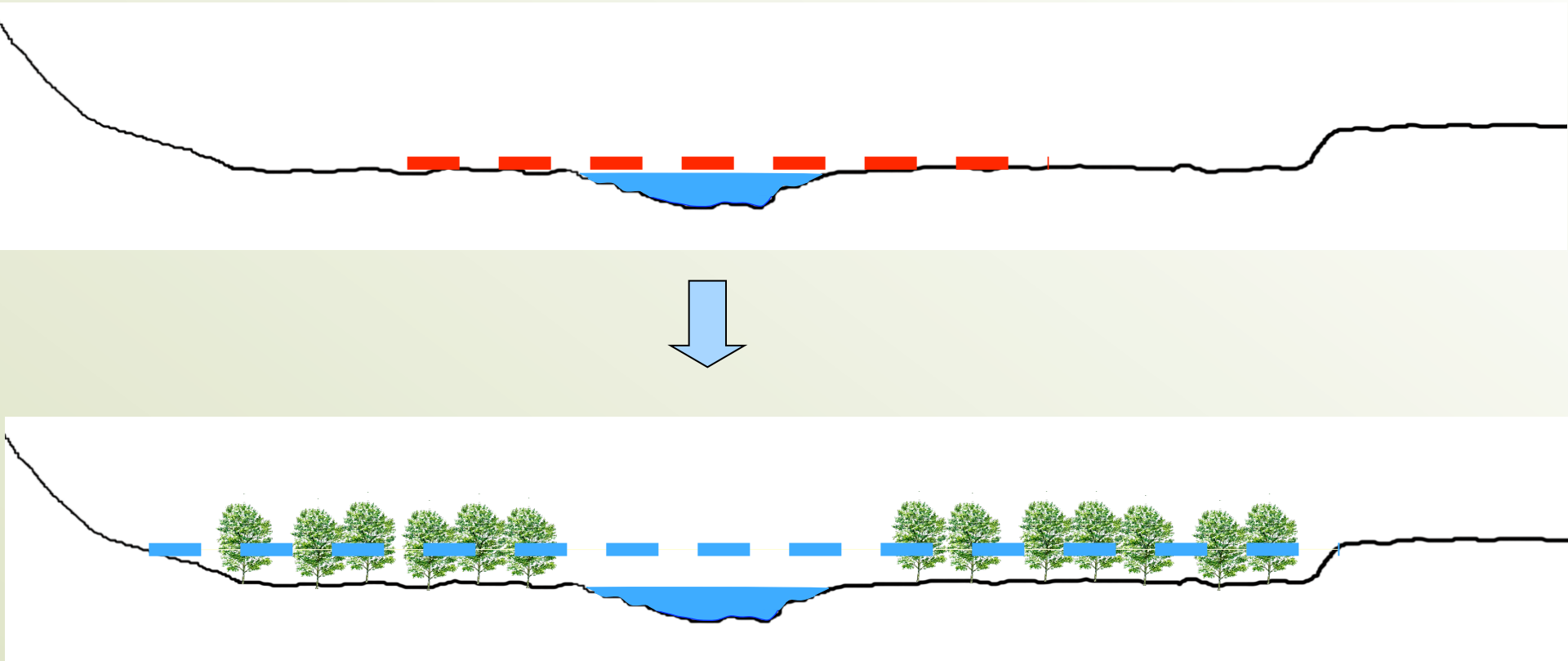
Mechanical reintroduction of sediments



Restoration of floodplain lowering terraces (former floodplain now outside river dynamics)



Restoring natural floodplain roughness



WHAT KIND OF MEASURES ARE ACTUALLY IMPLEMENTED?



Governo italiano
Presidenza del Consiglio dei Ministri

Italia Sicura - ~ 4'000 M€ for "flood risk
reduction and disaster prevention
measures"

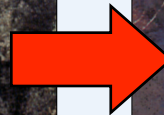
A list of 3395 traditional engineering works to carry out as fast as possible in all Italian Regions

INTERVENTO	IMPORTO
Sistemazione idraulica del Rio D.	600.000
Completamento sistema arginale in sponda dx Torrente V.	1.500.000
Stabilizzazione versanti	900.000
Completamento e ripristino difese spondali Torrente A	2.400.000
Canale scolmatore	3.500.000
Sistemazione idraulica T. Abc	500.000
Regimazione acque superficiali	400.000
Completamento arginatura T. xy	1.000.000
Sistemazione idrogeologica	2.800.000
Ripristino officiosità Rio B.	750.000
Contenimento erosione spondale e manutenzione idraulica	1.100.000
Riequilibrio idraulico del Rio L.	200.000
Sistemazione idraulica T. G	400.000
Sistemazione alveo xzy	800.000
Manutenzione idraulica T. H	300.000



Construction or maintenance of protection works

dredging



Removal of riparian and instream vegetation

Etc...

