National Animal Identification System

The concept of having a National Animal Identification System to identify and trace all animals in Mauritius was first made during the Livestock Policy Hub meetings under the sponsorship of the African Union InterAfrican Bureau for Animal Resources (AU-IBAR). In collaboration with various stakeholders, the project was developed and presented to Government in the context of budget consultations in 2018. In the Budget speech 2018-2019, funds were allocated to the project to the tune Rs 9M over three years. A Technical Committee, consisting of representatives of APD, DVS, FAREI, SFWF, and MMA, was thereafter set up to supervise the implementation of the project.

Project justifications

One of the major constraints in the Mauritian livestock sector is the present lack of traceability of animals and animal products. At present, tagging is being used to identify animals but this system is not backed by an efficient record-keeping system that would enable authorities to follow-up. Moreover, tags are regularly lost or tampered with, leading to considerable confusion in the administration of animal identification. This leads to several problems down the line:

(i)   Inability to obtain correct and timely information regarding the national herd (leading to poor decision-making and policymaking);
(ii)   At the farm level, there is inadequate monitoring of herds leading to poor productivity;
(iii)   Inefficiency of the dairy insemination programme;
(iv)   Poor source verification at the abattoir
(v)   Inefficient monitoring of animal diseases and animal movement
(vi)   Livestock thefts and illegal slaughter
(vii)   Poor administration of schemes to help livestock keepers

These issues have consistently hampered the progress of the livestock sector leading to poor productivity and overall economic inefficiency. Small-scale farmers are also unable to tap into higher end and more lucrative markets (such as export markets and the tourism industry) because they are unable to meet the minimum traceability requirements of those markets. They are thus condemned to lower incomes, perpetuating poverty among the farming community.
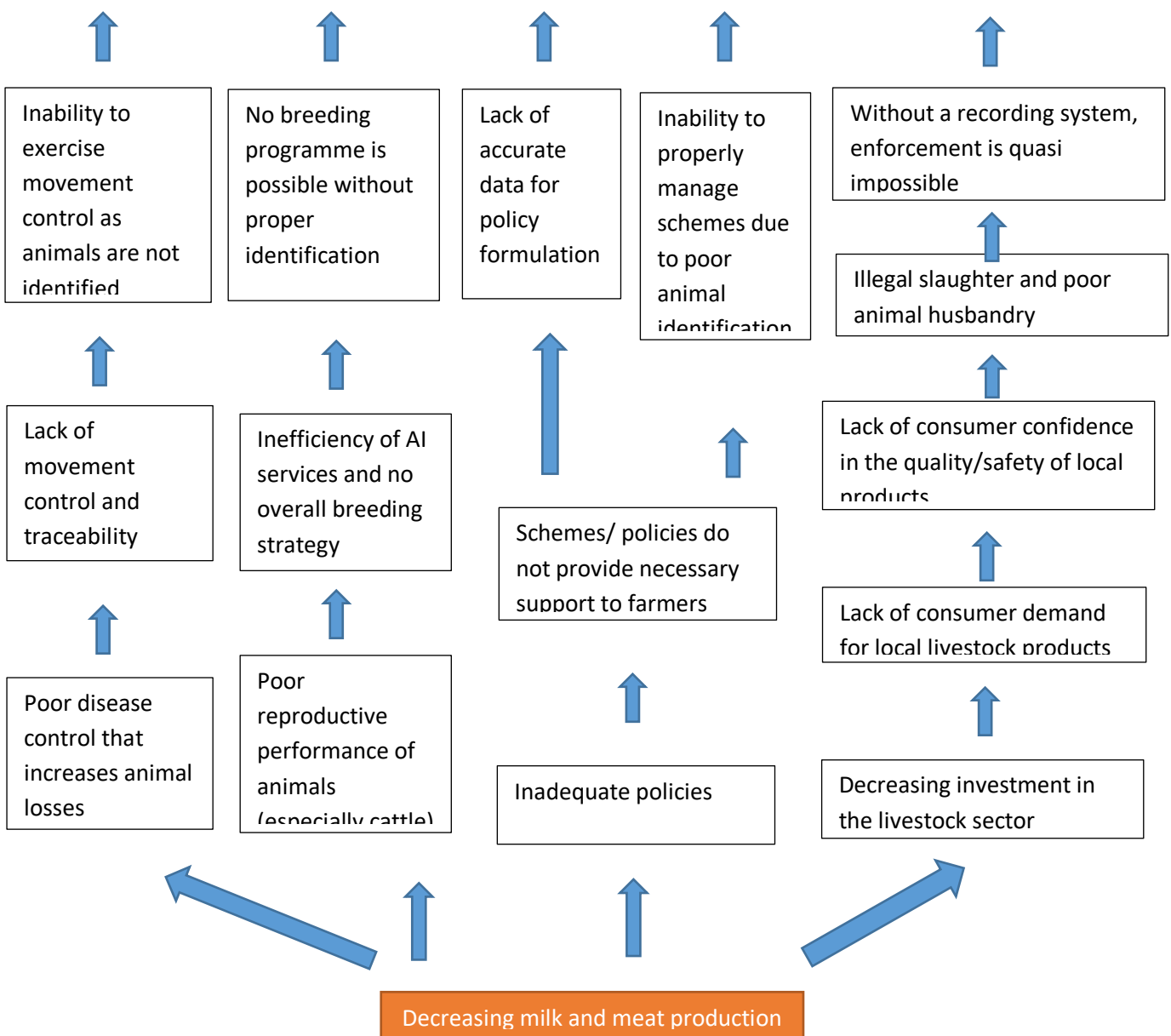
The National Animal Identification System (NAIS) project was set up to enable correct identification of all livestock from birth to market. The first key activity in the NAIS project was the microchipping trial conducted in October 2018 which provided necessary methodologies for the project to proceed.

