



Food Security and Biotechnology in Africa

This project is financed by the European Union and implemented by the ACP Secretariat

Module 4 REGULATION AND POLICY APPROACHES TO BIOTECHNOLOGY

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Module structure

- Unit 1: International regulation regimes and tailoring of national laws
- Unit 2: International Laws and Treaties affecting the Regulation of Agricultural Biotechnology
- Unit 3: Risk and safety of genetically modified organism
- Unit 4: Regulating the process and products of genetic modification
- Unit 5: Consumer rights and labeling
- **Unit 6: Politicization, scientization, and democratization in the debate on biotechnology**

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Objective of module 4

To provide students with a broad understanding of international policy and regulation regimes including other agreements that govern the use of biotechnology and how these offer the framework for the development of national biosafety systems and to also expose students to various issues underlying the use and management of biotechnology



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4.6. Unit 6. Politicization, scientization, and democratization in the debate on Biotechnology (2 Hours)

For details see the corresponding course notes

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Outline of Unit 6

- Objectives
- Introduction
- Emergence of the concept of scientization of politics
- Effects of scientization of politics
- Relationship between scientific expertise and making of political decisions in biotech
- Politicization of science
- The emergence of democratizing science movements
- How industry uses political authority of science to influence policy making in biotechnology
- Discussion questions

Objectives of Unit 6

- To provide learners with an overview of the emergence of the concept of scientization of politics
- To explain the relationship between scientific expertise and making of political decisions regarding biotechnology
- To introduce learners to the concept of politicization of science
- To discuss the emergence of “Democratizing science movements” and how these have challenged and impacted the political authority of science in the regulation of biotechnology
- To demonstrate how industry uses the political authority of science to influence policy making and the drawbacks of this

Introduction

- 1983 – debate on virtues and perils of biotechnology in production of transgenic crops began
- Debate has become political and emotional – with what consequences?
- Why biotechnology? Considered best hope for:
 - meeting the food needs for the ever-growing human population
 - conserving dwindling land and water resources
 - preventing or reversing environmental degradation
- By 2050 what will world population and food demand be like?

Introduction

- How can the increasing food demand be met?
Biotechnology touted as one of possible solutions
- What has biotechnology done in this regard?
 - Eliminated or significantly reduced losses caused by pests, weeds and pathogens
 - Increased productivity
- Still calls for moratorium or outright ban on planting and/or use of transgenic plants by anti-biotechnology activists persist

Introduction

- Politics now taken centre stage and the opponents of plant biotechnology have taken the initiative in presenting a highly distorted and misleading account of biotechnology to the public.
- This has led to a stalemate with respect to biotech in the EU and some countries in Africa



Source: Science20.com

Introduction

- However the influence of science on political decisions touching on agriculture has also had more else the same effect as the influence of politics on decisions

Emergence of the Concept of Scientization of Politics

- Since the 1960's, political theorists have been concerned about the relationship between experts and politics
- early investigations of this focused on the growing political influence of scientists and the problem of technocracy



Emergence of the Concept of Scientization of Politics

- These transformations were referred to as the “scientization” of politics
- They represented a shift toward a technocratic model of governance in which politics is replaced by a scientifically rationalized administration (Habermas1970) i.e. opinions and views of experts is a given a more prominent role in political decision-making
- In the 1960’s and 1970’s political theorists articulated a variety of threats that scientization posed to democratic values
- Focus was placed by some on the power held by those who control technical information while others were more concerned about the camouflaging of value-laden political decisions with the logic of scientific rationality

Emergence of the Concept of Scientization of Politics



- many of the concerns raised decades ago about the scientization of politics are no less relevant today.
- For e.g. Industry groups have been known to use the concept of “sound science” to maintain the upper hand in political deliberations about a variety of contentious issues, most prominently the regulation of biotechnology

Emergence of the Concept of Scientization of Politics

- There seems to be an underlying assumption that if sound science, as opposed to the ‘politics of biotechnology’ were given the choice of properly informing the debate, society could finally make an informed decision about ‘biotechnology itself’ (Alessandrini 2010)
- The argument is that since reliance on sound science helps to reveal the ‘facts’ of the matter, it reinstates and reinforces the role of nature in informing the biotechnology debate as opposed to society and politics

Emergence of the Concept of Scientization of Politics

- Note, however, that science has dominance on 'facts' that can be used to influence the decision making process but on the other hand it should also be appreciated that politics may also hold sway in the same process in that it has dominance on values (wants) within the society
- The argument is that since reliance on sound science helps to reveal the 'facts' of the matter, it reinstates and reinforces the role of nature in informing the biotechnology debate as opposed to society and politics

Emergence of the Concept of Scientization of Politics

- While science seems to have dominance over 'facts', politics on the other hand also seems to have dominance over 'wants' which, somehow, can be equated to values in the society
- It is possible then to separate 'facts' and 'values' in the context of the biotechnology debate
- For example, Risk is often equated to the probability of a negative event occurring multiplied by the severity of that event
- In this context, the severity of the negative event will be determined by consideration of values which may be for e.g. effects on human health e.t.c.

