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Extension System of Russia: A Case Study

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Abstract

Russia, the largest country in the world by landmass, encompasses diverse geographic and climatic zones, influencing its economic and agricultural development. With a population of approximately 146 million and abundant natural resources, Russia's vast terrain includes deserts, frozen coastlines, and fertile plains. The country's agricultural sector has undergone significant transformations, particularly following the dissolution of the Soviet Union in 1991. The shift from a command economy to a market-based system led to a decade-long decline in production, investment, and yields. However, recent years have seen a resurgence, with Russia becoming a global leader in wheat and fertilizer exports, alongside robust production of oilseeds, potatoes, and livestock. Despite climatic limitations and historical economic disruptions, Russia has re-established itself as a major agricultural power on the world stage.

Keywords: Russian Federation, agriculture, wheat export, climate zones

1. Introduction

General information about Russia

Russia, formally known as the Russian Federation, comprises the north-eastern part of Eurasia. Geographically, it is the largest country in the world covering 12.6 per cent area of the entire earth and it occupies one-tenth of all land on earth. Russia divided in 11 time zones, and spreading more than 9,000 km from east to west and more than 4,000 km from north to south. Russia shares land border with 14 countries, and shares sea borders with Japan by the Sea of Okhotsk and the USA's state of Alaska across the Bering Strait. The country is wealthy in natural resources like about 120,000 rivers and two million fresh and salt lakes. Russia's population is about 146 million (2023), Moscow is capital of Russia. Russia is democratic in nature, Administratively and politically, Russia comprises 87 "subjects" including 46 provinces (oblasts), 21 republics, 9 territories (krais), 4 autonomous districts (okrugs), 1 autonomous oblast, and two federal cities, Moscow and Saint-Petersburg, which function as separate regions.

Climatic condition of Russia

Due to its large size, Landscape of Russia varies from desert to frozen coastline, tall mountains to giant marshes. Russia has a mixture of climatic zones, varying from marine climate in the farthest north-west to sharply continental climate in Siberia, and monsoon climate in the far-east. Climatic and geographic factors limit Russia's agricultural operations to about 10 per cent of its total land area, of which about 60 per cent is used for crops and the rest for pasture and meadow.

Agricultural situation of Russia

Russian agriculture is a crucial portion of the economy of the Russian Federation. The agricultural sector survived a severe transition decrement in the early 1990s as it struggled to transform from a command economy to a market economy system. Following collapse of Soviet-union in year 1991, big corporate and state farms were the backbone of Soviet agriculture had to contend with the sudden loss of state-secured marketing and economic process and a changing legal environment that created force for reorganization and restructuring. In less than 10 years, livestock inventories declined by one-half, pulling behind demand for feed grains, and the area cropped to grains dropped by 25 per cent. The use of mineral fertilizer and some other purchased inputs plummeted, driving yields down. Most farms could no longer afford to purchase new machinery and other capital investments. Following a nearly ten-year period of decline, Russian agriculture has experienced gradual ongoing improvement. The 2014 devaluation of the rouble and imposition of sanctions spurred domestic production; in 2016 Russia exceeded Soviet Russia's grain production levels, and in that year became the world's largest exporter of wheat. In the last some years Russia has emerged as a big agricultural power again, despite also facing various challenges.

2. Agriculture situation of Russia

- Russia is one of the world's largest producers and exporters of wheat, sugerbeet and barley.
- Major producer of oilseeds such as sunflower, soybeans and rapeseed.
- Potatoes are a significant staple crop in Russia, and vegetable production is also substantial.
- Cattle and dairy farming is an important sector.
- Poultry and pork production have shown significant

growth in recent years.
- World`s largest exporter of wheat and important exporter of barley and sunflower, also leading exporter of fertilizers.
- Major imports of Russia are edible fruits & nuts, peels of citrus fruits or melons and organic chemicals.

