

NWRM Mediterranean Network –

Second Regional Workshop. Torino, 11-12 settembre 2014

*Riparian buffers to mitigate runoff effects
and the role of riparian vegetations*

Direzione Ambiente

Settore Tutela Quantitativa e Qualitativa delle Acque



MIRIAM project



in partnership with



Aim

**Mitigation of the Risk of surface water contamination
due to pesticide and nutrient runoff**

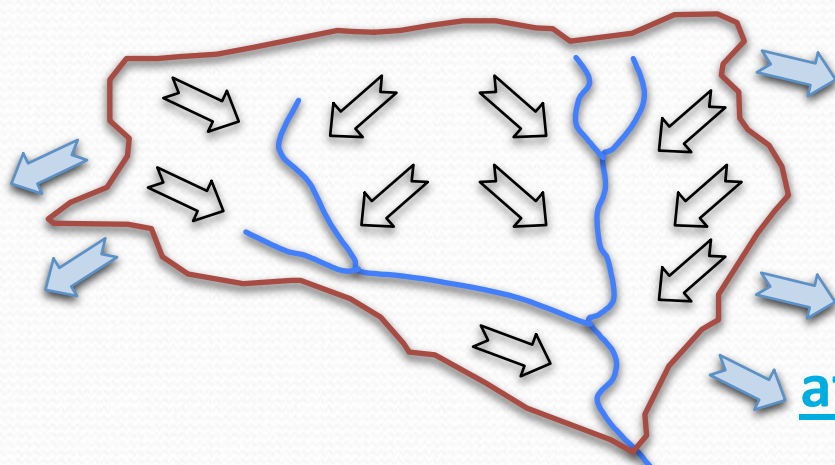
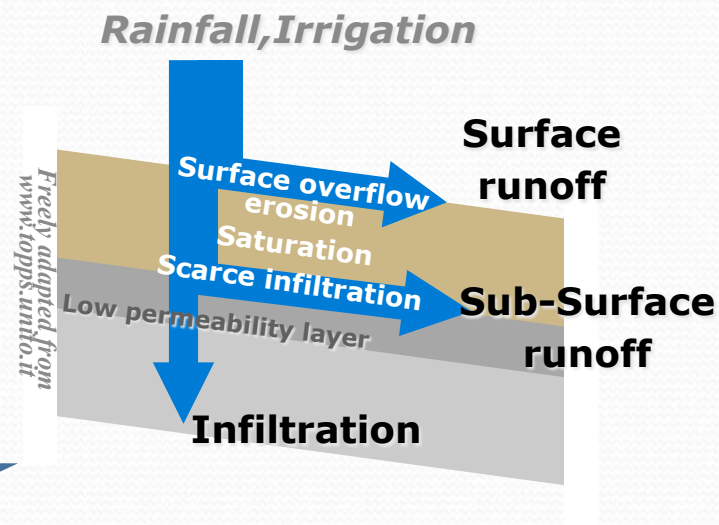


Vincenzo Pellegrino

Piedmont Region - Environment Department

MIRIAM Project: Grounds of the project

Surface and sub-surface runoff (amount depending on landscape and soil properties and management) transports pesticides and nutrients to the water bodies



Risk of freshwater contamination occurs at a catchment level: mitigation of runoff can be achieved by adopting practices affecting the whole catchment area

MIRIAM Project: Phases

1

Contamination risk diagnosis
at catchment basin level

Characterisation of the basin
by means of maps (slope,
soil texture, etc.)

2

Contamination risk diagnosis
at the field level

Crops, agronomical practices,
shortcuts, ditches, etc.

