**GARA AFRICA CHAPTER (GAC) WORKSHOP/GENERAL ASSEMBLY 30TH NOVEMBER 2023**

**30 November 2023** 10:00am-14:00am (WAT)

*Reporting Officer(s):* Andriy Rozstalnyy (AR)*,* Animal Health Officer, NSAH

Marcel Casimir Ndongo Kounou (CN), ASF Technical Specialist, ASF Technical Specialist, NSAH

*Dates of report:* 9th December 2023

**MEETING REPORT**

**PARTICIPANTS:**

**GAC Interim committee:** Dr Pam Luka, Peter Ogweng, Dr Ebanja Joseph E, Carlos Quembo

**GAC:** 59 members from divers African Research Institutions, Universities, and animal disease control services as shown by the attendance list (see the annex)

**Guest representatives of collaborative institutions and Speakers:** Karl Stahl (**GARA** President) Andriy Rozstalnyy (**FAO**), Casimir Ndongo (**FAO**), Gregorio Torres (**WOAH**), Hiver Boussini (**AU-IBAR**), Charles Lamien (**Joint** **FAO-IAEA** **Lab**), Edward Okoth (**ILRI**), Douglas Gladue (**ARS-USDA**) and Mary-Louise Penrith (**UP**)

**BACKGROUND**

Global African swine fever Research Alliance (GARA) is a coordinated alliance aimed at establishing sustained global research partnerships that will generate scientific knowledge and tools that contribute to the successful prevention, control, and where feasible eradication of African Swine Fever (ASF).

As an outcome of the GARA Gap analysis workshop held in Kampala Uganda in February 2023, to encourage contextualization of the global objectives, south-south collaboration, and discourage working in silos for the control and prevention of African swine fever in Africa, GARA African Chapter (GAC) was born. The aim is to encourage scientists across borders and regions within countries to work together towards generating information useful for the control and ultimate eradication of ASF where necessary in Africa. This is to be achieved in line with national regulations and guidelines, in collaboration with regional (SADC, ECOWAS, EAC, etc) and international partners (WOAH, FAO, AU-IBAR, IAEA, ILRI, etc). The terms of reference of GAC are:

1. To establish a network of experts in Africa on African swine fever and to facilitate cooperation, communication, and collaboration with existing networks.
2. To contextualize the goals and objectives of GARA to the African setting scientifically using best-fit strategies towards the control and eradication of the disease in conformity with the standards and guidelines of the WOAH.
3. To conduct research into various aspects of pig production, pig genetics, viruses, and vector ecology, spread and transmission of the virus, immunology, drivers and risk factors, and socioeconomics of the disease, etc in Africa.
4. To support vaccine development efforts given that over 90% of ASFV genotypes are found in Africa.
5. To emphasize the role of biosecurity among farmers. This requires continued education, policy support, and monitoring by scientists to ensure a shift in mindset.
6. To support the establishment and sharing of regional competency/Laboratory to provide key services, conduct research, and support disease outbreak investigation.
7. To work closely with FAO, WOAH, IAEA, ILRI, and AU-IBAR and to play a role in the development and implementation of the regional framework and regional ASF control strategy.

To set up the functioning framework, three subcommittees were established with interim activities and the modus operandi proposed. Two general assemblies were held and proposed partnerships were suggested.

**LIST OF MAJOR EVENTS OF THE MEETING:**

The meeting comprised of 4 major events including:

1. A formal welcoming session dedicated to welcoming remarks from the GAC interim leading Committee and Karl Stahl (GARA interim President)
2. An introductory session dedicated to a presentation of the background of GAC and a recall on the ASF Research Gap analysis as conducted in Kampala in February 2023
3. A technical session dedicated to five technical presentations and discussion on the following topics:

* ASF control strategy by AU-IBAR, the leading institution on ASF and other TADs control in Africa
* Capacity development and differential diagnostic tools for ASF and other swine diseases by Joint FAO-IAEA Lab
* Principles of compartmentalization by WOAH
* On-farm Biosecurity and Progressive Management Pathway for Biosecurity by FAO
* ASF Vaccine Development: Progress and Prospects by ILRI and ARS-USDA

1. Closing session consisting of presentation on adopted GAC Action points and recommendations by GAC Team Member.

**COMMUNICATIONS AND OUTREACH**

**Update of GAC previous activities**

GAC derived from GARA thus, has its mission in Africa aligned accordingly. The strategy and technical goals were given as presented previously.

A mapping of research output from SCOPUS database carried out in the continent on ASF over 41 years was presented, the highest productive year being 2021 with 48 publications. Thus, the Uganda Gap analysis meeting revealed that several research works were being carried out in the region with most researchers working in silos, with not so many researchers aware of what was going up in their immediate environment or across the border. These were the drivers of the creation of the present initiative. The *modus operandi* that was adopted at the creation and approved by the GARA leading Committee is that “the group should remain part of GARA working to contextualize GARA objectives to Africa. The representation of all the sub-regions was agreed upon as key in the constitution of the leading committee. A communication platform was created and three other working committees as interim operational bodies: the communication, project and collaboration, and scientific committees.

