Food and Agriculture Organization of the United Nations

STDF | STANDARDS and TRADE DEVELOPMENT FACILITY

(STDF/PG/534)
MTF/MON/018/STF
Terminal Report

FAO/MULTILATERAL TRUST FUND

PILOTING AN IMPROVED ANIMAL IDENTIFICATION AND REGISTRATION SYSTEM (AIRS) IN MONGOLIA

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PROJECT FINDINGS AND RECOMMENDATIONS

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

ROME, 2022

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PROJECT FINDINGS AND RECOMMENDATIONS

Report prepared for
the Government of Mongolia
by
the Food and Agriculture Organization of the United Nations

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, 2022

The Food and Agriculture Organization is greatly indebted to all those who assisted in the implementation of the project by providing information, advice and facilities.

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LIST OF ABBREVIATIONS

ADA	-	Aimag Department of Agriculture
AGRD	-	Animal Genetic Resource Division
AIRS	-	Animal Identification and Registration System
GAVS	-	General Authority of Veterinary Services
GPS	-	Global Positioning System
IDELE	-	*Institut de l'Élevage* (French Livestock Institute)
LHIS	-	Livestock Husbandry Information System
MAHIS	-	Mongolia Animal Health Information System
MoFALI	-	Ministry of Food, Agriculture and Light Industry
MULS	-	Mongolian University of Life Sciences
NDC	-	National Data Center
NGO	-	Non-governmental Organization
NSO	-	National Statistics Office
PSC	-	Project Steering Committee
RFID	-	Radio Frequency Identification
SOP	-	Standard Operating Procedure
STDF	-	Standards and Trade Development Facility
WTO	-	World Trade Organization

A. OVERVIEW

A.1 PROJECT PROFILE

Country	Mongolia
Project Symbol	MTF/MON/018/STF
Project Title	Piloting an improved animal identification and registration system (AIRS) in Mongolia
Resource Partner	Standards and Trade Development Facility (STDF)
Actual EOD	15 May 2019
Actual NTE	31 March 2022
Participating Organizations (e.g. Ministry of Agriculture, etc.)	Ministry of Food, Agriculture and Light Industry (MoFALI)

Implementing partners (list):

Name	Type (NGO/ Community-based Organization/Government)	Total Funds Transferred
French Livestock Institute (IDELE)	Institution	USD 65 428 USD 16 180
Food and Agriculture Department of Uvurkhangai Province	Government	USD 41 524 USD 4 000

Contribution to FAO's Strategic Framework
Indicate the title of each higher level result to which the project contributes

Sustainable Development Goals (SDGs)	SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture. Goal 2.3: By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment. Goal 2.a: Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.
Organizational Outcome(s)	Organizational Outcome 2: Making agriculture, forestry and fisheries more productive and sustainable. Organizational Outcome 4: Enable inclusive and efficient agricultural food systems.
Regional Priority Area/Initiative	Regional initiative for Asia and the Pacific "One Health"
Country Programming Framework Outcome(s)	State Policy on Food and Agriculture (2016-2025): Output 2.1.1. Action Program of the Government of Mongolia (2016-2020).
UNDAF Outcome(s)	N/A

A.2 FINANCIAL DATA in USD[1]

Latest Approved Budget	USD 384 783
Government of Mongolia contribution	USD 105 300 (in kind)

A.3 EXECUTIVE SUMMARY

The identification and registration of livestock in Mongolia began in 2012 with the initiative of the country's government, and resulted in over three million animals being ear-tagged and registered from 2012 to 2015. Unfortunately, the target of registering more than 60 million livestock in Mongolia was postponed indefinitely due to a number of factors,

[1] Data source: FPMIS/Data Warehouse.

including limited funds. As a result, with a view to achieving this aim, the Ministry of Food, Agriculture and Light Industry (MoFALI) of Mongolia requested support and the implementation of technical assistance projects from the World Trade Organization (WTO)/ Standards and Trade Development Facility (STDF), the Government of France through the country's embassy in Ulaanbaatar and FAO. Following consideration of the proposal by the organizations in question, the WTO/STDF decided in 2019 to support the implementation of the present project. FAO was the primary implementing partner, while the French Livestock Institute (IDELE) was the project's international consultant. The project was officially launched on 15 May 2019 with a budget of USD 384 783 and a scheduled duration of two years.

