Prospects of bioeconomy in the Russian Federation

National Technology Platform
Bioindustry and Bioresources - BioTech2030

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Recent Bioeconomy initiatives

State Coordination Program for the Development of Biotechnology in the Russian Federation until 2020 (BIO-2020)

approved by the Prime Minister of the Russian Federation on April 24, 2012
Main competitive advantages of Russia

- Oil and gas
- Mineral resources
- **Forestation, 1180 mln.ha**
  - 20% of world’s forest resources
  - 50% of coniferous forests
- **Land (fertile, arable)**
  - 10% of arable land, 195 mln.ha
  - 60% of most productive world black soils are located in Russia and Ukraine
  - About 20 mln.hectars of arable land are temperately out of agricultural production
  - Grain harvest ~100 mln.t, projected surplus up to 30 mln.t
- **Water**
  - water resources, 30,000 m³ per capita
  - irrigated land, 86,000 m² per capita
- **BIOMASS**
What is biotech/bioeconomy for Russia?

- Modernization of the economy
- Sustainability
- Social benefits
  - New jobs
  - Counteracting depopulation
    - Stabilization of rural population
    - Easing social problems in distant and/or isolated cities/areas
- Strategic challenges
  - Vast territory of Russia and unlimited resources of renewable biomass
  - Possible devaluation of traditional markets and major export products due to substitution by the products obtained from renewables
  - Securing food and drug security, substitution of imports of major biotech products with local production
Biotechnology in Russia

Share of the Russian Federation in the global biotechnology market, %

- Biopharma
- Agrobiotechnology
- Industrial, food and forest biotechnologies

Total volume: $5.5 bln. The average annual growth rate: 11%

Imports 85%

- Biopharma: 89%
- Agro biotechnology: 93%
- Industrial biotechnology: 82%
BIO-2020 main goals

- To initiate bioeconomy development in Russia
- To support new economy segments associated with industrial biotechnology
- Important changes in legislation and standards
- To stimulate and develop already existing priority market segments for biotech products - agrobio, food

**The strategic goal is the level of bioeconomy ~ 1 % of GDP by 2020, and ~3 % of GDP by 2030**
The map of main Russian bio clusters

Strong biotech in the USSR

Program “Development of the pharmaceutical and medical industry of the Russian Federation”
4.7 BEUR (2011-2014)
Areas with highest chances of success

**Industrial biotechnology for agricultural biotechnologies**
- Fodder additives, including enzymes and amino acids
- Biofertilizers
- Plant-protecting agents

**Industrial biotechnology for environment protection**
- Biodegrading agents (oil spills, etc.)

**Agricultural biotechnologies**
- Vaccines
- Test systems

**Biogas**

**Forest biotechnology**
- Pulp-and-paper plants: waste treatment, chlorine-free bleaching
- Conversion of lignocellulosic raw materials
- Pellets

**Food biotechnologies**
- Integrated processing of food raw materials
- Probiotics
- Leavens

**Treatment of wastes from**
- Agriculture
- Timber processing
- Food processing industry

No biofuels
Recent positive trends

- On Nov 27 State Duma (Parliament) will hold a special session dedicated to legislation in biotechnology
  - A list of required laws, legislative measures, acts, etc. is to be prepared for consideration
- A gap in legislation will be soon closed enabling GMO release into the environment
  - Opens route to planting transgenic crops in Russia
- A high-level presidential commission is to be established overlooking BIO-2020 implementation
Conclusions & Challenges

- Bioeconomy in Russia is still in the state of infancy, however, over the last year dramatic changes occurred on the Russian biotech landscape
  - Technology platforms formed
  - BIO-2020 drafted and endorsed
- Systematic change of the legislation required
- Stimulation of biotech businesses, creation of markets
  - Active state procurement policy to develop markets for biotech products
- BIO-2020 should make a transition from the “letter of intent” state to a working program
- Big business (local and foreign) should come into play and show commitment to biotech development
- **How serious and far-reaching is the commitment of the Federal Government to the bioeconomy**
The future is green!

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