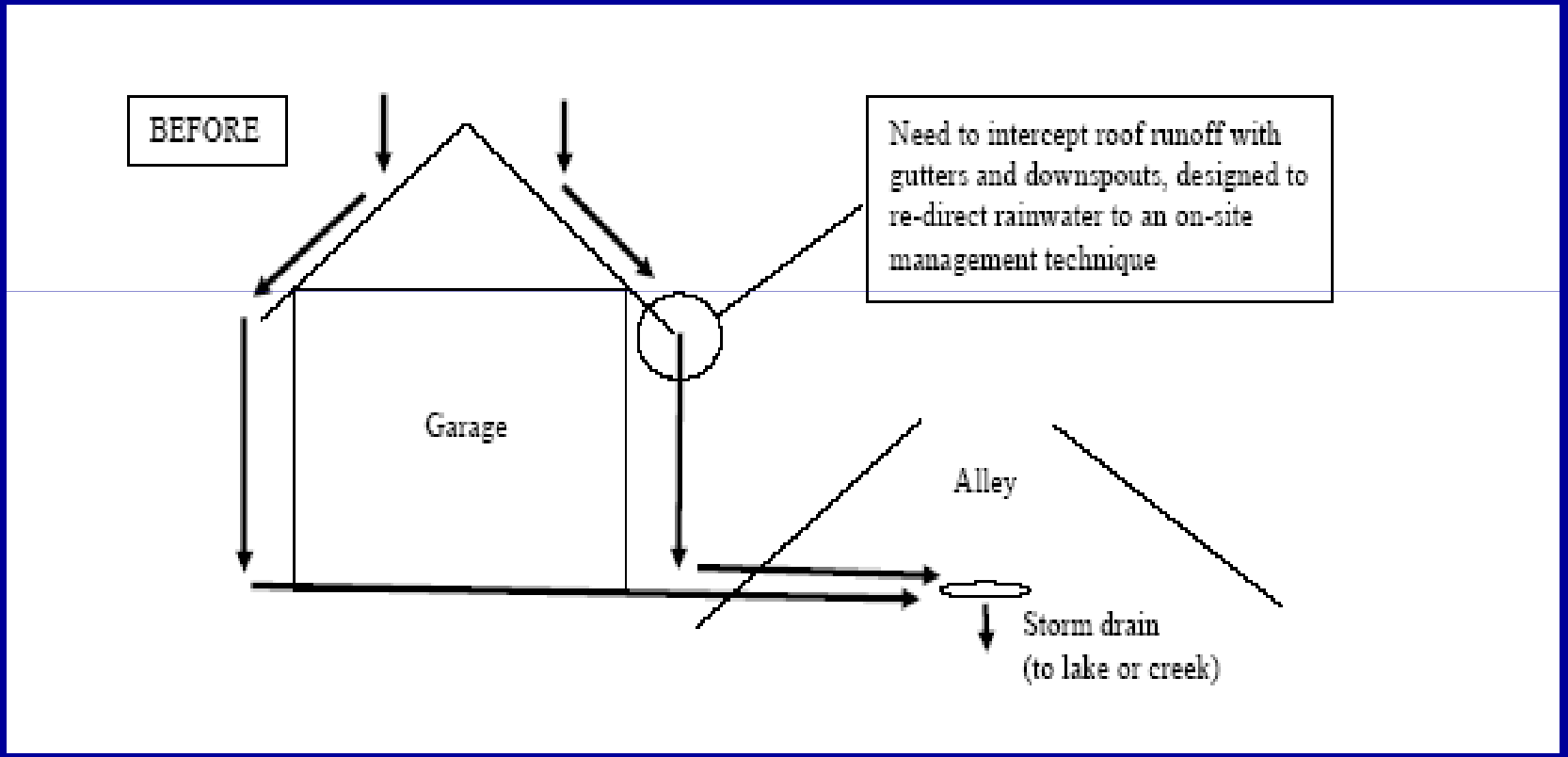

TYPES OF MEASURES

Bogliarka

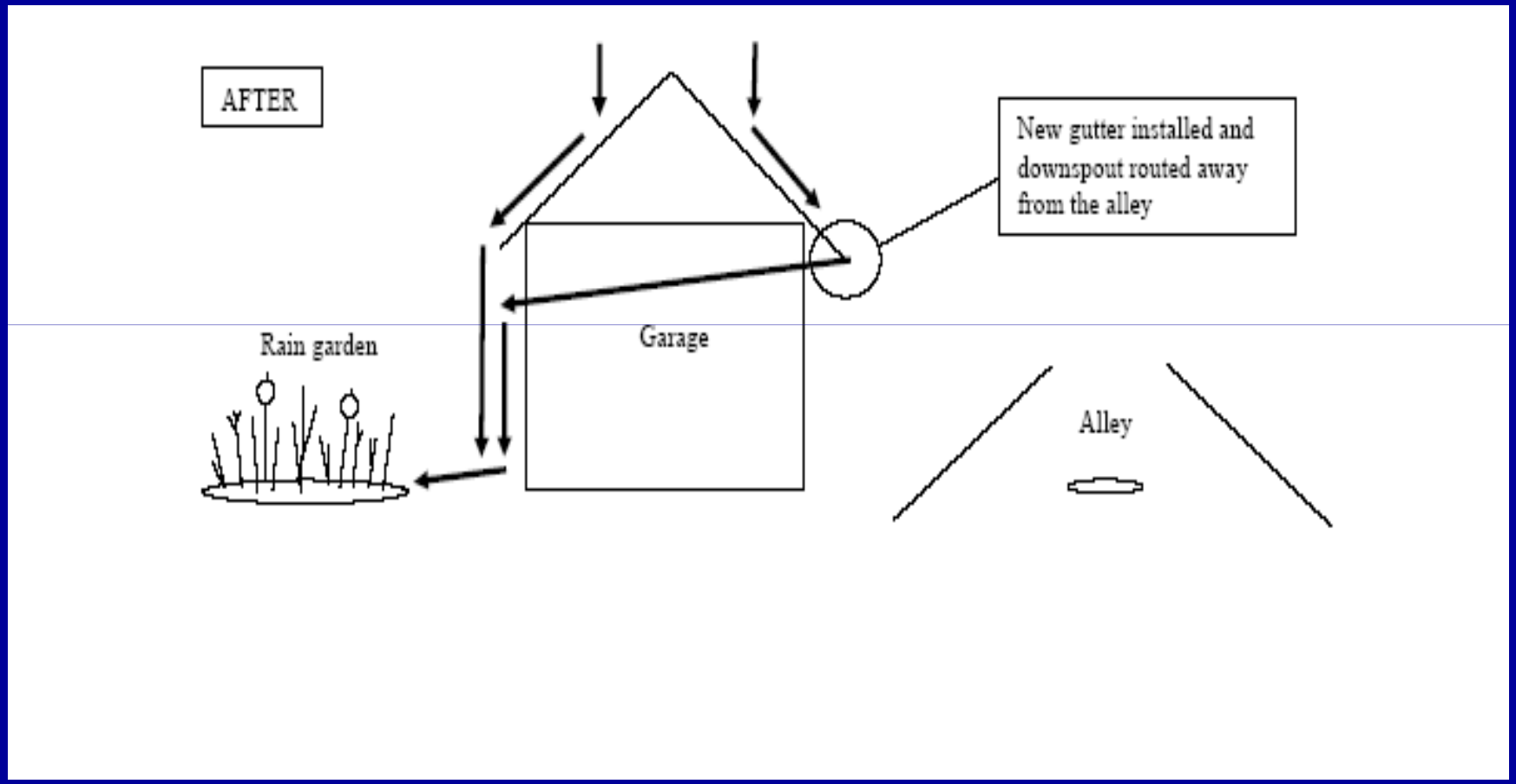
Basin Žitava

Rainwater gardens
In urban areas of muncipalities
for rainwater harvesting

The traditional system of rainwater management

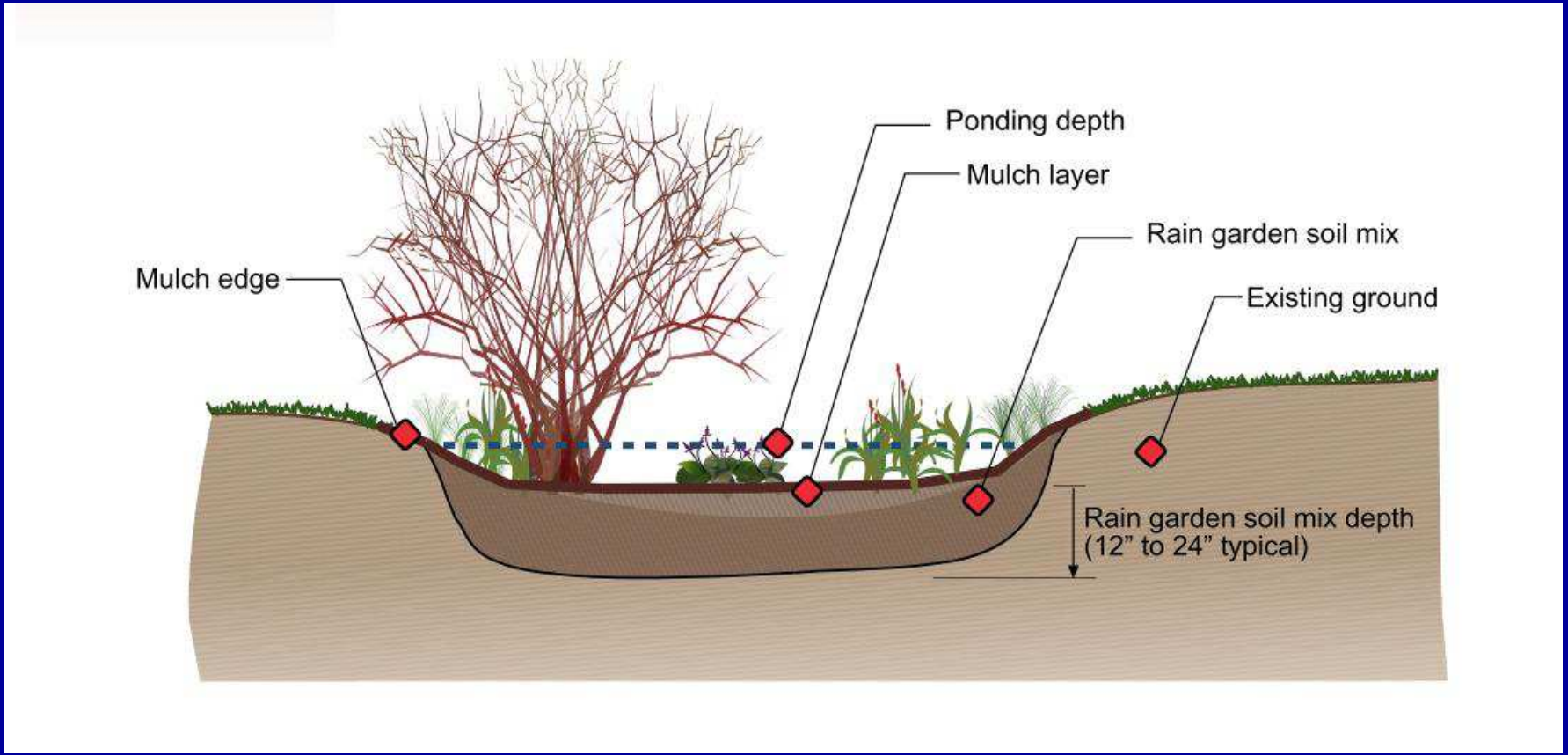