The main objectives of the project were as follows:

- Update/revise the standard operating procedure (SOP) for animal identification and registration.
- Development of new animal identification and registration system (AIRS) software for animal identification and registration, as well as a mobile application that can be used in a herder's hometown in rural areas.
- Ear-tagging and registration of 190 000 livestock in four local administrative units ("soums") of the province ("aimag") of Uvurkhangai using new software through the revised SOP.
- Test the new SOP new software in rural areas and elaborate results.
- Based on the pilot results, make recommendations for further implementation of the AIRS in Mongolia and submit them to the MoFALI.

During the implementation of the project, as of November 2020, the domestic spread of COVID-19 infection and attendant travel restrictions within Mongolia significantly hampered the project's performance. For instance, the process of ear-tagging, which was due to be completed in November 2020, was postponed, with the tagging of the outstanding 15 000 animals completed in May 2021. In addition, the Project Steering Committee (PSC), which met in March 2021, decided to continue with project implementation until the end of 2021, utilizing funds saved from the travel budget line as a result of the COVID-19 pandemic.

The MoFALI requested that the AIRS software be scaled up to the national level and that dead animals who had been ear-tagged the previous year be registered in the system. In addition, an international AIRS workshop was held on 9 and 10 October 2021 with the MoFALI to discuss the international experience of the AIRS in discussing project pilot results.

The IDELE was responsible for finalizing the project report and for making final recommendations based on the pilot test results. The parties agreed to extend the project until March 2022, due to COVID-19 restrictions in 2020. All project objectives were fully achieved and the final project recommendations submitted to the MoFALI on 30 March 2022.

B. RELEVANCE

The problem

Mongolia is a large and sparsely populated country that suffers from a harsh climate for most of the year. The dependence of the country's economy upon mining has led to a recent economic crisis, as a result of which the Government has expressed a willingness to diversify the economy, with particular focus on the livestock sector.

The broad geographical distribution of infectious animal diseases underlines the need for a functional and reliable animal registration scheme, which should be capable of revealing the origin of animals and/or potential contact with animals from high-risk areas.

In this context, an improved AIRS would constitute a crucial building block towards the strengthening of animal health, in turn facilitating exports. A reliable AIRS would also enable the MoFALI to oversee the sector in an efficient way, with a positive impact on livestock and pastureland management.

The response

The project aimed to test the SOP of animal identification and registration in Mongolia, to introduce new AIRS software that utilizes the advantage of the mobile application, but also to be able to test the software and SOP in field conditions by ear-tagging a total of 190 000 animals across four soums of Uvurkhangai Aimag, which is considered typical of Mongolia's countryside and covers all aspects of the country's field conditions. The key final outcome anticipated was for recommendations to be provided to the MoFALI, based on a test run of the animal ear-tagging campaign, with a view to scaling up the process across the country. Overall, the project aimed to test the feasibility of AIRS implementation, covering more than 60 million animals in Mongolia.

The implementing agency maintained a policy of partnering with key local players and those who usually conduct this particular task in their jurisdiction, namely the MoFALI as decision-maker, the local government as implementing agency for organizing the ear-tagging campaign and the local software developer, which has experienced of developing similar registration systems with different agencies in Mongolia. The principal beneficiary of the project was the MoFALI, which was able to decide on the best course of action regarding the AIRS, in order not to repeat previous mistakes caused by a lack of funding an inability to cover all animals in the country. The other beneficiary was the local government of Uvurkhangai Aimag, which registered a total of 190 000 animals across four soums and mobilized 60 people at soum level to be involved in the ear-tagging campaign. In addition, the

local service provider benefited from the project, and was able to develop the AIRS system with the assistance of the project funder/implementer.

C. ACHIEVEMENT OF RESULTS

Output 1: The SOP and the numbering scheme of ear-tagging are modified in line with international best practices and tag specifications are updated

Within the project framework, two principal relevant regulations were updated, discussed and approved by the appropriate government agencies. The two regulations are effective for implementation covering animal registration, identification, ear-tagging, the size and shape of ear-tags and chips, and the coding scheme.

The "Regulation on animal registration" was approved by ministerial decree no. A/501, dated 25 December 2019, while the "Regulation to establish a National database on animal genetic resources" was approved by decree no. A/254/A/114, dated 13 August 2019.

