

Chapter 9

The Turkish Biotechnology System: Functioning or Malfunctioning?

Dilek Cetindamar
Sabanci University, Turkey

ABSTRACT

This chapter empirically examines biotechnology innovation system in order to present the concerns of developing countries. Even though it is not possible to create standard prescriptions across countries, this paper aims to develop a solid understanding of how biotechnology and institutions co-evolve that might shed light to innovation policy issues for biotechnology across developing countries. The immediate goal is the Turkish policy makers but it will surely have policy implications for developing countries in general. Through mapping innovation processes/ functions over time, it is possible to develop insights of the dynamics of innovation systems. This mapping is carried out for the Turkish biotechnology system, and the findings are summarized.

INTRODUCTION

Without a doubt, countries that have capabilities in developing and using biotechnology increase their competitiveness and bring welfare to their society. The use of advanced biotechnology by developing countries might further help to upgrade their existing industrial systems and make them more valuable and competitive.

DOI: 10.4018/978-1-5225-1040-6.ch009

How can such a critical technology be developed and implemented in developing countries? It is known that many studies on national innovation systems (NIS) are conducted theoretically and empirically for more than 20 years, and a significant amount of innovation policies are drafted (Nelson, 2007). NIS is considered to be the microcosm of some new technologies including biotechnology, and many studies attempted to understand how nations have tackled with the creation and development of systems where new technologies are embedded (Niosi & Bellon, 1994). The literature offers a specific approach to understand a particular technology in-depth: ‘technological innovation system’ (TIS) that studies the development, diffusion and utilization of a specific new technology (Carlsson & Stankiewicz 1991). Theoretically TIS approach does not necessarily have a limitation based on a country since technologies might be developed in different countries, and there might be many interlinked agents operating in different national contexts. However, in practice, TIS approach is by and large implemented to analyze a particular country. Furthermore, both NIS and TIS based studies are concentrated on advanced countries, developing the theory specific to the problems and priorities of those countries.

This paper aims to fill the void by analyzing the Turkish biotechnology system, a technology in a developing country. To do so, the study will expand the idea of TIS by focusing on the processes of innovation systems (Jacobsson & Bergek 2006). The “functions of innovation system” approach helps to highlight the most important processes that need to take place in innovation systems in order to successfully lead to technology development and diffusion (Hekkert et al., 2007). After the detailed examination of key functions of the biotechnology system in Turkey, the paper will suggest policies to allow the system fulfill its functions and operate effectively and efficiently in order to both exploit and explore opportunities of biotechnology at the national level.

Even though it is not possible to create standard prescriptions valid for various countries, this paper aims to develop a solid understanding of how biotechnology and institutions co-evolve that might shed light to innovation policy issues for biotechnology across developing countries. Although the immediate goal is the Turkish policy makers, it will inevitably have policy implications for developing countries in general. The two key questions the study aims to investigate are: 1) the performance of the Turkish BT system, and 2) search for the weaknesses behind it so that the policy makers can be equipped with a broad perspective that will help to improve the performance of the Turkish BT system.

The paper is based on four sections. After this introduction, section 2 will briefly explain the methodology. Section 3 will present how Turkish biotechnology system functions, followed with a discussion section on the findings. Conclusion section summarizes the implications of the study for the actors of the Turkish biotechnology system, and then concludes the paper with suggestions for further studies.

16 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/the-turkish-biotechnology-system/169520

Related Content

Genomic Databanks for Biomedical Informatics

Andrea Maffezzoli and Marco Masseroli (2006). *Handbook of Research on Informatics in Healthcare and Biomedicine* (pp. 357-366).

www.irma-international.org/chapter/genomic-databanks-biomedical-informatics/20600

Relationship Between Speed of Performing Leg Extension With 30 RM Load and the Selected EMG Variables of Selected Quadricep Muscles

Dhananjay Shaw, Deepak Singh, Umesh Kumar Ahlawat, Manvinder Kaur and Dinesh Bhatia (2021). *International Journal of Biomedical and Clinical Engineering* (pp. 61-76).

www.irma-international.org/article/relationship-between-speed-of-performing-leg-extension-with-30-rm-load-and-the-selected-emg-variables-of-selected-quadricep-muscles/272063

Occupational Therapists' Perceptions about the Non-Use of Recommended Assistive Technology (AT)

Patricia Wielandt (2011). *Handbook of Research on Personal Autonomy Technologies and Disability Informatics* (pp. 293-310).

www.irma-international.org/chapter/occupational-therapists-perceptions-non-use/48289

Prospective Memory Impairment in Remembering to Remember in Mild Cognitive Impairment and Healthy Subjects

Nobuko Ota, Shinichiro Maeshima, Aiko Osawa, Miho Kawarada and Jun Tanemura (2011). *Early Detection and Rehabilitation Technologies for Dementia: Neuroscience and Biomedical Applications* (pp. 98-106).

www.irma-international.org/chapter/prospective-memory-impairment-remembering-remember/53426

Drowsiness Detection by the Systems Dynamic Approach of Oculomotor Systems

Dabhu Suman, Malini Mudigonda, B. Ram Reddy and Yashwanth Vyza (2022). *International Journal of Biomedical and Clinical Engineering* (pp. 1-27).

www.irma-international.org/article/drowsiness-detection-by-the-systems-dynamic-approach-of-oculomotor-systems/295866