Annex

"Studies and Research in Sustainability"
Biogenic Resources and Value Chains
Individual Scholarships

Sustainable development is closely associated with the industrial production of goods. However, economic growth intensifies the global demand for raw materials, energy and resources. This is why substantial sustainability potential lies in raising resource efficiency and in recognising the interactions taking place between resource consumption and production at raw material level. Making more intelligent and efficient use of resources leads to substantial cost savings, greater supply security and improved environmental compatibility. In the long term, this is the only way to uncouple resource consumption from the value added process and economic growth.

High resource efficiency and raw material productivity are the prerequisites for sustainable growth. The worldwide demand for raw materials has grown strongly in recent times; raw materials are becoming increasingly scarce and expensive. In view of the growing pressure on the global raw material markets and on natural resources, however, increasing efforts must be made to maximise the potential efficiency benefits, especially in raw material intensive industrial fields, and to conserve resources.

In ecological, economic and social terms, the sustainable use of natural resources and the production of biogenic resources in farming and forestry play a key worldwide role in the sustainability strategy and in solving global environmental problems. Farming and forestry are the largest land users. This is why they have an important contribution to make towards establishing environmentally-fair farming systems and to conserving natural resources and raw materials.

The consumption of water resources is closely associated with sustainable land use. The latest World Climate Report and the development goal defined at the 2000 UN Millennium Summit to halve the proportion of the world population without access to safe drinking water and appropriate sanitary facilities clearly show that better processes and methods are needed for the protection and sustainable use of surface water and groundwater. Long-term, integrated development concepts are needed that provide affordable technological solutions and highlight the available action options for managing water resources on the basis of our understanding of water cycles in river catchment areas and on the analysis of economic and social concerns. This approach will focus on developing exemplary solutions for an integrated water resources management system in rural areas, because these areas are subject worldwide to stronger land use dynamics and, in comparison with urban areas, require specific technological options.

International cooperation in education and research is expected to produce specific impulses for an economically-sustainable, ecological-compatible and socially-just organisation of regional, transregional and global value chains as well as production and land use systems. Education and research are the key driving forces behind the realisation of sustainability. International networks and research cooperation between developing and industrial countries as well as access for students, scientists, and engineers from developing countries to universities and research institutions in industrial countries play an important role in this respect. This makes it possible to create problem-solving and action competence, to open up new export opportunities, to use worldwide sources of knowledge, and to back-up foreign policy commitments.

International cooperation in the fields of agricultural research, forest and timber research, and water research make it possible to transfer knowledge and technology to the mutual benefit of all parties, to raise the levels of scientific excellence, to facilitate the shared use of research infrastructures and the utilisation of synergies. Particular importance in this respect attaches to the aspect of

transferring research findings and efficiency-raising technologies into competitive products. Cooperation between education, science and industry needs to be built up in the international sphere.

Derived from these objectives and closely connected with the core funding areas of the BMBF Framework Programme "Research for Sustainability" (fona) and the High-Tech Strategy (HTS), the DAAD scholarship programme of "Studies and Research in Sustainability" was developed and implemented with the goal of integrating scholarship holders into the research structures, networks and current funding projects of the BMBF in selected topic areas.

Funding is provided for individual study or research projects that can be assigned to the following topic areas:

1. **Sustainable use of biogenic resources and improvement of value chains, including environmentally-friendly product and system innovation.**

Farming and Food Products

- Improving agricultural processes and technologies to reduce environmental pollution and so to make more efficient and conservational use of biogenic resources;
- Sensor technologies, precision farming;
- Improving food quality and security by means of new processes and product developments while simultaneously reducing environmental pollution.

www.fona.de/de/1_forschung/wirtschaft/beduerfnisfelder/lebensmittelverarbeitung/index.php
www.fona.de/de/1_forschung/regionen/laendliche_raeume/innovative_bewirtschaftungsmethoden/index.php

Forestry and Forest Products

- Economically-sustainable, ecologically-compatible and socially-fair forest value chains;
- Securing the raw material supply;
- Conservative mobilisation and use of wood;
- Sustainable logistics and wood processing technologies;
- Product innovations.

www.fz-juelich.de/ptj/waldwirtschaft
www.nachhaltige-waldwirtschaft.de/
www.fona.de/de/1_forschung/wirtschaft/produktionssysteme/wald_und_holzwirtschaft/index.php

Sustainable Land Use Systems

- **Farming and Agroforestry Systems**

  Developing environmentally-friendly and socially-compatible land use systems for the production of agricultural and wood-based biomass, of food, fodder, and medicinal plants, etc.;

Sustainable development of rural areas by means of innovative forms of land use and new sources of income;

Geo Information Services and remote sensing to improve land use systems;

Strategies for adapting to environmental and climate changes.

www.fona.de/de/1_forschung/regionen/laendliche_raeume/index.php

- **Forests**

  Sustainable management and development of tropical forests, natural forests, secondary forests and managed (farmed) forests;

  Location appropriate afforestation of degraded areas;

  Biodiversity management;

  Strategies for adapting to environmental and climate changes

  www.fz-juelich.de/ptj/waldwirtschaft
  www.nachhaltige-waldwirtschaft.de/

2. Integrated water management in rural areas

- Influence of climatic changes and economic and social developments on the availability and exploitability of water resources (surface water, groundwater);

- Analysis of nutrient discharges in river catchment areas;

- Ecological assessment of surface waters (rivers, lakes)

  www.fz-juelich.de/ptj/wasserressourcenmanagement
  www.fona.de/de/1_forschung/ressourcen/wasser/index.php
  www.iwrm-momo.de
  www.iwrm-southafrica.de/projekt/projektuebersicht.html