3. Agricultural situation of Russia compare to India

Particulars	Russia	India
Agriculture contribute to GDP	5.6%	18.2%
% population depends on Agriculture	5.83%	58%
Rural population in percentage	25.07	66%
Total agricultural workforce (%)	4.5%	42%
Cultivated land (sq. km)	(2,152,500)12.5%	(1790451) 53.7%
Per capita land availability	0.84 hac	0.12 hac
Food export (% of merchandise exports)	USD30 billion (9)	USD 50 billion
Food imports (% of merchandise imports)	USD 5 billion (5)	USD 32.42

4. Origin of extension system in Russia

Moscow agricultural society

A voluntary association chartered in 1819, the Moscow Agricultural Society was a forum for discussing agricultural policy. Its membership came mainly from the serf-owning nobility and included prominent Slavophiles of the 1850s. In the 1830s Finance Minister Egor Kankrin provided a small financial subsidy, but the society's main support came from its members. Its meetings, exhibitions, and publications were devoted to issues of agricultural innovation, such as new crops and species of livestock and new methods of crop rotation. Its earliest activities included a model farm (*khutor*) near Moscowand an agricultural school. After the end of serfdom in 1861, the society's focus turned to economic and administrative questions: taxation, the agricultural role of the new *zemstvo* organs of local goverment, the provision of agricultural credit, the creation of a Ministry of Agriculture.

- In 1864, Russian goverment established the Zemstvo Agricultural Bureau, which played a crucial role in the early agricultural extension efforts in Russia
- The Zemstvo system, which was a network of local self-government institutions, played a significant role in the establishment and operation of agricultural extension services in Russia.

After collapse of the soviet union in 1991 embarked on transition from centralized economy to market economy

- Russia established federal agriculture ministry in 1991
- Information consulting service -1991

5. Development of agricultural and extension policy in Russia

Year	Particular
1834	First agriculture school was established
1861	Emancipation reforms in Russia abolished serfdom led to significant change in the agriculture
1885	The first agriculture experiment station was established
1864	The Zemstvo system was introduced
1907	The Russian agricultural society was founded
1917	Collectivization and the established of state farms
1922	The All-union was institute of agriculture sciences was established to coordinate research and provide technical support
1930	The first agriculture extension service was established
1932	The All-Union agriculture exhibition opened in Moscow.
1958	The All-Union research institute extension and mechanization
1987	Agriculture policies shifted towards decentralization called Perestroika
1990-91	Information Consulting Service (ICS)
1991	Ministry of agriculture established Concept of cooperative farming gained momentum.
1999	The Division of Sustainable Agriculture Extension Service (DSAES)
1992	The state committee for agro-complex was established
1993	The federal agency for agriculture extension and cooperation Introduced market reforms and privatization
1996	The federal agency for agriculture was formed
2000	Agro-Industrial complex development strategy for 2000-2010
2004	The state agro-industrial committee was established as a successor to the federal agency for agriculture
2010	State program for the development of agriculture and regulation of agricultural products, raw materials and food market for 2013-2020
2014	Implemented measures to increase food self-sufficiency and reduce dependence on imported agri-products
2018	National project for the development of agriculture

6. Major player of extension

1. **Federal State Budgetary Scientific Institution "Russian Agricultural Center":** It is responsible for the development and implementation of scientific research projects in agriculture. The center conducts agricultural experiments, provides training and advisory services to farmers, and disseminates agricultural information.

