



Food and Agriculture
Organization of the
United Nations



**FAO-CHINA
SOUTH-SOUTH COOPERATION
PROGRAMME**

**Improving agrifood
systems in Mongolia:**
Working together for greater
agricultural productivity



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Foreword

Sustainable agricultural development lies at the very heart of FAO's mission to achieve food security and ensure that people everywhere have regular access to enough high-quality food to lead active and healthy lives.

Agrifood systems are driven by the men and women whose daily lives are dedicated to working on the land and on waters and to managing food systems. Their skills, toil and years of accumulated experience are the backbone of food systems – they propel communities and countries. The efforts of agricultural workers represent a vital force moving us towards achieving the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda for Sustainable Development.

South-South exchanges are a key means to support and develop these efforts and are particularly needed in developing countries. Most countries in the global South face a range of challenges in achieving the SDGs, including SDG1 *No poverty* and SDG2 *Zero hunger*, and these challenges are increasing in the wake of threats to food security and nutrition caused by the Covid-19 pandemic. Nevertheless, these countries are also reservoirs of home-grown development solutions in the areas of agriculture and food security that could be further replicated and scaled up through South-South and triangular cooperation (SSTC).

The People's Republic of China has been one of FAO's main partners in the promotion of SSTC. Since 2009, when FAO and China jointly established the FAO-China South-South cooperation (SSC) Programme, the Government of China has donated a trust fund of USD 130 million to improve food security and promote sustainable agriculture in developing countries. The past 12 years under the Programme have seen numerous SSC projects and activities successfully implemented in countries across Africa, Latin America and the Caribbean and Asia, contributing to the transformation of agrifood systems through increased agricultural productivity and profitability and improved value chains and investments. Thanks to these projects and activities, hundreds of thousands of farmers have improved their farming techniques, acquired high-yield animal and crop varieties, raised their incomes and enhanced their livelihoods.

Behind these impressive figures are thousands of individual lives. It is important to tell these stories to provide a look at the tangible changes that SSC is bringing and to further drive this work by advocating for enhanced support and partnerships. This publication focuses on the experiences of participants in the FAO-China SSC Project in Mongolia and presents its outstanding achievements. You will hear from the livestock farmers, produce growers and many other stakeholders involved in the agriculture sector of Mongolia, whose stories convey the inclusive, innovative and inspirational impacts of SSC.

My sincere hope is that these stories will ignite further dialogue and interest in this initiative, spurring further research and analysis of SSTC and allowing us to draw key lessons. Our commitment is to continue to evolve in even more effective and impactful ways, serving a greater number of people and extending our reach to promote better production, better nutrition, a better environment and a better life – leaving no one behind.



Beth Bechdol

Deputy Director-General, FAO

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Xiao Liang provided technical guidance and oversaw preparation of the report. Debel Gutta managed the conceptualization of the report and coordinated its write-up and publication. The report received inputs from Lijin Zhou, Tingting Li and Michela Baratelli.

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Abbreviations and acronyms

ASF	Agriculture Support Fund
FAO	Food and Agriculture Organization of the United Nations
MARA	Ministry of Agriculture and Rural Affairs
MBA	Mongolian Beekeepers Association
MGFA	Mongolian Greenhouse Farmers Association
MOFALI	Ministry of Food, Agriculture and Light Industry
NAEC	National Agricultural Extension Centre
NMLP	National Mongolian Livestock Programme
NPFS	National Programme for Food Security
SDG	Sustainable Development Goal
SSC	South-South cooperation
SSTC	South-South and triangular cooperation

Greenhouse, Manlai Uurgach family farm,
Erdene soum, Tuv province





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Introduction

FAO-CHINA SSC PROJECT IN MONGOLIA

South-South cooperation in FAO

For more than 40 years, the Food and Agriculture Organization of the United Nations (FAO) has been at the forefront of South-South and triangular cooperation (SSTC). The organization's neutrality and convening power, as well as its specific operational characteristics, position it as an effective broker, advocate and facilitator of SSTC. The comparative advantages of FAO in enabling SSTC include a decentralized structure and extensive country-level presence, a strong knowledge base, access to a broad range of expertise and an emphasis on medium- to long-term capacity development.

Drawing on these comparative advantages and its broader mandate, FAO supports SSTC by:

Facilitating dialogue between diverse groups of actors to reach consensuses and coordinate policies, strategies and programmes for SSTC;

Providing a framework for cooperation within which exchanges take place and ensuring that cooperating partners (countries, host institutions, etc.) adhere to mutual commitments;

Offering technical oversight in adapting knowledge and technology to local conditions, and ensuring all programmes and projects adhere to international standards;

Brokering knowledge, including through mapping, documenting and disseminating of agricultural solutions and technologies across countries and regions; and

Forging inclusive partnerships with southern and northern countries, institutions and actors to mobilize technical, financial and in-kind resources for SSTC initiatives.



Artificial Insemination Training
organized by SSC experts,
Darkhan province.

South-South cooperation an effective mechanism for sustainable agrifood systems transformations

South-South cooperation (SSC) is a framework that enables developing countries to share and exchange practical knowledge, experience, resources and technology to address common development challenges.

This mechanism has been effective in the areas of agriculture and food security, supporting sustainable agricultural development and food systems by spurring innovation and economic activities, creating employment, stimulating entrepreneurship and fostering self-reliance among developing countries.

FAO-China South-South cooperation Programme

The FAO-China South-South cooperation (SSC) Programme is the result of a strategic engagement between FAO and the People's Republic of China (hereinafter referred to as China). The Programme was established in 2009 with an initial trust fund of USD 30 million from China to help improve food security and promote sustainable agriculture in developing countries. Following the successful achievements of the first phase, China contributed an additional USD 50 million to Phase II of the trust fund. In 2020, China committed a further USD 50 million for Phase III.

Underpinned by the SSC principles of mutual trust, equality, inclusion and shared benefits, the FAO-China SSC Programme focuses on sustainable agricultural production, increasing productivity and improving farmers' livelihoods. It seeks to achieve structural transformation of agriculture by building the human and institutional capacity to implement national development strategies.

China is well positioned as a cooperating partner in this type of exchange, with extensive technological knowledge, especially in relation to the sustainable intensification of agriculture. China has a wide range of experience and expertise in developing agricultural value chains and promoting related business models and public-private partnership agreements.

A core principle of SSC activities under the Programme is the promotion of symbiotic relationships between China and a host country. This is achieved by means of a human-centred approach, which sees Chinese experts work in host communities and farms on long-term assignments (between one and three years). The Programme provides specific, on-the-ground solutions that address production challenges, fill capacity needs, respond to gaps in resources and are tailored to local contexts.

Experts work hand-in-hand with local farmers to develop activities across a wide spectrum of agricultural activities, including cereal production, animal husbandry, horticulture, fisheries and aquaculture, rural energy, post-harvest techniques, beekeeping, irrigation, mechanization, and water and soil management and conservation. The use of innovative technologies and scalable and adaptable solutions is geared towards enhancing productivity, developing sustainable value chains and boosting local village economies by strengthening links with national markets.

In parallel with the direct community-level interventions and on-farm demonstrations, in-country training courses, seminars, workshops and study tours to China are carried out to boost capacities at institutional and policy levels. The Programme's broad and inclusive approach is designed to foster robust and equal partnerships and is driven by a shared sense of ownership, ensuring benefits reach farmers, women and rural youth, as well as governmental and non-governmental partners.

There are numerous global, interregional, regional and national projects implemented under the FAO-China SSC Programme. The FAO-China SSC Project in Mongolia was implemented between 2010 and 2016. This report presents the context and key achievements, as well as the technological, economic and social impacts on the ground of this significant agricultural development exchange between the two countries.

FAO-China SSC Programme and the 2030 Agenda for Sustainable Development

Aiming for the “four betters”

The FAO-China SSC Programme is closely linked with FAO's corporate priorities and flagship initiatives such as the Hand-in-Hand initiative, and supports implementation of the Organization's Strategic Framework 2022–2031.

The Programme serves as a catalyst for innovation, knowledge and solutions, finance and investment from public and private sector entities in order to scale-up impact, and contributes to the realization of the 2030 Agenda and the Sustainable Development Goals (SDGs),

especially *No poverty* (SDG1) and *Zero hunger* (SDG2), through more efficient, inclusive, resilient and sustainable agrifood systems for **better production, better nutrition, a better environment** and a **better life** – leaving no one behind.



FAO-China South-South cooperation Project in Mongolia (2010–2016)

Project background: food security in Mongolia

Located in Central Asia, Mongolia's land surface stretches over 1 566 500 km². With a growing population of approximately 3.3 million people in 2021, it is the 18th largest and the most sparsely populated fully sovereign country in the world.

Land-locked and far from the sea, for centuries the vast grazing lands and grassy steppe of Mongolia have been a heartland of nomadic animal husbandry. About 73 percent of agricultural land is pastureland used for extensive livestock-raising, while only 1 percent of arable land is cultivated for crops.

