

# Prospects of bioeconomy in the Russian Federation



National Technology Platform  
*Bioindustry and Bioresources - BioTech2030*

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# Historical background

## 1966 – 1991

- Glavmikrobioprom/Ministry of medical and microbiological industry
- Strong biotech in the USSR:
  - Hydrolysis plants (ethanol) – 42
  - Yeast protein (SCP) plants – 12 (> 1 mln.tonnes in 1987)
  - Lysine plants – 5
  - Enzymes – 5

## 1991 – beginning of XXI century

- Decay of industrial biotechnology in Russia

## 2006 – 2010

- Mirror R&D Technology Platforms to cooperate with EC in FP7

## 2010

- Government orders drafting of the Federal targeted program “Development of the pharmaceutical and medical industries of the Russian Federation for the period to 2020 and beyond, **Farma2020**” (01/10/2010)
- **TP “Bioindustry and Bioresources, BioTech2030”** formed (18/10/2010)

## 2011

- **Farma2020** is endorsed by the Government with funding of **4.7 BEUR** (17/02/2011)
- **TP BioTech2030** is officially endorsed by the Government (01/04/2011)
- Government orders drafting of the “Program of development of the biotechnologies in the Russian Federation” (01/04/2011)

# Fast progress in recent months

## 2012

**24.04.2012 – State Coordination Program** for the Development of Biotechnology in the Russian Federation until 2020 (**BIO-2020**) is signed by **Prime Minister**



**19.11.2012 – High-level WG** supervising biotechnology development under **Deputy Prime Minister** is established by the decree of **Prime Minister**



**27.11.2012 –** Session of the Association of the Innovative Regions of Russia with participation of the MPs **presided by the Speaker of the State Duma** (Parliament) dedicated to “Legislation to promote development of biotechnologies in Russia”



**11.12.2012 –** Session of the Scientific expert Council **under the Chairperson of the Council of the Federation** of the Federal Assembly of the Russian Federation dedicated to “Improving legislation on development of *bioeconomy* in the Russian Federation, major problems and possible solutions to the implementation of biotechnologies in the regions of the country”

**12.12.2012 - Road Map on Biotechnology** to be developed - Address to the Federal Assembly by the **President** followed by the Decree of the **Prime Minister**



**Bioeconomy/Biotechnology agenda has reached the level of Russian top decision-makers**

# Main competitive advantages of Russia

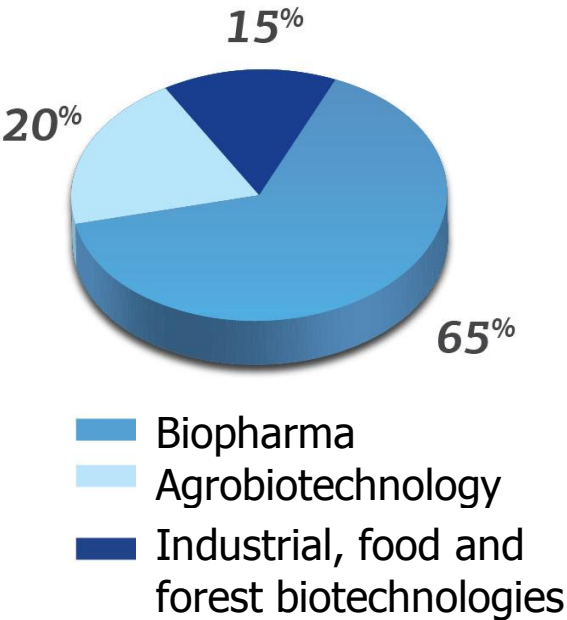
- Oil and gas
- Mineral resources
- **Forestation, 1180 mln.ha**
  - 20 % of world's forest resources
  - 50 % of coniferous forests
- **Land (fertile, arable)**
  - 10% of arable land, 195 mln.ha
  - 60% of most productive world black soils are located in Russia and Ukraine
  - About 20 mln.hectars 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 m<sup>3</sup> per capita
  - irrigated land, 86,000 m<sup>2</sup> per capita
- **BIOMASS**