Photo 1: Animal ear-tag,

Photo 2: Tag specifications

(all photo credits: L. Gantumur, local coordinator of the project)

Output 2: Information system of animal ear-tagging redeveloped and made available

The improved AIRS software was developed by the selected local service provider and is now in service for nationwide implementation and connected with the database of the National Statistics Office (NSO), which is hosted within the National Data Center (NDC). The system can also be connected with the Mongolia Animal Health Information System (MAHIS) via the MoFALI's Livestock Husbandry Information System (LHIS), which was developed at a later stage by the MoFALI.

In rural areas of Mongolia, many places are without an Internet connection. The AIRS software, developed in 2012, is therefore designed for the entry of data only in soums in which there is a viable connection. The newly developed software has been produced via new technologies and with improved database structure and flexibility. The most significant changes are for registrars working in rural areas, who can register using a mobile application and upload their data directly to the central server, as long as they have an Internet connection. If no connection is available, the registrars store their data locally on their mobile phone before uploading it to the central server at a later date. The automatic connection by smartphone to the central server and data upload gives the system a flexibility that is better adapted to the Mongolian context, where many places are without an Internet connection.

In addition, the local registrar will be able to download data from the local herders on their phone, while the herder's registration information will be available offline during registration. If a registrar has an Internet connection, they can also connect to the Civil Registration Server to update the information. The new AIRS software can also be connected with the NSO server to download the herder’s information, as well as animal census data. The NSO has updated its census data twice a year and is considered the most accurate database regarding the movement of herders and the transfer and number of animals.

Photo 3: Mobile reader

Photo 4: Field work

Output 3: Equipment and software used for the project distributed to project stakeholders

As one of the main partners of the present project, the MoFALI agreed to provide 190 000 ear tags with barcodes, 280 ear-tag applicators, 38 barcode readers and 38 printers. By July 2020, the manufacturer had provided a total of 190 000 ear-tags, of which 20 000 tags for small ruminants (goats and sheep) with six-digit code numbers were provided separately for experimental purposes before the slaughtering season. FAO had organized the delivery of the stated equipment to the relevant rural location and paid for the attendant shipment cost.

From this equipment, eight barcode readers were renewed with laser readers and distributed to local registrars for testing, as recommended by project advisors from IDELE.

In addition, a total 5 000 horse chips, along with a syringe, and 10 radio frequency identification (RFID) readers were purchased through a competitive bidding process and delivered to the Aimag Agriculture Department for further distribution.

Photo 5: Tagging campaign

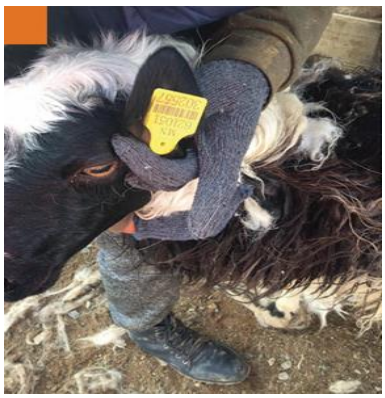

Photo 6: Tagging in the field

Output 4: Project participants trained in the use of the new software system and SOP

Four trainings were organized during the course of the project, with more than 350 people trained in duplicate.

Training in new improved AIRS software was organized from 25 May to 2 June 2020 in Uvurkhangai Province, attracting 130 participants, including local zoo technicians of soum-level agriculture divisions, local veterinarians and farmers who were involved in the registration process from four project soums, who were provided with hands-on practice through use of the new software and ear-tagging.

Training on equine chip insertion was successfully organized by the Allflex company and the MoFALI and took place on 6 and 7 July 2020. The training was attended by 14 individuals from project sites, two representatives of the MoFALI, as well as the local coordinator of the AIRS project. The service provider produced an improved software demonstration for the microchip reader through a RFID connection to all participants during the training.

Training of certified livestock graders/evaluators for five types of animals was successfully organized from 10 to 21 September 2020 in Arvaikheer Soum, Uvurkhangai Aimag. The training was organized by FAO, in cooperation with the MoFALI, and conducted by the Mongolian University of Life Sciences (MULS). The primary purpose of the hands-on training was to train zoo technicians and AIRS project participants in rural areas on ear-tagging of animals and horse chip injection in practical situations, and to qualify them as

professional graders/evaluators for both small and large livestock. Some 37 participants from four soums and officials from the Aimag Department of Agriculture (ADA) were issued with certificates declaring them professional graders/classifiers. During the training, a demonstration on AIRS software was organized in the herders' town for all participants, including guests from the MoFALI, FAO Mongolia and others from the aimag.