Agriculture is deeply engrained in the country's economy and culture. At the time of the SSC Project, the sector employed approximately 35 percent of the total labour force, and 70 percent in rural areas. Agriculture in Mongolia – including livestock, forestry and fisheries – constitutes approximately 20 percent of the country's gross domestic product. Livestock alone accounts for over half of this, and, as such, represents a vital source of employment and export revenue, with the number of people dependent on meat production as a source of income and nutrition rising together with increased export and meat consumption.

Food production in Mongolia has been shaped by the country's geography, and in particular its climate, among other factors. Temperatures range from as low as minus 45°C on the steppe in winter to plus 45°C in the Gobi Desert in summer, and these extreme environmental conditions mean that the timing and methods involved in performing many animal and crop production tasks are bound to the vagaries of the climate and weather.

The summer growing period is short (100–120 days) and produces mostly winter vegetables, such as

potatoes and carrots. The standard crop cycle is based on unprotected cultivation, and sharp falls in temperature and unseasonal frosts can cause harvest losses of between 10 and 30 percent. With increasingly erratic weather conditions brought about by climate change, droughts and dzuds (a dzud is a very harsh winter preceded by a hot, dry summer) are becoming more frequent and severe. These can lead to large-scale livestock deaths, with droughts severely affecting national crop production.

Such conditions have negative impacts on dietary diversity and nutrition in the country, as well as on the livelihoods of many people. This context of instability and insufficiency of supply to the market has led to disparities in food consumption between rural and urban populations and heavy reliance on imported fruit and vegetables, leading to imbalanced diets and high levels of malnutrition.

Addressing food production challenges: the Mongolian National Programme for Food Security

To address the challenges in the agriculture sector, in 2009 the Government of Mongolia launched the National Programme for Food Security (NPFS) for the period 2009–2016. The NPFS was a multi-sectoral programme aimed at enhancing agricultural production in support of national and household food security. Its main objective was to provide the entire nation with secure supplies of accessible, nutritious and safe food to enable healthy livelihoods and high labour productivity, by improving water control, intensifying and diversifying production (such as greenhouse crops and livestock production) and promoting better food storage, food safety and marketing.

A special focus of the NPFS was the enabling environment; including legislation, policy, consumer education, capacity-building and needs-based vocational training, financing essential investments and oversight.

Activating the NPFS in Mongolia with the FAO-China SSC Project

The FAO-China SSC Project in Mongolia was the first national project implemented in Asia under the FAO-China SSC Programme. The project provided critical support for implementation of the NPFS and other policies (see Boxes 3 and 4) aimed at improving agricultural production, food security and nutrition in Mongolia.

Underpinned by the strong commitment of China and the engagement of the Government of Mongolia, the Project's objectives were aligned with the major areas of the NPFS in Mongolia: to intensify production, produce off-season and ensure a more regular year-round supply to the market. The approach addressed the

limited technical capacities that were impeding the country's ability to implement policies and programmes to improve agricultural and livestock production and productivity.

Between 2010 and 2016, 33 Chinese experts spent three-year periods on agricultural sites throughout Mongolia. The SSC initiative drew on expertise from the Inner Mongolia Autonomous Region of China (hereinafter referred to as Inner Mongolia), a region bordering Mongolia where the similarities in language, culture and agro-ecological conditions provided the basis for a successful partnership.

The emphasis of SSC activities in Mongolia was to share knowledge and experiences in improving national food security, building resilience and adapting to climate change. Visiting experts provided support and technical assistance in the areas of livestock production, crop production, food safety, wholesale trade and extension services to private individual farms, non-governmental organizations and government agencies. The primary beneficiaries of these exchanges were small farmers and consumers.

"The Third Crop Campaign" (Crop-III) (2008–2010)

In 2008, the Government of Mongolia launched national "The Third Crop Campaign" programme (Crop-III) to revive the crop production sector, setting objectives to attain self-sufficiency in wheat, potatoes and vegetables through domestic production, to renovate agricultural machinery and to educate the new generation of national agricultural specialists and skilled technicians. A principle was set to maintain ecological equilibrium through the rehabilitation of previously utilized lands and to implement Crop-III through the direct participation of citizens and private sector business entities in improving the legal environment and increasing the tenure of land.

National Mongolia Livestock Programme (2010–2021)

In 2010, the Government of Mongolia approved the National Livestock Programme (NMLP), to address poverty in the herding sector, to protect and recover pasture lands and to develop a modern and sustainable livestock industry. The priorities of this included formulating a legal, economic and institutional framework for sustainable development and good governance in the livestock sector; improving animal breeding services; raising veterinary service standards and protecting public health by securing Mongolian livestock health; developing ecologically sustainable livestock production methods; and developing targeted markets for livestock and to increase economic turnover.

Irrigated sea buckthorn field, Kharkhorin LLC,
Kharkhorin soum, Uvurkhangai province



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SSC Project implementation on the ground

FAO-CHINA SSC PROJECT IN MONGOLIA

Implemented over two phases (Phase I and Phase II), **the first phase of the FAO-China SSC Project in Mongolia was launched in 2010** with a budget of USD 1 379 872 (Phase I) provided by the Government of China. Following the successes of Phase I, the Mongolian Government requested a follow-up to be implemented in the country. Based on the achievements and lessons learned from the first phase, and following field visits and consultations between China, Mongolia and FAO, **Phase II was launched in 2014** with a budget of USD 999,294 from the Government of China. **Project implementation, monitoring and coordination was conducted by the Government of Mongolia through its Ministry of Food, Agriculture and Light Industry (MOFALI)**, in collaboration with the SSC China Team and the National Project Manager for SSC of the FAO Office in Mongolia.

In **Phase I**, MOFALI **identified the participating host units engaged in the activities related to agricultural production and areas of the NPFS**. Work plans for each area were developed based on specific needs and in close cooperation with the host units and SSC experts. Between 2010 and 2013, a total of 19 Chinese SSC experts provided support and technical assistance to over 28 host units, including private individual farms, NGOs and government agencies.

In **Phase II**, **national and local government entities, NGOs and rural authorities were invited to participate and 14 Chinese experts were fielded across participating units in Mongolia**. The second phase saw the scaling-up of key technologies introduced during the first phase and emphasized the provision of extension services to amplify the benefits to farmers. The aim was to build the capacities and reach of extension service providers that work with small-scale farmers and agribusinesses in the production, processing and marketing of agricultural products.

Agro Feed factory, Tumenshuvuut Poultry Farm, Jargalant village



Host units (primary beneficiaries) participating in the FAO-China SSC Project in Mongolia (Phases I and II)

Phase I participating units

Khuvsgul Centre Co. Ltd
 Mon Irish Co. Ltd
 JJB Co. Ltd
 Tsagaan Altay Co. Ltd
 Khangai Co. Ltd
 Montarimal Co. Ltd
 Shandas Uguuj Co. Ltd
 Munkh Zaisan Co. Ltd
 Tsegts Od Co. Ltd
 Naran Buils Co. Ltd
 Citi Construction Co. Ltd
 Mandtrade Co. Ltd
 Zuvt Shim Co. Ltd
 Bayar Impex Co. Ltd
 Eviin Huch Co. Ltd
 Tumen Shuvuut Co. Ltd
 Taij Group Co. Ltd
 Darkhan Meat Foods Co. Ltd
 Arvin Khur Co. Ltd

Kharkhorin Co. Ltd
 Agro Alfa Co. Ltd
 National Agricultural Extension Centre
 National Centre for Livestock Gene Bank
 Wholesale Trade and Commodities Exchange National Programme Unit
 Crop Production Development Fund
 Administration of Inter-Aimag Otor Pastureland Use and Coordination of Ministry of Food, Agriculture and Light Industry/Ministry of Industry and Agriculture
 Mongolian National Association of Food and Agriculture
 Mongolian Society for Rangeland Management

Phase II participating units

National Centre for Livestock Gene Bank
 Mongolian University of Life Science
 Mongolian Society for Rangeland Management
 Mongolian Greenhouse Farmers Association
 Mongolian Poultry Farmers Association
 Mongolian Beekeepers Association
 Khilem Oost LLC

 New laboratory of the Agro Feed factory, Tumenshuvuut Poultry Farm, Jargalant village, Ulaanbaatar



Corn seedling in the greenhouse,
Manlai Uurgach family farm, Erdene soum, Tuv province





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Towards greater agricultural productivity

FAO-CHINA SSC PROJECT IN MONGOLIA

Over the six year lifespan of the SSC Project in Mongolia, activities extended to all priority areas of agriculture in the country. The tangible benefits of these interventions reached farmers, communities and governmental and non-governmental partners, and contributed to the reinvigoration of agriculture and the development of an agricultural value chain.

