

## Chapter 54

# Fighting Ecomafias: The Role of Biotech Networks in Achieving Sustainability

**Nadia Di Paola**

*University of Naples Federico II, Italy*

**Rosanna Spanò**

*University of Naples Federico II, Italy*

**Adele Caldarelli**

*University of Naples Federico II, Italy*

**Roberto Vona**

*University of Naples Federico II, Italy*

### ABSTRACT

*Innovation processes are becoming increasingly central, and newer industries have become already less resource-intensive in comparison with the traditional ones. Nevertheless, this alone does not assure sustainability, which requires a step further towards economically viable, environmentally compatible, and socially responsible behaviours. This chapter addresses the issues relating to sustainable development to provide a critical discussion on the potential role played by networking relationships in the biotech field. For the purposes of the study, we employ the co-management and multi-stakeholder perspectives. We demonstrate that the biotechnology research results may be enhanced thanks to cooperation dynamics and interactions among heterogeneous actors, with undeniable cultural and social positive impacts. Also, we discuss social implications and open concerns, both with regard to the relationships within innovative networks and between institutional professional actors, allowing the identification of any grey areas and limitations, especially relevant to policy makers.*

DOI: 10.4018/978-1-5225-8903-7.ch054

## 1. INTRODUCTION

Over the recent years, institutions, policy makers, and scientists have devoted huge attention to the problems relating to environmental degradation, pollution, and ecological variations, as the consequences of uncontrolled progress and prosperity, putting effort in the realization of plans and activities towards sustainable development. Clearly, sustainable development is a complex and difficult challenge for humanity, as attaining sustainability involves the consideration of many, heterogeneous, multifaceted, and sometimes contrasting fundamental issues, as well as a broad range of stakeholders at local, regional and global levels (Lostarnau et al., 2011; Lafreniere et al., 2013). What should be noted is that, at any level, science and technology play a crucial role to achieve sustainability. Moreover, political decisions assisted by societal support and coordinated policies are essential. Hence, it is clear that to ensure successful initiatives for industrial sustainability, there is the need for a global and holistic view encompassing economic, social and environmental aspects. In this regard, it is important to acknowledge that the industrial production globally is progressively attempting to reduce the adverse impact of its activities on the environment. However, the use of processes and technologies devoted to prevent pollution, rather than barely intervening with a restorative approach, have become a priority only very recently (Council Directive, 1996; Allen & Sinclair Rosselot, 1997; World Bank, 1999; EPA, 2003). In such a complex context, innovation processes are becoming increasingly central, and newer industries such as micro-electronics, telecommunications and biotechnology are already less resource intensive in comparison with the traditional ones (Kristensen, 1986; OECD, 1989; Rigaux, 1997). Nevertheless, this alone does not assure sustainability, which requires a step further towards economically viable, environmentally compatible, and socially responsible behaviours (OECD, 1998; UNEP, 1999; Wong, 2001). In particular, biotechnologies have gained plenty of faith and credit by public opinion and governments worldwide. The extraordinary development of biotechnology creates expectations and hopes for a tangible and continuous improvement of the quality of life. Also, it brings intimate and profound reflections that should balance the tension towards innovation, with the power of direct intervention owned by the protagonists of the scientific research. In addition, the improvements may allow the strengthening of the protection of the critical variables for the competitive advantage, more efficient operational processes, less polluting air emissions and waste products, and product innovations likely to achieve effective differentiation strategies. These can be considered concrete objectives to pursue but, despite the extraordinary and unquestionable ability of biotechnology to producing radical innovations and improving life conditions, it is quite clear that there precious elements to support a full expression of their potential are still hardly lacking. This chapter addresses the issues relating to sustainable development to provide a critical discussion on the potential role played by biotechnologies in practically pursuing the expectations for technological, socio-economic, political and cultural changes. The aim of the paper is to deepen the issues relating to the possible contribution of the networks operating in the biotech field to social and environmental sustainability, and to better understand the role of the diverse research actors and the variety of issues that characterize the structural and relational complexity of biotechnology.

The idea that we put forward is that effective networking relationships in the biotech field can contribute to sustainability, in its broadest sense, not only by reducing the negative impacts of human/industrial activities and the restoration of contaminated territories, but also by creating a territorial and corporate competitive advantage to prevent and reduce the danger of criminal infiltrations in economic and productive activities. More specifically, building on the above mentioned themes, the chapter assumes a new

15 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/fighting-ecomafias/228672](http://www.igi-global.com/chapter/fighting-ecomafias/228672)

## Related Content

---

### Paratexts and Documentary Practices: Text Mining Authorship and Acknowledgment from a Bioinformatics Corpus

Nicholas M. Weber and Andrea K. Thomer (2019). *Biotechnology: Concepts, Methodologies, Tools, and Applications* (pp. 597-624).

[www.irma-international.org/chapter/paratexts-and-documentary-practices/228641](http://www.irma-international.org/chapter/paratexts-and-documentary-practices/228641)

### The Turkish Biotechnology System: Functioning or Malfunctioning?

Dilek Cetindamar (2019). *Biotechnology: Concepts, Methodologies, Tools, and Applications* (pp. 1240-1253).

[www.irma-international.org/chapter/the-turkish-biotechnology-system/228667](http://www.irma-international.org/chapter/the-turkish-biotechnology-system/228667)

### Advancements in Data Security and Privacy Techniques Used in IoT-Based Hospital Applications

Ankita Tiwari, Raghuvendra Pratap Tripathi and Dinesh Bhatia (2019). *Medical Data Security for Bioengineers* (pp. 185-207).

[www.irma-international.org/chapter/advancements-in-data-security-and-privacy-techniques-used-in-iot-based-hospital-applications/225288](http://www.irma-international.org/chapter/advancements-in-data-security-and-privacy-techniques-used-in-iot-based-hospital-applications/225288)

### Shielding the Confidentiality, Privacy, and Data Security of Bio-Medical Information in India: Legal Edifice

Varinder Singh and Shikha Dhiman (2019). *Medical Data Security for Bioengineers* (pp. 81-99).

[www.irma-international.org/chapter/shielding-the-confidentiality-privacy-and-data-security-of-bio-medical-information-in-india/225282](http://www.irma-international.org/chapter/shielding-the-confidentiality-privacy-and-data-security-of-bio-medical-information-in-india/225282)

### Comparative Studies on Neem and Jatropha Oil-Derived Biodiesels

Sunil Kulkarni, Ajaygiri Goswami and Ghayas Usmani (2023). *Biomass and Bioenergy Solutions for Climate Change Mitigation and Sustainability* (pp. 258-273).

[www.irma-international.org/chapter/comparative-studies-on-neem-and-jatropha-oil-derived-biodiesels/314368](http://www.irma-international.org/chapter/comparative-studies-on-neem-and-jatropha-oil-derived-biodiesels/314368)