Mr. Peter Drucker so famously said over 40 years ago: ***"WHAT GETS MEASURED, GETS IMPROVED"***. If we cannot measure a parameter, we cannot aspire to improve it. This is basic management and it is true for the livestock sector as well.

The NAIS is a system that enables the recording of parameters for the livestock sector, namely number of animals, number of farmers, location of farms …etc. It is the basis through which measurements can be made so that planning for improvement becomes possible. Without a system such as NAIS, the services of the Ministry in the livestock sector are operating blindly and disjointedly producing little or no result.

The problem tree below summarizes the core problem of the livestock sector (decreasing milk and meat production) and its causes, demonstrating how the NAIS provides an effective remedy to them.

A system for the identification and recording of animals, farms and farmers is essential

| Inability to exercise movement control as animals are not identified | No breeding programme is possible without proper identification | Lack of accurate data for policy formulation | Inability to properly manage schemes due to poor animal identification | Without a recording system, enforcement is quasi impossible |

Illegal slaughter and poor animal husbandry

| Lack of movement control and traceability | Inefficiency of AI services and no overall breeding strategy | | | Lack of consumer confidence in the quality/safety of local products |

Schemes/ policies do not provide necessary support to farmers

| Poor disease control that increases animal losses | Poor reproductive performance of animals (especially cattle) | Inadequate policies | Decreasing investment in the livestock sector |