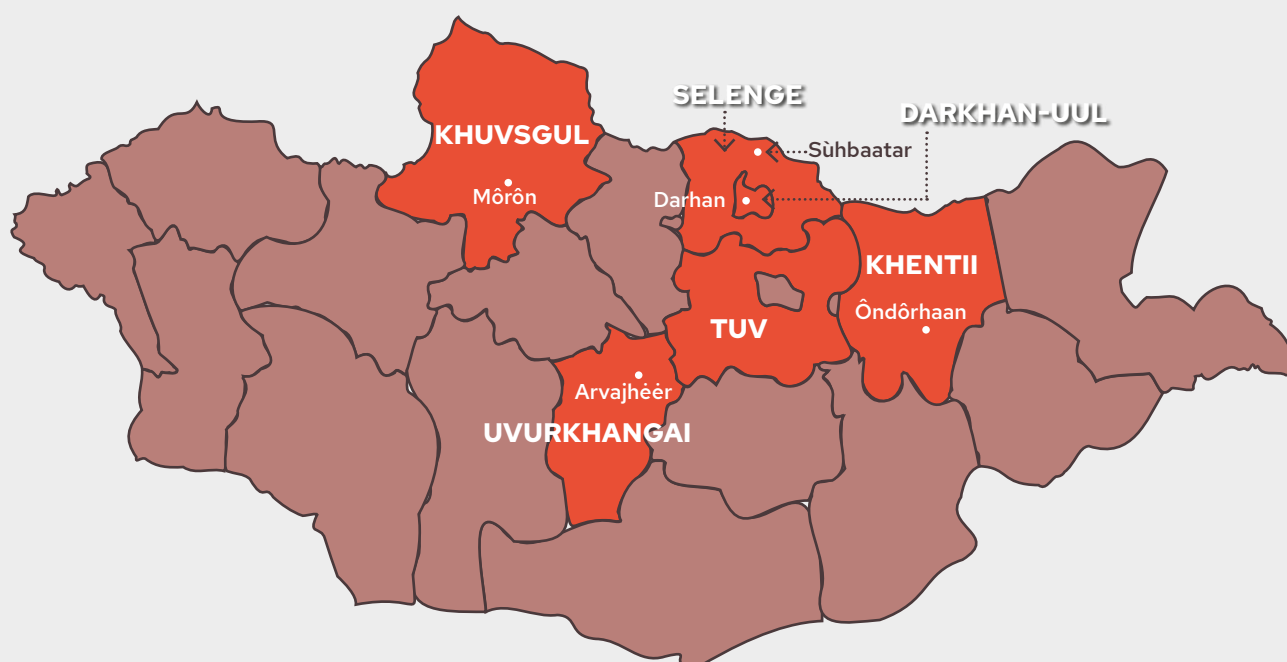
Experts and technicians from China were carefully selected to provide the specific expertise needed to strengthen capacity in local farming technology and practice in the following priority areas:

- **Livestock breeding**
- **Animal feed production**
- **Chicken feed production**
- **Greenhouse farming**
- **Irrigated agriculture**
- **Storage**
- **Plant protection**
- **Agricultural machinery services**
- **Hazard analysis and critical control points**
- **Wholesale trade**
- **Extension services**
- **Beekeeping**
- **Aquaculture**

At host units in local districts (soums) across six of the 21 Mongolian provinces (aimags) – **Tuv, Selenge, Darkhan-Uul, Khuvsgul, Uvurkhangai and Khentii provinces** – Chinese

experts worked alongside their Mongolian counterparts on a series of micro-projects. Through on-farm demonstrations, training activities and the practical application of methods

and technologies, farmers, technicians and national agricultural specialists gained knowledge and tools to promote better agricultural practices and enhance productivity.



MONGOLIA

Map conforms to Map No. 3721 Rev. 3 UNITED NATIONS January 2004.
<https://www.un.org/geospatial/content/mongolia>

Enhancing quality, optimizing production

In the livestock subsector, the SSC Project addressed the lack of capacity in animal health and livestock breeding technology. Activities were aimed at **producing greater numbers of healthier animals to establish a sustained market supply of healthy food**. Practical application of hygiene, health and sanitation norms and training in new breeding methods were key means of transferring valuable knowledge to breeders and farmers. Experts also helped Mongolian fish breeders and beekeepers enhance their production of fish and honey.

SSC innovates in livestock breeding

Experts from China were deployed across five provinces and two towns to assist the National Centre for Livestock Gene Bank, MOFALI and the host unit farms to conduct artificial insemination of large and small animals. The SSC teams successfully promoted biotechnology for animal breeding, introducing a range of technical innovations and practices in artificial insemination to develop intensive livestock production. These activities contributed to enriching Mongolia's gene bank centres and enhancing the quality of animals in the country.

Artificial insemination training organized by SSC experts, Darkhan province





Artificial insemination, Darkhan province

Next page:

Mr Tsogtbuyan, Director, Ms Bulgantamir, Veterinary Doctor, and Ms Khishigdavaa, Zootech, on their new cattle breed farm, Montarimal Co. Ltd, Bayanchandmani soum, Tuv province

Successful activities included embryo transfers in cattle, sheep and dairy goats, estrous synchronization tests in cattle and goats and the production of tubes of frozen semen, including from oxen and sheep. Semen production labs were established to allow Mongolian breeders to produce semen from their own bulls rather than importing deep-frozen semen. Blood tests were also carried out on dairy cattle in four provinces for the formation of a nucleus herd.

Livestock health and management also received dedicated input from the SSC experts. Improvements included the introduction of vaccination and veterinary drugs for livestock, the implementation of hygiene and sanitation norms to comply with quarantine and veterinary requirements and the establishment of livestock registration systems. Experts also helped their host units develop business with Chinese counterparts.

The positive outcomes of this support included full utilization of livestock with increased pregnancy rates – up to 20–30 percent higher than from natural insemination – and lower mortality rates. The successful results in artificial insemination were highly encouraging across different Mongolian provinces. In Khentii province, 114 head of Red Angus cattle were bred at Khangai Co. Ltd, while experts working at Arvin Khur Co. Ltd in Selenge province oversaw the breeding of 140 head of White Suffolk sheep. In Tuv province, Montarimal farm saw exceptional artificial insemination results, as can be seen in the case study below.

SSC Project in action: Artificial insemination of livestock Montarimal Co. Ltd, Bayanchandmani district, Tuv province

Located in Tuv province, Montarimal was established in 1992 by farmer and zootechnician Mr Tsogtbuyan. From a vegetable farm with only eight workers, he built a successful dairy farm that **employed 30 people** at the time of the SSC Project.

Before the SSC Project was launched in Mongolia, the farm began importing black scattered cattle (a breed that produces high quantities of milk) from China to increase its dairy output. However, Mr Tsogtbuyan faced challenges importing live bovine and realized that breeding the

animals on home soil would be more efficient.

Looking to SSC for support, in 2010 Montarimal hosted Mr De Dengnima, an SSC expert from Inner Mongolia. Mr De Dengnima shared his expertise in insemination with his host, and particularly in the sex-sorted insemination method, which is a more specialized area than artificial insemination with frozen semen and a new practice in Mongolia. Mr De Dengnima spoke Mongolian, which helped him transfer this specialized knowledge to Mr Tsogtbuyan, and the exchange was very successful.

Thanks to these pioneering new technologies, the farm's productivity has increased. Today, the farm has 200 dairy cattle, and a higher proportion of women work in the expanded dairy operations. The company's veterinarian and newest zootechnician are also both women.

Mr Tsogtbuyan has seen the economic benefits of the artificial insemination practices: the breed is popular with farmers owing to high milk yields, and increased calf production means there are more female calves to sell, which generates a higher income.



"140 White Suffolk sheep were bred at Arvin Khur farm in Selenge province. This breed can gain up to 80 kg in the space of eight months and we found that it fits well into our agricultural regions, so we are using this model to produce other breeds from Europe."

Mr Buyannemekh Chimeddorj,
National Project Manager,
SSC Phase I



"Production has been improved and, thanks to the introduction of sex-sorted insemination, we can select the sex of new calves. We can now get 100 percent female calves rather than 50 percent male and 50 percent female. The cattle grow faster and when there are more female calves the new imported breeds adapt more quickly to the environment."

Mr Tsogtbuyan,
Director of Montarimal Co. Ltd





“Now we produce chicken feed by ourselves based on our laboratory tests, modifying the feed for chicks and chickens at different stages of their lives.”