The inovative system of rainwater management



Localization of rainwater garden

Rainwater garden specifications



Examples of implemented rain gardens (USA)

ain garden, City of Maplewood MN


Rain garden, City of Maplewood MN

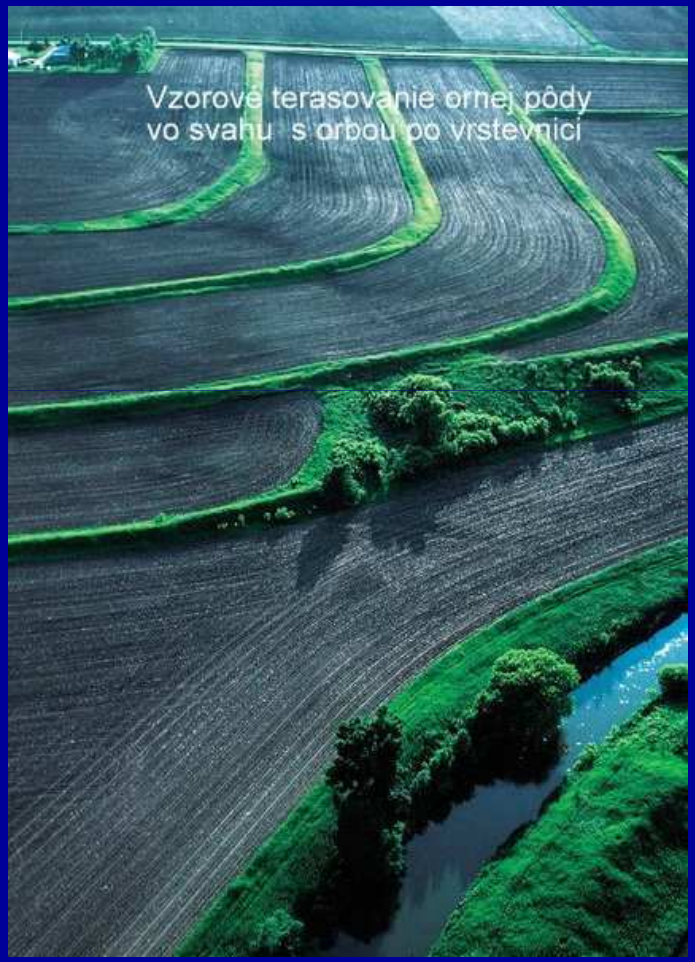