2. **Federal State Budgetary Scientific Institution "Russian Agricultural Sciences":** This institution focuses on agricultural research and innovation. It conducts research in various fields such as crop production, livestock farming, agrochemistry, plant protection, and agricultural economics. The organization also provides advisory services to farmers and collaborates with other institutions to transfer knowledge and technologies.
3. **All-Russian Scientific Research Institute of Agricultural Economics (VNIIESH):** VNIIESH is engaged in scientific research, analysis, and forecasting in the field of agricultural economics. It provides recommendations and economic assessments to support decision-making in agriculture and rural development.
4. **Regional Agricultural Extension Services:** Each region in Russia has its own agricultural extension services that provide advisory support to farmers and rural communities. These services offer training programs, workshops, and consultations on various agricultural topics, including crop cultivation, animal husbandry, soil management, and agricultural marketing.
5. **Agricultural Universities and Research Institutes:** Russia has several agricultural universities and research institutes that play a significant role in agricultural extension. These institutions conduct research, offer degree programs in agriculture and related fields, and provide training and advisory services to farmers and agricultural professionals.
6. **Agricultural Equipment and Input Companies:** Major agricultural equipment and input companies operating in Russia often have their own extension services. These services provide technical support, training, and information on the proper use of agricultural machinery, fertilizers, pesticides, and other inputs.
7. **Non-Governmental Organizations (NGOs):** Various NGOs in Russia focus on agricultural development and extension. They work with farmers and rural communities, providing training, promoting sustainable practices, and supporting the adoption of modern technologies in agriculture.

7. Present extension system

1. **Federal and Regional Structure:** The agricultural extension system in Russia operates at both federal and regional levels. The federal government, through the Ministry of Agriculture, formulates policies and provides overall guidance for agricultural extension services. At the regional level, agricultural extension is coordinated by regional agricultura administrations.
2. **Research and Education Institutions:** Russia has several research and education institutions that play a crucial role in agricultural extension. These institutions, such as agricultural universities and research centers, conduct research, develop new technologies, and provide training programs to farmers and extension workers.
3. **State Agricultural Advisory Services:** Russia has state agricultural advisory services that provide information, advice, and technical assistance to farmers. These services are typically operated by regional agricultural administrations and aim to disseminate best practices, innovative technologies, and market information to farmers.
4. **Farmer Training and Education:** Agricultural extension in Russia focuses on farmer training and education. Extension programs offer workshops, seminars, and training sessions on various topics, including crop cultivation techniques, livestock management, agricultural machinery operation, and farm management practices.
5. **Demonstration Farms:** Demonstration farms are established to showcase modern agricultural practices and technologies. These farms serve as training centers where farmers can observe and learn from successful implementation of new techniques. They provide hands-on learning experiences and promote knowledge exchange among farmers.
6. **Information Dissemination:** Agricultural extension services in Russia use various channels to disseminate information to farmers. This includes the use of printed materials such as brochures, pamphlets, and newsletters, as well as electronic platforms such as websites, mobile applications, and social media. Radio and television programs also play a role to reaching out farmers.
7. **Collaboration with Agricultural Associations:** Agricultural extension services collaborate with agricultural associations, cooperatives, and farmer organizations to reach a broader audience. These partnerships facilitate knowledge sharing, capacity building, and joint initiatives aimed at improving agricultural practices and promoting the interests of farmers.
8. **Support for Rural Development:** The agricultural extension system in Russia recognizes the importance of rural development and provides support in areas beyond farming techniques. It includes assistance in diversifying income sources, promoting agro-tourism, fostering rural entrepreneurship, and addressing social and environmental issues related to agriculture.

8. Extension service provider in Russia

Public Institutions

Ministry of Agriculture of the Russian Federation

The Ministry of agriculture (Minselkhoj) is the national executive body responsible for drafting and implementing government policy and legal regulation in the agriculture and related industries such as livestock and fishery farming. Among several other functions, the Ministry provides state services related to agriculture with sustainable development of rural areas.

The Division of Sustainable Agriculture Extension Service (DSAES), established in 1999 by the Ministry, oversees the activity of public extension and advisory services to the farmers. Hundreds of decentralized, autonomous and semi-autonomous institutions related to agriculture and rural development based at various administrative levels, coordinate, supervise and provide the extension and advisory services in the field.

