ECOREMEDIATION

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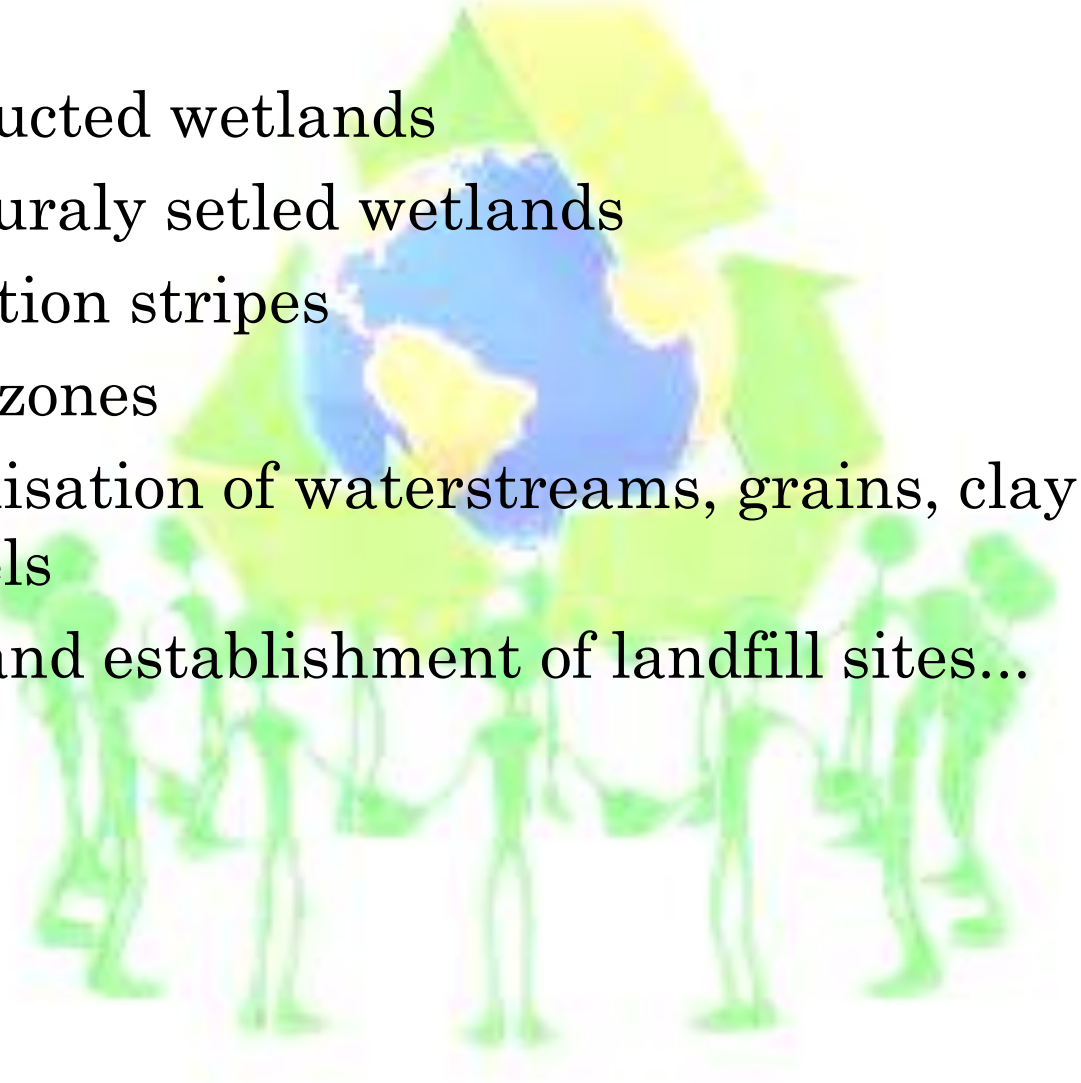
ECOREMEDIATION

- Ecosystems have large buffer, accumulation and decomposition capabiities, and are able to decompose, store and neutralize many pollutants. Therefore, the eco-remediaton can contribute to the sustaiable management of the enviroment (especially of waters and coastal areas), as well as to the development of exosystems and biodiversity.