Rainwater gardens instand curbs and roadside drains

Measures and experience in revitalization of the country

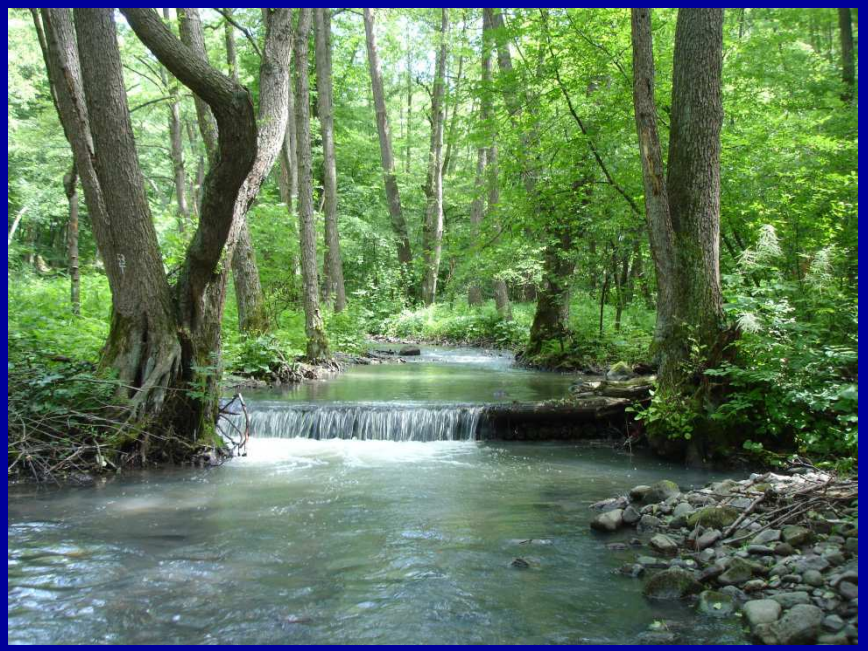
Inconsistency in the capacity and the flow rate of water in the stream in Gruzovce is the reason for overspill in the stream and consequent damage to roads