Information Consulting Service (ICS)- 1990-91
ICS was initiated within the Ministry of Agriculture with the mandate to provide farmers with the information on improved technologies, innovative projects, agri-business and marketing. ICS established their centres at administrative levels, staffed experienced by agricultural specialists from research and other organizations. For capacity building purposes, Training Consulting Centres were also established at various educational and vocational institutions. A coordination mechanism was created at regional level in the form of an ICS-Agricultural Sector Council that comprised representatives of the Ministry of Agriculture, Russian Academy of Agricultural Sciences, and regional ICS. The ICS staff was given training at the Moscow Agricultural Academy. The ICS was supported by a number of domestic and international projects that aimed at agricultural reforms and capacity building. In retrospective, the performance of the ICS remained less than satisfactory.

Agricultural research institutes
Russian Academy of Agricultural Sciences (RAAS)
The Russian Academy of Agricultural Sciences is one of the highest autonomous scientific institution in the agro-industrial complex of Russia for scientific support. The RAAS covers agricultural research and advanced agricultural education. It organizes events on scientific information and consulting, and collaborates with relevant institutions at all levels. The Academy enjoys a vast network of research institutions, designing and technological organizations, pilot and experimental farms In 2000, RAAS had under its jurisdiction 199 research institutes with each focusing on specific agricultural discipline, and 24 agricultural pilot stations, including 47 centres on plant breeding, animal breeding, and biotechnology. RAAS representatives serve on agriculture related policy and advisory bodies. Its network institutions, in addition to generating and adapting improved technologies, collaborate with the staff of extension and advisory centres in the field.

Agricultural universities, academies and colleges
Many agricultural universities are involved and in extension and advisory work under many national and donor-funded projects, and are still playing an important role in extension in terms of offering degree programs in agriculture, capacity building of extension staff, and serving in advisory role. A few examples are:

Moscow Timiry Azev Agricultural Academy (MTAA)
Operates the Federal Training Center for Extension Service Staff where extension services staff receives in-service training. The centre has several branches, which are based at various agricultural institutions such as Tver Agricultural Academy (since 1997), Omsk Agricultural University (since 1998), Buratia's Extension Center within the Buratia Agricultural Academy (since 1999), and Extension Service Center of Dmitrovsky rayons of Moscow region; and had total of 20 extension staff in 1999.

- **St. Petersburg State Agrarian University (SPSAU):** Partner Russian institution in the Russian-American Farm Privatization Project (RAFPP; 1992-1998).
- **Shushary Academy of Agribusiness Management (AAM):** Partner Russian institution in the Russian-American Farm Privatization Project (RAFPP; 1992-1998); developed a training program for new extension staff in cooperation with a World Bank project.
- **Moscow State Agricultural Engineering University:** Actively involved in Farmer-to-Farmer Program (1992-2008).

Non-Public Institution
Private agencies
Although some externally funded projects have tried to introduce the concept of private advisory services in Russia yet there is no evidence that any significant fee-based extension and advisory services are operating in the country. The extension and advisory system in Russia is still evolving and remains public and cost-free for the farmers. It may be assumed that with the passage of time, Russia might experiment with a partial or full private advisory service in certain parts of the country for certain types of producers. Some examples are given below

- **Lavka:** It is a rather unconventional, unique Russian company that takes orders for fresh food items produced by local farmers, and supplies it at doorsteps of the customers. Orders may be placed for meat, poultry, fish, seafood, dairy products, and other items like jams, pickles, vegetables, fruits, etc.
- **Rostselmash:** A Russian company dealing in agricultural equipment; founded in 1929; based in Rostov-on-Don; became fully privatized in 2000; produces combine harvesters.
- **Razgulay Group:** One of the biggest agribusiness Russian group companies; based in Moscow; trades internationally through subsidiaries in grain and grain products including raw sugar, sugar beet, and milk; its subsidiary Razgulay-Agro Company manages agricultural assets of the Group, invest in expansion of land, purchases agricultural equipment and introduces advanced crop production technologies.
- **Black Earth Farming:** A public, invest-run agricultural business company founded in 2005; based in Russia, with the goal of acquiring cheap, neglected but fertile land in the fertile Black Earth regions of Russia.
- **PhosAgro:** A Russian accompany based in Moscow; founded in 2003; produces fertilizer, phosphates and feed phosphates.
- **Prodimex:** A giant agricultural company in Russia that produces white sugar from sugar beets and sugar cane; also deals in beef pulp as animal fodder additive; has several enterprises in Russia; and enjoys international businesses.