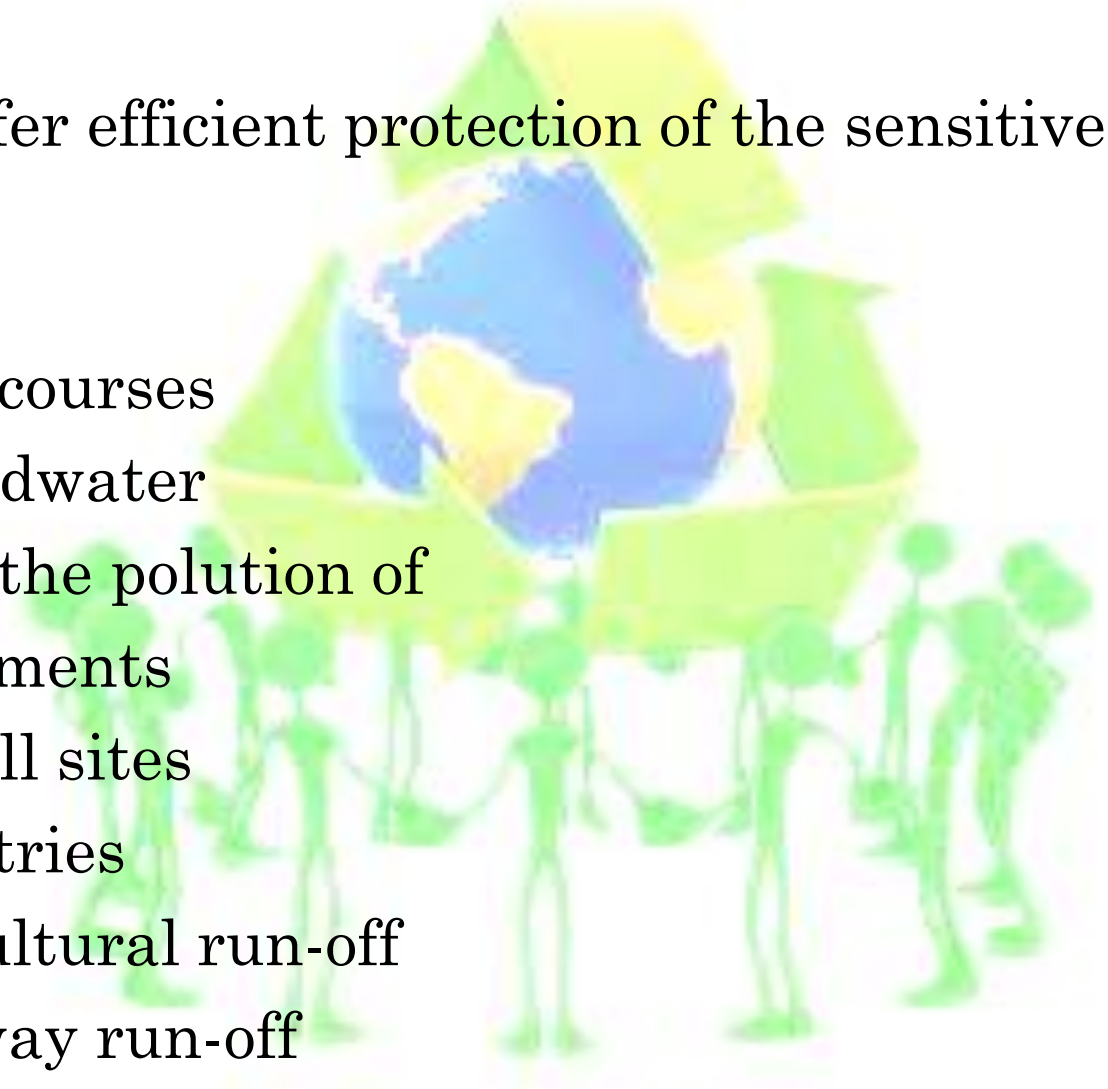
- Ecoremediaton presents a sustainable use of natural and creation of artificial ecosystems for environmental protection and restoration.