Lack of consumer demand for local livestock products

Decreasing milk and meat production

Issue	How NAIS addresses the issue
Poor disease control	1. Effective control of over animal entries (whether imports from overseas or from Rodrigues) 2. Recording of animal health events on farms, quarantines, slaughterhouses and other establishments will enable effective monitoring of their animal health statuses 3. In the event of an animal health event, the vet can send alerts to responsible officers so that prompt action can be initiated 4. NAIS makes movement control possible. DVS can now put in place movement permits that is not burdensome upon the operators as the system will be online. This is not possible with the manual system where operators need to physically fill in forms at the DVS, making movement control impractical. 5. Farms are precisely located via GPS. In the event of disease, DVS can "lock" movement from that farm and effectively designate infected zones in which surveillance and other animal health measures must be concentrated. 6. NAIS makes traceability a reality. With permanent electronic identification, a formalized reporting through extension services (scanning of animals at regular intervals), and institution of movement controls, the system detects the movement of animals between farms and establishments from its birth to slaughter. Consequently, if a problem is detected at the abattoir, for example, it shall be possible to trace the animal back to the farm. Animal health measures can then be taken on that particular farm instead of alarming the whole country.
Inadequate policies	1. NAIS shall provide up-to-date information on the number of farms, their locations, owner profiles, herd status, animal health status, birth rates, death rates, etc. This information shall enable policy makers to draft more effective policies that support the livestock sector. 2. Schemes such as the HPIS, which requires the follow-up of an animal from birth until it is at production stage, shall now become implementable. One of the major challenges in the implementation of the HPIS was that animals could not be positively identified by DVS. In the case of other schemes as well, SFWF would no longer need the inputs of other institutions in order to disburse funds to farmers. All required information will be available online and shall be up-to date. This will definitely streamline procedures, making schemes more user-friendly and accessible. 3. It is presently impossible to discriminate between farmers who practice good animal husbandry and those that do not. With a register of farms, this shall now become possible, enabling various institutions to focus their attention/policies on specific groups rather than providing blanket policies for all.
Decreasing investment in the livestock sector due to lack of consumer demand for local products	1. It is clear that major retailing outlets and hotels do not procure their livestock products locally (except for chicken where the quality/safety assurances are present). The overriding reason is the lack of traceability which is an important requirement of these markets. NAIS shall now provide this traceability, opening these markets for farmers who wish to upgrade their activities to become eligible for them. 2. Illegal slaughter is a major food safety concern. With NAIS, illegal slaughter will gradually disappear on its own as there will be a record of all animals and disappearance of animals will have to be accounted for by the farmer.
Poor reproductive performance of animals	1. Animal production relies heavily on the reproductive performance of the animal. If reproductive performance is not improved from generation to generation, production inevitably declines. Up to now, there is no system for performance recording of our animals. Consequently, it is quasi impossible to have a breeding strategy for the country, thus leading to overall ineffectiveness of the AI service. With NAIS, such performance recording will become possible. 2. **Establishment of baseline animal performance levels.** It is important for a country to be aware of the true productive capacity of its main livestock species in each of its major production environments and ecological zones. A nationwide animal recording system can generate statistics about livestock numbers. If the system also has a performance recording

Issue	How NAIS addresses the issue
	component, then it can generate useful data on production and productivity on a species basis. These data should be analysed in relation to constraints operating in the production environment

Roles of stakeholders and benefits expected from NAIS

	Role in implementation of NAIS	Benefit derived from NAIS
Fmer	• Reporting deaths, births, sales, diseases and movements • Apply for veterinary services, AI services, feed subsidy, movement permits	• With improved traceability, NAIS will enable Mauritius to achieve compliance with sanitary and phytosanitary standards set by other countries, and can provide information required for the issuance of health certificates for export. This can be very useful for the corporate poultry sector for example. • More efficient delivery of AI, veterinary services, and subsidy schemes. • NAIS can help to verify information about the attributes of a food product, such as whether the product is organically produced, the specific breed type from which the product is derived, whether good animal welfare practices have been followed or particular feeding practices applied, whether it is free from antibiotics and hormones, and whether it has been produced under environment-friendly conditions. The underlying rationale is that such products usually attract higher prices in the marketplace
APD	• System administration • Animal identification • Record and monitor animal movements • Troubleshooting and operating help desk for users • Establishment registration • Fill in information related to pig AI, chick, duck, cattle and sheep production	• The potential for long-term increase in production that NAIS brings is in line with the mandate of APD to support livestock production in Mauritius.
DVS	• Authorise movement • Fill in animal health status of establishment • Fill in slaughter related information at abattoir • Fill in reproduction data including AI, PD, calving…etc. • Fill in import and export information • Fill in information related to inspection of establishments	With NAIS, animal health information recording becomes possible. DVS would be able to define the health status of the animal populations. This is a prerequisite for planning any surveillance and control strategy and for the application of zoning or compartmentalization policies. It also facilitates early detection and rapid response in the event of health emergencies. Timely responses minimize direct and indirect losses and help to restore consumer confidence. Finally, the existence of a comprehensive animal health information system facilitates the performance of risk assessment studies.
FAREI	• Validate farm registration information • Take GPS coordinates of farm • Regular visit of farms including scanning of animals	• Process of data collection, processing and reporting is greatly simplified and automated. • Detailed profiles of farms available • Data is always up-to-date
SFWF	• Align database of farmers to new register of farmers	Managing payment of subsidies and preventing fraud. Correct payment of subsidies requires accurate data concerning animal numbers, holdings and owners. As NAIS provides such data, it can support administration processes and fraud prevention in subsidy payment