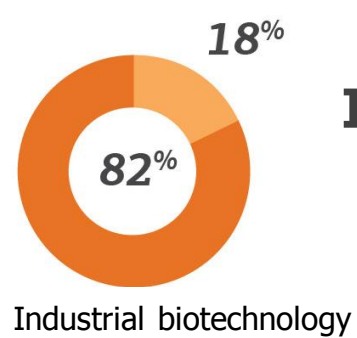
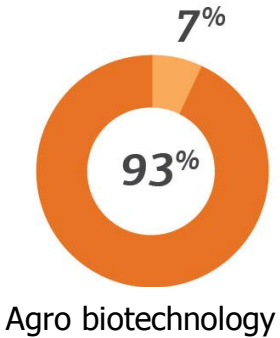
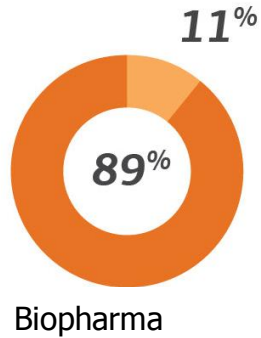
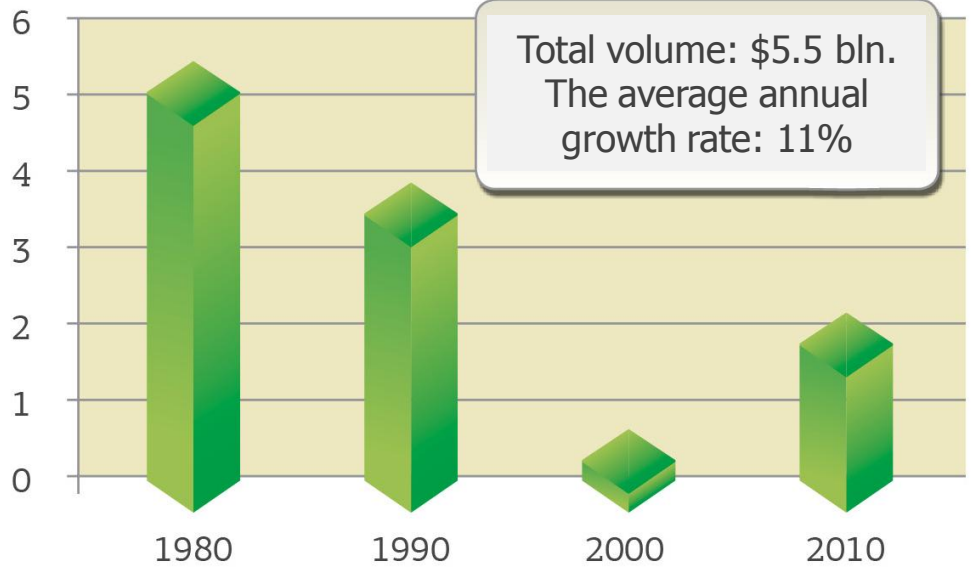
# What is biotech/bioeconomy for Russia?

- 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
- **Biofuels**
  - **GHG and Climate change**
  - **Support of agriculture and regional development**