A further training on updated and improved software for administrative-level users was organized for MoFALI administrative officials.

Photo 7: Classroom training

Photo 8: Training in the field

Output 5: Pilot implementation of the AIRS for ear-tagging of animals in selected areas of the project

The project aimed to tag a total of 190 animals across four soums of Uvurkhangai Aimag and entered the relevant registration information in the newly developed system, which was due to be completed in November 2020. That same month, however, work was interrupted due to COVID-19, with 175 000 animals were tagged. The relevant information was entered into the system and the remaining 15 000 animals were tagged in the spring of 2021. A total of 190 000 animals are therefore registered in the system.

Photo 9: Field work

Photo 10: Working group meeting

Output 6: Evaluation of the pilot and recommendations for scaling-up in Mongolia

IDELE was selected as an international consultant for the project in 2019. The organization's consultancy service contract was extended on three occasions during this period due to COVID-19, including two no-cost extensions. The final recommendations of the project were submitted to FAO on 31 May 2022. As a result of the project's implementation, recommendations were made in the following areas: (i) objectives, (ii) target populations, (iii) identifiers, (iv) identification devices, (v) organization, (vi) public-private partnerships (PPPs), (vii) AIRS workflow, (viii) field operations, (ix) information system, (x) mobile applications, (xi) legislation and (xii) roadmap.

The consultant was due to complete the work in December 2020 but could was unable to visit Mongolia due to the COVID-19 pandemic and the attendant travel restrictions. The decision was therefore taken to extend the IDELE contract. A further decision was taken at the AIRS meeting of 9 March 2021 to continue the implementation of the AIRS project until the end of December 2021, resulting in the IDELE contract being extended again. Despite the project's smooth progress, IDELE consultants were unable visit Mongolia in 2021 due to the embargo in the country. The IDELE agreement was therefore renewed as a no-cost extension until 31 March 2022.

Photo 11: Project steering committee

Photo 12: Meeting at the MoFALI

D. IMPLEMENTATION OF WORK PLAN

Work plan

	Key activities under the work plan	Results	Completed date
1.	Update SOP of animal identification and registration	- "Regulation on animal registration" - "Regulation to establish a National database on animal genetic resources"	25 December 2019. 13 August 2019
2.	New, improved AIRS software development	- New AIRS software - Mobile applications	31 May 2020 (pilot version); 15 October 2021 (fully fledged version at national scale)
3.	Equipment and new software delivered to the field	- All of the necessary equipment and software was delivered on time prior to the beginning of field work	June 2020
4.	Training for project participants	- A total of four trainings were organized according to the action plan	May 2020 July 2020 September 2020 January 2021
5.	Animal ear-tagging and registration work in the field	- A total of 190 000 animals were ear-tagged and registered	May 2020 to May 2021
6.	Pilot the procedure for making additions and subtractions to the livestock genetic resources database in field conditions	- Covering two soums of Uvurkhangai Aimag and counting dead animals among those tagged last year to test the procedure for subtracting animals from the database	September 2021
7.	Final report and recommendations	- Contracted with IDELE for project consultancy and the final report (recommendations)	May 2022

The project was officially launched on 15 May 2019, with a scheduled end date of 31 December 2020. All field work, including ear-tagging for 190 000 animals in four soums of Uvurkhangai Aimag, was expected to be completed by this date. However, as a result of the COVID-19 pandemic and attendant travel restrictions in Mongolia, the field work could not be completed within this time frame, and was therefore extended until May 2021. The PSC, however, decided to extend the project until December 2021 and to utilize funds saved mostly from the travel budget line due to COVID-19 restrictions.

During this extension period, it was agreed that an international AIRS workshop would be organized to disseminate global practices to the decision-making level of the MoFALI. In addition, a test subtraction of dead animals from the database was conducted during the summer of 2021, with the relevant findings included in the final recommendations. In the meantime, the project consultant IDELE continued to provide their services, with final recommendations presented during the AIRS workshop.