Non-governmental organizations
There are several NGOs that work in Russia. Here are a some examples:

1. **Rural Development Foundation (RDF):** RDF focuses on promoting sustainable agriculture practices, rural development, and providing training and extension services to farmers in Russia. They work to enhance agricultural productivity, improve income generation, and support small-scale farmers.

2. **Agroconsulting and Expertise Center (ACE):** ACE is a non-profit organization that provides agricultural consulting and expertise to farmers, agribusinesses, and rural communities in Russia. They offer training programs, technical assistance, and advisory services to enhance agricultural productivity and rural development.
3. **Russian Association of Indigenous Peoples of the North (RAIPON):** RAIPON represents the interests of indigenous communities in Russia, including those involved in traditional agriculture and reindeer herding. They work to protect indigenous rights, preserve traditional knowledge, and promote sustainable agriculture practices among indigenous communities.
4. **Russian Association of Agricultural Extension Workers (RAAEW):** RAAEW is an organization that brings together agricultural extension professionals in Russia. They promote knowledge exchange, capacity building, and the development of extension services in the country. RAAEW organizes conferences, seminars, and training programs to enhance the skills of agricultural extension workers.
5. **All-Russian Public Organization "Greenhouses of Russia" (GRO):** GRO is an NGO that focuses on promoting greenhouse farming and supporting small-scale greenhouse growers in Russia. They provide technical assistance, training, and advocacy services to improve the efficiency and sustainability of greenhouse agriculture in the country.

Farmers-based associations, cooperatives and societies

Farmers' associations and cooperatives, in case of Russia, but the extent to which they succeed varies and, in many cases, not that encouraging if we compared with India. The number of farmers' associations in Russia does not seem to be large. No association can be genuinely called as an extension and advisory services provider, but some associations are involved in consulting and information dissemination activities. Names of a few associations are as follows:

- Russian Association of Rural and Farm Enterprises and Agricultural Cooperatives (AKKOR) Probably the largest association; goals include development of farmer self-management; communication and cooperation with public authorities to protect members' interests; development of agricultural consumers' cooperative societies; information and consulting services; and economic development of small share holders in collaboration with relevant commercial companies.
- Association of Farmers' Households and Russian Agricultural Cooperatives
- All-Russian Association of Fish Breeders, Entrepreneurs and Exporters Cooperative Development Program (CDP)

International support

Several projects were initiated to establish and strengthen agricultural extension services in Russia. A few key examples are presented below.

Russian-American Farm Privatization Project (RAFPP; 1992-1998)

The RAFPP's goal was to develop a research and demonstration farm as a focal point, centrally located in an area surrounded by selected families who would, with mentoring from U.S. farm families, begin developing private farms. This demonstration farm of 850 hectares was set up in the rural north-west Russia involving 23 Russian families each of which was to develop a 50-60 hectare private farm. The mentor American farm families lived for a period of 18 to 30 months at the research and demonstration farm, and assisted the Russian farm families with individual consultations on agricultural issues, organized educational programs, and also conducted crops and livestock research and demonstrations applicable to small farms.

Farmer-to-Farmer Program (F2F)

ACDI/VOCA, a U.S. consulting company, implemented the USAID-funded F2F Program in Russia from 1992 to 2008. Under this program, short-term volunteer consultants advised Russian farmers on technology transfer, quality control, product diversity, business strategy and human resources management, among other agribusiness issues. They also helped Russian agribusinesses develop over 631 new bakeries, dairy and meat products and support services including farm extension services. The program forged lasting partnership between the Moscow State Agricultural Engineering University and several U.S. universities including Pennsylvania State University and the University of Maryland.