ECOREMEDION INCLUDES



- Constructed wetlands
- Co-naturaly setled wetlands
- Vegetation stripes
- Buffer zones
- Revitalisation of waterstreams, grains, clay pits, channels
- Woodland establishment of landfill sites…

The role of ecoremediation



They offer efficient protection of the sensitive enviroment like:

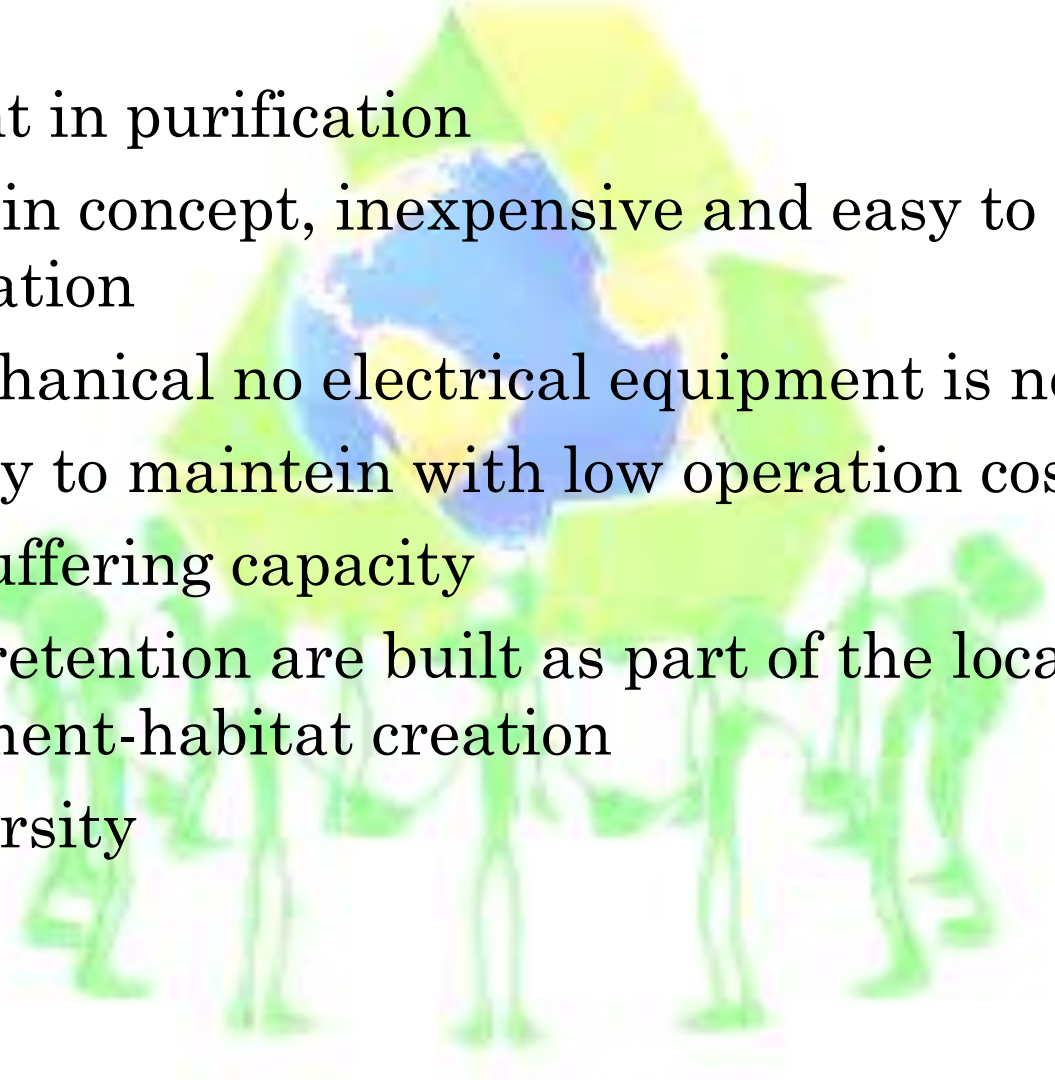
- lakes,
- watercourses
- groundwater

and for the polution of

- settlements
- landfill sites
- industries
- agricultural run-off
- highway run-off

Main characteristics of

- Efficient in purification
- Simple in concept, inexpensive and easy to place in operation
- No mechanical no electrical equipment is needed
- Are easy to maintein with low operation costs
- High buffering capacity
- Water retention are built as part of the local enviroment-habitat creation
- Biodiversity