# Biotechnology in Russia



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



**Imports**  
**85%**

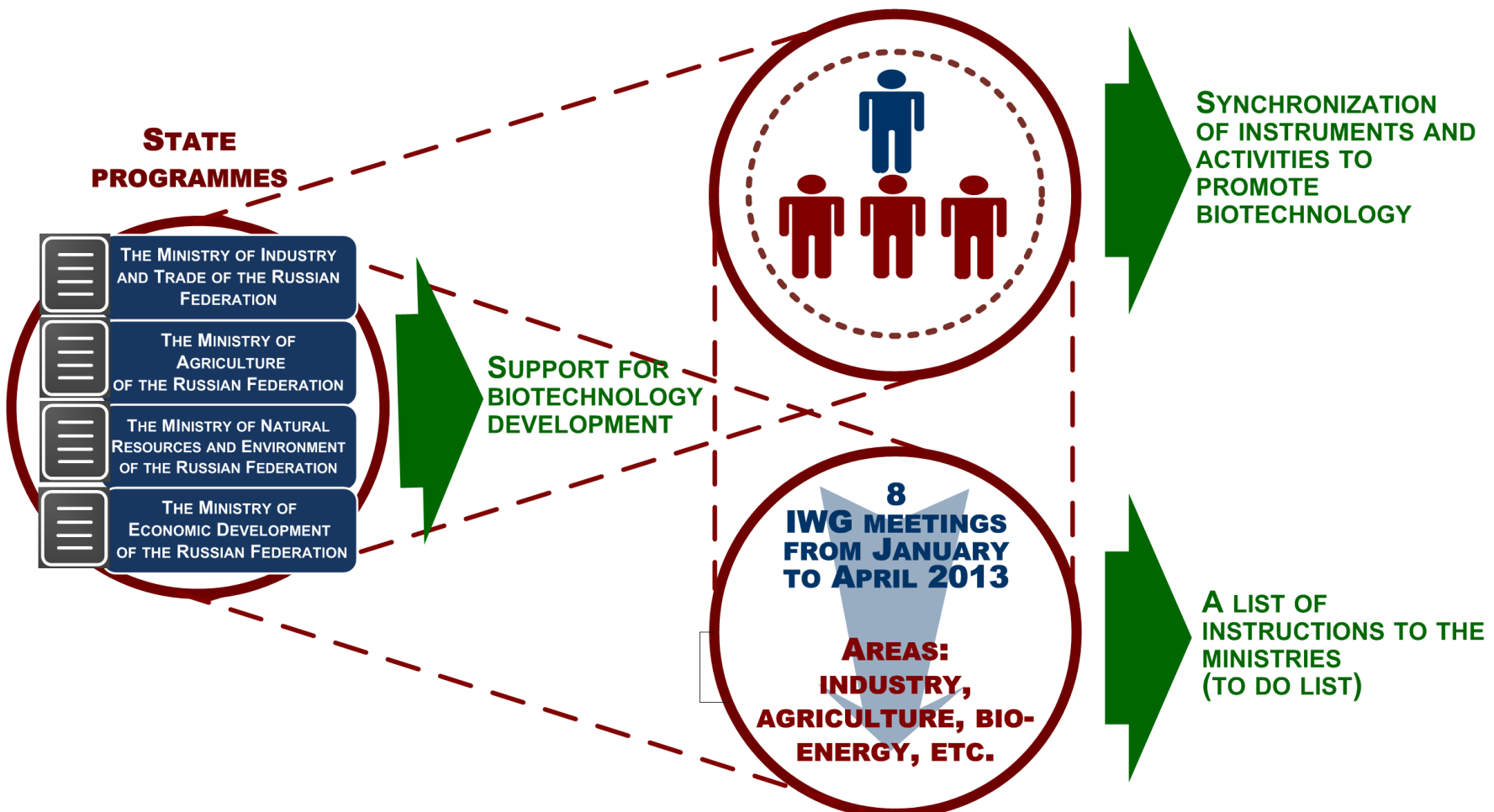
# BIO-2020 main goals

- 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  $\sim$  1 % of GDP by 2020, and  $\sim$ 3 % of GDP by 2030**

# Bio2020 implementation mode

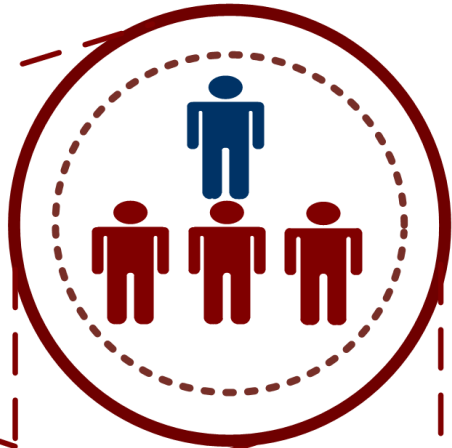
**INTERMINISTERIAL WORKING GROUP (IWG),  
CHAIRIED BY THE DEPUTY PRIME MINISTER A. DVORKOVICH**