Academic Network for Agricultural Extension in the Russian Federation (2003-2007)

This project was funded by the European Commission, and was implemented by University of Hohenheim (Germany). It had the following four objectives:

a) Promote the development of Russian agriculture.
b) Provide an opportunity to young consultants and managers of Russian Extension Service to gain new knowledge and skills in consulting.
c) Increase the quality of the teaching process by dissemination and introduction of updated teaching approaches, develop and adapt teaching materials, renew and upgrade syllabi, manuals, etc.
d) Establish new departments/chairs in Russian agrarian universities combined into a network which will provide training and continuously develop methodology for agricultural extension with long term perspective.

9. Training options for extension professionals

For pre-service training, prospective extension professionals may pursue degree programs in various agricultural disciplines in any of the agricultural universities, agricultural colleges and agricultural academies mentioned earlier in another section. For lower level training, vocational training centres and technical schools and colleges may be contacted as they are located throughout Russia and offer a large variety of training courses in practical skills.

For in-service training, extension staff may contact the following institutions according to their specific needs:

- Federal Training Center for Extension Service Staff; located in the Moscow Timiry Azev Agricultural Academy (MTAA).
- Agricultural universities, mentioned earlier
- Agricultural colleges, mentioned earlier
- Agricultural academies, mentioned earlier
- Agricultural research institutes that have specialized technical and commodity-focused programs.
- Vocational schools, vocational colleges and technical colleges

10. Extension method used in Russia

Field Demonstrations: Field demonstrations involve on-site practical sessions where extension workers showcase innovative agricultural techniques, equipment, and technologies. Farmers have the opportunity to observe and learn firsthand the implementation of these methods, fostering knowledge transfer and skill development.

Farmer Field Schools: Farmer Field Schools (FFS) are interactive learning platforms where farmers gather in a field or classroom setting to gain practical knowledge and skills. Trained extension personnel facilitate discussions, conduct hands-on activities, and address specific agricultural challenges faced by farmers. FFS encourage peer learning and participatory approaches.

Workshops and Training Programs: Workshops and training programs are organized by agricultural extension services to educate farmers on specific topics, ranging from crop cultivation techniques to livestock management practices. These sessions involve presentations, discussions, and practical exercises to enhance farmers' understanding and application of the knowledge shared.

Advisory Services: Agricultural extension services provide advisory support to farmers through one-on-one consultations or group discussions. Extension agents offer personalized advice, answer queries, and provide technical assistance tailored to the specific needs and circumstances of individual farmers or farming communities.

Information Materials: Printed materials such as brochures, pamphlets, manuals, and newsletters are widely used to disseminate agricultural information in Russia. These materials cover a range of topics, including crop cultivation, pest and disease management, animal husbandry, and farm management practices. They serve as handy references for farmers.

Digital Platforms: With the advancement of technology, digital platforms play an increasing role in agricultural extension in Russia. Websites, mobile applications, and social media channels are utilized to share information, provide updates, and engage with farmers. These platforms offer convenience, wider reach, and real-time interaction.

Participatory Research and Extension: Participatory approaches involve active involvement of farmers in research and extension activities. Farmers are engaged as partners in the development and testing of new technologies, as well as in the evaluation and adaptation of existing practices. This collaborative approach enhances farmers' ownership and encourages knowledge co-creation.

Study Tours and Exchange Programs: Study tours and exchange programs are organized to expose farmers and extension workers to successful agricultural practices in different regions or countries. These initiatives provide opportunities to learn from the experiences of others, exchange ideas, and establish networks for future collaboration.

11. Positive aspects of Russian extension system

Knowledge transfer: Agricultural extension services in Russia facilitate the transfer of knowledge, information, and best practices to farmers. They provide farmers with up-to-date information on modern farming techniques, technologies, and innovations, enabling them to improve their productivity and efficiency.

Technical assistance: Extension services offer technical assistance to farmers, helping them address specific challenges they face in their agricultural practices. They provide guidance on soil management, crop selection, pest and disease control, irrigation methods, and livestock management, among other areas. This assistance helps farmers make informed decisions and optimize their agricultural processes.

