

Box 9.1 Forests and sustainable development

Forests have a key role in sustainable development. The most typical single character of collapsed societies is the loss of their forest. The most telling example may be Easter Island in the middle of the Pacific Ocean, where a once vivid society after destruction of the forests only could house a small and desperate population in a barren landscape. The story has been told repeatedly, but a most convincing version is in the book *Collapse* by Jared Diamond. In his book Diamond analyses a dozen societies which collapsed, all of them characterised by the loss of forest resources. Most of these examples refer to the history but some are contemporary, e.g. the development in present Montana, USA, is on a track reminding of the ancient collapses.

Forests in Europe today are increasing; the forested area reached a minimum around the beginning of the 20th century, when agriculture expanded to use also less profitable, previously forested land; much of this has later been reforested. There was, however, a previous deforestation crisis in Europe, which occurred in the beginning and mid of the 1700s. Large area of forests was then almost clear-cut, due to the large demand for timber, mostly in the mining industry. In Saxony (today a state, bundesland, in Germany, then a kingdom) timber was used in the silver mines for building shafts and heating the ore. Carl von Carlowitz, head of the 'Oberbergamt' (Royal mining office) in the Erzgebirge district of the in the Kingdom of Saxony, was given the job of solving the problem. Carlowitz made a number of proposals for resolving the resource-crisis:

- Practising "Holtzsparkünste" (the art of saving timber) by applying energy-saving stoves in housing and metallurgy and by improving the heat-isolation of buildings.
- Searching for 'Surrogata' (substitutes) for timber, such as peat.
- Cultivating new forests by "sowing and planting of wild trees".

In 1713 von Carlowitz published the book *Sylvicultura oeconomica*, the first comprehensive handbook of forestry. The 400 page book deals with the question, how to achieve "Conservation and cultivation of timber, a continuous, steady and sustained use". The concept of Sustainability (Nachhaltigkeit) appears for the first time in his book on forestry.

Also in mid Sweden forest was a critical resource. Wood was burned to heat the rock and crack the mountain to mine the iron ore; it was used to reduce iron from its oxides, and to melt it in the blacksmiths' ovens. Sweden was then the largest iron exporter in the world, feeding the wars in Europe. Here Count Carl Johan Cronstedt of the newly (1739) formed Swedish Academy of Sciences, was asked to tackle the problem. Cronstedt was architect and highly active in mining affairs. After experimentation Cronstedt together with General Fabian Wrede introduced in 1767 the "kakelugn" a channelized stove, which very efficiently took up and stored the heat. It made Swedish energy technology the best in Europe, and meant much to reduce wood use for heating. Swedish homes got a reputation for being warm and nice.

It is interesting to see that the ways to deal with the resource crisis were then the same as today. Management skills - as in the handbook on forestry - and technological solutions - such as the channelized stove and insulation of buildings - and substitution for example by the use of peat are all on today's agenda.

Today again forests are in focus in the Sustainability discussion. Half of the original forests of our planet are gone. In the climate negotiations deforestation in the world have been recognised as a main reason for climate gas emissions, accounting for up to 25 % of global greenhouse gases, and in the discussion on a global treatment the out phasing of the fossils fuels are accompanied by the so-called RED, REDD and REDD+ Programmes which address "reduced deforestation and forest degradation" in developing countries. Almost the entire deforestation dilemma refers to tropical forests on the southern hemisphere. The boreal forests in northern hemisphere, including northern Europe, may however significantly contribute to reducing the emission by serving as a sink of atmospheric carbon dioxide, and they are included in the REDD negotiations.

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References

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