Chapter 14
Rural Planning and Sustainability

The concept of sustainability has been defined by the UN as ‘a particular course of progress that meets the needs of the present without compromising the ability of future generations to meet their needs’. This definition has been criticized from several perspectives. First, it is not clear whether or not we are capable of understanding, let alone predict, our future needs and capabilities. Also, it is not clear whether or not we could even have a glimpse of our future interests, morals and philosophies. Our choices today may bring foreseeable problems in the future, but they may also bear new means to tackle those problems.

There are also other possible challenges that we cannot even imagine. The global catastrophe scenario is a good example: if in a particular moment in the future, life on Earth would be threatened by an imminent asteroid collision, having an orbital nuclear missile system ready to fire would be judged as a really good idea of the ancestors. Many of those ancestors, however, surely considered at the time that aero-spatial development was a waste of resources in a world of widespread hunger, a potential menace to the environment, and a danger to the future of forthcoming generations.

Another similar argument can be said about the role of inventions. We do not know what future will bring, but we can foresee some hints. A final success of nuclear fusion technology would completely change the economic structure of the world, providing inexhaustible and ubiquitous clean energy for those who have the technology. In that scenario, having chosen to use most of the oil available in the past would then be deemed as not too serious, and could even be considered as beneficial since it boosted technology and new chemical techniques were developed.

In criticizing the sustainability concept, other researchers have pointed out that it is not up to us to decide what is in the best interest of the future inhabitants of the planet. The future might see our capitalistic economic structure in the same light we hold today the Roman slave-based system, thus considering our sustainable development concept as a mean of perpetuating a particularly efficient system of human exploitation. The application of the sustainability concept to the western Middle Ages mentality would have prevented the development of new economic practices such as industry, just as the blind application of sustainable development could today hinder material progress in some remote rural areas requiring a shift, as some might find that is not in the best spiritual interest of their children.
leaving traditional subsistence agriculture and welcoming advanced, global market-orientated practices.

Regardless of the more academic than practical criticisms, the sustainable development concept has the virtue of providing an easy-to-grasp idea that most cultures would agree upon: that a sensible use of Earth’s resources involves avoiding complete depletion, since we might need those resources in the future.

It is however difficult to ascertain the consequences of our decisions. As we have no idea of what the future might bring, all we can do is use the best-available knowledge to act rationally. To that end, perspective is required. Earth is a dynamical system in which any equilibrium is actually a transient state. Whereas this is clear at a geological scale, the average person’s timescale is very short and we tend to consider our environment and society as a closed and stable entity. If sustainability is focused on maintaining the status quo, evolution can be hindered and thus the ability of some animals to adapt could be affected. On the other hand, not all the animals and plants that benefit humans have a high tolerance to sudden changes or to invasive human activities. One of the problems of ongoing global change is the unprecedented pace of the changes, leaving no time for species to adapt to the new reality. Development can act as a powerful selection mechanism, but can result in favouring unwelcome species that might otherwise be controlled by a natural balance. Examples exist, such as some rats and cockroaches have evolved in the sense of being attached to human supplies, making them independent of their original food fluctuations.

Rural planning has to take into account sustainability issues on from a more local perspective. The effects of policies have to be planned and the consequences of the proposal taken into account. This involves the use of modeling techniques in order to fully quantify the changes.

14.1 Planning with Maps

Some of the first rural plans were developed using McHart’s overlay mapping approach. This planner advocated the use of several layers of information to find suitable places for specific uses by using simple logical operations (AND, OR, XOR) with the layers. He uses actual translucent sheets of paper, one for each use, infrastructure or constraint. By combining them, he could find the most appropriated location for buildings, industrial sites or other activities. As we have discussed in Chap. 21, modern GIS systems work in a similar (albeit more complex) way.

14.2 Scenario Definition

Scenarios are plausible future situations. Defining a scenario involves common sense and a good knowledge of the processes involved. Each and every simulation or forecast implicitly accepts what is called a ‘pink future’, that is, a future in which no major tragedies have occurred. Under those circumstances, the initial hypotheses