**STATE PROGRAMMES**

- THE MINISTRY OF INDUSTRY AND TRADE OF THE RUSSIAN FEDERATION
- THE MINISTRY OF AGRICULTURE OF THE RUSSIAN FEDERATION
- THE MINISTRY OF NATURAL RESOURCES AND ENVIRONMENT OF THE RUSSIAN FEDERATION
- THE MINISTRY OF ECONOMIC DEVELOPMENT OF THE RUSSIAN FEDERATION

**SUPPORT FOR BIOTECHNOLOGY DEVELOPMENT**



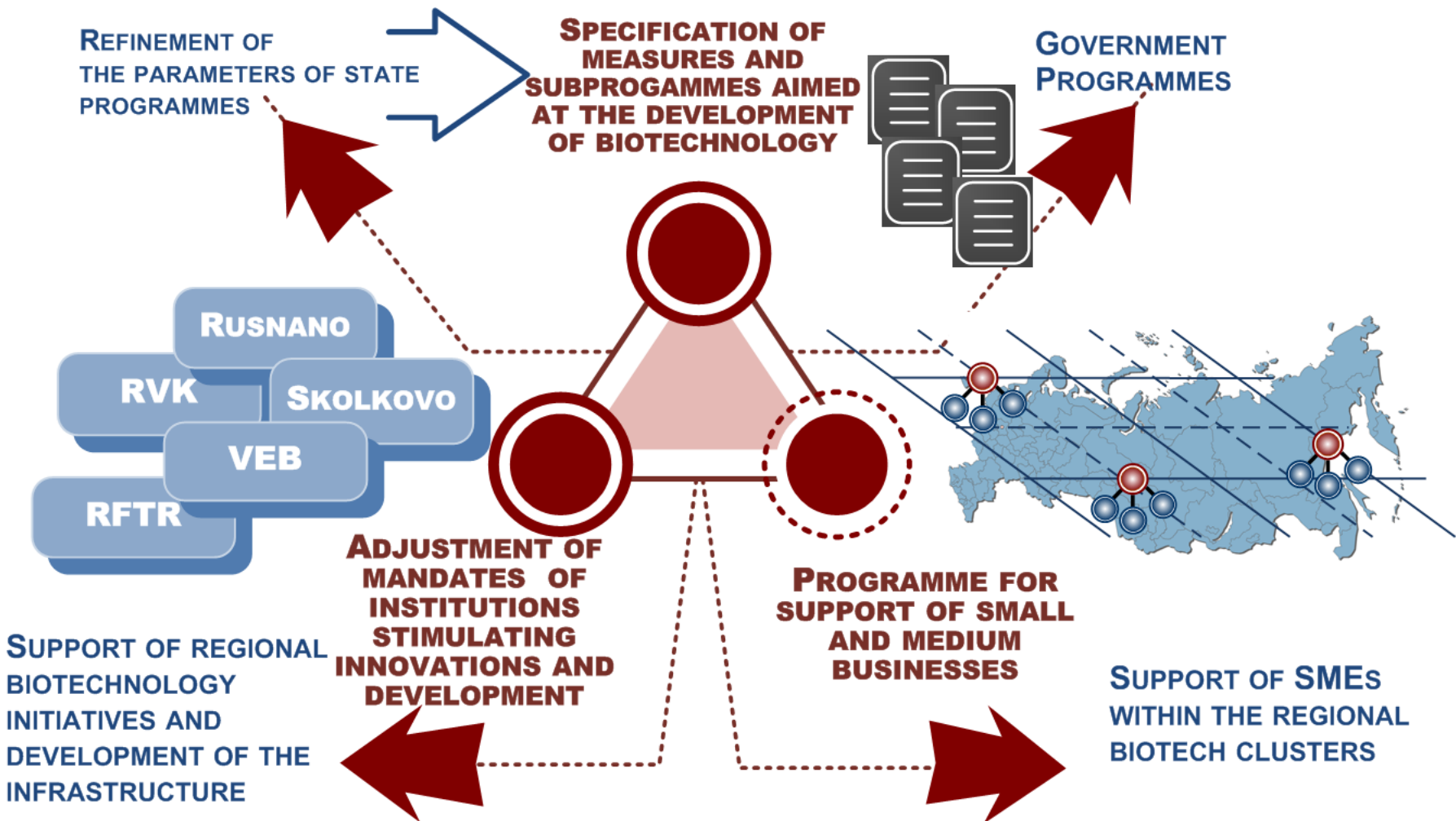
**SYNCHRONIZATION OF INSTRUMENTS AND ACTIVITIES TO PROMOTE BIOTECHNOLOGY**



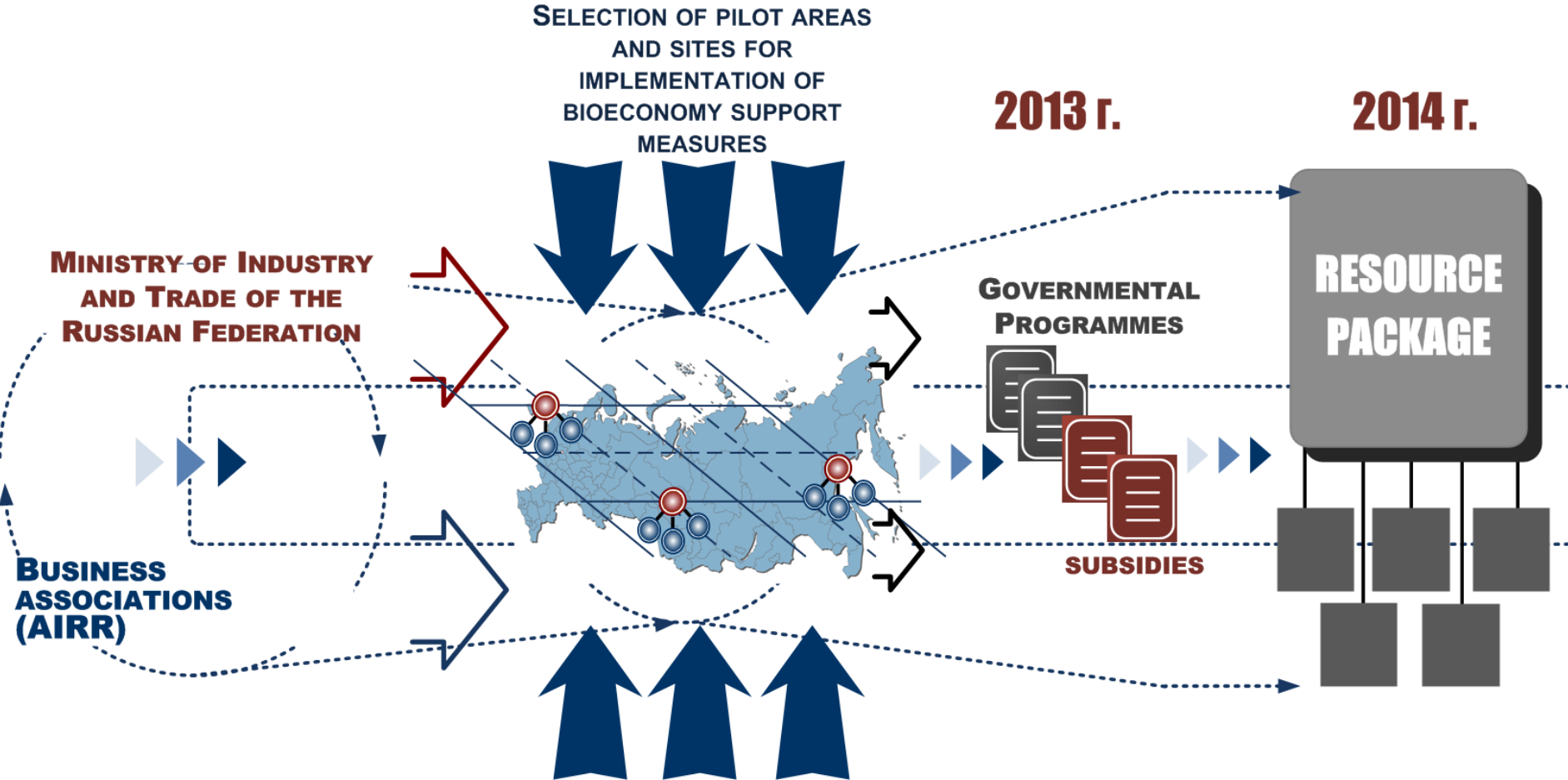
**A LIST OF INSTRUCTIONS TO THE MINISTRIES (TO DO LIST)**



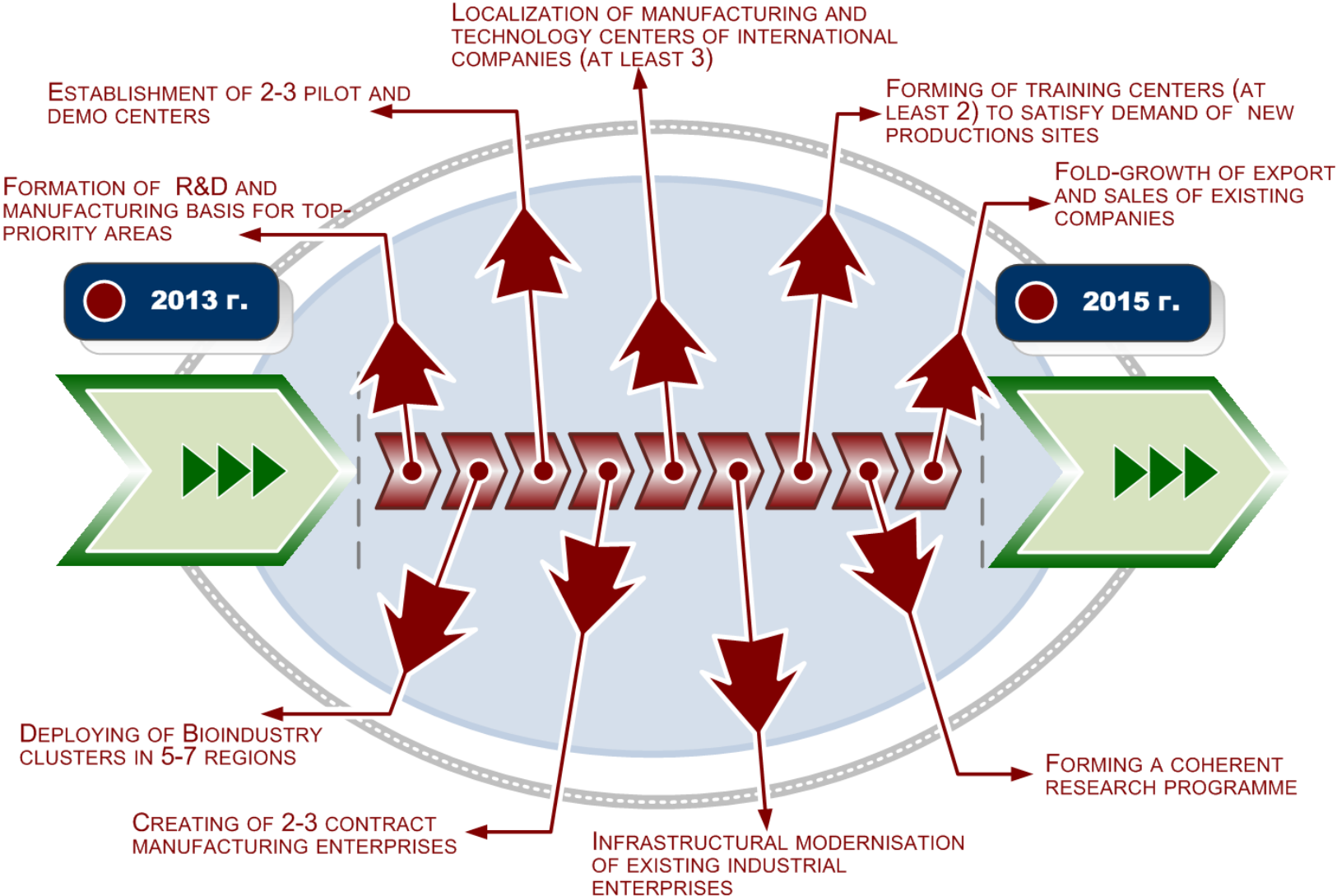
