

International Conference

The Transformation of Research in the South: policies and outcomes, 21 and 22 January, 2016, Paris

Recent changes of science policy in Mexico:
institutional inertia and new practices in
biotechnology

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Policy changes

Main objectives (1970s to 1990): Human resources formation and fundamental research...

New strategies and objectives (2000-2015...):

diversification of instruments, multidisciplinary projects, fundamental & applied research, international cooperation, research networks, university-industry linkages, different funding mechanisms, etc.

Funds 2008-2015: CCSnet, IDRC-Conacyt, Eulaks-FP7

New context dimensions to take into account...

- Increasing amounts and multidirectional worldwide knowledge flows
- Rise of international research networks (i.e. UE framework programs): causing more competition for funds, race for scientific discoveries and applications, solutions for global problems (health, environmental, food)
- Emergence of new scientific and technological fields (ICTs, , biotech, new materials, nanotech, advances manufacture, etc.

Research goals

To analyze the dynamics of nanotech & biotech (windows of opportunity & national strategies for policy):

- To recognize actors (scientific communities, enterprises),
- To identify the institutional incentives and barriers (rules, policy instruments, market)
- To explore & measure strengths and capabilities as a result of policies

Methodology of research

Big problem of sources of information (quantitative & qualitative):
biotech is not an “industrial sector” but transversal scientific and technological field



Building data from our own survey, from Conacyt’s programs, from Study cases (monographies), etc.

Some interrelated questions

- How is the scientific community in biotech taking advantage of the new national policy framework? And therefore, to what extent can we identify changes in the scientific community behavior?
- How are the academic institutions (regulations, evaluation instruments, promotion mechanisms...) coping with the new S&T policy incentives and dynamics of the international context?
- Are there new dynamics of research? More cooperative, multidisciplinary, applied, focused on industrial demand or national problems...
- what is the impact of the new context dimensions and policies in scientific communities and their research practices?

General Hypothesis

Policy & international context  for transformations
in scientific communities behavior

Institutional inertia in micro (research communities),
meso (academic institutions)
macro (policy instruments, market regulations) .

Some Figures

- From 36 Master & PhD programs in biotech in 2008, to 59 programs in 2013
- From 842 students in 2008 to 1,519 students in 2013
- Other 201 Master & PhD programs comprising biotech issues
- From a total of 21,359 s.n.i researchers in 2014, 701 scientists in biotech (>5% of total)
- 2007-2014: 424 applied research and technological projects (>8% of total), funded by several CONACYT programs

SOME REMARKS: institutional inertia

Micro level:

1. Evaluation mechanisms of academic institutions encourage individual production of knowledge
2. Few national research networks carrying out fundamental research projects
3. Very few applied research projects in biotech (health & agro-food)
4. Very few enterprises performing R&D in biotech
5. Rare cases of cooperative (university-industry) technological research projects
6. Innovation in firms? Earlier generations of biotech

Meso level

1. HR formation programs encourage monodisciplinary studies and research
2. Little space for interinstitutional and/or interdisciplinary Master & PhD programs
3. Funding programs (Conacyt) encourage mostly individual scientific (fundamental) research.

Macro level

1. Health/food regulations hamper technology transfer & applied research
2. Fiscal & budgetary regulations hamper long term research project/goals
3. National Research System inhibits cooperative and applied research.
4. Market (size and dynamics) remains insufficient for innovation (lack of demand, value chains, etc.)

To conclude: Notwithstanding the national policy, strategies and opportunities...

A lack of research networks, sporadic cooperative & applied research, rare firms carrying out R&D projects.

On the other hand...

Increasing HR in biotech and vigorous scientific (fundamental) research communities, related to international networks and high productivity (publications) in mainstream subjects

New regulatory frameworks hampering firms to exploit R&D results in Mexican market

Thank you for your attention

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