4

Determination of the BMP's
Combination of
mitigation measures

3

Determination of the
contamination risk degree
By means of decision
support systems

MIRIAM Project: mitigation measures

- Soil management (e.g. lower tillage intensity, rough seed bed)
- Cropping practices (e.g. crop rotation, cover crops)
- Vegetative buffer strips (e.g. riparian, in-field buffers)
- Retention structures (e.g. vegetation ditches, ponds)
- Correct use of fertilisers and pesticides (e.g. doses, timings)
- Optimised irrigation (e.g. drip/sprinkler vs. surface irr., water volumes)



Buffer areas effects on water bodies and landscape



◆ Reducing pesticides /nutrient supply to waterbodies

◆ Connecting biotopes
preserving ecological corridors

◆ Reducing water bodies eutrophication

◆ Preventing erosion and soil loss and translocation

◆ Acting as a physical barrier to pesticides drift

◆ Enhancing pollinators activity

◆ Extending time for breakdown of pesticides

◆ Restoring biodiversity and Ecosystem Services

◆ Reducing the agricultural impact area

◆ Increasing soil retention areas

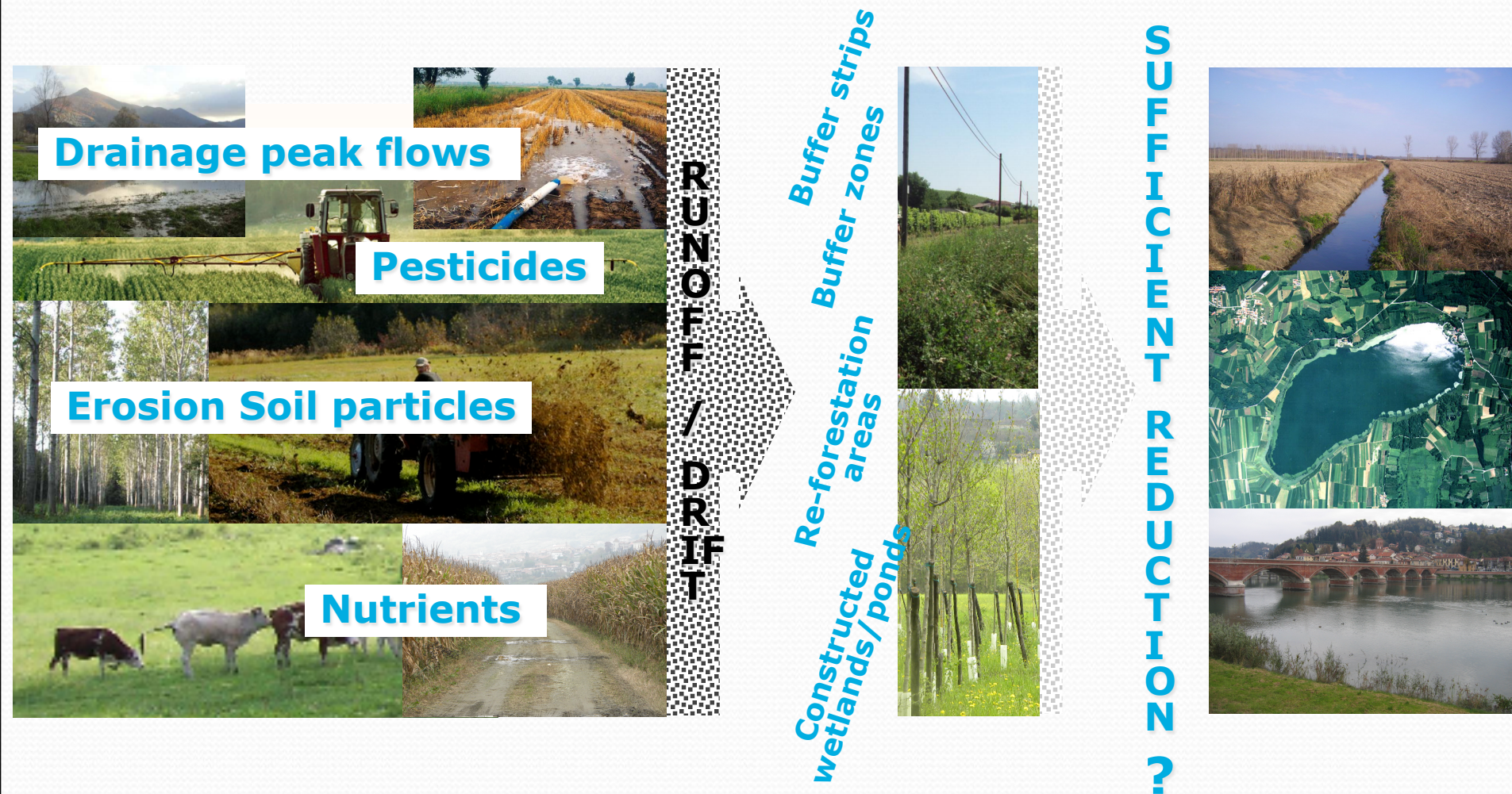
◆ Slowing down waterflows

MIRIAM Project: highlights and expected results

- Integration of several Directives : Dir 676/91/CEE, Dir 2000/60/CE, Dir 128/2009/CE
- Further dissemination of BMPs and guidelines for the agriculture sector operators
- Guidelines for the preparation of Rural Development Program notices and tenders: integrate environmental policies with economic planning based on EAFRD and CAP



..a few conclusive remarks.. the other side of the coin...



No, in most cases. Effectiveness of vegetative barriers to mitigate the runoff/drift contamination processes has to be enhanced by:



A set of active upstream pressures mitigations, integrated on a basin scale
(e.g. BMPs adoption such as labour techniques to prevent/reduce soil erosion, reduction or replacement of pesticides and fertilizers, crop rotation or conversion, proper use and management of pesticides and relative wastes, irrigation upgrading, water savings etc....)



- Sufficient availability of crop areas to convert in to buffer areas
- Wide dissemination and good knowledge about mitigation measures, among potential Applicants to the Rural Development Program measures
- Trust and Willingness of the farming world towards the landscape, water and biodiversity protection measures
- Economical Attractiveness of such interventions as Agri-Environment measures implemented by regional Rural Development Programme



THANK YOU VERY MUCH !

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EAU CONCERT PROJECT



Partnership:



Syndicat Mixte
Interdépartemental
d'Aménagement
du Chéran



With the technical support of:

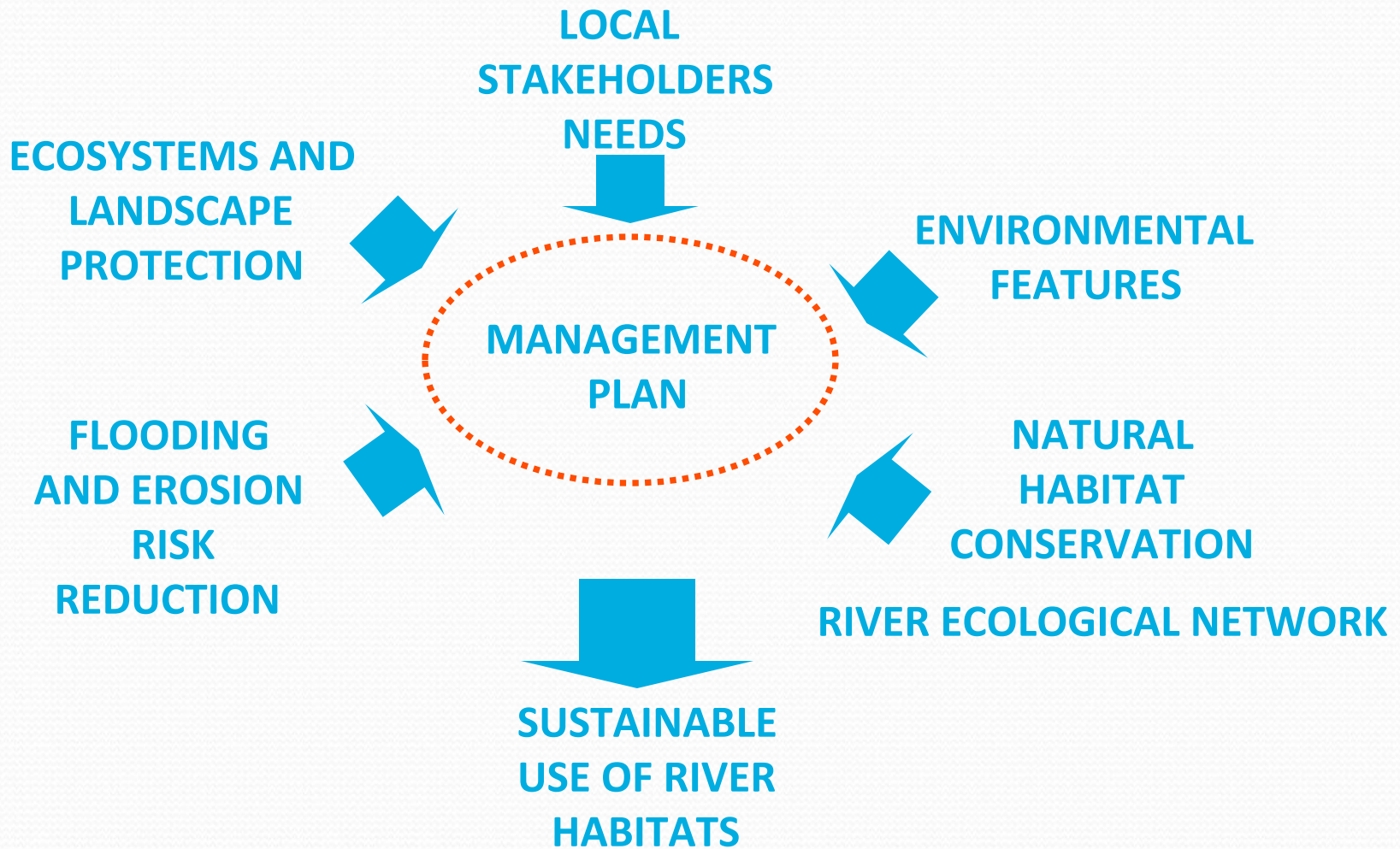


•GENERAL OBJECTIVE:

Preserve and improve the quality of the river ecosystems in the cross-border area of the Regione Piemonte and Rhône-Alpes strengthening the management tools and participatory processes introduced by the European WFD (2000/60/EC)

Andrea Ebone - IPLA (Wood plants and Environment Institute)

Eau concert: **PRINCIPAL PROJECT PHASES**



Eau Concert: VEGETATIONAL MANAGEMENT PLAN

RIPARIAN FOREST MULTIFUNCTIONAL PURPOSE

- Protective function
- Environmental function



- Productive function
- Recreational function

VEGETATIONAL MANAGEMENT PLAN APPROACH



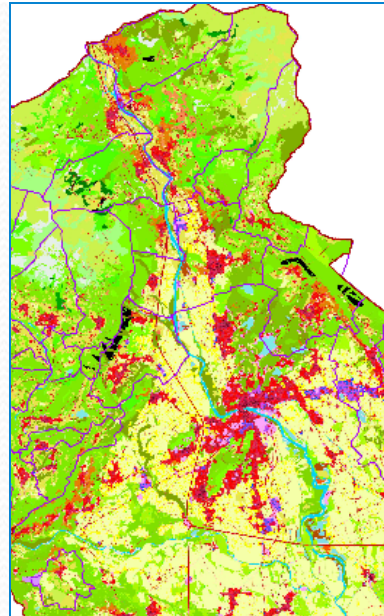
Integrated with a
study on the
ecological network
characteristics



RIVER ECOLOGICAL NETWORK APPROACH

PRIORITY ISSUES:

- Naturality (presence/absence of core areas: priorities habitat for biodiversity conservation)
- Connection elements (corridors, stepping stones, ecc..)
- Restoring measures (hedges, planting of new wooded areas, etc)



**Priority areas for protection,
improvement, restoration of natural
habitat**

E. C: DEMONSTRATIVE INTERVENTION SITES

- RISK REDUCTION (i.e. CUTTING ON THE BANKS THE DEATH TREES OR THOSE ARE BENDING ON THE RIVER)

- HABITAT RESTORATION (IMPROVING THE FOREST HABITAT)

- RECREATIONAL FUNCTION

- (REMOVING HAZARD TREES – RISK OF



Eau Concert: WATER RETENTION FUNCTION

**WOODED AREAS SUITABLE FOR
WATER STORAGE DURING THE
RIVER FLOODS**



VEGETATIONAL MANAGEMENT PLANS FURTHER IMPLEMENTATION

Dora Baltea (TORINO: the
southern part of the basin, not
included in Eau Concert)

Orba (Alessandria)



Stura di Lanzo (Torino)

THANK YOU !!!

For more information:

<http://regione.piemonte.it/ambiente>

www.eauconcert.eu

www.si-cheran.com

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