# Bio2020 implementation mode



# Next steps



# Near perspective



# Priority areas

## 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 biotechnology

- 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

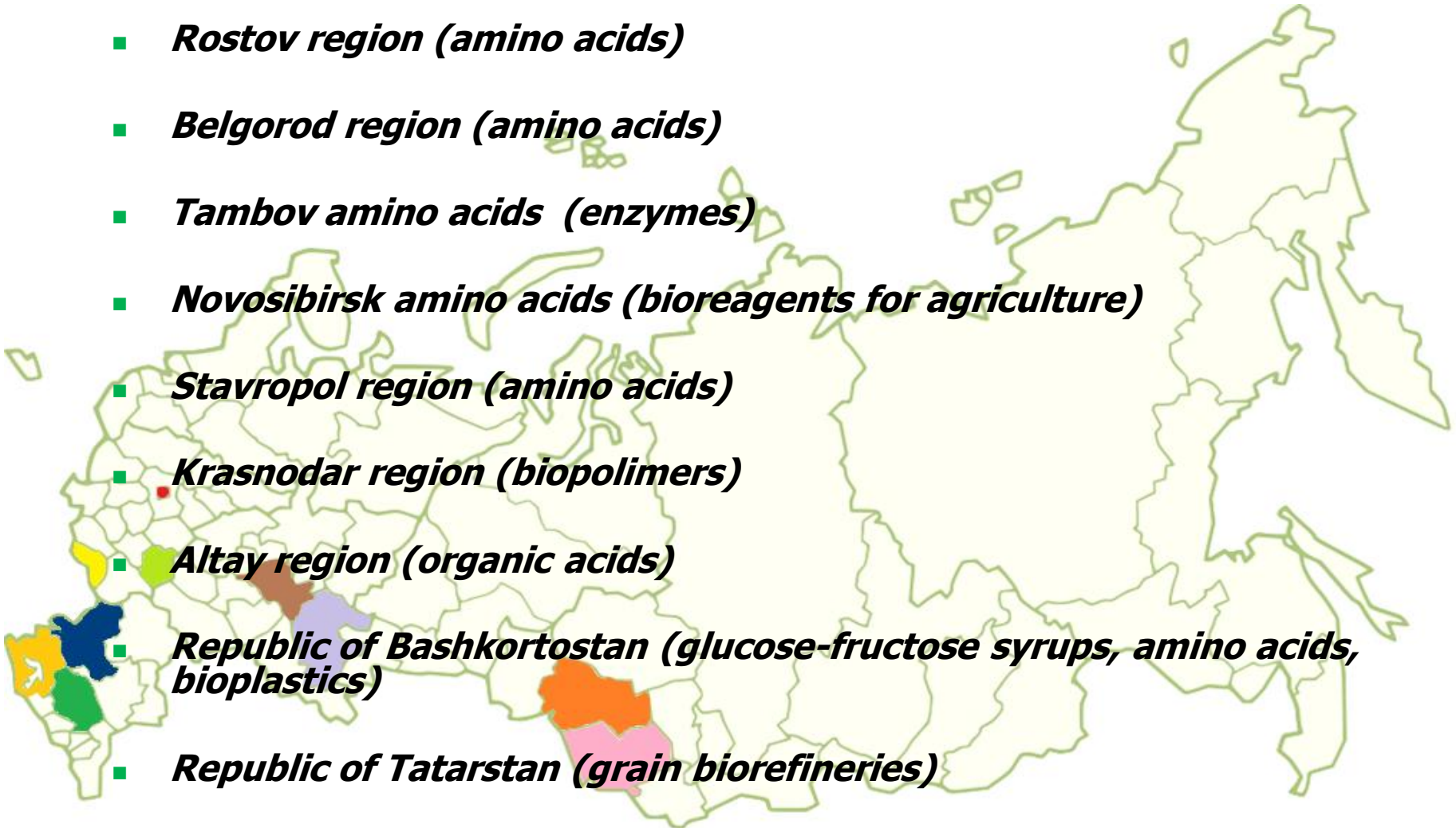
## Treatment of wastes from

- Agriculture
- Timber processing
- Food processing industry

**No biofuels**

# Regional projects

- ***Rostov region (amino acids)***
- ***Belgorod region (amino acids)***
- ***Tambov amino acids (enzymes)***
