

Ecotechnology

Ecotechnology is an applied science that seeks to fulfill human needs while causing minimal ecological disruption, by harnessing and subtly manipulating natural forces to leverage their beneficial effects. Ecotechnology integrates two complementary fields of study: the 'ecology of technics' and the 'technics of ecology,' requiring a substantial understanding of the structures and processes of ecosystems and societies. All sustainable engineering that can reduce damage to ecosystems, adopt ecology as a fundamental basis, and ensure an orientation of precaution in the implementation of the conservation of biodiversity and sustainable development may be considered as forms of ecotechnology.

Ecotechnology emphasizes approaching a problem from a holistic point of view. For example, remediation of rivers should not only consider one single area. Rather, the whole catchment area, which includes the upstream, middle stream and downstream sections, should be included in evaluation for effective remediation. From the point of view of the ecosystem, construction that is taken for human economic activities should strive to reduce impacts on nature as much as possible. To enhance the understanding of construction professionals about natural ecology, consultation about the environment with ecological experts during planning and construction is necessary. Thus, ecological experts who are familiar with the local environment play very important roles in ecotechnology teamwork.

Sustainable development requires the implementation of appropriate environmentally friendly technologies which are both efficient and adapted to local conditions. Ecotechnology allows improvement in economic performance while minimizing harm to the environment by:

- increasing the efficiency in the selection and use of materials and energy sources,
- control of impacts on ecosystems,
- development and permanent improvement of cleaner processes and products,
- eco-marketing,
- introducing environmental management systems in the production and services sectors, and
- development of activities for increasing awareness of the need for environmental protection and promotion of sustainable development by the general public.

Mastering development and application of ecotechnology in industry and the services sector is therefore a key requirement. The quality of ecotechnological knowledge depends on the efficiency of the multidisciplinary synthesis of knowledge and skills in natural sciences and technologies, information and communication sciences, economics, legal and social sciences.

During *Ecotechnics '95 - International Symposium on Ecological Engineering* in Östersund, Sweden, the participants agreed on the definition: "Ecotechnics is defined as the method of designing future societies within ecological frames."

Further reading

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 - Huesemann, M.H., and J.A. Huesemann (2011). *Technofix: Why Technology Won't Save Us or the Environment*, Chapter 13, "The Design of Environmentally Sustainable and Appropriate Technologies", New Society Publishers, Gabriola Island, British Columbia, Canada, ISBN 0865717044, 464 pp.
 - Von Weizsacker, E.U., C. Hargroves, M.H. Smith, C. Desha, and P. Stasinopoulos (2009). *Factor Five: Transforming the Global Economy through 80% Improvements in Resource Productivity*, Routledge.
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External links

- Ecotechnology research at Mid Sweden University, Östersund, Sweden ^[1]
- The Institute of Ecotechnics, London, U.K. ^[2]
- ecoTECHNOLOGY for Vehicles, Transport Canada, Ottawa, Canada ^[3]

References

[1] <http://www.miun.se/en/University/Organisation/Departments/thu/Research/Ecotechnology-research/>

[2] <http://www.ecotechnics.edu>

[3] <http://www.tc.gc.ca/eTV>

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