

Sedimentation pond

Sedimentation pond is a constructed pool, used to slow down water flow in a ditch. The purpose is to get suspended solids and particle bound nutrients to settle from the water. It can be established by damming a natural depression or by excavating.

Similar terms: sludge sump, chain of dams, dam chain, drowned weir, subsurface dam, phosphorus dam

A sedimentation pond slows down the flow in a ditch allowing the solids and particle bound nutrients to sedimentate to the bottom of the pond.

Sediment from the pond must be removed every 3-10 years depending on the capacity and loading.

To smaller scale drainage ditches sludge sumps may be applied. Sludge sump is a 1-5m³ pit, approximately 1-1,5m deep, and has the same operational principle with a sedimentation pond.¹⁾

Maintenance

- The sludge from the sedimentation ponds and sludge sumps should be emptied when necessary (every 3-10 years)

Economics

- Costs vary depending on the space required (possible loss of cultivated area) and labor and machinery costs (establishing and emptying)
- Subsidies can be applied in some countries

Application

Constructing a well functioning sedimentation pond requires some space and adequate dimensioning. Ponds size should be around 3-8 m² per one hectare of the catchment area and the depth should be determined to allow minimum of one hour retention for the water also during the flood peaks.¹⁾

Sedimentation pond should be located where the water flow is naturally slower and far enough from the end of the ditch so that it wont be affected by flooding. A chain of sedimentation ponds or sludge sumps can also be applied if e.g. the construction space is limited. There should be easy access to the pond for maintaining purposes.

Sedimentation pond retains only solids and particle bound nutrients, mainly phosphorus.



Photo: Heidi Nurminen, TUAS

Sources: 1) Suomen ympäristökeskus. 2014. Laskeutus-
altaat, lietesumput ja -taskut (FI). Searched 3/2018. ([Link](#))

Further information:

[Baltic Deal - Wetlands, drainage & irrigation](#)

[Baltic Deal - Phosphorus dam](#)