- ***Novosibirsk amino acids (bioreagents for agriculture)***
- ***Stavropol region (amino acids)***
- ***Krasnodar region (biopolimers)***
- ***Altay region (organic acids)***
- ***Republic of Bashkortostan (glucose-fructose syrups, amino acids, bioplastics)***
- ***Republic of Tatarstan (grain biorefineries)***

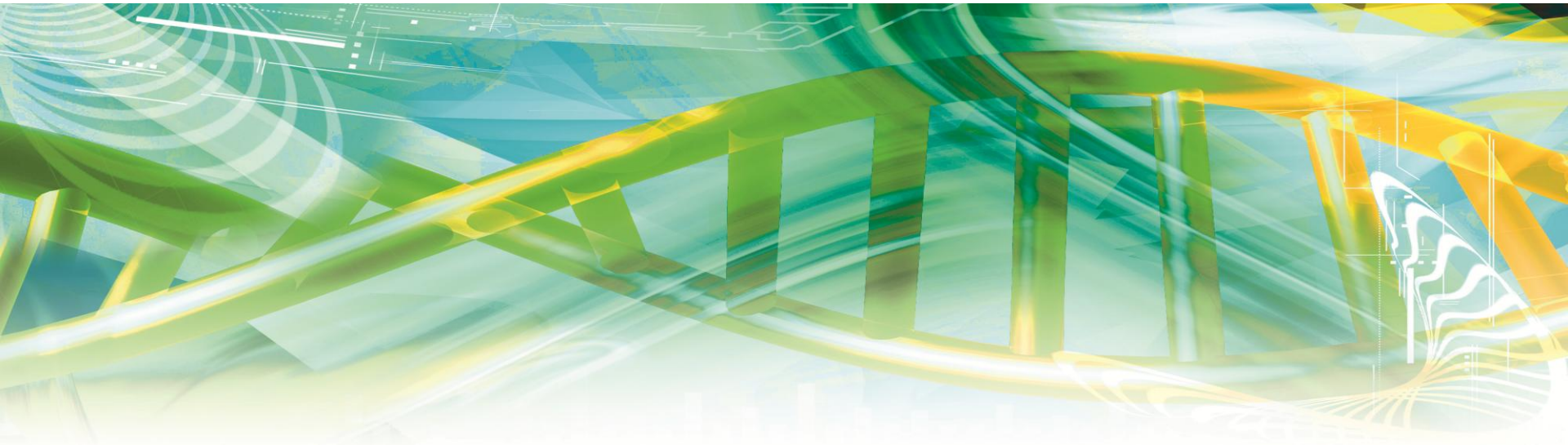


# Recent positive trends

- Excise tax on fuel ethanol will be waved
- State program on “Green chemistry and industrial biotechnology” will be drafted
- GMOs
  - Federal Assembly ordered state academies (Russian academy of agricultural sciences, Russian academy of medical sciences and Russian academy of sciences) to formulate their position concerning safety of GMO organisms
  - A WG under the Minister of agriculture to be established to oversee the GMO issues
- Ministry of education and science
  - Grants over 7 MEUR in total for 2013 to support R&D in industrial biotech
  - 50 % contribution to the demo projects with business (max 7.5 MEUR per project) can be funded

# 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
  - Bioeconomy/biotechnology are coming into focus of top decision makers
- Systematic change of the legislation required
- Creation of markets, stimulation of biotech businesses, support of infrastructure, active regional policies.
- BIO-2020 should make a transition from the “letter of intent” state to a working program deeply routed in the programs of the relevant ministries (Industry and Trade, Agriculture, Environment protection, etc.)
- 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!**

[www.biotech2030.ru](http://www.biotech2030.ru)