At the request of the MoFALI, the AIRS software was upgraded to the national level using the funds unspent on travel costs. However, as explained above, the IDELE team was unable to visit the country in 2021. The final recommendations were subsequently delayed,

and the project end date extended once more, without cost, until 31 March 2022. The project's end date was twice extended at no cost, with all additional activities commenced using the funds saved for the reasons explained above.

The MoFALI supported project implementation by providing 190 000 ear tags with barcodes, 280 ear-tag applicators, 38 barcode readers and 38 printers. In addition, the local government of Uvurkhangai Aimag demonstrated its willingness to assist with all aspects of implementation.

The project was implemented in close collaboration with the MoFALI, whose Animal Genetic Resource Division (AGRD) was the principal partner. The chairman of the AGRD, D. Batsuren, was the project director, while the secretary-general of the MoFALI was the chairman of the PSC. In addition to government agencies working in animal ear-tagging, the project saw the participation of representatives of the Ministry of Finance, the General Authority of Veterinary Services (GAVS), as well as local representatives, Non-governmental Organizations (NGOs), the Embassy of France, IDELE, Mr. B. Sharbendu, a contractor with the FAO Regional Office for Asia and the Pacific.

A contract for field work was agreed with the governor's office of Uvurkhangai Aimag, where the project was implemented, while livestock breeders and veterinarians from four soums participated as contractors, together with private veterinary units and breeding units.

The project was implemented with the broad participation of all stakeholders, including government organizations, NGOs, international organizations and the private sector.

Collaboration was also initiated with local service providers to develop project software.

Resource partner contribution

The total project budget of USD 384 783 was provided by the STDF.

Risk management

The main challenge faced during project implementation was the emergence of the COVID-19 pandemic. In the event of a pandemic, it is necessary to make a preliminary response plan, work closely with all project stakeholders on remote working, coordinate work, ensure continuity and prevent delays. While the project was due to be completed in rural areas in November 2020, Mongolia imposed a strict quarantine regime in order to combat the outbreak, with the project eventually postponed until spring 2021 due to the onset of winter.

In addition, a number of field visits and international trips to project sites were cancelled, and the money saved diverted to other project activities.

Another major challenge for the project was monitoring 190 000 animals in rural areas. This project covered a significant area of Mongolia's Uvurkhangai Aimag, which combines the unique natural and climatic conditions of the Khangai and Gobi deserts. In response, the local coordinator hired to oversee project implementation successfully managed the project's performance, as implemented by the aimag governor's office, and issued an external report.

Another challenge faced during the project was the development of AIRS software to obtain herder information from the Civil Registration System through the common data exchange platform of Mongolia's National Data Center (the KHUR system), and connect to the GAVS MAHIS system. This connection was complex, requiring the cooperation of the MoFALI and the GAVS, as well as the NSO, the NDC and a number of government agencies. Although the operation was hampered by conflicts of interest and a lack of understanding between the parties, the issue was successfully resolved with the help of the MoFALI IT department.

Visibility

During project implementation, a range of measures were taken to make the project results available to the public, in particular at the decision-making level.

Firstly, 5 000 copies of a document including a project introduction and a livestock ear-tag manual brochure were published in 2019 and early 2020 and distributed as a handbook in the project area.

In addition, in order to inform the public of the project's progress and results, a 15 to 20-minute television programme was prepared twice and shown four to five times on the television channels most widely watched by herders. The first episode aired in July 2020, and the second in November 2020 on four major channels.

Finally, the AIRS International Workshop was held from 9 to 11 October 2021, in an effort to present the international experience of the AIRS at the decision-making level of MoFALI and other relevant organizations in the country.

E. SUSTAINABILITY

a. Capacity development

During the opening workshop, attended by 45 participants, and local meetings, the project was introduced to local soum administrations and veterinarians, with its goals and objectives presented and discussed.

More than 500 people from four soums were involved in a range of trainings, including project information and AIRS. Training on how to use the software, which took place in late May 2020, was attended by 150 participants, while 40 people were involved in the horse chip installation training held in July 2020. In September 2020, 40 people were trained and certified as large and small livestock breeders.