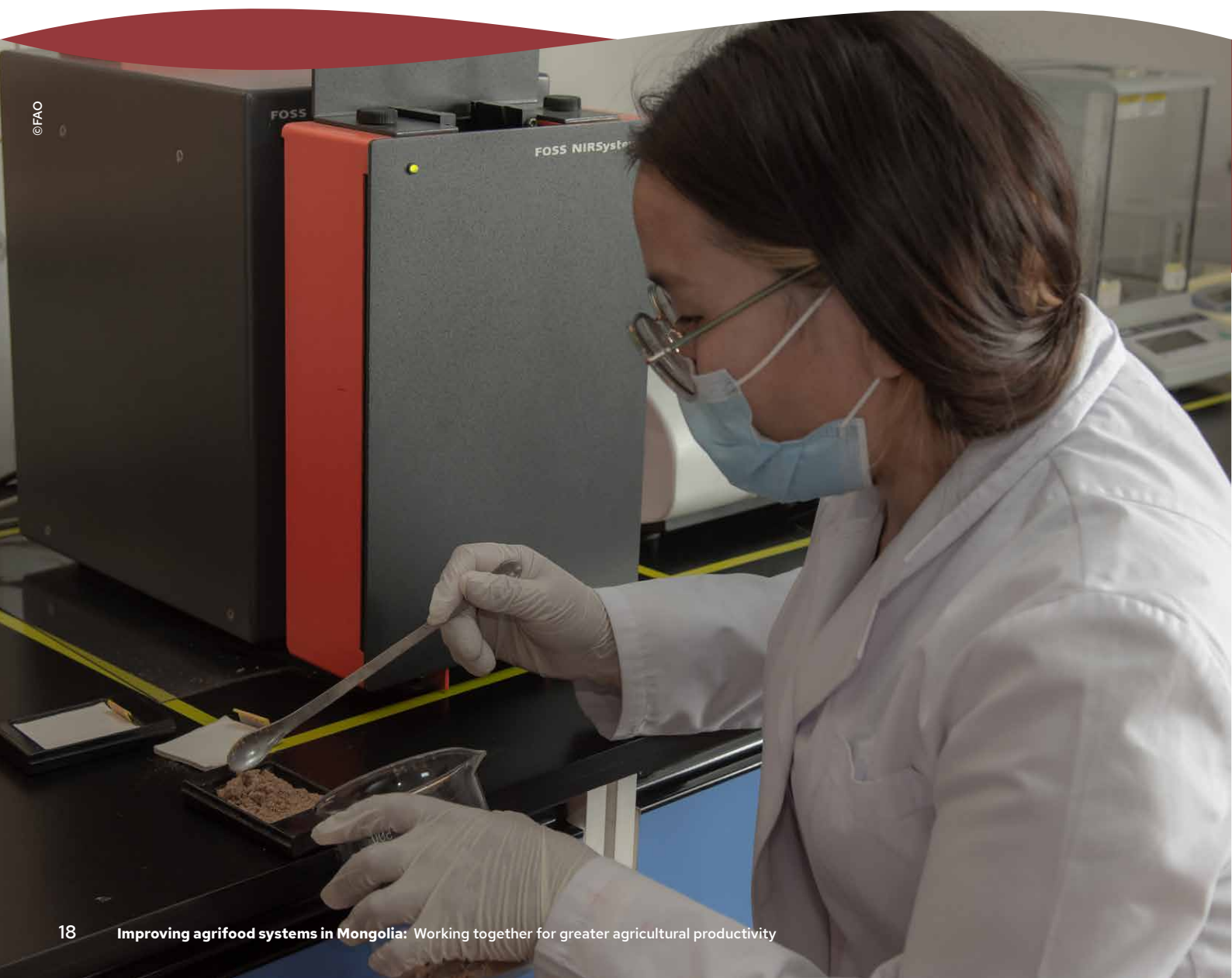
Mr. Bold Jigjid,
*Executive Director at
Tumen Shuvuut*

SSC expands modern poultry production

In the area of poultry production, Mongolian poultry producers required assistance to develop best practices and enhance their operations. Specialized support was provided on site at individual poultry farms and transferred to other poultry farms through the Mongolian Poultry Farmers Association.

Chinese poultry experts helped chicken farmers improve their technologies and practices in feed supply, and the breeding and rearing management of chicks, adult chickens and egg-laying hens. They shared expertise in veterinary services, including infectious disease analysis and control, and conducted a study on chicken feed. The results of the study demonstrated that 70 percent of raw materials for chicken feed could be sourced locally, thus providing a basis for using Mongolian-produced seeds in feed.

The excellent progress Mongolian poultry farmers have achieved with SSC support, and in particular the impacts on chicken feed production, has contributed to enhancing domestic egg production and to increasing food security and safety for consumers.



SSC Project in action: Establishing the first chicken farm veterinary laboratory

Tumen Shuvuut Co. Ltd, Ulaanbaatar

Established in 2004, the Tumen Shuvuut poultry farm grew rapidly from an operation of 20 000 hens and 11 employees to become one of the leading egg producers in Mongolia. At the time of the SSC Project, the farm was producing 130 000 eggs daily, or 25 million eggs per year.

Chinese SSC expert, Mr Wu Duo, worked at Tumen Shuvuut over a four year period from 2011 to 2016 during the two phases of the Project, and helped introduce a wide range of improvements. The SSC team enhanced the daily farm management of over 140 000 adult egg-laying hens, improving surveillance to implement safety, hygiene and quarantine norms and conducting vaccinations to prevent infectious poultry diseases. Optimizing Tumen Shuvuut's operations was the basis for the distribution of healthy chicks of approved breeds to other egg producing chicken farms, including smallholder farmers.

A major innovation was the establishment of Mongolia's first poultry farm veterinary laboratory. The laboratory has had a great impact on the farm's operations, allowing it to conduct quality tests on chicken feed and to monitor egg quality and changes in the morphology of egg-laying hens. In the latter part of the project, Mr Wu was also involved in the development of a corn-based feed mix recipe for egg-producing chicken farms. Prior to this, chicken feed had mostly been imported. Thanks to SSC support, there is now capacity to develop feed using a large proportion of local ingredients such as wheat, rapeseed and barley.

Among the successful outcomes of the SSC exchange, the farm saw dramatic increases in egg production (up 65 percent in 2011 and 84.3 percent in 2012), and significant reductions in the mortality rate of hens. The continued growth and technological improvements enabled the company to go public in 2019. With a current

flock size of 350 000 egg laying hens producing 200 000 eggs daily, the farm's output accounts for 50 percent of domestic production.

After four years at Tumen Shuvuut, Mr Wu continued to provide SSC support to Mongolian poultry production. He has taken the knowledge and experience acquired at Tumen Shuvuut, including proficiency acquired in the Mongolian language, to benefit a smaller poultry farm – Mogul farm – in Ulaanbaatar.

The success story of Tumen Shuvuut continues. Its rapid growth has resulted in the opening of a new factory building, Tumen Shuvuut 2, while its Executive Director, Mr Bold Jigjid, has received recognition for his excellent work through the 2012 FAO Award for Model Poultry Farmer.

Previous page:

Ms Nemekhjargal, Director of Laboratory at Agro Feed Factory, Tumen Shuvuut poultry farm, Jargalant village, Ulaanbaatar



Above:
Growing cucumber in the greenhouse
of Tumensuikh LLC

Next page:
Current irrigation system of
Kharkhorin LLC, Kharkhorin soum,
Uvurkhangaï province

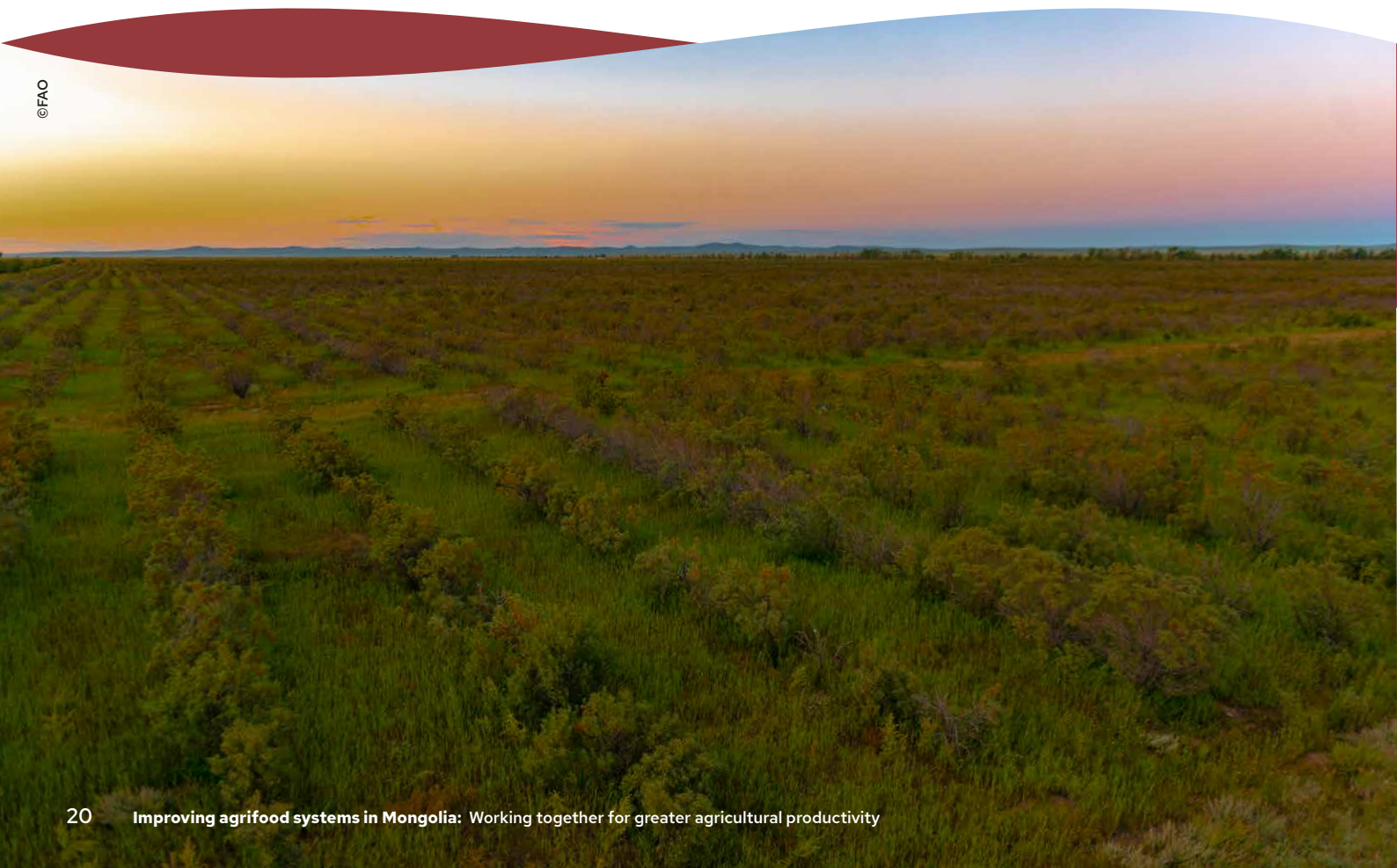
Below:
Irrigated sea buckthorn field,
Kharkhorin LLC, Kharkhorin soum,
Uvurkhangaï province