The terms of reference of GAC adopted by its members were discussed as presented above (see paragraph on background), and the outline of the short-term work plan associated are:

1. The development of a memorandum of understanding or consortium agreement to encourage research activities and sharing of human and material resources among African countries or institutions/ partners.
2. The organization of an in-house online symposium.
3. The organization of the second GAC meeting.
4. Leverage on each other’s.
5. Work closely with FAO, WOAH, AU-IBAR, and ILRI and discuss the role of GAC in implementation of the ASF control Global framework.

**Update on the ASF research gap analysis and its implication for Africa:**

The gap analysis carried out in Kampala Uganda was built around five topics namely surveillance, control, diagnostics, vaccines, and epidemiology. According to the speaker, some gaps were not covered such as information on outbreaks, research on wild suids, co-infection with other pathogens, ASF new genomic, capacity of sharing information, definition and role of carrier, and efficiency on live attenuated vaccine.

Gaps identified:

1. 1st Gaps identified are related to surveillance and epidemiology as important for control, the pig demographics and value chains, the risk mapping and models to support cost-effective targets and interventions, and inaccuracy of the available information from the census of most countries.
2. The second gap is related to the impact of African swine fever at local, national, and regional levels. This information is needed to convince policymakers to invest more in African Swine fever management, while there are 2 useful tools for quantifying economic and socioeconomic losses, developed by FAO and Celia in Australia. There is the need for training on how to use them in the context of Africa.
3. The third gap is improving field and laboratory diagnosis which are very relevant to rapid and accurate diagnosis including point-of-care tests. Here 11 knowledge gaps, 16 research needs, and 8 policy issues were identified. We need to improve on our laboratory capacity and networking, as well as identification of alternative sample types and transportation.
4. The fourth gap is the development of safe and efficacious vaccines for Africa.
5. The fifth gap is related to epidemiology, surveillance, and control groups, predominantly in resource-limited settings including transdisciplinary research to understand the socio-economic and cultural drivers of behaviours related to ASF control, stakeholder, and community engagement to improve passive surveillance and ASF control and prevention.
6. And lastly, lack of collaboration among African researchers which is the main driver for the creation of GAC, with the main objective built around the desire to address the gap.

**CONCRETE DELIVERABLES/ RESULTS:**

Five presentations were delivered by speakers mainly representing proposed collaborative institutions. Discussions followed and recommendations were subsequently formulated by participants.

All documents will be made available on the GAC social media pages and website. (website under development)

Some of the key issues and outcomes of discussion include, but not restricted to:

**ASF control strategy by AU-IBAR, the leading institution on ASF and TADs control in Africa:**

In his presentation, AU-IBAR introduced ASF as the second most spread disease in Africa after rabies, which is already present in the 5 regions. Among the challenges for efficient control are the movements of pigs and pig products. Humans and vectors play the greatest role in the spread. The production system in Africa is mainly free range and backyard (90%) where most producers are smallholders with low biosecurity practices, high and uncontrolled movements including transboundary movements of pig and pig products with low harmonization of legislation and control measures. Lack or inadequate compensation policy is also a serious factor increasing the risk. Socio-economic impact of ASF is not well understood and there is an absence of data on the contribution of the pig sector to GDP in some countries. The disease is also underreported.

The 1st ASF Regional control strategy was initiated in 2013, developed in 2015, and published in 2017 with the support of FAO. It has recently been updated in 2023 with the support of FAO-ECTAD East Africa/DTRA and handed over to AU-IBAR for endorsement.

This strategy supports gradual and steady progress in 4 thematic areas which were presented as well as the principles and the 7 outcomes. It will be the foundation of the Sub-regional ASF or national control plans. The objective, implementation framework, approach, and theory of change were presented. Each country is requested to develop/update the national ASF control plan based on local ASF situation and country realities but aligned with a risk-based plan.

The complexity of the nature of the virus which is found in both the domestic, and sylvatic cycle was highlighted. A meeting for validation will be organized in April 2024 by the CVOs and value chain actors.

AU-IBAR expects GAC initiative to federate all researchers’ efforts to develop an efficient ASF vaccine for Africa in the framework of the implementation of the Regional Strategy. The next steps are the translation of this strategy into continental programs, sub-regional and national projects and to mobilize resources for implementation.

AU-IBAR representative said they will be relying on the contribution of researchers for a successful implementation of the ASF regional strategy and besides ASF SGE which was mainly made up of CVOs, hence AU-IBAR is expecting ~~that~~ this specific research network to play an active role.

**Capacity development and differential diagnostic tools for ASF and other swine diseases by Joint FAO-IAEA Lab**

The Animal Production and Health Laboratory is a WOAH collaborating centre for molecular techniques in animal disease and diagnostics. The scope of the laboratory was presented. One of the latest outcomes which may be of optimum importance in ASF control in Africa is the creation of a multiplex diagnostic tools for ASF and other swine disease diagnoses.