Why ? What are the key issues to be tackled?

1. SCALE

Measures are still conceived / asked for at a
TOO LOCAL SCALE (in space but also time) in
order to properly compare "traditional" vs.
"working with nature" alternatives

RBMPs (WFD - FD) ??

2. EMERGENCY vs. PLANNING

In practice in Italy the large majority of interventions related to flood risk management are funded and implemented under EMERGENCY (post-disaster) conditions, often **BYPASSING** planning



3. OVERLAPPING OF PLANS AND AUTHORITIES

D.Lgs. 152/2006 + D.Lgs 49/2010:

- piano di bacino distrettuale,
- piano per l'assetto idrogeologico,
- piano di gestione del rischio di alluvioni,
- piani straordinari diretti a rimuovere le situazioni a più elevato rischio idrogeologico,
- piano di gestione (RBMP),
- piano di tutela delle acque,
- piano d'ambito.

Regional (+ Provinces, municipalities, drainage authorities...) vs. Basin authorities

4. CULTURAL SHIFT NEEDED

NWRM concepts are to a very limited extent integrated in the know-how of DOs in public authorities

Most Italian RBMPs neglect hydromorphological restoration and the same is happening with FloodRiskMPs

??

2007/60/CE - FD

- Explicitly requires to develop synergies with 2000/60 goals, e.g.: **restoring floodplains** (MORE SPACE TO THE RIVER)
- RISK maps (not only hazard)

2000/60/CE - WFD

GOOD status
-> HYDROMORPHOLOGICAL restoration
(+ ECONOMICAL analysis)

RBMP - Flood risk management plan

A promising step forward



ISPRA
Istituto Superiore per la Protezione
e la Ricerca Ambientale

IDRAIM

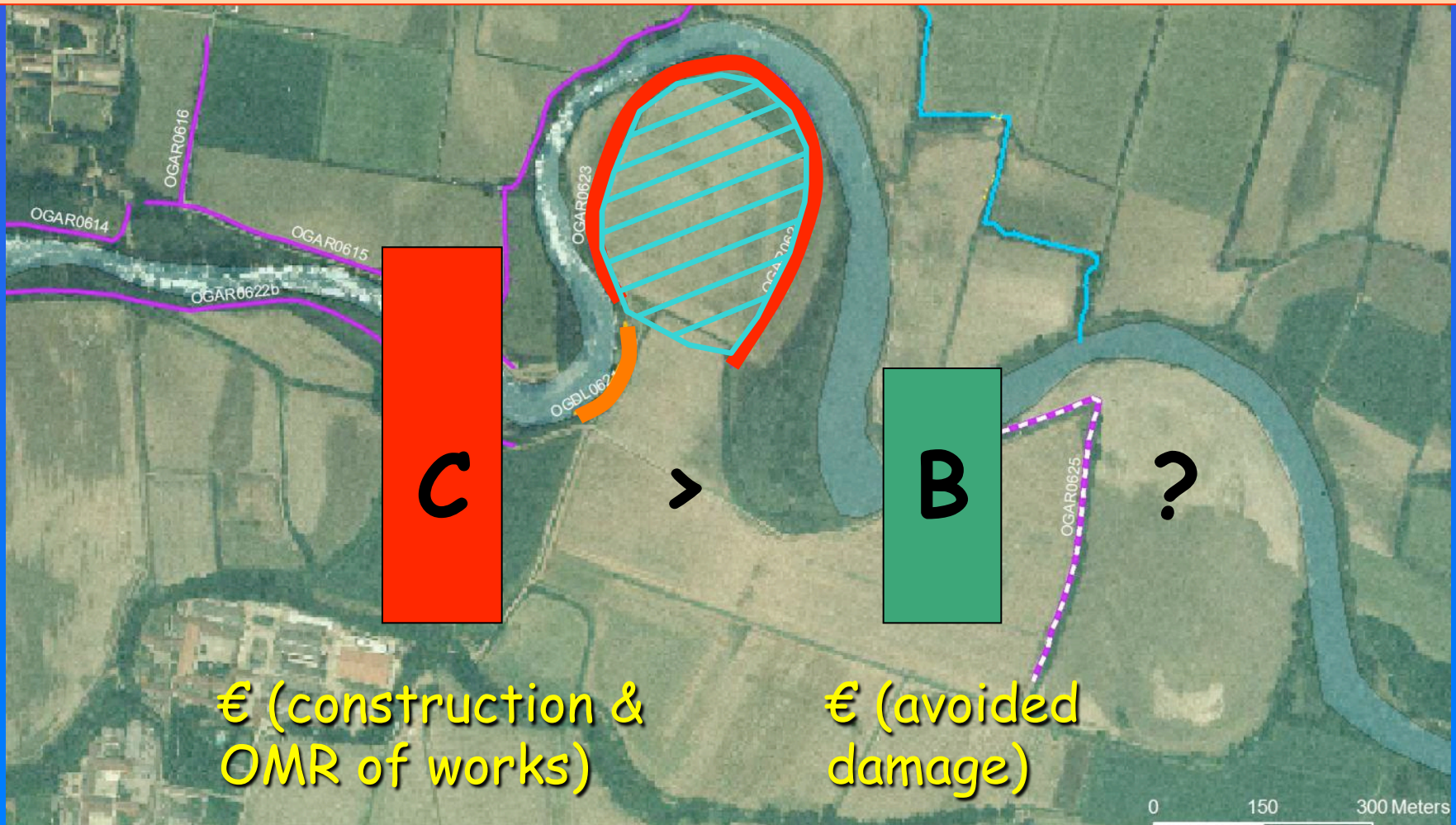
Sistema di valutazione
idromorfologica,
analisi e **m**onitoraggio
dei corsi d'acqua