SSC invigorates apiculture and aquaculture

The SSC Project carried out a range of activities to accelerate the production of honey and fish in Mongolia. Experts worked closely with the Mongolian Beekeepers Association (MBA) to introduce technologies and practices for queen bee rearing and the management and maintenance of bee colonies to Mongolian beekeepers. The experts demonstrated technologies of honey processing, packaging and hive production and conducted buzzers breeding and multiplication to promote the development of local apiculture. A delegation from the MBA visited China to source processing machines for bee products and bee veterinary supplies in order to better equip local beekeepers in Mongolia.

These combined efforts and shared skills enabled Mongolian beekeepers to produce 10 kg of beeswax and 1 kg of royal jelly. A total of 200 heads of high-quality queen bee were reared and distributed to MBA members, boosting honey production by 50 percent and filling the gap in Mongolia's honey market.

Enhanced practices were also promoted in aquaculture. Chinese experts provided technical assistance in the design of an artificial pond that was provided to Khilem Ost LL sturgeon fish farm. Lectures and field visits on fish breeding were organized and a study was conducted at Ugii lake to find suitable species for introduction to the laboratory at the School of Animal Sciences and Biotechnology (SASB) for research on fish breeding.

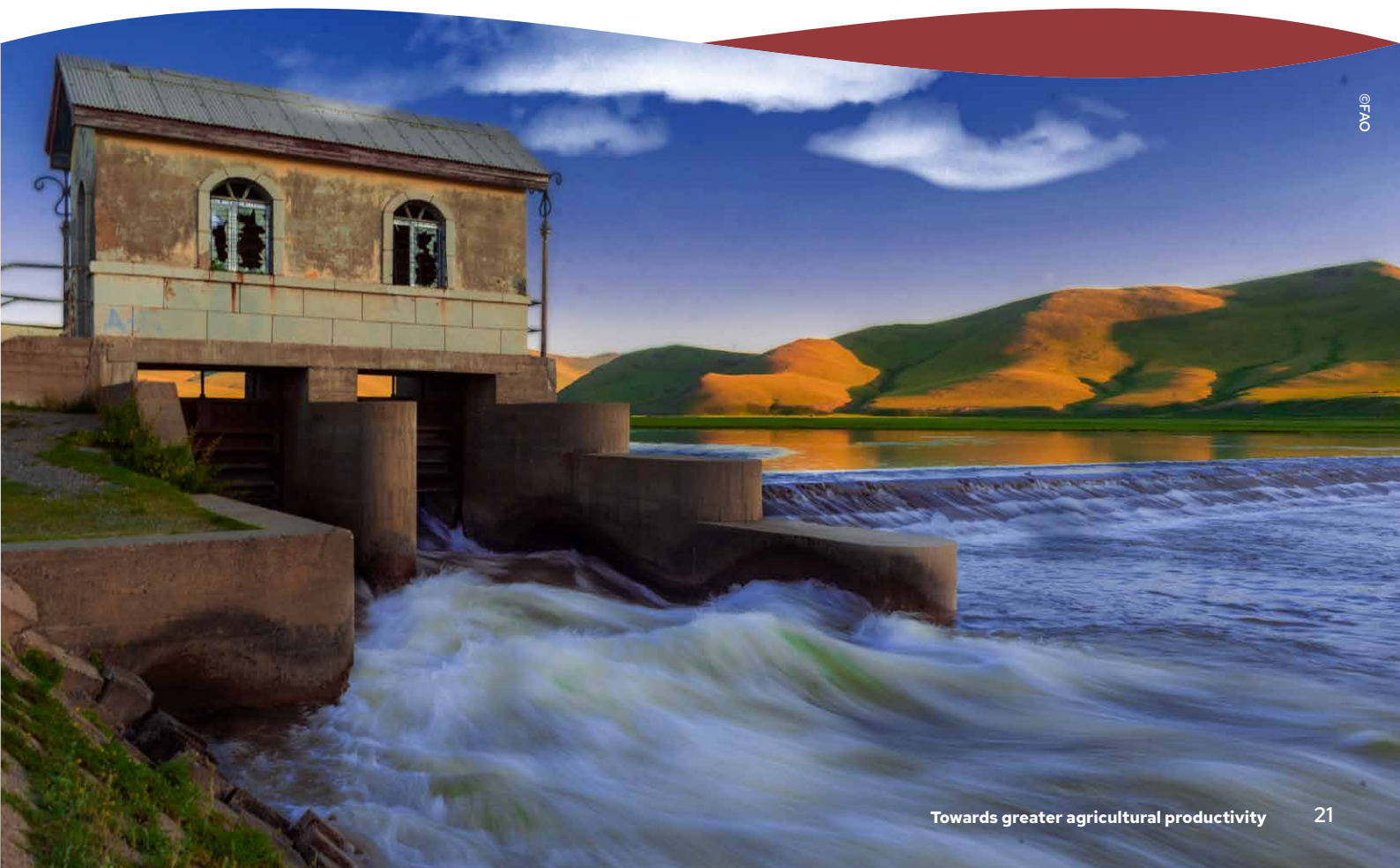


Diversification and increasing yields

In the area of crop production, SSC experts provided expertise to promote a more diverse range of crops and more efficient crop cycles. Successful activities included producing animal feed to support livestock intensification, expanding the range of home-grown fruit and vegetable varieties and extending the planting season by using greenhouse technologies.

Mongolian farmers also benefited from SSC technical assistance and training in irrigation. Experts supported the design and planning of irrigation schemes, demonstrated irrigation and water management technologies and assisted in selecting irrigation equipment for purchase from China. These improvements in irrigation infrastructure increased the capacity for horticulture.

Support was also provided to farms in plant protection, including the making of chemical fallow and the elimination of rodents in crop fields for increased harvest yields.





Harvest from Ms Lkhagva Yondon family farm, Erdene soum, Tuv province

SSC boosts animal feed production

SSC activities in animal feed production focused on addressing the insufficient production of fodder in the country, which was causing shortages in food for Mongolian livestock and is an essential resource, especially in the winter months.

Experts promoted the production of animal feed crop varieties and introduced fodder cultivation technology from China. New varieties of annual and perennial fodder crops for cultivation were demonstrated and silage-making technologies and practices were piloted. Trials of more than 42 new fodder crop varieties were conducted on 93 hectares of land, resulting in the successful registration of four new varieties in the crop varieties registrar of Mongolia. A new alfalfa variety (Nutag Becheer-2) was particularly successful..



“Mr Kang taught me how to plow and cultivate the soil. I also learned how to adjust the depth of the seedling and how to adjust the norm of the seeds. Thanks to this knowledge, our fodder plants are growing very well now.”

Mrs Lkhagva, Owner of Manlai Uurgach family farm, Erdene district, Tuv province



In Tuv province, experiments in cultivation were carried out with Sudan grass, oat and barley, and green mass. Certain trials were conducted under non-irrigated, harsh climatic conditions, and their success demonstrated that the crops could be grown in these conditions using modern cultivation technology.

In the Kherlenbayan-Ulaan area of Khentii province, under irrigated conditions, alfalfa reached an average height of 21.8 cm, at 57 alfalfa plants/ha, in the first year of planting. Three year old alfalfa reached an average height of 44.55 cm, producing 7.054 tonnes/ha of alfalfa green mass. In addition, the project provided agricultural machinery and equipment to support seeding and harvesting of the crop varieties, and of high-yield seed varieties.

Another innovation was the development of corn production for animal feed; a new practice in Mongolia. Corn hybrid seeds were brought from China with a growing season of 80/90/100 days. The corn grown demonstrated positive increases in height, weight and diameter, resulting in more green mass for the production of animal feed. Further promising results were seen in the successful production of alfalfa, which was planted over 60 hectares with SSC support.

Young farmer at the field



The trials and demonstrations conducted have shown that corn can grow well in the Mongolian climate if hybrid seeds are used. The corn can generate abundant green mass for producing quality silage and feed reserves, thereby significantly increasing the yield of forage per hectare. To further the resilience of animal feed production, experts demonstrated the long-term storage of animal feed using microbiology (microorganisms) to the Mongolian Rangeland Management Association.

Thanks to these efforts in making silage from locally grown corn and alfalfa, farmers could access stores of quality silage to feed dairy cattle throughout the winter. This means better-quality and better-tasting milk, a direct benefit for Mongolian consumers.