Surface runoff can be slow and reduced by appropriate water retention measures behind agricultural cooperatives on unused land

Sample management in agricultural land



Sample management in forest: forest roads without erosion, infiltration tanks and consistently small streams



Damaged embankment dam reservoirs before and after realization via water retention structures

New retention space cca 35 000 m^3 behind the stone dam of width 22m, high 6m , with ground outflows DN 800, dl.=32m

Recovering retention area cca 15 000 m^3 via modyfing a public pond

Stabilization of forest gulch by dams from acacia and spruce wood

Infiltration terraces on permanent grassland guided along the contour

Infiltration pits and furrows

Infiltration pits in the forest increase yield and balance of sources

Negative consequence of erosion is increased flow of runoff and sedimentary buildup in water corridors leading to increased risks of flooding.

Positive aspect : water for people, animals and nature as well as jobs for local inhabitants

Example of cooling center in Romania by using fountains and solar panels

Biotechnical measures - wooden dam

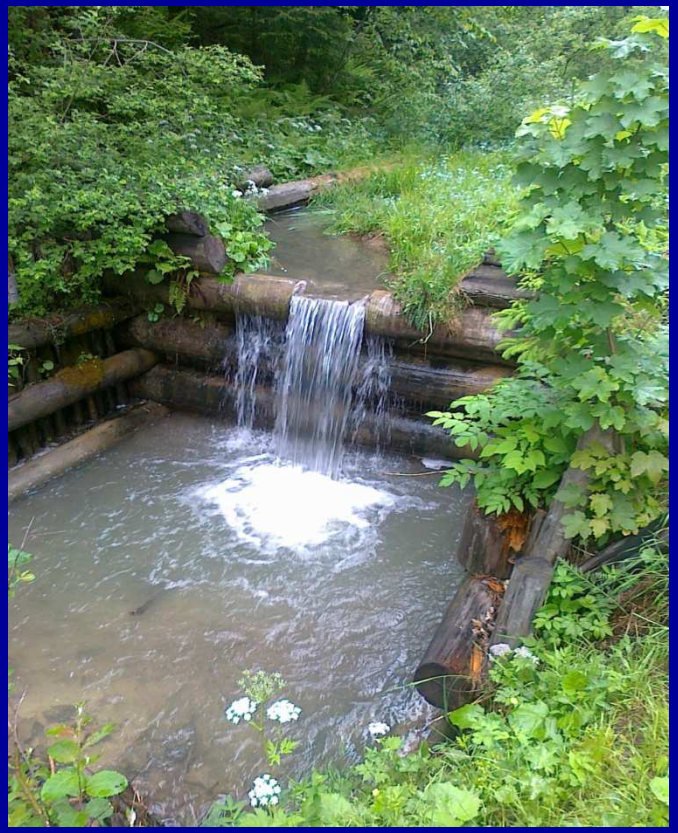
Distinguished by:

1. **Capacity**
2. **Use of wood**
3. **Purpose**
4. technical solutions

- interleaved dam– lop
- interleaved dam - cylinders
- interleaved dam– canal
- interleaved dam– slip
- interleaved dam - blown-up
- interleaved dam - rake