In the first quarter of 2021, special training was organized for project software administrators and developers, including officials from the MoFALI and other stakeholders. This included around 20 programmers. In addition, the MoFALI provided training on AIRS software for veterinarians in 330 soums across Mongolia. On-site practical training on animal ear-tagging was organized on four occasions during the course of project implementation.

b. Gender equality

More than 50 percent of participants in project activities in the veterinary and breeding units of the soums were women. The management and implementation of the project were done mainly by women, including the leading specialist in day-to-day work in the countryside and the local project coordinator. The Mongolian general veterinarian, meanwhile, was the project director. In Mongolia, livestock is also herded by families, with statistics showing that at least 50 percent of the herder and rural labour force are women.

c. Environmental sustainability

Although the project did not conduct a separate assessment of the environment, it did constitute a vital component of the livestock identification and registration process. The project will be an essential foundation for the correct implementation of pastureland management in the future and will therefore be critical to solving Mongolia's pastureland management and desertification issues.

d. Human Rights-based Approach (HRBA) – in particular Right to Food and Decent Work

Under the project, the private sector collaborated with rural authorities to test the SOP of Mongolian livestock ear-tagging. This will constitute the main work of herders and veterinarians in the future, and the project's final recommendations have a focus on herding and initial registration by herders. If this MoFALI supports this at policy level, herders can carry out the initial task of ear-tagging. In addition, professional breeding units will be able to perform this work by contracting with herders, while essential livestock registration will allow the traceability of other livestock products, increase employment at all stages of livestock processing and provide quality control. Implementing traceability in meat and other products will drive significant progress in understanding the origin of meat products, food quality and safety at the end-user level.

e. Technological sustainability

AIRS technology is a form of registration software first developed in 2012. As part of the project, the software was newly created using the advantages of modern technology, with a mobile application designed for the first time for registration in local herder towns using a mobile phone. The software was designed to work both online and offline, taking into account the level of Internet connection in Mongolia. Where no connection is possible, the mobile application works in registration mode, stores the relevant information locally on the mobile phone and automatically connects to the central server as soon as it enters a connected area.

As for other technical equipment, animal ear-tags and the related tools and accessories constitute traditional equipment that is already widely used across Mongolia.

SOP for ear-tagging and registration was updated, tested on-site and improved, based on the findings, and approved by the Minister of Food, Agriculture and Light Industry. The registration technology and software developed under the project can be used nationwide. In the next five to ten years, no problems are anticipated with the level of software technology.

f. Economic sustainability

The Government of Mongolia has demonstrated its interest in continuing the project in the long term. The country will continue to implement livestock registration sustainably as part of its policy to develop livestock breeding and increase meat exports. The law stipulates that the herder will bear the cost of ear-tagging and that the initial registration will be funded by the project, in

which individuals and businesses will invest in in the long term. This is due to the policy of not selling unregistered livestock on the market.

F. LESSONS LEARNED

LESSONS LEARNED – elements of success

The direct experience of the project is that it is more important to register livestock in Mongolia or to begin registering breeding animals and subsequently use them mainly to improve livestock breeds. Ear-tags should be worn only as part of the implementation of a tracking system for animals of other commodities, such as meat, hides and other raw materials.

Another important conclusion is that human resources are an essential factor in conducting ear-tagging in rural areas. It is recommended that herders be involved in special training to this effect. The ear-tagging of livestock is a labour-intensive task that requires the development of specific facilities, such as portable fencing for livestock ear-marking.

It is considered that the registration system should perhaps be used as a basis for the registration of individual breeding animals and the improvement of animal breeds, and that commercial animals should be separated from the GAVS by ear-tagging as they move.

LESSONS LEARNED – impediments/constraints

The critical issue in implementing livestock registration in Mongolia was connectivity. Although it is now possible to register animals offline via the mobile application, some problems remain. In some cases, for instance, it was unclear whether or not registration data had been stored, as a result of which talks were held with the software developer in order to provide a response to the user.

On the occasions in which the ear-tags were contaminated, it was difficult to read them with a normal mobile phone camera. It was therefore concluded that it is advisable to use a laser reader or dedicated reader device to read the barcode of animal ear-tags. The glare from the sun also contributed to the difficulties in reading from mobile phone screens, thereby significantly hampering registration.

G. FOLLOW-UP ACTIONS

– To scale up the pilot AIRS tested under the project MTF/MON/018/STF (STDF project) to the national level.