Emergence of the Concept of Scientization of Politics

- The separation that exists between nature (science) and society has political connotations which impact the biotechnology debate
- The rift between science (**which explains what happens in the domain of objective reality**) and society (**the domain where humans decide what to do with such 'things' of facts**) widens when appeals to nature are made
- This separation has a double political relevance – first by relegating 'facts' to the domain of science and thus placing them beyond scrutiny
- Thus for e.g. it is only when GMO's have become a scientific 'fact' in the confined space of the lab, can one raise the ethical question within the regulatory space e.g. whether or not genetic engineering in agriculture is justified

Emergence of the Concept of Scientization of Politics

- In the context of the debate, it is often said that the separation between facts and values, science and regulation and technical and political phases of regulation are all a manifestation of the nature/society dichotomy (Alessandrini, 2010)

Effects of Scientization of Politics

- Suppresses debate often to the benefit of industry (give examples, if any)
- Fueled the emergence of social movements – the use of scientific expertise to legitimize undesirable political decisions has been met by fierce opposition (give examples, if any)

Relationship between Scientific Expertise and Making of Political Decisions in Biotech

- According to Alessandrini (2010), science is considered to be a political tool that can be used to limit democratic deliberation by neatly separating facts from values and scientific certainty from politics
- Thus for e.g. the traditional technocratic approach to biotechnology regulation and decision making has been to place emphasis on scientific authority as the key authority in regulatory decision making

Relationship Between Scientific Expertise and Making of Political Decisions in Biotech

- According to Rao (2003), proponents argue for the need of 'sound science' to eliminate irrational fears or disclose the hidden agendas of critics and hence facilitate the decision making process
- However, Rodrigues (2005) points out that opponents criticize the regulatory regime as not being competent, transparent, unbiased and scientific enough

Relationship Between Scientific Expertise and Making of Political Decisions in Biotech

- Weingart (1999) pointed out that the increasing use of science to legitimize political decisions based on its presumed objectivity and disinterestedness, was paradoxically self destructive.
- Decision makers usually depend on scientific knowledge for the resolution of complex problems, yet scientific experts are rarely able to provide definitive answers.

Relationship Between Scientific Expertise and Making of Political Decisions in Biotech

- This therefore leads to escalating competition for scientific advice, whether in the courts, regulatory bodies or policy making institutions
- As the public becomes more and more aware that “science can be used to legitimize different political positions and decisions”, the basis of legitimization – the presumed non-partisan nature of scientific knowledge – would seem to be undermined

Politicization of Science

- In the mid 30's in the Soviet Union, Trofim Lysenko – who was the Director of Lenin All-Union Academy of Agricultural Sciences - and his allies had political control of science.
- He persecuted scientists who dissented to his views and brought unimaginable damage to biology and its application to agriculture.
- The consequence of this was that innovation and productivity in the Soviet Union lagged far behind other nations.
- These were the beginnings of science being politicized

Politicization of Science

Elements common to the politicization of science

- Ideology is imposed on science and this is then made to drive public policy
- There is a lack of understanding of science and government officials are intolerant of dissenting views

Example of how science can be politicized

Clinton Administration

- Al Gore the former US Vice-President, doubled up as the Country's biotechnology Czar and Director of regulatory policy

Politicization of Science

- He always showed that he did not like or trust science
- He thought that science was more likely to generate societal problems than offer solutions or advances
- Therefore suggested that massive government interventions, both direct and indirect were necessary to avoid an environment disaster (Miller & Conko, 2000)

Consequences

- The imprint of White House's influence over what was thought to be an independent regulatory agency started being evident to those civil servants who had worked in the FDA for long – this was exercised through political appointees with close links to the Vice-President

Politicization of Science

- The Clinton Administration went well beyond the politicization of policy to the mismanagement of decisions on the approval of specific products that the FDA regulated
- Similarly the Energy Protection Agency's (EPA) policies were often crafted with the full approval and collaboration of the administration and did not represent the result of scientific consensus but rather ideology imposed on and that debased both scientific knowledge and common sense
- Thus the Clinton administrations regulatory and other policies exerted a severe negative impact on biotechnology research and development

The Emergence of Democratizing Science Movements

Emergence of the movements

- In the 1980s and 1990s, particularly in Europe, claims of civil society organizations for a more democratic involvement in science and technology related decision-making emerged (Gisler and Kurath, 2011)
- This led to the emergence of social movements that “attempt to reclaim citizens” power by making lay knowledge legitimate in science, policy and public debate (Kinchy, 2010)

What do these movements do?

