Sustainable development aims to improve quality of life without compromising the well-being of future generations. A new study highlights the challenges of setting environmental sustainability goals and cites the EU Climate and Energy policy package, with its ‘20-20-20’ targets, as a model example.

The concept of sustainable development has evolved around three pillars: economic, social and environmental sustainability. Economic sustainability has traditionally been based on economic growth, but the recent global economic crisis brought this view sharply into question. Social sustainability is rather difficult to define, partly because it is not clear what the different elements of social sustainability should be, for example, equality between people, regions or countries; or the ability to enjoy good health.

Environmental sustainability means maintaining and improving the quality of natural ecosystems so that they can provide essential goods and services for human life, such as clean water and food, as well as conserving biodiversity and regulating the climate. The notion of environmental sustainability has evolved from a general definition to specific criteria that can be used to assess how far human development is pushing the biological and physical limits of our natural environment.

Objectives to prevent the quality of ecosystems from surpassing critical threshold levels, beyond which the benefits to humans fall to unacceptable levels, are often set as policy targets, for example, reducing deforestation, halting biodiversity loss, mitigating and adapting to climate change and improving sanitation. But to be effective, targets must be specific and linked to relevant sustainability indicators. Indicators provide current information about the health of the environment and allow the ‘distance’ to the target to be measured, for example, percentage of forested area, proportion of species threatened with extinction, CO₂ emissions and proportion of population with access to clean water.

The study highlights the EU ‘20-20-20’ policy as a successful example of applying sustainability targets and indicators. Its objective is to achieve a 20% reduction in greenhouse gas (GHG) emissions by 2020 (compared with 1990 levels) while achieving a 20% increase in energy efficiency and ensuring that a 20% share of energy consumption comes from renewable sources. The EU’s progress towards achieving these targets is expressed as annual emissions relative to 1990 levels, which enables analysts to identify trends over time.

Despite political pressure on one side and growing scientific consensus on the other, few other examples of indicators exist worldwide that directly link environmental quality to specific targets, particularly for reducing global resource use (e.g. fossil fuels, metal ores, minerals and biomass). The study highlights some of the challenges in doing so, such as the compromise between scientific, political, local and global definitions of sustainability; choice of reference points; and accounting for different rates of development worldwide.