- To set up specific organization independent from animal breeding and animal health.
- The financing of livestock ear-tagging is an issue of great significance. While around 70 million Mongolian animals are ear-tagged, 20 to 30 million new ear tags will be required every year due to herd turnover, demonstrating the costliness of this activity.
- There is a lack of human resources to deregister the 20 to 30 million animals that die each year. Although there are currently no problems in counting the number of livestock, it is not possible in the current context to identify the lost animals by the number of earrings and deduct them from the database. Herders should therefore carry out this work themselves, with the Government offering an incentive for herders in this task.
- There is a need for the Government to implement an incentive to encourage herders to breed and improve their livestock, thereby motivating them to register their breeding animals.
- If herders are to play an important role in livestock registration, it is necessary to develop a mobile technical application for their benefit, providing them with the opportunity to view, exclude and monitor their herd registration. To this end, the appropriate changes should be made to the relevant rules and regulations.
- The development of different uses for livestock registration, especially in the fight against livestock theft, will be significant.
- The use of other scientific discoveries and the introduction of genetic research are essential for the long-term benefit of livestock registration and breeding.

H. HUMAN INTEREST STORY

Local herders supported and were actively involved in project. The importance of making herders aware of the importance of livestock registration is clear. The 190 000 animals tagged under the project included 5 000 horses, for whom tagging involved an electronic chip being implanted in the animal’s neck.

In order to attract herders, the staff of private veterinary and breeding units, who were in charge of ear-tagging and chipping, explained to herders that in some cases, electronic chips are essential for informing livestock location. In rural Mongolia, horses are grazed in the open and men are responsible for guarding and searching for horses. As a result, the use of a modern Global Positioning System (GPS) to track the location of a horse on a mobile phone

was a new technology of great interest to herders. Although GPS technology is crucial, the installation of satellite GPS in areas with no network is relatively expensive for herders, with only some able to use the system. Despite this, there was considerable interest in using this system.

It was common for the installation of a horse registration chip to be confused with a GPS collar, with herders often more interested in injecting a registration chip into their horses. Some private breeding units used this situation to explain to herders that this represented the first step in a technology that would help them to locate livestock in the future. Subsequently, the project team, in cooperation with local coordinators, visited herder households and took steps to explain the situation correctly.

Livestock theft is widespread in rural Mongolia. Herders are aware of the importance of livestock registration in combating livestock theft and have generally been active in-ear tagging.

Of the four soums of Uvurkhangai Aimag targeted by the project, two are Gobi soums, and two are Khangai or mountainous and forested soums. Bat-Ulzii is a mountainous soum of Khangai and has the highest number of yaks in Mongolia. A local veterinary unit was selected to carry out yak ear-tagging in the soum, which was said to be more complicated than for other types of animals. Yaks have a fierce temperament and are semi-wild and mountainous animals compared to Mongolian and other cattle, which makes catching and tagging them a more labour-intensive task. In addition, local veterinary and breeding units successfully reached livestock, although the lack of facilities in Mongolia's rural areas made this process difficult to achieve.