These successful developments in animal feed production have given Mongolian crop producers the tools to expand animal feed production, reinforcing the intensification of livestock production in Mongolia. This increased access to fodder will also relieve overreliance on pastureland, which can reduce degradation resulting from overgrazing.

Above:
Ms Lkhagva Yondon, growing nion,
Manlai Uurgach family farm, Erdene soum,
Tuv province

Below:
Corn seedling in the greenhouse,
Manlai Uurgach family farm, Erdene soum,
Tuv province



SSC Project in action: Animal feed production and horticulture support

Manlai Uurgach, family farm, Erdene district, Tuv province

Manlai Uurgach is a family farm located in Tuv province in central Mongolia. The owner, Mrs Lkhagva, was motivated by what she had heard about the SSC Project and approached MOFALI for support with greenhouse farming. As there were no experts available in this sector, Mrs Lkhagva requested support in growing corn for animal feed, a practice she was keen to introduce on her farm.

Mrs Lkhagva was fortunate to host the highly experienced SSC expert, Mr Kang Lianhe, at Manlai Uurgach. Keen to support all areas of farm operations, Mr Kang shared his rich knowledge and expertise, and invited other SSC experts to provide information and

solutions on different topics whenever possible.

Thanks to this sustained transmission of expertise and the expert's flexible approach, Mrs Lkhagva learned not only about corn feed but also about her initial priority of greenhouse farming. Mr Kang facilitated support and learning opportunities in greenhouse planting, winter greenhouse construction and cultivation of strawberries, cucumbers and tomatoes.

Manlai Uurgach's production capacity and output has significantly increased as a result of the successful SSC cooperation and Mrs Lkhagva has gained useful knowledge

that she is employing in her daily work. The farm now has a seeding machine and a cultivator and has increased its cultivation land area. The number of working greenhouses has doubled and the planting of green fodder has increased by 5 hectares, and the farm's corn-growing season has extended through the use of corn seedlings.

The project has brought tangible economic benefits and a better life for Mrs Lkhagva's family. The enhanced capacity in producing fodder plants and making silage has allowed her to increase the number of cattle on the farm from five to over 70 in recent years.





SSC develops resilient horticulture and greenhouse farming

In Mongolia, the daily consumption of fresh vegetables in remote areas is limited, which leads to the risk of diseases caused by mineral and vitamin deficiencies. Extreme weather conditions and changes in precipitation patterns leading to water scarcity make it difficult to grow and store vegetables in the country. However, with an average of 260 days of sunshine a year, the country has the right conditions to use solar greenhouses to run sustainable vegetable farms. The SSC Project aimed to support fruit and vegetable growth using greenhouse technology to improve the domestic availability of healthy food choices and to reduce dependence on imports.

Chinese SSC experts piloted cultivation practices of new vegetable varieties, and introduced the management and maintenance of greenhouses to vegetable farmers through the Mongolian National Association of Food and Agriculture, a professional union representing a broad spectrum of smallholder farmers and horticulture producers.

From above:

Ms Lkhagva Yondon and her husband
Mr Gantulga, Manlai Uurgach family farm,
Erdene soum, Tuv province

Tomato harvest of the Tumensuikh LLC

Previous page:

Ms Lkhagva Yondon, Manlai Uurgach
family farm, Erdene soum, Tuv province



Above:
Greenhouse of Tumensuiukh LLC

Bottom:
Field irrigation system of
Tumensuiukh LLC

Greenhouse farming technologies were introduced over a total area of 25 000 m² of protected soil. Testing and use of crop and seed varieties was carried out as well as training in new technologies and better practices in plant protection.

Winter solar greenhouses were introduced as a cost-effective means of diversifying the range of vegetables and fruit grown and extending the growing season. In the provinces of Ulaanbaatar, Tuv, Khuvsgul and Selenge, Chinese winter solar greenhouses were constructed over an area of 5 300 m². The greenhouses were used to demonstrate vegetable and berry production-enhancing techniques in protected soil, with a focus on building capacities of smallholder farmers, and in particular women farmers.

Chinese SSC expert Mr Zhang Zhenjun travelled across the provinces of Mongolia giving practical demonstrations and tailored individual consultations to 400 smallholder farmers on technologies and planting berries in summer greenhouses and increasing yields and the technology of constructing winter greenhouses.

To identify the optimal varieties for production in Mongolia, SSC experts led trials of 32 new varieties of vegetables, 10 varieties of fruit trees and 20 varieties of grass and legumes. Greenhouse testing was carried out with new varieties of cucumber (holland-971), tomato (taivandagina, five colours) and various fruits and berries, including grape (Jin Yan) and strawberry (Khun Yan). Host units saw dramatic increases in their harvest and were able to sell more produce on the domestic market.





"SSC support in greenhouse cultivation was the most successful SSC activity, and has led to further government support through Mongolia's first sovereign bond, the Chinggis Bond Loan. Greenhouse procurement is also exempt from customs and value-added tax."

Mr Khanimkhan,
Head of Department, MOFALI,
formerly National Agricultural
Extension Centre (NAEC)

Chinese SSC expert Mr Song Baolin helped Mon Irish Co. Ltd in Ulaanbaatar plant 50 000 cabbage seedlings and 2 000 strawberry seedlings. These efforts resulted in 24 tonnes of vitamin-rich cabbages and 600 kg of strawberries being made available to Mongolian consumers. This enhanced strawberry production filled an important gap in the Mongolian market.

Host units also benefited from SSC expertise in various other horticulture activities including pest management and the improvement of soil fertility and irrigation systems.

A noteworthy achievement of the cooperation was the formulation of a draft standard for passive solar greenhouses based on Chinese design and suited to conditions in Mongolia. The standard, which was approved in 2016, was specifically designed for application by local small-scale vegetable farmers in urban and rural areas.

The SSC horticulture and greenhouse farming support was a hugely successful cooperation effort that generated significant impacts for small-scale agribusinesses and directly affected technical and production capacity. Since the end of the project, greenhouse farming has increased greatly, particularly in the number of greenhouses that are active in harsh winters and prolonged springs.

Above:

Mrs Oyunchimeg Yadmaa, Director of Tumensuikh LLC,
in her irrigated cabbage field using the Project-provided irrigation

SSC Project in action: Improved greenhouse cultivation

**Mongolian Greenhouse Farmers Association and Tumensuikh Co. Ltd,
Jargalant village, Songino-Kharkhan district, Ulaanbaatar**

Located in the Songino-Kharkhan district of Ulaanbaatar, Tumensuikh Co. Ltd was established in 1998 by Mrs (Dr) Oyunchimeg and her two siblings. The enterprise began with only a handful of workers and 347 m² of summer plastic greenhouse. Today it has a management team of five, which includes two women. Dr Oyunchimeg has become a leader in Mongolian agriculture in her position as Executive Director of the Mongolian Greenhouse Farmers Association (MGFA).

When Chinese experts Mr Ren Shengliang and Mr Song Baolin arrived, Tumensuikh was already one of the largest growers of cucumbers and tomatoes in Mongolia. At the time, it was using a 4 000 m² double-walled greenhouse to grow cucumbers, tomatoes and green peppers but wanted to expand its offer on the market. Mrs Oyunchimeg had just purchased a 5 040 m² winter greenhouse from China and was keen to learn how to effectively use this new equipment to cultivate fruit, leafy vegetables and other vegetable varieties.

The SSC team helped Mrs Oyunchimeg operate her winter greenhouse effectively and improve and expand her farm's cultivation practices. Productivity at Tumensuikh was increased through the provision of a tractor and other agricultural equipment to automatize tasks previously done by hand. This streamlining of tasks made the farm more effective and also reduced the number of labourers needed to work the land.

Thanks to these efforts, Tumensuikh significantly increased the harvests from each square metre of land. A rain pipe irrigation system was installed on two hectares of land, which was then used to plant cabbages, while cucumber and tomato yields increased by up to 66 percent. The company started cultivating green leafy vegetables in its plastic greenhouse, such as salad, bok choy, spinach, cilantro, broccoli, cauliflower and green onion, in the winter months of October–April after the tomato harvest. This extended the growing season and increased the variety of goods being brought to market. The Chinese experts also oversaw the testing

of 40 grape vines, which were planted on a pilot basis for research purposes. The success of this trial was an important indicator for potential future development in Mongolia.

The exemplary results achieved with the inputs of SSC experts at Tumensuikh have had a direct economic impact on the local area through the farm's expansion. The supply of new varieties of leafy vegetables to Mongolian consumers is a direct benefit to nutrition and well-being, particularly in rural areas, where mineral and vitamin deficiencies are widespread. The close cooperation with the MGFA means that the technologies introduced and knowledge transferred will be broadly diffused to smallholder farmers, thereby expanding the reach of greenhouse farming and agricultural livelihoods in Mongolia.

Mrs Oyunchimeg's commitment to horticulture development in Mongolia, as head of the MGFA, was internationally recognized through her nomination as Model Farmer for World Food Day 2016.

Better practices, better tools

To enhance the efficiency of farming practices, the SSC Project carried out activities focused on the renovation and mechanization of production. Machinery from China was provided to beneficiaries and technical support was given in machinery maintenance, service and safe operation. As a result of this support, many host units were able to expand operations and increase productivity.

