# "Technology Divides": Critical Issues in Technology and Sustainable Development Goals

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# Critical issues

- **Traditional vs. new technologies**
- **Gender and Technology**
- **Ownership and Control of Technology and Innovation**
- **Technology Transfer vs. patents**
- **Technology Assessment & precautionary principle**

# Technology and development

Unprecedented technological development in the past few decades is massively transforming the planet and impacting people's daily lives.

- Changes in ICTs are dramatic and have many effects

- Other new technologies that are dramatically impacting our world and shaping our future are less noticed

- **Changes are not necessarily in the direction of sustainable development**

# Who benefits?

Economists assert that technological change has contributed significantly to recent economic growth.

But, overwhelmingly, benefits have accrued to the wealthiest sectors in industrialized countries.

For example, 77% of people from developed countries are Internet users, while only 31% in the developing world are.

Women are generally regarded as "recipients" of technology products but are marginalized in terms of decision-making on technology developments.

# Who controls?

- All new technologies are controlled by few transnational corporations in each sector, through intellectual property and market dominance.

- Patent-sharing, cross-licensing and joint ventures, often presented as collaborative efforts beneficial to society, allow corporations to dominate key technology-based industries despite anti-trust laws.

- Example: 10 companies control 76% of commercial seeds market, 10 companies control 95% of agrochemical market, 6 companies control 100% of transgenic seeds.

- In most key industries, only 10 companies control more than 40% of the global market.

# New technologies: nanotechnology

- More than 1300 product lines on the market in the past decade
- Global R&D: $50 billion since 2000
- **No regulation anywhere**
- Dozens of scientific studies showing toxicity of nanoparticles on human health and the environment
- No discussion of impacts on developing world economies, due to material replacement (rubber, copper, platinum, among others)

# New technologies: synthetic biology

- **Extreme genetic engineering**
- Increased demand of biomass (beyond renewability), dispute over land, water, nutrients.
- **Replacement of products from the South: Antimalarial compound artemisinin grown by thousands African farmers will be replaced by synthetic biology-derived artemisinic acid sold by Sanofi Aventis, making them loose their income.**
- Largest impacts on peasants and women
- **Main synthetic biology investors:**
  - 6 of the 10 largest **chemical** companies
  - 6 of the 10 largest **energy** companies
  - 6 of the 10 largest **grai**n traders
  - 7 world's largest **pharmaceutica**l companies

  **No regulations, no discussion on health, environment or economic aspects.**

# New technologies: Geoengineering

- Uncontrollable transboundary impacts

- "Perfect excuse": diverts R&D and resources from emission cuts in industrialized countries.

- Example: Large artificial volcano cloud made of aerosols in the stratosphere over the Arctic would disrupt monsoon patterns in Asia and rain/winds in Africa, endangering the food and water sources for 2 billion people *(Alan Robock, Rutgers Univ, 2010)*.

- Also Europe and North America would be impacted by change of rainfall patterns *(European Geosciences Union, 2013)*

# New technologies: Summary

- Emerging technologies such as nanotechnology, synthetic biology, geoengineering can have serious impacts on peoples' lives and livelihoods, including women in rural areas involved in agricultural and other production and those in urban areas engaged in manufacturing.

- They can **displace indigenous and local, proven technologies, which are adaptive and affordable.**

- The **Social, Environmental and Economic impacts of new technologies must be assessed** before they reach the market and/or are deployed.

# **A Technology-related SDG** should:

- *Strengthen* recognition and ensure use of indigenous and local knowledge systems and technologies.
- *Conserve* indigenous and local knowledge systems, practices and languages.
- *Ensure* that developing countries have equitable access to environmentally sound technologies, including lifting of intellectual property barriers

# A Technology-related SDG should:

- *Apply* the precautionary principle on technology development, transfer and use.

- *Establish* a new international mechanism for ecological, social, cultural, and economic evaluation of technologies

- *Ban* development and deployment of technologies such as geoengineering that can damage Earth systems.

# A Technology-related SDG should:

- *Increase* and enable the active participation of women and the potentially affected groups in the decision-making throughout all stages of technology development, including assessment.

- *Increase* to at least 30% the share of global scientific papers originating in developing countries, including studies from indigenous and local knowledge systems.

# Thank you!

More information:

**Women's Major Group**

http://www.womenrio20.org

**ETC Group**

http://www.etcgroup.org

**IT for Change**

http://www.itforchange.net