Photo 13: Field work

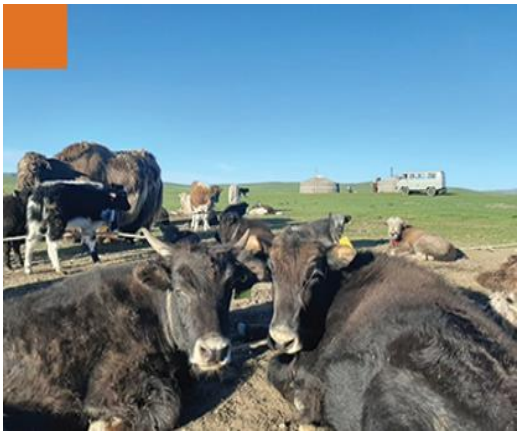

Photo 14: The Mongolian countryside

Appendix 1

LOGFRAME MATRIX– ACHIEVEMENT OF INDICATORS

Results Chain	Indicators				If not achieved, explain why	If applicable/ follow-up action to be taken
	Indicators	Baseline	End target (*expected value at project completion*)	Achieved		
Impact[2] Support the development of a national AIRS that facilitates animal disease control and development of meat exports.	In the long term, the amended AIRS will benefit breeding organizations via support for performance-recording and herd book-keeping. In the short term, the impact on herders will be apparent in the decrease in animal theft.					
Outcome Implementation of a pilot AIRS (on a small scale for a limited period of time) to test its technical and financial feasibility and use and identify key improvements needed, prior to scaling-up nationwide	Demonstrate AIRS scheme sustainability on a small scale for its technical and financial feasibility.	0	AIRS scheme sustainability to be demonstrated.	Yes		There is a need to scale up the AIRS scheme to the national level.
Output 1 The SOP and the numbering scheme are modified and the tag specifications available.	SOP and numbering scheme modified and tag specifications made available.	Existing SOP within the MoFALI.	SOP updated for animal identification and registration.	Yes		The relevant SOPs need to be updated further, in line with the final recommendations.
Output 2 The information system is available	New AIRS software system developed and made available.	Old AIRS system.	New software system in place.	Yes		The AIRS software system needs to be updated, in line with new IT development.
Output 3 Tags and equipment are provided.	Distribution of equipment and AIRS software to project stakeholders.	0	The pilot project is implemented.	Yes		New equipment needs to be purchased so that ear-tagging can continue.
Output 4 Actors are trained.	Training of participants.	0	The project participants receive training.	Yes		Further training is needed to develop human resources.

[1] The impact level should always reflect the higher programmatic outcome to which the project contributes. For example, at the country level, this is expressed as the CPF outcome to which the project contributes and can also reflect other elements of impact that are defined at a higher programmatic level (UNDAF/national goal/FAO Strategic Framework).

Results Chain	Indicators				If not achieved, explain why	If applicable/ follow-up action to be taken
	Indicators	**Baseline**	**End target (*expected value at project completion*)**	**Achieved**		
Output 5 Pilot AIRS is implemented.	Number of animals for whom ear-tagging and registration are implemented in selected areas.	0	Animal ear-tagging and data entry implemented for 190 000 animals.	Yes		Ear-tagging and data entry should continue for selected animals in Mongolia.
Output 6 External evaluation and development of recommendations.	Evaluation of the pilot and recommendations for scaling up in Mongolia.	0	Final report and recommendations for scaling up the AIRS in Mongolia.	Yes		Further development and upgrade needed.

Appendix 2

DOCUMENTS PRODUCED DURING THE PROJECT

MoFALI. 2019. Recommendations to implement the AIRS in Mongolia. Ulaanbaatar, Mongolia. 10 pp.

Interactive LLC. 2020. User's manual of AIRS. Ulaanbaatar, Mongolia. 30 pp.

Aurelia. 2020. Equine Microchipping Online Training Module. Beijing, China. 15 pp.

Rehben, E. 2022. Updated Recommendations for Animal Identification and Registration System in Mongolia, Paris, France. 43 pp.

Appendix 3

PROJECT STAFF

Function	Dates of Service	
	Starting Date	Concluding Date
International staff		
Project budget holder	19 May 2019	31 March 2022
Project lead technical officer	May 2020	31 March 2022
Project consultant	23 July 2019	31 March 2022
Project consultant	23 July 2019	31 Dec. 2021
Project contractor	15 Sept. 2020	15 Feb. 2021
National staff		
Project coordinator	19 May 2019	31 May 2020
Project coordinator	1 June 2020	31 May 2022
Project local coordinator	1 April 2020	31 Dec. 2021

Appendix 4

TRAINING AND STUDY TOURS

Training on new improved AIRS software. 25 May to 2 June 2020. Arvaikheer, Uvurkhangai Aimag, Mongolia. 130 participants 69 women and 61 men).

Training on equine chip insertion. 6-7 July 2020. Ulaanbaatar, Mongolia. 20 participants (12 women and 8 men).

Training on certified graders/evaluators for five types of animals. 10-21 September 2020. Arvaikheer, Uvurkhangai Aimag, Mongolia. 37 participants (14 women and 23 men).

Training on administration for the AIRS system. 15-18 January 2021. Ulaanbaatar, Mongolia. 14 participants (6 women and 8 men).

Training on the AIRS system for local zoo technicians from 21 aimags. 21-24 November 2021. Ulaanbaatar, Mongolia. 150 participants (92 women and 58 men).

Appendix 5

MAJOR ITEMS OF EQUIPMENT PROVIDED

Quantity	Item	Cost (USD)
Government of Mongolia contribution		
190 000	Animal ear-tags for large and small animals	95 000
38	Printer	7 600
38	Barcode reader	3 800
280	Ear tag applicator	1 400
Equipment procured from the project fund		
1	AIRS software set	55 000
5 000	Horse chip	15 000
10	RFID reader	3 200
2	Laptop computer	2 000