Catchment area renovation
Holistic water management planning

Promilleafgiftsfonden for landbrug

Mikko Ortamala, 29.05.2020
Drainage Centre of Southern Finland

Catchment area action plan /
Waterdrive-project

Waterdrive

PRO Agria Etelä-Suomi

Etelä Suomen SALAOJAKESKUS

Interreg Baltic Sea Region

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Holistic water management

- Holistic water management consist of the actions on the fields, ditches and the rivers, lakes and sea.
- <u>Basic drainage, local drainage and environmental water management</u>
- Our priority is to prevent flooding and surface flow and outflow of solid matter and nutrients.
- Good soil structure and workable water management are basic requirements for productive agriculture and on the other hand to reduce the outflow.

Practical actions for holistic water management

Actions in outflow area

- Basic and local drainage
- Management of the soil structure
- Suitable land use (plants, cultivation, fertilization)
- Constructions for control of the water levels at summertime

Environmental water management

- Artificial wetlands, sedimentation ponds
- Bottom thresholds and dams
- Flood protection (embankments, pumping, flood ledges)
- Buffer zones
- Water management on farm areas (wastewater, washing waters, waters coming from stables and cowsheds)

Actions in rivers, lakes and the sea

- Reed cuttings, oxidizations, fishery restorations, excavations, control of water the level, (chemical restorations)

Possible actions in drainage basin

Basic drainage

- Maintenance of the ditches
- Reorganizations of drainage corporate bodies
- Constructions for control of the water levels at summertime
- Two-stage ditches
- Flood protection (embankments, pumping, flood ledges)

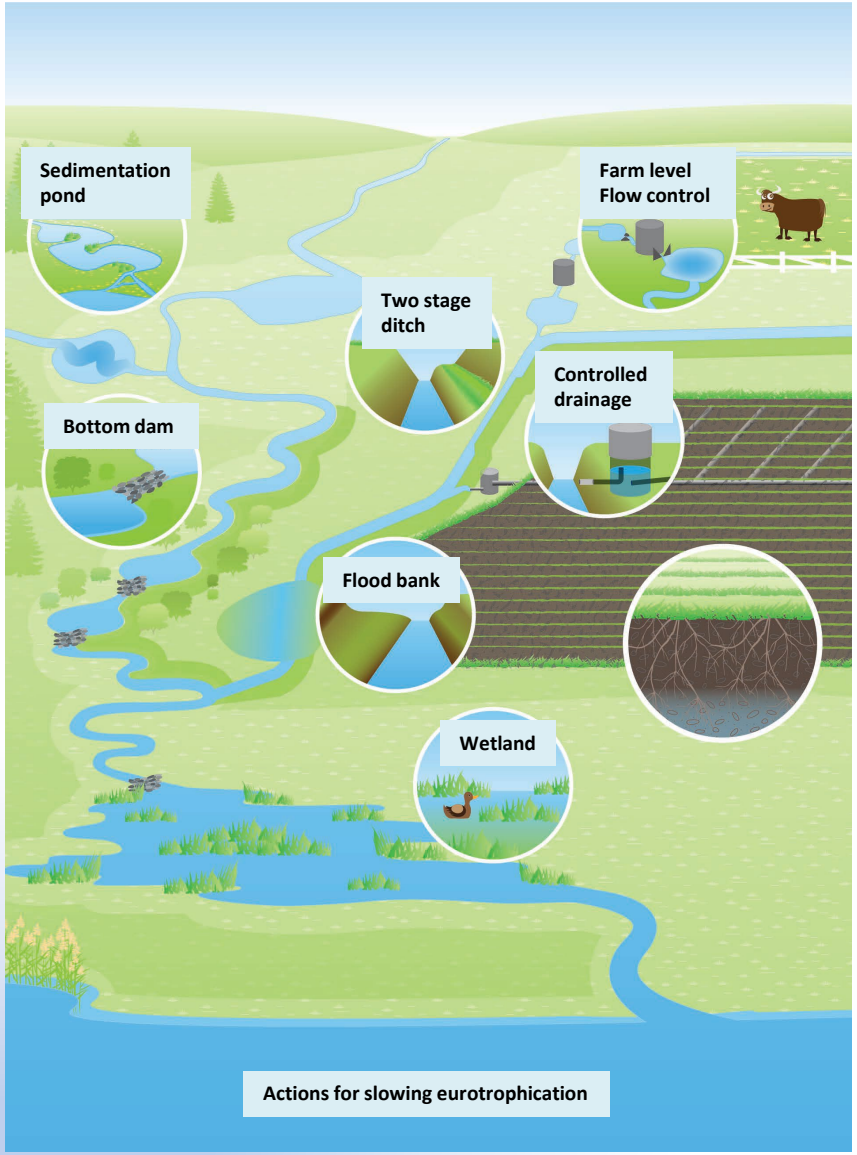
Local drainage

- Subsurface drainage systems
- Improved management of surface flow (lime filtration drainage)
- Drainage flow management, controlled drainage (control wells)
- Possibilities to subsurface irrigation (water reservoirs, ponds, pumping of additional water)
- Service and maintenance of underground drainage (flushing)
- Field levelling
- Soil structure improvements (mechanical, substrate additions)
- Farm level flow control of production premises (storage sites, outdoor paddocks, washing sites, etc.)