MANUALI E LINEE GUIDA

5. INSUFFICIENT LEGISLATIVE SUPPORT (e.g.: economic analyses)

No obligation of CBA (not to mention ES) for construction/reconstruction of protection works



5. INSUFFICIENT LEGISLATIVE SUPPORT (e.g.: funding)

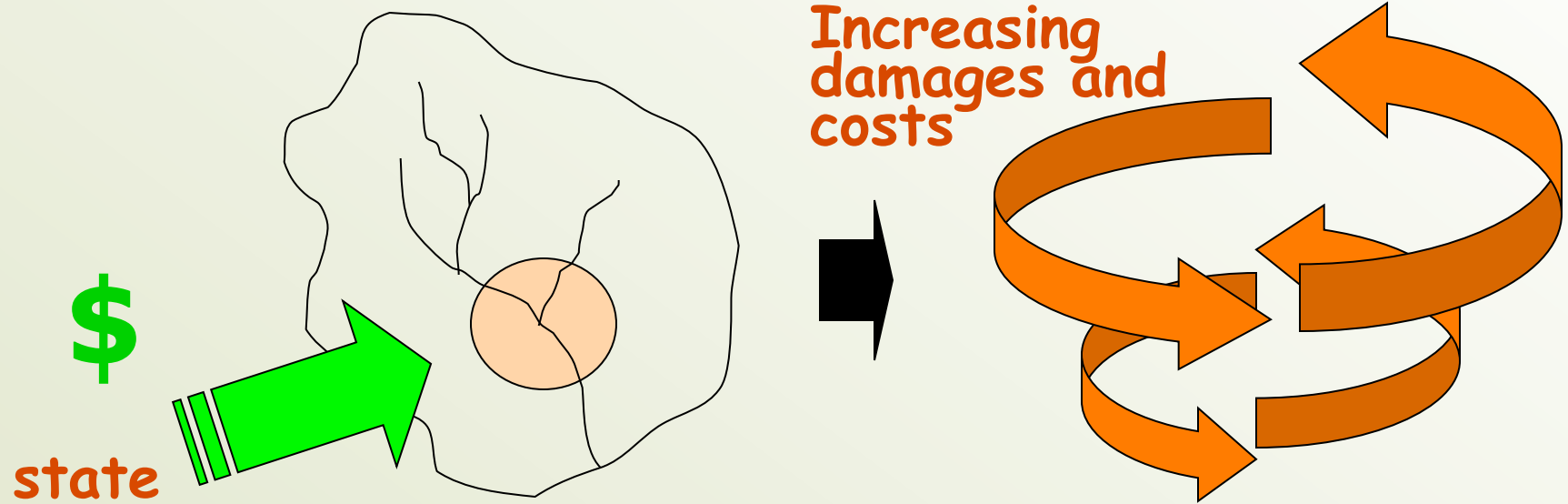
e.g.:

- obligation + national funding for floodplain reconnection (Swiss Federal Law, 2011)
- No Government funding for flood defence schemes unless synergies with biodiversity/river quality are developed (Austria)

6. more on LACK OF FUNDING

- Priority in Structural Funds 2014/2020?
- CAP?
- PES (e.g. at catchment scale)?

"Polluter/user pays" principle ?



- Dedicated funding streams?

A promising step forward

SENATO DELLA REPUBBLICA

Disposizioni per la formazione del bilancio annuale e pluriennale
dello Stato (legge di stabilità 2014)

Art. 111 (risorse per "interventi di messa in sicurezza del territorio"): le risorse devono essere destinate prioritariamente "agli interventi integrati finalizzati alla riduzione del rischio, alla tutela e al recupero degli ecosistemi e della biodiversità e che integrino gli obiettivi della direttiva 2000/60/CE [...] e della direttiva 2007/60/CE [...]"

- Mobilisation of private funds?

e.g. reservoir management plans



7. Insufficient policy support

Lack of a
NATIONAL STRATEGY
FOR RIVER
RESTORATION

Linked also to funding and
simplification of
administrative procedures



9. Some objective limitations in the Italian context

AVAILABILITY OF THE AREAS (former floodplains are mostly private now):

- Expropriation? (extremely high costs, at present prices: funding?)
- Land swapping?
- Compensation to farmers/owners? (CAP? PES (e.g. at catchment scale)?)

8. Insufficient public participation (besides few exceptions)

Measures such as NWRMs for flood risk mitigation, to be developed and with effects at catchment/basin scale, entailing change of use of large portions of land and often conflicts between areas/stakeholders... particularly need to be **developed/supported through a participatory approach**



10. Technical issues

- Appropriate definition of NWRMs?
- Evidence of effectiveness + Flagship/
good practice projects in similar contexts
- Suitable framework for ES assessment?
- Prediction capacity?
- Sufficient knowledge of hymo processes
(in some districts)?

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Thank you for your attention

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CRITICAL ISSUES for floodplain restoration:

CLEAR LEGISLATIVE SUPPORT FOR THE REMOVAL OF PROTECTION WORKS

- Responsibility in case of subsequent damage?

Two main components of "flood risk", generally interconnected

HYDRAULIC
(flooding)



RISK



MORPHOLOGICAL
(bank erosion due to
lateral dynamics)