Training and education: Agricultural extension programs in Russia conduct training sessions, workshops, and educational programs to enhance the skills and knowledge of farmers. These programs cover a wide range of topics, including new farming techniques, sustainable agriculture practices, agribusiness management, and market trends. By acquiring new skills and knowledge, farmers can improve their agricultural practices and adapt to changing market demands.

Research and development: Agricultural extension services often collaborate with research institutions and universities to promote applied research and development in agriculture. They help disseminate the findings and innovations generated by research institutions, ensuring that farmers have access to the latest scientific advancements and technologies. This collaboration fosters agricultural innovation and improves productivity in the sector.

Market access and value chain development: Extension services assist farmers in accessing markets and developing strong value chains. They provide guidance on market trends, product quality standards, packaging, and marketing strategies. By connecting farmers with buyers, processors, and distributors, agricultural extension services contribute to the development of robust and efficient agricultural value chains, enabling farmers to obtain fair prices for their products.

Rural development and community empowerment: Agricultural extension services in Russia often extend beyond technical assistance to promote overall rural development and community empowerment. They support the establishment of farmer cooperatives, women's groups,

and youth associations, fostering entrepreneurship and collective action. These initiatives contribute to poverty alleviation, job creation, and the overall well-being of rural communities.

Sustainable agriculture promotion: With increasing focus on sustainability, agricultural extension services in Russia actively promote sustainable agricultural practices. They encourage farmers to adopt environmentally friendly approaches such as organic farming, conservation agriculture, and integrated pest management. By promoting sustainable practices, extension services contribute to the preservation of natural resources, biodiversity, and the long-term viability of agriculture.

12. Negative aspects of Russian extension

Increased Funding: Adequate financial support should be allocated to agricultural extension services to ensure they have the necessary resources for infrastructure development, training programs, technology adoption, and outreach activities. Increased funding can help expand the coverage of extension services, particularly in remote and rural areas.

Modernization and Technological Adoption: Agricultural extension services should actively promote the adoption of modern farming techniques, technologies, and best practices. This includes providing information and training on precision agriculture, smart farming technologies, efficient irrigation systems, and sustainable farming methods. Collaboration with research institutions and private sector organizations can facilitate the dissemination of up-to-date knowledge and technological advancements.

Tailored Approaches: Extension services should tailor their programs and interventions to suit the specific needs, challenges, and opportunities of different regions and farming systems in Russia. This can be achieved through comprehensive needs assessments, participatory approaches, and involving local farmers, agricultural cooperatives, and community organizations in the planning and implementation of extension activities.

Strengthened Training and Capacity Building: Continuous professional development and training programs should be provided to extension workers to enhance their knowledge, skills, and ability to address the evolving needs of farmers. Training should cover topics such as sustainable agriculture, climate-smart practices, farm management, market access, and entrepreneurship. Collaboration with agricultural universities and research institutions can contribute to the delivery of quality training programs.

Improved Communication and Information Dissemination: Extension services should leverage modern communication technologies, such as mobile applications, online platforms, and social media, to reach a wider audience and disseminate timely and relevant information. Accessible and user-friendly platforms can provide farmers with access to agricultural resources, market information, weather updates, and expert advice.

Emphasis on Sustainable Practices: Agricultural extension services should prioritize promoting sustainable farming practices, including organic farming, agroforestry, soil conservation, water management, and biodiversity conservation. Extension programs can educate farmers about the long-term benefits of sustainable agriculture, environmental stewardship, and resilience to climate change.

Streamlined Administrative Processes: Simplifying bureaucratic procedures and reducing administrative complexities can enhance the efficiency of extension services. This includes minimizing paperwork, expediting approval processes, and creating a conducive environment for innovation and collaboration among extension workers, farmers, and relevant stakeholders.

13. Suggested changes and way forward

To address the negative aspects and enhance the effectiveness of agricultural extension services in Russia, several improvements and changes could be considered:

Increased Funding: Adequate financial support should be allocated to agricultural extension services to ensure they have the necessary resources for infrastructure development, training programs, technology adoption, and outreach activities. Increased funding can help expand the coverage of extension services, particularly in remote and rural areas.