	Role in implementation of NAIS	Benefit derived from NAIS
		schemes. It also reduces the costs associated with the application of related controls.
MMA	• Align database of farmers to new register of farmers	• Effective control over illegal slaughter • Enables source verification at abattoir so that there is control over what types of animals are slaughtered. For example, animals which have been recently treated with antibiotics can be identified and the abattoir can refuse them.
Consumer		Consumers benefit from improved food safety and assurances regarding the accuracy of claims made about characteristics of the food they purchase and consume.

FAO Technical support for the development of a National Animal Identification and Recording System in Mauritius, TCP/MAR/3703_TCPF

In March 2019, the Animal Production Division obtained technical assistance from the FAO through a 30-day consultancy between the 03 February and 15 March 2019. The objective was to conduct a complete analysis of the present animal identification system in Mauritius, assess the institutional and regulatory framework, determine needs and identify roles of different stakeholders in the system and define the architecture, components, modules, interfaces for a database that meets User Requirements. The consultant, Dr. M. Beffa, undertook a large number of consultations with a variety of stakeholders, both public and private such as MMA, DVS, SFWF, and FAREI but also representatives of poultry corporate sector, deer producers, small farmers…etc. A visit to Rodrigues was also organized.

Dr. Beffa made a number of recommendations to enable the Division to implement the NAIS:

(i) Institutional arrangements—an essential starting point is the establishment of appropriately staffed office in Mauritius and sub-office in Rodrigues. Staffing should include a team leader, office / clerical staff (correspondence, follow up on actions and requests, data capture and processing, filing, monitoring animal identification devices and reporting) and field staff (animal identification and registration).

(ii) Legal framework—there is no provision to support NAIS under the current legislative environment. However, considerable effort has been devoted to drafting animal health legislation that will not only address gaps in the animal health and food safety legislation, but also provide a framework for the implementation of NAIS.

(iii) Electronic database—in developing an electronic database, all user requirements need to be considered to support the Mauritian National Animal Identification System (NAIS). Currently, several institutions have their own in-house databases, with repeated information (all are in excel apart from Voozanoo, a database developed by the Indian Ocean Commission, IOC, for the Division of Veterinary Services, DVS). The database to support the implementation of NAIS must meet the requirements of the user which inter alia includes: load, validate, process and store data; retrieve data for creation of reports as required by the user.

(iv)   Awareness campaign—a significant component to successful implementation of NAIS is to ensure all stakeholders are aware of the system, its importance and the procedures to be adopted. Equally important, is to ensure all stakeholders are aware their responsibilities in the proposed new animal health legislation. The campaign must target a wide spectrum of stakeholders ranging all involved from 'farm to fork', encompassing:
-    Primary stakeholders (persons/entities handling the animals and animal products – farmers, traders, slaughter house operators);
-    Secondary stakeholders (retail outlets and consumers);
-    support services (public and private institutes providing services to the livestock value chains, including transporters, feed manufacturers and drug companies); and
-    other stakeholders (school children, police – law enforcement, and politicians – understand the need and importance to support NAIS).

It is proposed that a detailed communication strategy be prepared with a budget covering the implementation phases of NAIS (at least three years). The strategy needs to look at developing specific material and appropriate media to address the wide range of stakeholders.

Procurement of a Web-Based National Animal Identification System for the Livestock Sector MOAIFS/Q113/2019-2020/OAB

Further to the report of the FAO Consultant, the Division focused on the procedures for the launch of the procurement exercise for the development of the NAIS software. The first part of this process was the development of detailed specifications. The assistance of the Central Informatics Bureau of the Ministry of Technology, Communication and Innovation was sought and detailed work flows for all the processes to be involved in the NAIS were developed. The procurement exercise was initiated in December 2020 and is presently at evaluation stage.