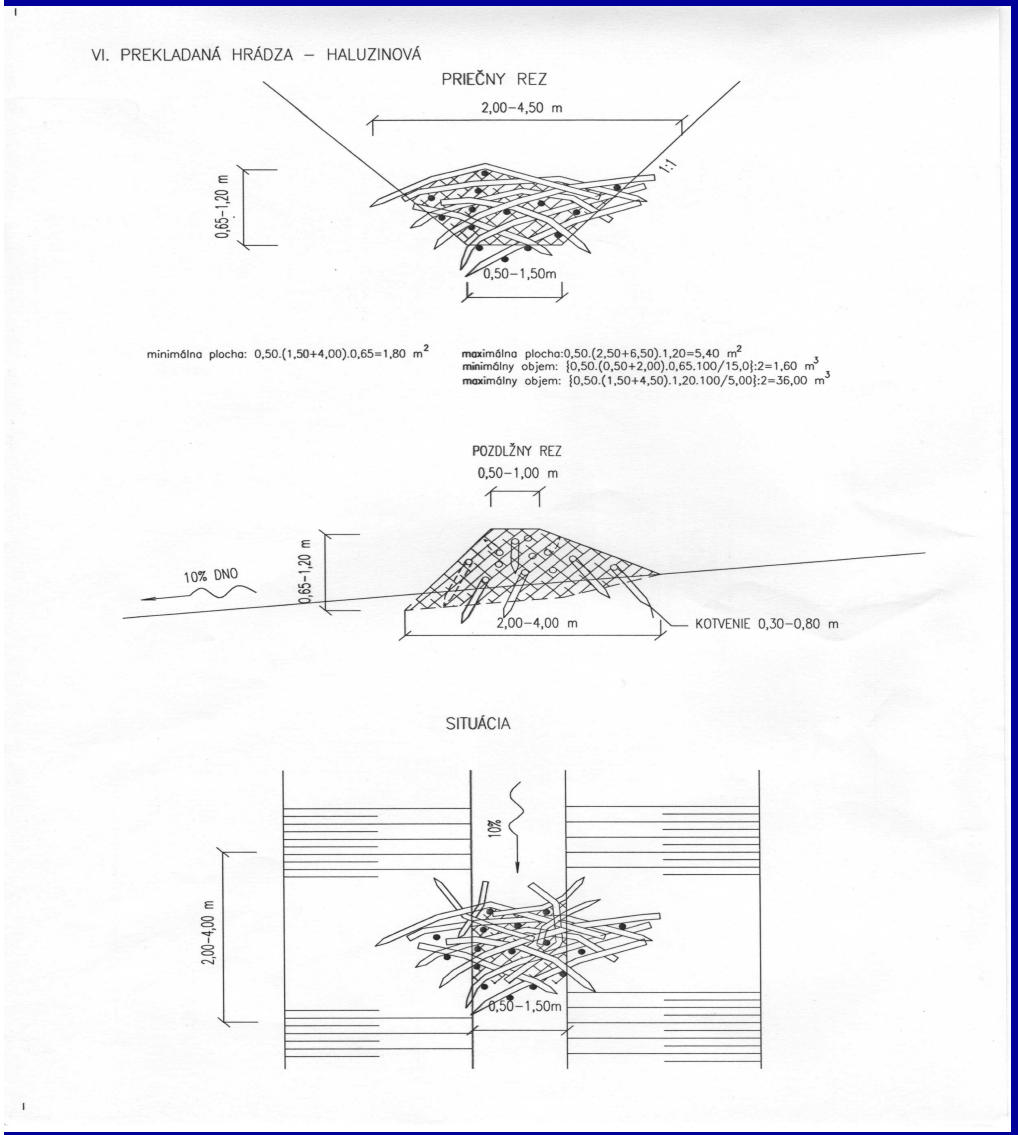
Examples from the past

Radôstka u Huláka –
more tahn 60 years old

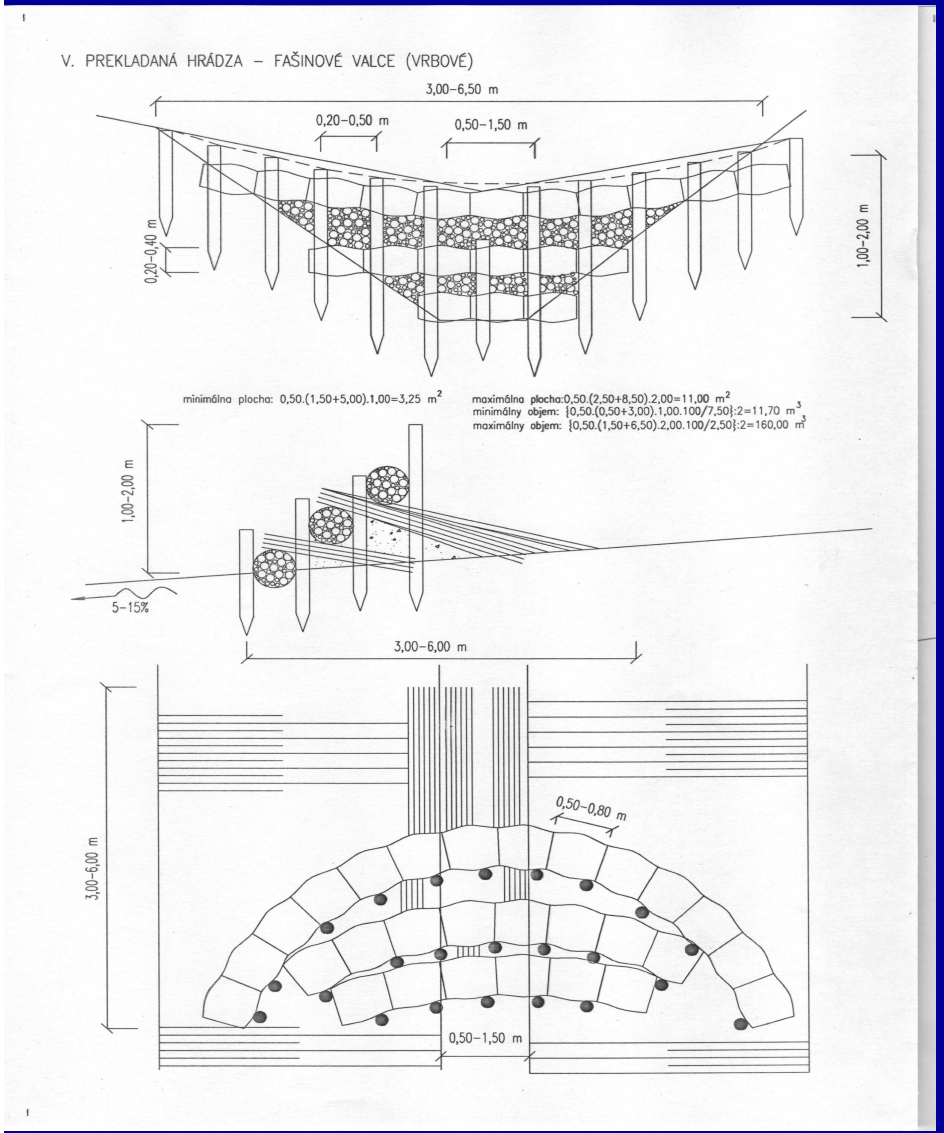


Vysoká nad Kysucou part
Kelčou – more tahn 40 years old

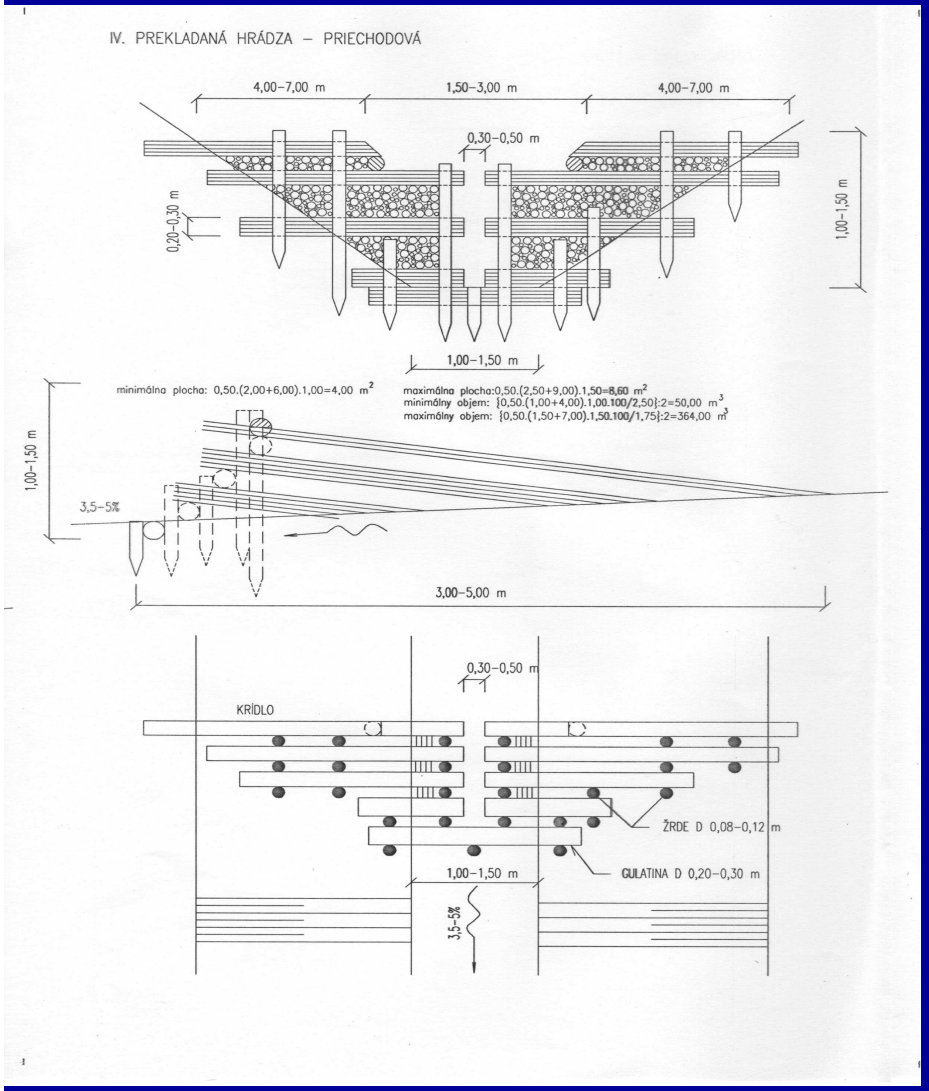
Interleaved dam– lop



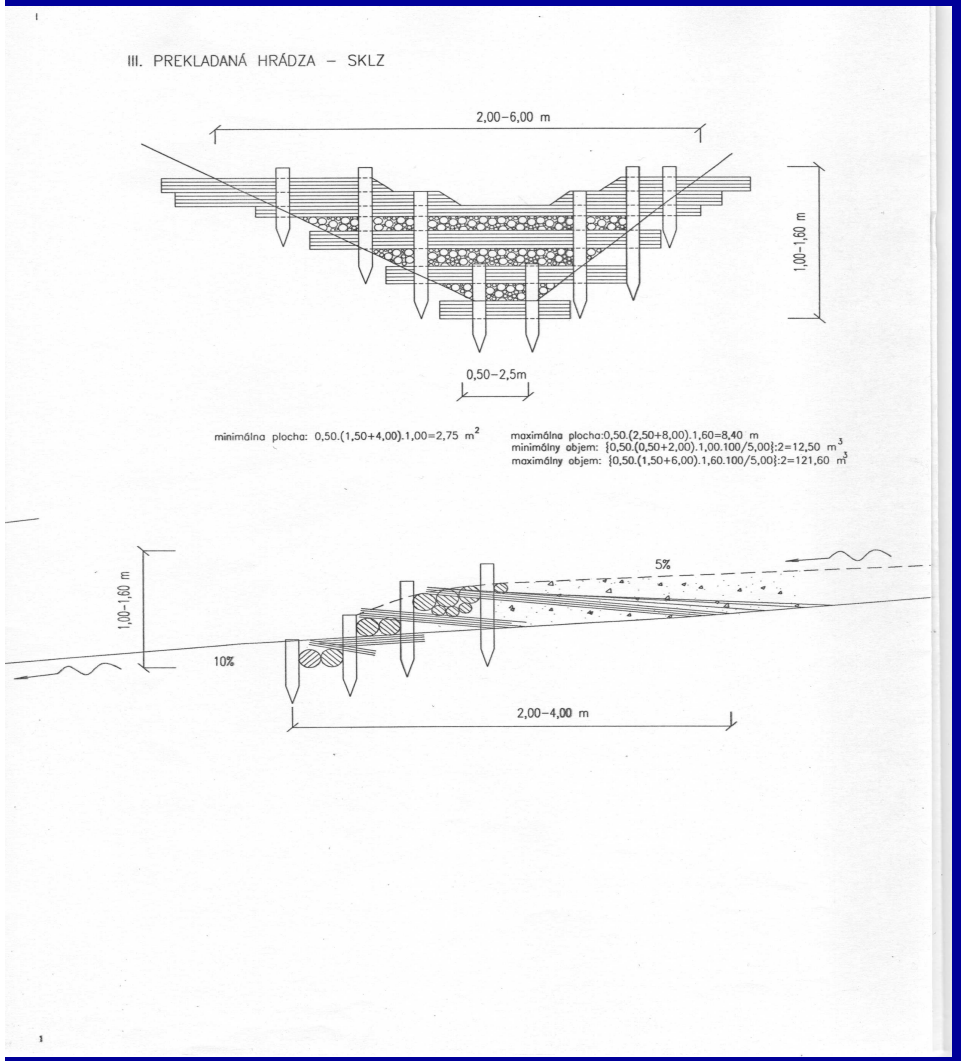
Interleaved dam - cylinders



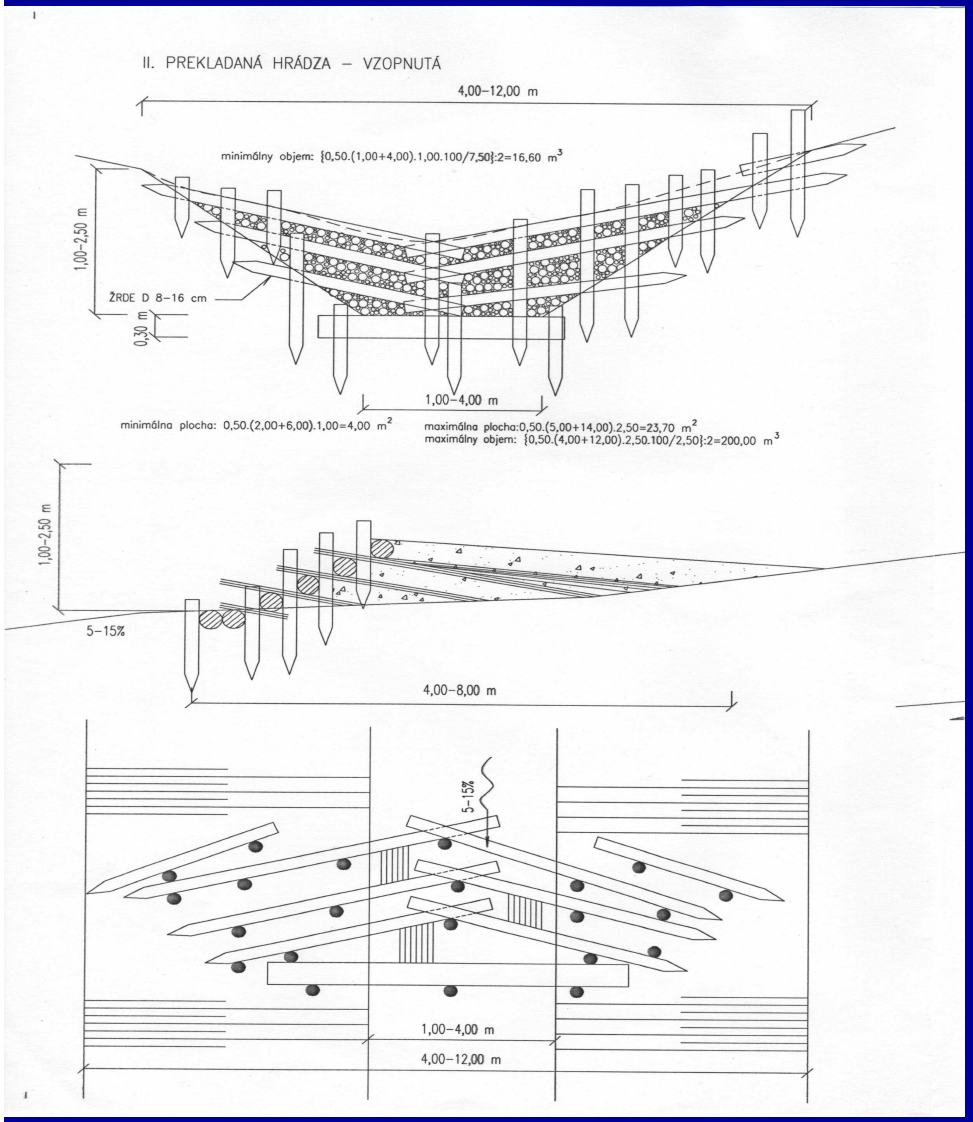
