Journal of Environmental Health and Sustainable Development

Biotechnology and Social Aspect

Elham Hoseini [1]*, Forouzan Zare [2]

[1] *Department of Health Technology Assessment, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.*

ARTICLE INFO

LETTER TO EDITOR

Article History:
Received: 04 June 2020
Accepted: 10 August 2020

***Corresponding Author:**
Elham Hoseini

Email:
hoseini20007@yahoo.com

Tel:
+983537240171

Citation: Hoseini E, Zare F. ***Biotechnology and Social Aspect.*** J Environ Health Sustain Dev. 2020; 5(3): 1033-4.

Biotechnology is an important promising young field. Modernists believe that emergence of biotechnology is the advent of DNA technology, which can have a great impact on the communities and their economic structures. Biotechnology has affected many countries enormously [1].

It entered the market through two approaches of producing new products (production processes) and expanding the scope of raw material production [2].

Development of biotechnology has resulted in many debates in various fields such as economics, law, politics, etc. Furthermore, some ethical issues and concerns raised about genetic engineering in particular [3].

The "biological maturity" index of a society, defined as the ability to identify and balance risks and benefits, is associated with the public awareness and education [3].

Some of the social issues raised by biotechnology include sustainability, naturalness, risk management, innovation paths, and economic justice [4].

Assessing the social aspect of biotechnology should take into account the attitudes and values that consumers have towards the food products and their nature of production, from food production to food processing and consumption [5].

Although the level of trust is not high in this technology, countries with more comprehensive regulatory decision-making process, especially in the process of risk analysis, were able to gain more trust from society [5].

The four main social concerns in this technology are environmental damage, bioterrorism, laboratory and production safety, as well as ethical issues.

It is very difficult to predict what will happen in the ecosystem after application of this technology. Governments are concerned that terrorists may use biotechnology to create infectious viruses or new toxins for which there is no cure. Although application of biotechnology as a weapon is prohibited by the Geneva Conventions, bioterrorists will be able to transmit diseases and viruses in a variety of ways. Considering that some new technologies such as nanoparticles have their own consumers before being adequately tested for market safety, concerns exist about harmful factors that have not yet been identified. Many ethical questions exist about licensing of genetic inventions and making genes, which may be against the moral or religious beliefs of a significant number of people. Moreover, this technology is faced with other ethical concerns including how scientists use humans in clinical trials without relying on the

[Downloaded from jehsd.ssu.ac.ir on 2026-09-09]

[DOR: 20.1001.1.24766267.2020.5.3.2.1]

[DOI: 10.18502/jehsd.v5i3.4274]

results or side effects of the technology studies. Use of animals as biotechnology subjects may also lead to manipulation of animal genes in favor of human life [6].

In such a challenging technology assessment from a community perspective, Social Impact Assessment (SIA) can be one of the public policy tools. This tool is used to predict, monitor, and control the future social problems caused by such technologies. The SIA tools may help the third world countries to control adverse and unsustainable impacts by identifying the social impacts of new technologies. However, achieving success in controlling the adverse and unsustainable impacts of such technological developments without structural changes is still doubtful for the developing countries [7].

This is an Open-Access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) license, which permits others to distribute, remix, adapt, and build upon this work, for commercial use.

References

1. Da Silva EJ, Ratledge C, Sasson A. Biotechnology: Economic and social aspects: Issues for developing countries: Cambridge University Press; 1992.
2. Yoxen E. The social impact of biotechnology. Trends Biotechnol. 1986;4(4):86-8.
3. Rigaud N. Biotechnology: Ethical and social debates. OECD International Futures Project on "The Bioeconomy to 2030: Designing a Policy Agenda". 2008.
4. Asveld L, Osseweijer P, Posada JA. Societal and ethical issues in industrial biotechnology. Sustainability and Life Cycle Assessment in Industrial Biotechnology. 2019. book series (ABE, volume 173): 121-41
5. Barling D, De Vriend H, Cornelese JA, et al. The social aspects of food biotechnology: a European view. Environ Toxicol Pharmacol. 1999;7(2):85-93.
6. Phillips T. Societal concerns with Biotechnology. 2019. Available from: https:// www. thoughtco. com/ societal -concerns- with biotech-3973289 [Cited June 20, 2020].
7. Hindmarsh R. The need for effective assessment: sustainable development and the social impacts of biotechnology in the third world. Environ Impact Assess Rev. 1990;10(1-2):195-208.

[Downloaded from jehsd.ssu.ac.ir on 2026-09-09]
[DOR: 20.1001.1.24766267.2020.5.3.2.1]
[DOI: 10.18502/jehsd.v5i3.4274]