Example of ecoremediatoin

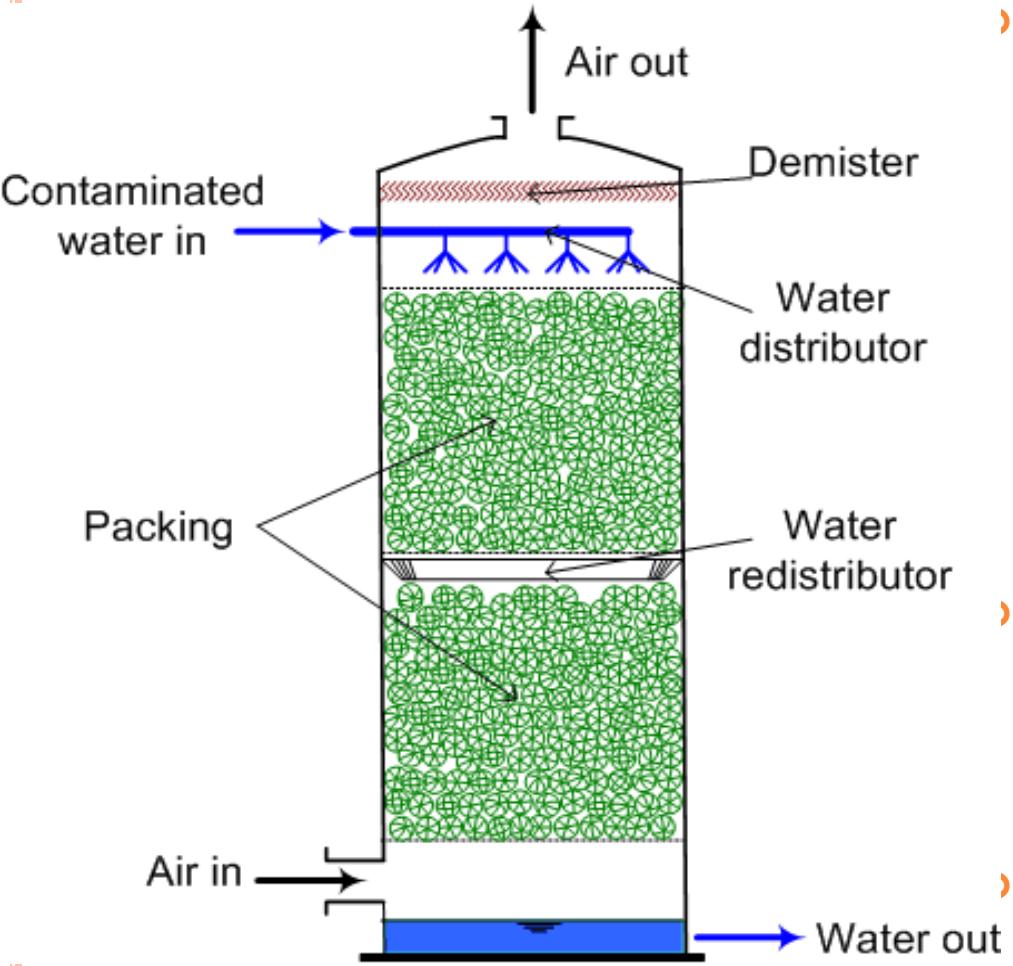
Before ecoremediatioion

After ecoremediatioion

ECOREMEDIATION TECHNOLOGIES

- There are various technologies of ecoremediation that are applied worldwide.
- Given the fact that the restoration of the natural environment, if it comes to pollution, often costly, many companies are trying to take preventive measures.
- These companies apply appropriate technologies for the treatment of their industrial waste before it comes into contact with the environment. Examples of such methods include burning, soil flushing and chemical deposition.
- There are many technologies ecoremediation, all of which can be divided into two groups: ex-situ and in-situ.
- Ex-situ methods involve excavation of contaminated soil and subsequent treatment of the soil at the surface and in-situ methods seek to heal without removing the contaminated soil.
- Traditional approach consists mainly of excavation of contaminated soil and waste to landfill ("dig and dump") and groundwater ("pump and treat").

Pump and treat



- Pumping and treatment involves pumping contaminated groundwater using submersible or vacuum pump and allow it to be pumped groundwater slowly cleared through a procedure that is performed using a variety of containers.
- These pots are made of special materials designed so that contaminants from pumped water condense on the surface.
- pumping and treatment can be a good way to quickly reduce the high concentration of polluting substances.

Dig and dump

- The process of excavation can be as simple as transferring contaminated soil at adequate landfill, but may include aerating the excavated material in the case of the presence of volatile organic compounds. If pollution affects the bottom or the banks of the river, then conduct dredging mud or other muddy clay containing contaminants from the riverbed.

PHYTOREMEDIATON (BIOREMEDIATION)

- Phytoremediation is an emerging technology that uses plants, microorganisams to clean organic and inorganic contaminants in-situ from soils, land groundwater.
- It has been used successfully on contaminated sites to remove petroleum hydrocarbons chlorinated solvents, heavy metals, pesticides and excess inorganic nutrients.
