What we don't know about biotechnology and why?

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Different kinds of non-knowledge

RISK – Know the odds

UNCERTAINTY – Don't know the odds: may know the main parameters. May reduce uncertainty but increase ignorance.

IGNORANCE – Don't know what we don't know. Ignorance increases with increased commitments based on given knowledge.

INDETERMINACY – Causal chains or networks open

(Brian Wynne, 'Uncertainty and environmental learning', *Global environmental change,* June 1992: 114)

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Hiding the risk

R = P x S

P = probability
S = scale of harm
} **Uncertainty**

1) Exclusion of uncertainty

2) Exclusion of social dimension of risk

Reductive model of solving technological conflicts

Two stages of risk reduction:

1) Reduction to physical risk
2) Reduction of uncertainty
   - Regarding the probability of damage (P)
   - Regarding the scale of harm (S)

Neglecting uncertainties as ignorance construction

Zero-one logic: either safe or dangerous

→ suppresion of uncertainties

→ exclusion of other factors

→ construction of ignorance

The more we know, the less we know?

Three reductive strategies

1. **Strategy of declared safety**

   → market conflict

2. **Strategy of declared harm**

   → ecological conflict

3. **Precaution strategy**

   → scientific conflict

Social mechanisms of non-knowledge construction

- Naturalization
- Methodological rigor
- Risk assessment
- Conflict of interests
- Withholding information about risk
- Demarcation of scientific field
- Discourse framing
- Excluding people and their knowledge
- Rhetorical tricks

Methodological rigor

- „Safe until proven harmful”:
  lack of evidences of harm = evidence of harmlessness.
- ‘‘lack of proof of harmfulness is not a proof of harmlessness’’.
- 10 years of growing GMO as an evidence of safety
- Rigorous control and profound research as a guarantee for safety.
- „The Americans have been doing it for years without unnecessary restrictions and are still alive!”

Naturalization of consequences

- Experts coming almost exclusively from hard sciences
- Publications concentrated on the biological character of the problem
- Debate conducted in scientific terms.

Risk assessment

- Few reference laboratories in Poland, the first of them created in 2004.
- Dispersed system of regulatory institutions
- Relatively few disclosed cases of illegal GMO treatment.

Conflict of interests

Example: Prof. Tomasz Twardowski

- Professor and department head in Institute of Bioorganic Chemistry, Polish Academy of Sciences in Poznań,
- President of the Polish Federation of Biotechnology, Executive Board Member of European Federation of Biotechnology,
- member of GMO Committee at the Environment Ministry and Ministry of Agriculture, author of expert opinions for the Ministry about MON 810.

Discourse framing

Sally Brookes, 'Biotechnology and the Politics of Truth', *Sociologia Ruralis* 45 (4)/2005: 360–379.

Frame of progress and technological determinism

- „If we introduce any bans, we will simply **stay behind** other European countries"

  (R. Gabarkiewicz, Monsanto)

- The production of GMO will develop with us or… without us. But for sure we will consume GMO products because **there is no escape from it"**.

  (Prof. T. Twardowski)

Discourse framing

Frame of naturalness

„Genetic modifications are only a kind of natural selection, which has been used in agriculture for thousends of years”

(Cracov Branch of Polish Biochemical Society)

„Effective weeds fighting in hierbicide resisant transgenic plants is **nothing new**”

(Prof. A. Anioł)

Exclusion of people and their knowledge

Radosław Sojak, Daniel Wicenty, *Zagubiona rzeczywistość: o społecznym konstruowaniu niewiedzy* [Lost Reality. On the Social Construction of Ignorance]. Warszawa, Oficyna Naukowa 2005.

- "The opponents of genetically modified food are a new tribe of savages who believe in magic rather than science."

  Włodzimierz Zagórski, *The new food magic,* Gazeta Wyborcza , 9.03.2006

- Zbigniew Wojtasiński 'The mad ecologist disease', *Wprost* 37/2003

Rhetorical tricks

- "Genetically improved organisms"
- **Individualization** – GMO as an individual choice of consumers. Consequences constrained to the individual taking responsibility for their action.
- **Imputing ignorance** – irrational fear and lack of knowledge as the reasons for rejection of GMO
- **Hierarchization and "attachment"** – GMO is attached to the problem of hunger in the world, lethal illneses, cancer etc. and then accordingly arranged in a hierarchy of dangers. Slight risks should be taken to avoid more significant dangers.
- **Legalisation** : it is allowed = it is safe

Thank you for your attention!

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