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Streamlined Administrative Processes: Simplifying bureaucratic procedures and reducing administrative complexities can enhance the efficiency of extension services. This includes minimizing paperwork, expediting approval processes, and creating a conducive environment for innovation and collaboration among extension workers, farmers, and relevant stakeholders.

By implementing these suggested changes, agricultural extension services in Russia can be better equipped to address the needs of farmers, enhance agricultural productivity, promote sustainable practices, and contribute to the overall development of the agricultural sector.

14. Russian extension comparison with India

The extension systems of Russia and India have some similarities but also notable differences. Here is a comparison of the extension systems in both countries:

Particulars	Russia	India
Organizational Structure	The agricultural extension system in Russia is primarily implemented through the Federal State Budgetary Institution called "Rosselkhoztsentr," which operates at the federal, regional, and local levels. It provides agricultural advisory services, training, and technical support to farmers.	India has a decentralized extension system with multiple organizations involved. The Department of Agriculture and Cooperation, State Agricultural Departments, Krishi Vigyan Kendras (KVKs), and Non-Governmental Organizations (NGOs) play significant roles in agricultural extension. KVKs serve as knowledge and resource centers at the district level.
Coverage and Reach	The extension system in Russia faces challenges in reaching farmers in remote and rural areas due to vast geographical expanses. The coverage may be limited, and access to extension services can be challenging for farmers in such areas.	India's extension system has a more extensive reach, catering to a vast and diverse agricultural population. It includes a network of KVKs, agricultural universities, and NGOs that provide advisory services, training, and technology dissemination to farmers across different states and regions.
Focus and Emphasis	The Russian extension system focuses on providing technical support, training, and information to farmers, with an emphasis on improving agricultural production, productivity, and efficiency. There has been an increasing emphasis on sustainable practices and modern technologies in recent years. their specific needs.	The Indian extension system emphasizes a holistic approach, encompassing multiple aspects of agriculture, such as crop production, livestock management, horticulture, and fisheries. It also focuses on rural development, income generation, social empowerment, and sustainable livelihoods. There is a strong emphasis on smallholder farmers and addressing
Extension Methods and Approaches	The extension system in Russia primarily relies on traditional approaches, such as farm visits, training workshops, demonstrations, and agricultural exhibitions. There is an increasing emphasis on incorporating digital technologies and online platforms for information dissemination.	The extension system in India employs a mix of traditional and innovative methods. Besides farm visits and demonstrations, it utilizes ICT tools, farmer helplines, mobile applications, and community-based approaches. KVKs play a significant role in technology demonstration and on-farm trials.
Private Sector Engagement	Russia: Private sector involvement in the Russian extension system is relatively limited, with the primary responsibility lying with government institutions. However, there is increasing recognition of the importance of private sector engagement for technology dissemination and market linkages.	The Indian extension system actively involves the private sector through public-private partnerships, contract farming models, and collaborations with agribusinesses. Private companies play a significant role in technology transfer, seed supply, and market linkages.

Conclusion

The agricultural extension system in Russia plays a vital role in supporting farmers through knowledge transfer, technical assistance, and training programs. It operates through federal and regional structures, research institutions, and advisory services, focusing on modernizing agriculture and promoting sustainable practices. Despite challenges such as limited funding, bureaucratic inefficiencies, and uneven rural outreach, Russia has made progress in wheat production, export growth, and technological adoption. The system emphasizes field demonstrations, farmer training, and digital platforms for information dissemination. However, compared to India, Russia's
extension services are more centralized, with less private sector involvement and weaker farmer associations. To improve, Russia should increase funding, enhance digital outreach, and adopt region-specific strategies. Strengthening collaborations with research institutions and private enterprises can further boost efficiency and innovation in the agricultural sector. Overall, Russia's extension system has potential but requires reforms to better serve its diverse farming communities.

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