- Advantages of phytoremediation:
- phytoremediation costs are lower than the costs of traditional and in-situ and ex-situ process
- Plants can be easily traced
- the possibility of recovery and reuse of valuable metals
- It is the least harmful way because using organisms whose appearance is natural and keeps the natural state of the environment.

PHYTOREMEDIATON (BIOREMEDIATION)

- People have used this technique for centuries, and in the late 20th century begins to apply to a wider range of environmental problems worldwide. Example ancient bioremediation is to use plants to pull salt from the soil in order to again become arable land, while a classic example of modern bioremediation involves the use of beneficial bacteria to help clean up oil spills.
- One of the great advantages of bioremediation to clean problems without creating new problems.
- The process can be used to treat new and old toxins, as well as for the rehabilitation of the environment from industrial pollution decades old.
- Organisms that are used often enough, they die when they accomplish the task, and in the case of genetically modified organisms, researchers can design a specific organism, so you can easily remove contaminants.

Conclusion

- Environmental problems arise from different materials that contaminate the water, soil and air and cause negative consequences for the environment.
- Knowledge of scientists and experts from different disciplines are essential for solving problems caused by life-threatening pollution, and protection of natural ecosystems.
- Ecoremediation technologies, including physical, chemical and biological methods, are very important to solve the problem of the environment.
- This will not only increase the value of waste products, but also directly reduce the pollution of the environment and help restore the quality of the natural environment.
- We should aim to develop and support programs of study and training, cooperation between government and private organizations, including universities.
- The ultimate goal of ecoremediation is to solve problems of the environment and the recovery of contaminated sites to achieve sustainable development.

We need to preserve nature and help nature to preserve us!