



Summary of the RUBICODE Review on: “Drivers of Environmental Change”

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Environmental change on earth has been taking place for billions of years, but the scale, the magnitude and the speed at which change has been occurring since the industrial revolution, and especially over the last sixty years, is new and worrying. Human activity has led to greatly increased risks of crossing critical thresholds that could result in abrupt changes to human and ecological systems.

To reduce or prevent further environmental degradation, and to reverse it where possible, it is important to understand how and why change is occurring. The term “driver” is used to describe the underlying causes of environmental change. Drivers are embedded in the way humans live their lives and include characteristics of economic activity, social behaviour and preferences, technological development, policy, politics and governance. Collectively the effects of multiple, interacting drivers leads to the changes that are observed in ecosystems and the broader environment.

The RUBICODE project has set out to research what we know about the drivers of environmental change. The review demonstrates that the majority of studies focus exclusively on one spatial scale, for example global, national or landscape scales, although we know that drivers act differently at different spatial (and temporal) scales. Two types of drivers can be distinguished: indirect and direct. Indirect drivers are the underlying causes of environmental change that do not have a direct influence on the ecosystem in question, e.g. global climate and socio-economic change, national and international policy. Direct drivers are any natural or human-induced factors that cause a change in an ecosystem directly, e.g. temperature, precipitation, land cover, per capita water demand, crop prices or gross margins. Population growth is the most frequently cited indirect driver of environmental change, while land use and land cover change, and climate variability and change, are the most commonly cited direct drivers. Natural, physical and biological phenomena, diseases and wars are the least discussed direct drivers.

The review highlighted the problems that arise from the use of different terminology in describing similar or even identical concepts of change. There is not even a commonly accepted definition of a driver. Better defined and standardised terminology would help to reduce confusion and facilitate the rapid exchange of comparable information.

Full report: “Identifying and assessing socio-economic and environmental drivers that affect ecosystems and their services”.