

Key development Challenges, Changes and Choices by Mary Scholes

Sustainable development will face six key challenges in the next 40 years. These are:

- Sustainable food production with the lowest carbon/energy footprint.
- Policy driven population occupation of urban and rural spaces.
- Increased frequency of outbreaks of pests and pathogens impacting global trade.
- Provision of good quality water at a regional scale.
- Deteriorating atmospheric air quality in the developing world, and
- Global nitrogen production, usage and distribution.

Competing claims on natural resources become increasingly acute, with the poor being most vulnerable to continuing global change. The major challenge is to move from facilitating univocal use of natural resources to providing guidance in dealing with (potentially conflicting) multiple-uses of natural resources. Poverty alleviation and development of novel, more equitable, local options for management of natural resources is seen as a key aspect of sustainable natural resource use and avoidance of conflicts.

These challenges will have to be addressed in a world of changed energy provisioning and an increasing population. The developing world continues to look to the developed world for technological solutions whereas the developed world looks more towards changed lifestyles and expectations. Trade-offs between people centered vs environmental approaches will have to be explicitly studied using a variety of tools which to date have mostly been focussed in the social and economic sectors. Food security in Africa will not be achieved without fertilisers and the benefits of increased amounts of nitrogen in the system in the next 40 years will outweigh the potential negative effects. The development of regional nitrogen models are overdue and should be built together with decision makers in the regions.