Improvements were also introduced in food storage and safety. Storage facilities were designed and constructed, and the implementation of recognized food safety standards was promoted through training and support activities, thereby building capacities to compete at international level.



SSC upgrades agricultural machinery

The delivery of affordable Chinese small-scale agricultural machinery and equipment, and demonstration of their use and maintenance, provided particular support to the farming systems of smallholder farmers. Thanks to the hands-on training SSC experts provided, Mongolian farmers learned to operate machinery, such as tractors and seeding machines, independently and effectively.



"I think that Mongolians are educated and knowledgeable in horticulture and agriculture technologies. What they need is the right machinery and automatization. In China, even an older person working alone can handle a farm with 100 cows with the help of machinery."

Mr Ji Ergela, Chinese Expert and SSC Team Leader (Phase I)



Summer greenhouses of Tumensuikh LLC



"The project provided six tractors with 25-horsepower capacity tractors to smallholder farms and larger tractors with 80 horsepower capacity to larger agriculture units, such as NAEC. They were directly purchased from the Dongfeng company as the expert advised that these tractors suited the needs of small farmers."

Mr Buyannemekh Chimeddorj, National Project Manager, SSC Phase I



"Mr Ji taught us on how the depth of the seeding aggregates is adjusted, how the seed norm is set and how the ploughing is done. As a result of using tractors and aggregates, our cultivation land area has increased. We used to plant alfalfa on 5 hectares and green fodder on 5 hectares, but now we plant green fodder on 10 hectares."

Mrs Lkhagva, Owner of Manlai Uurgach family farm, Erdene district, Tuv province

Below:

Tractor provided by the project inside the winter greenhouse, Tumensuikh LLC

SSC Project in action: Enhancing productivity and efficiency with agricultural machinery

Arvin Khur Co. Ltd in Selenge province

Mr A. Latengsuhe, an agricultural machinery specialist from Inner Mongolia, was deployed to Arvin Khur farm in Selenge province.

During the exchange with the host unit, Mr A. Latengsuhe facilitated the purchase of agriculture machinery from China. He oversaw the ordering

of machinery parts and worked alongside local engineers and technicians on repair and maintenance. The expert dealt with the communication challenges that existed in establishing links with factories in China and facilitated the supply of machinery by using his network in Inner Mongolia.

After this mission, Mr A. Latengsuhe moved to Ulaanbaatar to share his expertise with the Agriculture Support Fund (ASF) under MOFALI. During his placement at the ASF, he travelled to different farms and mill factories to order machinery, equipment and parts.



Hazard analysis and critical control points

Hazard analysis and critical control points is an internationally accepted food safety assurance system. It provides guidelines to ensure the production of safe food under strict monitoring and supervision that requires set standards and procedures to be followed at all processing stages, from the initial stage until the end, when the products are ready to be handed over to customers.

SSC advances food safety standards

With over 70 million heads of livestock (2019), Mongolia has vast potential to develop global meat exports. However, Mongolian meat exporters face numerous challenges in exploiting this potential. Frequent disease outbreaks, lack of compliance with international phyto-sanitary standards and poor connectivity in the value chain have hampered the growth of exports.

Most slaughterhouses with the correct certification capacity to produce meat to international quality standards are in Ulaanbaatar; in other regions the focus is on supplying the domestic market. To address this gap, targeted SSC support in international food safety and hygiene standards was provided to host units across Mongolia, in particular hazard analysis and critical control points, with the aim of boosting the meat industry's ability to compete on the international market.

The Chinese hazard analysis and critical control points experts helped Mongolian slaughterhouses form work teams and plan the construction, renovation and purchase of slaughter and meat-processing equipment according to hazard analysis and critical control points requirements.

SSC Project in action: Improving export potential with hazard analysis and critical control points

Darkhan Meat Food Co.Ltd., Darkhan city, Darkhan province

Located in Darkhan city, Darkhan Meat Food Co. Ltd was established in 2003 and is a leading producer of meat in Mongolia. Founder and General Director, Mr Enkhbaatar, has steadily grown operations and ensured that the company has stayed ahead of the curve with the most up-to-date techniques and technology. The company is also progressing in the area of gender equality, with management comprising 30 percent women and with an almost equal representation of men and women in the general workforce.

In 2010, Darkhan Meat had 120 employees and was exporting meat solely to Russia. The company was keen to access the Chinese market and sought SSC support in acquiring certificates from China on its hazard analysis and critical control points

standard. The company hosted Mr Zhang Yuguang, an SSC expert on hazard analysis and critical control points, in 2010. At that time, the national hazard analysis and critical control points standard had not been approved, and Mr Zhang faced challenges in conveying concepts such as "critical control point," as these technical terms had yet to be formalized in the Mongolian language.

Despite the company being unable to complete the certification process owing to language difficulties, the input provided by the SSC technicians succeeded in kick-starting the initiative. The company later sought technical support from FAO and introduced the hazard analysis and critical control points standard in 2011.

Today, the company successfully implements hazard analysis and critical control points, ISO9001, FSSC22000 and HALAL management system standards. In the seven years since the SSC project, the company has grown to become the major exporter of Mongolian meat (supplying approximately 60 percent of exports). It now produces 15 000–20 000 tonnes of meat per year, supplying the domestic market and also countries including China, Iran, Malaysia, Kazakhstan, Russia, Uzbekistan and Vietnam. Recently, the company was certified by the United Kingdom.

Constantly seeking to improve the quality and competitiveness of Darkhan Meat's products, Mr Enkhbaatar hopes to branch into producing organic meat for global export.

Inspiring growth, building capacities

The promotion of agricultural trade in Mongolia was a focus area of the SSC Project and dedicated support was given to host units in developing trade opportunities. Chinese experts helped host units expand their commercial activities and promote business contacts, including by encouraging business partnerships with Chinese companies for future collaborations in their respective areas.

In addition to elevating business development capacities, the expansion of agricultural extension services in the country was a cornerstone of SSC support in Mongolia. A major priority was to strengthen the scope and reach of agricultural extension in order to introduce new knowledge and ideas and improve rural livelihoods. With this objective, SSC experts carried out a wide range of capacity-building activities in partnership with the host country over the course of both phases of the Project.





Female farmer working at greenhouse of the Tumensuikh LLC, Mongolia

SSC promotes trade opportunities

SSC expert Mr Kang Lianhe and colleagues working in food safety and trade set up an hazard analysis and critical control points working group and introduced China's commodity exchange and agricultural trade organization to the "wholesale network" national programme team at MOFALI. This group completed a report on the establishment of commodity exchanges in Mongolia and proposed seven recommendations for the Mongolian draft law on agriculture commodity exchange, later approved as the Law on Agriculture Commodity Exchange (2011). Assistance was also given in establishing business contacts and cooperation with commodities exchanges in Dalian, Zhengzhou and Qingdao, and value chain studies were conducted on the supply of vegetables, fruit and meat to the four major food markets in Ulaanbaatar.

At Evlin Khuch, Mr Kang Lianhe assisted in a value chain study on flour supply to the eastern region and made a development plan, and a value chain study on the supply of imported food items (vegetables and fruit) from the Sino-Mongolian town Erlian. Mr Kang also helped the host unit become a member of the China Agriculture Wholesale Market Association.



"MGFA organized training sessions on planting fruits and vegetables in greenhouses for our members in Darkhan province, Selenge province and other locations. The sessions were led by our two Chinese cooperants and two experts and were broadcast on the central television networks of Darkhan and Selenge provinces."

*Mrs Oyunchimeg,
Head of the Mongolian
Greenhouse Farmers Association*

In one example of continued partnerships fostered by SSC, Chinese experts continue to provide greenhouse farmers and animal feed producers with support in purchasing seeds from China.

SSC builds capacities in agriculture

While routine capacity-building trainings by experts were an important feature of the exchanges at host units, a core objective of the SSC Project was to deliver a comprehensive capacity-building programme in cooperation with the NAEC. Training was delivered with a training of trainers approach, to ensure that the benefits would reach agricultural workers across Mongolia.

In partnership with SSC experts, the Mongolian authorities carried out training courses, seminars, workshops, study tours and symposiums in the major sectors of agricultural activity. Participants included household-level smallholder farmers, farmer cooperatives, local and central agricultural authorities, and research and extension workers, and included women, youth and elderly farmers as well as national planners and agricultural officers at provincial, district and central government level. Some training sessions and workshops were broadcast on local television channels to maximize reach.

Beyond the benefits gained by participants, the organization of training activities also fostered sustainable inter-institutional partnerships in the agriculture sector. One such success story were the training sessions on artificial insemination led by the National Centre for Animal Gene Bank and the Research Institute of Crop and Livestock of Inner Mongolia for animal breeders and students, which led to the organizations signing memoranda for future cooperation.