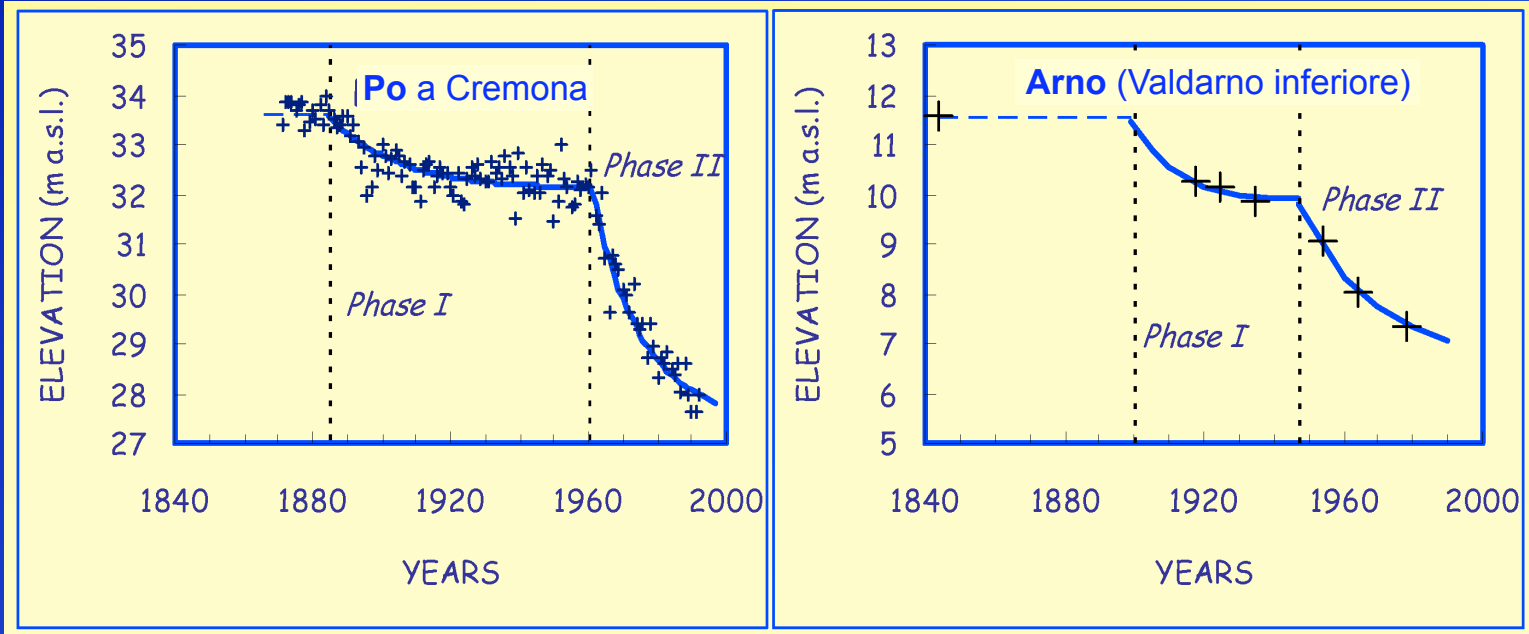
“Morphological” (erosion) risk “traditional” approach

THE EFFECTS:



Secchia downstream Castellarano

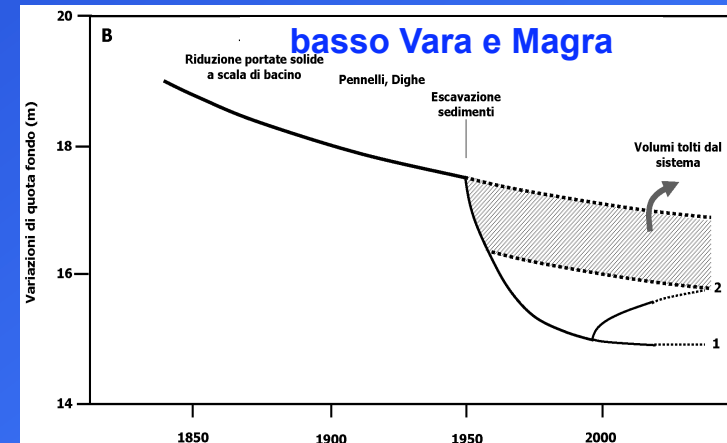
Most Italian rivers are strongly incised !



PHASE 1: reduction of sediment load at catchment scale (afforestation, stabilization works)

PHASE 2: sediment extraction, dams, bank protections

PHASE 3: partial recovery ?



Forest management

Do active management and "cleaning" of forest areas always increase the ecosystem services related to flood and landslide risk? Or at least in some contexts a natural forest is more effective?



Retreive and maintain abandoned agricultural land

*One of the main causes of natural disasters is the **ABANDONMENT** of agricultral land, especially in the **MOUNTAINS***

Is this always true?
Which practices are really useful?
What are the most effective measures that should be carried out by farmers?



- mancano strumenti per arrestare il consumo di suolo, in particolare all'interno delle aree attualmente o potenzialmente esondabili e di attuale o potenziale mobilità dei corsi d'acqua
- recuperare spazio al fiume: L. 37/1994 non basta (non ha effetto dove la mobilità laterale è limitata da opere di difesa)

- Esempi positivi in altri Paesi europei su spazio di mobilità, recupero dinamiche naturali e rinaturazione :
 - L.669/2003 francese (spazio di libertà)
 - Loi sur l'Eau et les Milieux Aquatiques (2006), Loi "Grenelle" (2009): continuità fluviale (sedimenti e fauna)
 - L. federale svizzera 2011: spazio per il fiume minimo e riqualificazione obbligatori (fondi federali e da vendita energia idroelettrica; compensazioni ad agricoltori)