Interleaved dam– canal



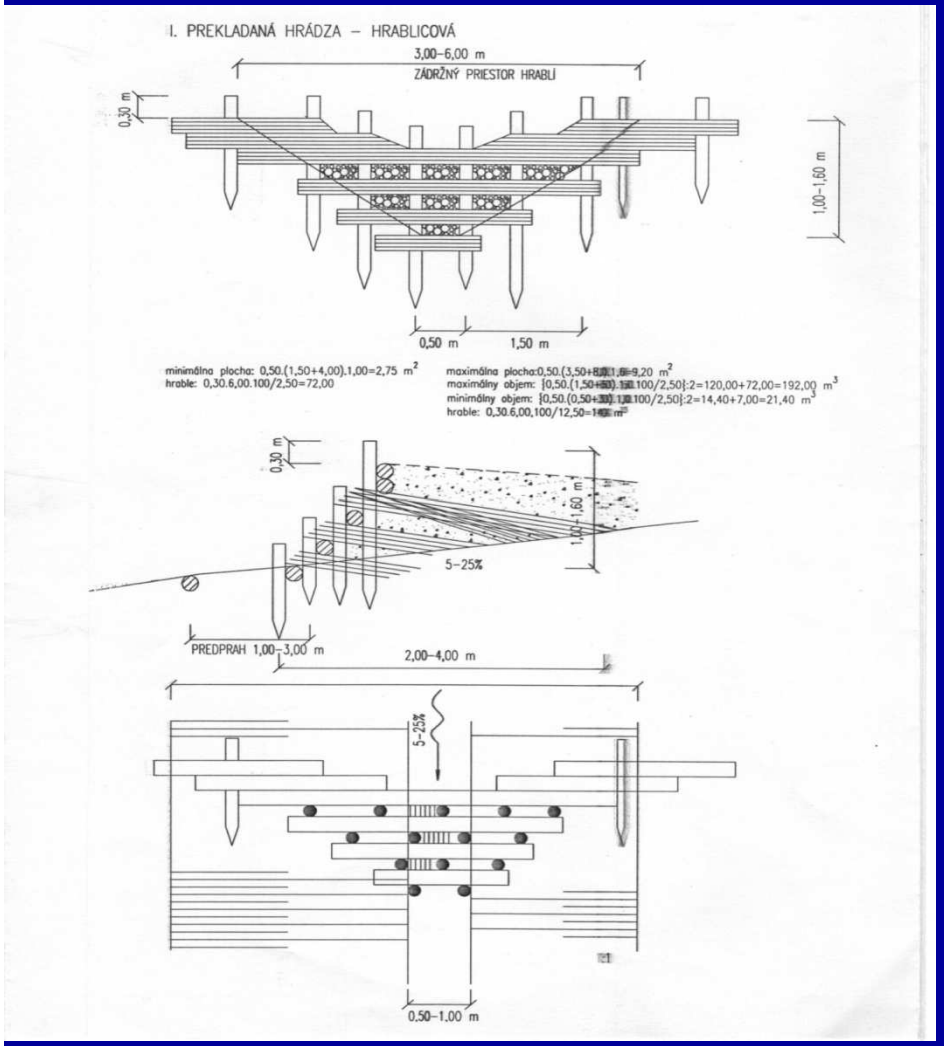
Interleaved dam– slip



Interleaved dam - blown-up



Interleaved dam - rake



Indent, infiltration pit and infiltration scratch are part of biotechnical measures in basins

Indent of forest road

Infiltration furrow

Infiltration pit

Stability and resistance of dams

Elements stability:

Dam after the flood in Krivany

Terms of execution

- Interaction with forestry and agricultural activities.
- Placing dams always in the narrowest profile, and direct the flow so that the retention space is the greatest.
- dams cannot overlap and cannot be too far apart.
- Collaboration with managers and owners of the flow of adjacent land.
- Accepted by historical realities basin.
- Use of the knowledge of nature.

The benefits of biotechnical measures - wooden dams

- Flattening of the flood wave
- Sediment retention
- Enhancement (increase) flow in times of drought
- Biodiversity - better living conditions for animals and plants
- Cooling of the environment
- Increasing groundwater resources - improving yield sources