SSC Project in action: Highlights of SSC capacity-building activities

170 local government officials and fodder crop producers trained in cultivation technology of annual and perennial fodder crops, silage-making and pasture management

168 open-field and greenhouse farmers trained in the cultivation of different types of vegetables, the construction of Chinese-designed passive solar greenhouses and integrated pest management in greenhouses

290 beekeeping farmers and local officials trained in the spring and summer management of bee farming, queen bee rearing and artificial insemination

Students of the School of Animal Sciences and Biotechnology participating in practical lectures and field visits on fish breeding

Mrs Oyunchimeg Yadmaa, Director of Tumensuikh LLC, in her irrigated cabbage field using the Project-provided irrigation





Tomato harvest of the Tumensuikh LLC

In addition, the placements of Chinese experts at agricultural sites across Mongolia resulted in the production and dissemination of a range of training and capacity-building tools in the Mongolian language. Manuals were produced for several agriculture subsectors. These included a training manual on the “Construction of Winter Greenhouses,” guidelines to improve the management of chick and adult chicken farming titled “On Egg-laying Hens” and a book titled “Diseases in Sturgeon Fish.” All publications were widely distributed to the target audience beneficiaries in the respective areas of agriculture.

A priority of the SSC capacity-building initiative was to provide beneficiaries with concentrated *in situ* learning opportunities in the SSC partner country, China. Over the course of the work, 51 participants from MOFALI participated in four study tours to China. The tours were organized in close cooperation with the Foreign Economic Cooperation Centre and the Ministry of Agriculture and Rural Affairs (MARA) of China. Through site visits and training sessions in fodder crop cultivation, greenhouse cultivation, aquaculture, animal breeding, honey production, pig farming and egg production, participants gained rich experience in Chinese agricultural practices and technologies that they could later apply in Mongolia.



“I took part in a study tour to Hohhot and visited Lili dairy farm and an animal feed farm, where I learned how we should feed our animals. Our livestock were very thin compared with theirs, their sheep are as fat as pigs. It was very different to be there and see it with my own eyes, so after the training we decided to increase our cattle stock and feed them properly. Now thanks to growing animal feed we have had four-year-old cattle weighing 263 kg.”

Manlai Uurgach family farm, Erdene district, Tuv province



Corn field, Manlai Uurgach family farm, Erdene district, Tuv province

The SSC capacity-building initiative also facilitated meetings bringing together representatives of MARA, China and FAO, which proved to be excellent platforms for exchanging information on areas for future development and the continuation of the SSC Project.

Overall, the successful capacity-building and exchange activities have contributed to a solid knowledge foundation for sustainable and resilient agricultural practices in Mongolia. The technical capacities and skills of national planners, research staff and farmers have improved and are contributing to increased agricultural production and food security in Mongolia.

Next page:
Farmer is working in the greenhouse
at the Tumensuikh LLC

The SSC “ripple effect” further dissemination of SSC capacity building benefits among Mongolian agriculturalists

The momentum of the SSC Project has continued in Mongolia long after the Chinese cooperants returned home and beneficiaries of specialized training have themselves become facilitators of learning opportunities.

As a national expert on artificial insemination methods and localizing imported breeds, Director of Montarimal Co. Ltd, Mr Tsogtbuyan, was keen to further promote artificial insemination technologies and practice in his country.

Following the successes resulting from working with SSC experts on his farm, Mr Tsogtbuyan organized a practical training course on artificial insemination for zoo technicians from across Mongolia at Urjliin Urtuuch, an institute for breeding practitioners in Inner Mongolia of China.

Another excellent example of sustained partnerships and exchange resulting from the SSC Project is the continuing cooperation between the National Centre for Livestock Gene Bank and the Hohhot Research Institute of Inner Mongolia. The two institutions continue to work together and organize staff training in Inner Mongolia in China.





**FAO-CHINA
SOUTH-SOUTH COOPERATION
PROGRAMME**

Challenges and learning lessons

FAO-CHINA SSC PROJECT IN MONGOLIA



The far-reaching SSC Project in Mongolia achieved exceptional results and, inevitably, encountered challenges along the way. The solutions and approaches designed to meet these challenges contributed to the evolution of the Project and inform ongoing SSC work. For example, the difficulties that arose in Phase I of the Mongolia Project were duly considered and addressed in the design and delivery of Phase II.

Overall, a number of significant lessons emerged from implementation and from the experiences of individual beneficiaries. Below are some challenges encountered and success factors behind the successful implementation of the Project.

Adapting interventions to local circumstances

SSC teams were quick to adapt implementation modalities to circumstances on the ground; for example, when the procurement of agricultural goods from abroad was complex, suitable alternatives were identified locally.

Flexibility in project execution

Experts adapted their work to realities or constraints on the ground, seeking appropriate solutions when resources were insufficient or taking the initiative to work in other areas, for example when weather caused interruptions in the workflow. Excellent results were achieved when experts worked as a team: sharing information and expertise among experts across projects enhanced the benefits to host units and allowed experts to learn from one another's experience.

Effective communication

The fielding of experts from Inner Mongolia greatly facilitated communication between Mongolian hosts and Chinese experts. However, communication difficulties sometimes arose when communicating particularly complex information or in report writing. Translation support was arranged in certain cases by host units to facilitate communication, and internal training was conducted to improve the experts' technical report writing skills.

Inclusiveness

Implementation promoted an inclusive and participatory approach and ensured that women and youth benefited from the activities. For instance, several owners of Mongolian beneficiary companies or their key personnel were women, who benefited directly from the technical expertise of the Chinese experts. In addition, capacity-building activities were attended by a very broad spectrum of people, including women, youth and elderly farmers.

Maximizing benefits

As a result of co-funding requirements, most of the host units, particularly in Phase I, were well-established companies and farms run by experienced agricultural workers. To widen the pool of beneficiaries, Phase II of the Project was geared specifically towards capacity development of extension service providers and disseminating benefits to smallholder farmers through rural authorities, government entities and NGOs.

Effective coordination

The commitment of hosts, beneficiaries and coordinating agencies has proved critical to achieving remarkable results and is essential to maintaining a robust project framework, securing governmental institutional memory and ensuring appropriate follow-up actions. More generally, the importance of a dedicated programme manual to guide the work has been highlighted as necessary to improve efficiency and foster a coherent approach to recurring issues.



**FAO-CHINA
SOUTH-SOUTH COOPERATION
PROGRAMME**

Sustaining the benefits of SSC in Mongolian farming

FAO-CHINA SSC PROJECT IN MONGOLIA

The support rendered through the SSC Project between 2010 and 2016 has had an enduring impact on lives and livelihoods in Mongolia. The numerous benefits reaped by SSC participants and stakeholders represent the building blocks of stronger agrifood systems in Mongolia, and of a more sustainable future based on **better production, better nutrition, a better environment** and a **better life** – leaving no one behind.

The Project has contributed to localized expertise and innovation in agricultural practices, better livestock and agricultural production, better nutrition and health for Mongolian consumers and more secure livelihoods for farmers. The introduction of intensive farming technologies for crop and livestock production and enhanced animal feed production practices have generated rapid and successful results under extreme climatic conditions.

Across the country, at provincial, local, farm and individual level, Mongolian farmers have gained new skills and benefited from the impacts of new technologies and practices. Many farmers are now equipped with robust technical skills and have become providers of solutions for other farmers in their communities, paving the way for the move from subsistence farming to more commercial production.

The food security situation in Mongolia has seen tangible impacts across all four dimensions of food security, including physical availability, economic and physical access, utilization of safe and nutritious food, and stability at all times. Mongolian consumers are opting for healthier and more nutritious choices and have access to greater and higher-quality supplies of vegetables, fruits, eggs, meat and milk products.

Excellent progress has been made in facilitating mutual exchanges and promoting economic and trade cooperation in the agriculture sector, enhancing the export potential of Mongolian agriculture and establishing sustainable food supply partnerships. Numerous ongoing partnerships have also been established in extension services and agricultural research and in the form of bilateral collaborations between government authorities.

The Project has clearly demonstrated the outstanding results that can be achieved over a relatively short period when concerted efforts are applied. It provided a timely impetus to implementation of the NPFS in Mongolia and, through media and institutional exposure, gained visibility as a highly successful cooperation framework. The impacts of this successful cooperation are visible in Mongolia and there is a pressing need to build on this momentum in order to continue on the path of sustainable growth.

Looking forward, it will be vital to sustain and amplify the results of the SSC Project to meet the needs of a growing population and to sustain rural jobs. To this end, establishing effective partnerships, including public–private partnerships, is crucial to ensure continued funding and resources. The time has come to take stock of the Project’s key results and achievements, with a view to scaling these up and maximizing the impacts for farmers and consumers in Mongolia. FAO is committed to working alongside Mongolia in these endeavours, and to continue facilitating technical support and knowledge exchange for better agriculture and to foster better production, nutrition, environments and lives for all.

Next page:
Growing tomatoes, Tumensuiikh, Mongolia



South-South cooperation (SSC) is the mutual sharing and exchange of development solutions between developing countries, including knowledge, experiences and good practices, policies, technology and resources.

The FAO-China SSC Project in Mongolia (Phases I and II) is the first national project implemented in Asia under the FAO-China SSC Programme. The report presents the main achievements of the Project based on personal stories of some of the project participants, beneficiaries and stakeholders. Their stories demonstrate the successes and positive impact of the Project in their personal and professional lives. The report also highlights some challenges encountered, actions taken and key lessons learned that can inform future project implementation under the FAO-China SSC Programme.

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