Environmental water management

- Artificial wetlands, sedimentation ponds
- Bottom thresholds, dams and adjustable dam constructions for controlled adjustment of summertime water level
- Fisheries restorations, habitat restorations

Catchment area based holistic water management planning



Mainostoimisto Kuke. Menetelmiä ravinteiden ja vedenpidättämiseksi osana kokonaisvaltaista pellonkuivatusta. Granholm, K., E. Lundström, H. Äijö, M. Ortamala, S. Manninen-Johansen & S. Mäkelä (2018)

How to prevent the floods and outflow of solid matter and nutrients in drainage basin nationally:

1) Risk areas for every province

2) Information system for farmers

3) Regionally choose the catchment areas and waterbodies to renovation, based on the results of the risk assessment. Dependent on the size of the waterbody do an assessment if there should be established a cooperation group, negotiation committee or other combining organization, if there is not any.

4) The members of the organization clarify together with the municipalities, advisory organizations and local stakeholders the landowners of the most difficult risk areas, for targeted information delivery.

5) Drainage planners compose the drainage needs assessment, study on basic situation and feasibility study of possible water protection constructions together with the land owners. This includes also other possible measures, such as improvements on fishery perspective, improvement of recreational values etc.

6) After needed basic studies, measurements and mappings should the local drainage corporative body be activated, in the case of actions targeted to agricultural areas.

7) Compose the final plans, complete the needed assessment for the authorities, get needed licenses, ensure financing and do the procurement of contractors.

8) Exact marks to the sites, such as marker poles. Survival of the works.

9) Compose a wider regional action plan and maintenance plan to ensure the implementation and financing of possible needed additional actions, including also maintenance of the constructions in future.

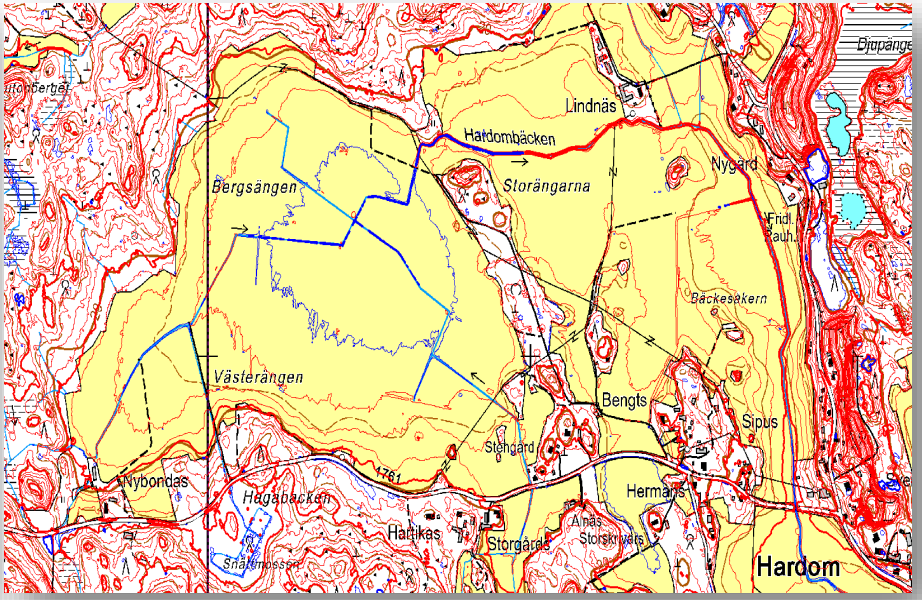
River Porvoonjoki negotiation committee improves water management and information in the catchment area. Action plan has been made for catchment area renovation.

Neuvottelukunta kokoontui Lahdessa 20.9. ja kävi tutustumassa Lahti Aqua Oy:n jätevesien UV-desinfiointilaitokseen.

Kuvaaja: Juha Niemi

Step 2. Risk areas

Preliminary studies / local problems on the catchment area



With airphotos and altitude models we can found the problematic areas!

Step 3. Informing the farmers

Having a small meetings and discussions about problems in the catchment area. Finding out the most active farmers interest for the renovation project.

Step 4. Field measurements

Field measurements identify the possibilities for implement the actions.

Studies for drainage (basic and local drainage)

Examinations:

- Difference between water level and field surface
- The discharges
- Wells
- Ditches
- Drums
- Difference between drainage pipes and field surface
- Distance between drainage pipes
- Gradients
- Need for maintenance (flushing)
- Possibilities for water protection structures
- Habitat restorations

Step 5. Drainage corporate bodies meetings

- Shareholder list
- Plannings
- Corporate bodies rules
- Cost allocation
- Contribution

Decision on the implementation of the project

Step 6. Compose the final plans, complete the needed assesment for the authorities, get needed licenses, ensure financing and do the procurement of contractors.

Step 7. Exact marks to the sites, such as marker poles.

Step 8. Compose a wider regional action plan and maintenance plan to ensure the implementation and financing of possible needed additional actions, including also maintenance of the constructions in future.

02.05.2016

16.08.2017

Fishery, landscape, recreational values, game management

1.3 ha wetland in Rutumi Lapinjärvi

Fishery / habitat restorations

Before **After**

Fishery Centre of Häme region

PRO Agria Southern Finland

Thank you!

ALL THE BEST IN ACHIEVING YOUR GOALS THIS YEAR!

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