

Changes to Landscape and its Effects on Environmental Sustainability

Angela María Cortés Gómez.

Abstract

Since about the 1960's the changes in landscapes have been more intense and have affected biodiversity due to society becoming increasingly urbanized. At the same time natural ecosystems have deteriorated (Metzger et al., 2006, Laurance et al. 2014). Reducing environmental change is one of the most important sustainability pillars of our world because all societies and businesses depend on the natural system for well-being. The complexity of this problem, arises as a result of diverse cultural, political and social factors. In this poster, I focus on how agriculture has transformed landscapes and decrease global sustainability.

Introduction

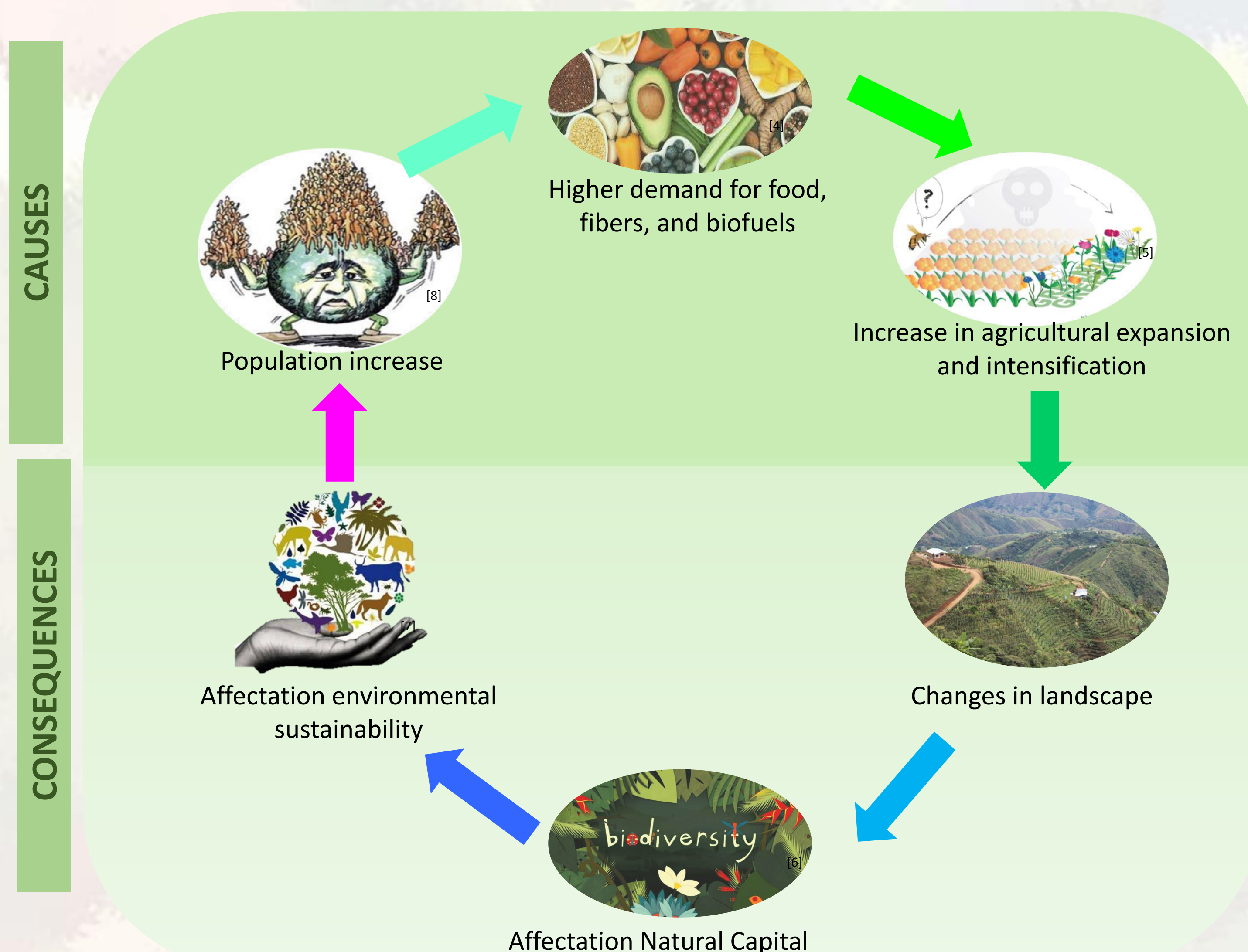
- According to Goodland (1995), **environmental sustainability** is the "maintenance of **capital natural**"; this refers to biodiversity and all the services that ecosystems offer us, mainly:
 - *Support services*: nutrient recycling, primary production
 - *Regulation services*: pollination, climate regulation, flood protection, erosion control, control of pest and pathogens (Goodland, 1995).
- More than 70% of terrestrial ecosystem has changed or been altered around the world, principally by human activities (Ganal-Acedo et al.2019) affecting the **capital natural**.

Box 1. Relevant Concepts

- **Land cover** is the physical material at the surface of the earth e.g. grass, forest, savannas, bare ground, water, etc. (Tilman, 1999).
- **Land use**: Land use refers to the purpose the land serves, for example, recreation, wildlife habitat, or agriculture (Tilman, 1999).
- **Sustainability**: is the ability to continue a defined behavior, general sustain ability will come to be based on all three aspects environmental, social, and economic. (Goodland, 1995).



Human causes and consequences of changes in landscapes



How can we contribute to the solutions ?

The rapid increase in the change in landscape coverage and their consequences are a complex problem on our planet which does not depend on just one solution. The solutions must come from different parts, from the field of economics, politics, to the individual decisions of the people to maintain environmental sustainability, and ensure optimal living conditions on our planet

Among the solutions in which we as citizens can contribute are:

- ✓ Reducing food waste.
- ✓ Choose food coming from organic agriculture.
- ✓ Reduce meat consumption.
- ✓ Support policies to reduce the use of agrochemicals in crops.



References

- Galán-Acedo, C., Arroyo-Rodríguez, V., Andresen, E., Arregoitia, L.V., Vega, E., Peres, C.A., & Ewers, R.M. (2019). The conservation value of human-modified landscapes for the world's primates. *Nature Communications*, 10, 152: 1-8
- Garibaldi, L.A., Pérez-Méndez, N., Garrat M.P.D. (2019). *Trends in Ecology & Evolution*, 34(4), 282-286.
- Goodland, R. (1995). The Concept of Environmental Sustainability. *Annual Review of Ecology, Evolution and Systematic*, 26, 1-24.
- Lambin, E.F., Geist, H. J. & Lepers, E., (2003). Dynamics of land-use and land-cover change in tropical regions. *Annu. Rev. Environ. Resour.*, 28:205-41
- Metzger, M.J., Rounsevell, M.D.A., Acosta-Michlik, L., Leemans, R., & Schroter, D., (2006). The vulnerability of ecosystem services to land use change. *Agriculture Ecosystems and Environment*, 114, 69-85.
- Marshall, E. J. P. (2004) Agricultural Landscapes. *Journal of Crop Improvement*, 12:1-2, 365-404.
- Phalan, B., Onial, M., Balmford, A, Green, R.E., (2011). Reconciling Food Production and Biodiversity Conservation: Land Sharing and Land Sparing Compared. *Science*, 333 (6047), 1289-1291.
- Tilman D. 1999. Global environmental impacts of agricultural expansion: the need for sustainable and efficient practices. *Proc. Natl. Acad. Sci. USA* 96(11): 5995-6000