The Emergence of Democratizing Science Movements

- They highlight ways in which activists confront the political authority of science
- They may use scientific information as a resource to engage in participatory research and reframe “technical” problems to include social, cultural and economic impacts

Significance of these movements

- They produce immediate political outcomes (though not always in the favour of the activists)
- They may challenge, in the long term, the authority of scientific expertise which often is taken for granted

The Emergence of Democratizing Science Movements

End result

- They highlight ways in which activists confront the political authority of science
- They may use scientific information as a resource to engage in participatory research and reframe “technical” problems to include social, cultural and economic impacts
- This political shift has been dubbed as moving “from legitimation through knowledge to legitimation through participation” (Kinchy, 2010)

The Emergence of Democratizing Science Movements

- Many scholars have described these participatory processes as models of reinvigorating democratic values in the face of scientized politics.
- However the prevalence and influence of these democratizing processes still remain unclear.
- The use of scientific knowledge in political activism is what forces authorities to pay attention to social problems.
- Often they use these tactics in combination to achieve what they want because they overlap and complement one another

The Emergence of Democratizing Science Movements

- The potential impact of each of these tactics is different and ranges from for e.g. damaging the public perception of science to democratizing political decision-making processes
- In Europe consensus conferences and science shops have been created to facilitate the participation of ordinary citizens in the evaluation of science and technology and these have helped in increasing public involvement in the governance of science and technology

The Emergence of Democratizing Science Movements

What are Science shops and consensus conferences?

Science shops

- These are small entities that carry out scientific research in a wide range of disciplines – usually free of charge and – on behalf of citizens and local civil society. The fact that Science Shops respond to civil society's needs for expertise and knowledge is a key element that distinguish them from other knowledge transfer mechanisms.

<http://www.livingknowledge.org/science-shops/about-science-shops/>

The Emergence of Democratizing Science Movements

Consensus conferences

- They originated in Denmark in the 1980s and are one of the earliest attempts by policymakers to include the lay publics' opinions in their decision-making through public engagement.
- They bring together lay people and subject matter experts to identify common ground in topics where there is technological or scientific complexity, and where key aspects of the issue are uncertain, contested or controversial. Generally the ratio of lay citizens (or “Citizen Panellists”) to experts is 2:1
(<http://www.newdemocracy.com.au/consensus-conferences>)

The Emergence of Democratizing Science Movements

- This is why activists often fight to ensure that expert discourse does not eclipse citizens perspectives on social, economic and moral issues in debates and decisions about scientific and technological developments
- A good e.g. of this is the Mexican maize conflict which began in 2001 when two researchers from the University of California Berkeley discovered transgenic material in samples of maize taken from a remote area of Oaxaca, Mexico
- Thereafter an extensive network of NGOs, activist groups, rural community groups, farmers and scholars started protests against biotechnology

How Industry uses Political Authority of Science to Influence Policy Making in Biotechnology

- Regulatory policy is a key component of scientific and industrial development because it can:
 - Impact on consumer confidence
 - Define parameters of ownership
 - Increase R&D costs
 - Influence the time it takes to get a product to the market
 - Determine the time a product has a profitable place in the market
 - Define costs of continued monitoring in the market (Salter and Jones, 2010)
- Thus policy processes surrounding new agribiotechs today involve a wide and growing range of actors, including scientists, government officials, industry, international organizations, farmer organizations e.t.c.

How Industry uses Political Authority of Science to Influence Policy Making in Biotechnology

- However, the question that needs to be answered is what kind of relationship exists between science, industry, policy and regulation in the context of debates about the future of agribiotech?
- It has been suggested that science engages in independent inquiry, where clear choices are offered to policy-makers who in turn, informed by political and social priorities, develop a regulatory policy framework which is then implemented according to a set of specified rules based on 'sound science' (Scoones, 2002)

How Industry uses Political Authority of Science to Influence Policy Making in Biotechnology

- However, this neat linear schema is far from what is known to happen in reality.
- It is known that some industry groups routinely use the concept of “sound science” to maintain the upper hand in political deliberations about a variety of contentious issues, most prominently the regulation of biotechnology
- The political authority of science has therefore been expanding to the benefit of industry due to the increasing involvement of industry and commerce in science which, in effect, makes it difficult to define the boundaries of science and for scientists to maintain independent opinions (Gisler and Kurath, 2011)

How Industry uses Political Authority of Science to Influence Policy Making in Biotechnology

- For e.g. more than a decade ago, GM crops were barely a concern in South Africa, because the government, industry and a small cabal of scientists set the terms then (Scoones, 2008)
- However there are also countervailing trends
- For e.g. the White Paper on European Governance argues that there is a general need to open up policy making to make it more inclusive and accountable through public debate and involvement of citizens (European Commission, 2001)

How Industry uses Political Authority of Science to Influence Policy Making in Biotechnology

- Also in SA a combination of high-profile court cases, ongoing demonstrations, a growing media profile and long-term engagement with legislators, bureaucrats and scientists saw the GM debate opened up to greater scrutiny, even though impacts on decisions and politics remained limited (Scoones, 2008)
- The rise of this more participative ethos has thus challenged the traditional technocratic approach to biotech regulation which places emphasis on scientific authority as the key influence on regulatory decision-making (Levidow, 1999)

DISCUSSION QUESTIONS

- Discuss how activism by civil right groups has helped shape policy and regulations concerning the use of biotechnology?
- What role has politics played in the formulation of biotechnology policy and regulations?