As a lesson learned from the collaboration with laboratory institutions in Africa, FAO/AIEA has assessed most of the African Vet lab partners as undoubtedly able to diagnose ASF. Currently, many of these labs have successfully detected and reported ASF independently according to the speaker. These labs typically reached FAO/IAEA or WOAH reference lab primarily for confirmation and for further characterization.

Newly affected countries usually need only SOPS. In addition, they may also require assistance with reagents. The continuous genetic monitoring of ASFV circulating within countries is essential. The situation in West Africa is an example, where for many years it was only genotype I. And then suddenly, genotype II was reported. It implies that genotype II must have been imported from other regions. Hence surveillance and control of pig products and imported frozen pork is critical.

The lack of genomes of African, ASFV genotypes are great constraint for Genbank and this is a limitation for ASF control in Africa. Thus, effort should be made to fill this gap.

It is also critical to understand that the severity of the disease may be due to coinfection. Other viruses have constantly been reported co-infecting with ASF which may play a great role in disease outcomes, multiplex techniques have been developed to address this issue and must be made available and accessible.

In terms of cooperation with GAC, it was suggested that the two organizations should strengthen how they can work together to create more capacity in Africa and among African laboratories.

The 1st initiative GAC could develop opportunities in which if necessary, resources are available, IAEA can provide the technical support such as demonstration as well as all reagents needed. Later on a cooperation program should be elaborated. A partnership for collaboration with AU-IBAR, and the Joint FAO/IAEA Lab, in several aspects of research including vaccine development, should be explored.

**The WOAH compartmentalization principles by WOAH**

Principles of compartmentalization by WOAH were presented and discussed as a tool for ASF Risk, demographics, production system, value chain, Socio-economic, and regulatory compliance management. The prerequisites for disease control and safe trade include trust, Science-based standards, and transparency.

The difference between zoning which must be defined primarily on a geographical basis (using natural, artificial, or legal boundaries) and Compartmentalisation developed in 2003 referring to Defined primarily by biosecurity management and husbandry practices, were highlighted.

Compartmentalization guidelines developed in 2021 was introduced as well as the dispositions of the WOAH code terrestrial animal diseases, related to compartmentalization. The process of defining a disease-free compartment was discussed with the following stages: Identify commodity(s) of interest, identify components of the compartment, and describe functional relationships, identify animal sub-population, implement identification and traceability system, establish PPP with clear roles and responsibilities, identify other factors important for maintaining ASF-free compartment. The creation of a compartment is the responsibility of the private sector, but the approval or certification relies on veterinary authority. The Compartment needs to be maintained permanently. A dialogue needs to be established between the private and public sectors.

**The Progressive Management Pathway for Terrestrial Animal Biosecurity by FAO**

The presentation started by an introduction of the FAO's understanding of Biosecurity as a strategic and integrated approach that encompasses the policy and regulatory frameworks for analysing and managing relevant risks to human, animal, and plant life and health and associated risks to the environment. FAO has developed the PMP for terrestrial animal Biosecurity which implies strengthening biosecurity considering Risk management along the value chain, policy, and legislation Institutional and workforce capacity.

This concept was presented as a public-private partnership stepwise approach to sustainably improve biosecurity along the terrestrial animal chain. It serves to facilitate the adoption of biosecurity practices, supports the livestock sector production, animal health and establishes partnerships between public and private animal health services providers, and improves surveillance systems at the business level with farmers and other private actors along the value chain. The 4 steps were presented, as well as the umbrella descriptive structuring of the concept along the value chain was described.

The PMP-TAB pilot in Sumbawanga, Tanzania in progress was discussed, and the level of implementation and perspectives (next step) were presented.

The Community of Practice (CoP) for Terrestrial Animal Biosecurity was also discussed. The objective is to co-create and share knowledge about terrestrial animal biosecurity, to promote collaboration amongst members and experts. It is membership inclusive and everyone can join. GAC members were invited to this initiative which also welcomes interested members of the public/private sectors as well as academia. It is hosted on FAO’s Virtual Learning Centre (VLC) Platform. Monthly webinars are previewed as well as knowledge repository/toolkit, member-driven activities, and outputs. Subgroups for in-depth discussion of topics of interest exist.

GAC members were invited to participate in the platform available for leading a subgroup (<https://virtual-learning-center.fao.org/mod/page/view.php?id=8724&forceview=1> or [PMP-TAB@fao.or](mailto:PMP-TAB@fao.or) )

PMP-TAB webinar series and VLC courses was discussed, and GAC members were invited to participate in the course preview on the 5 December 2023.

**ASF Vaccine Development: Progress and Prospects by ILRI and ARS-USDA**

The status of African Swine Fever vaccine development was presented and discussed. In that regard, The ASFV Vaccine Gaps were presented as perceived by USDA and ILRI. The audience was informed that commercially produced USDA ASFV Vaccine Platforms which is a live-attenuated ASFV vaccines that protect against ASFV, made based on viruses with genetically engineered deletions are available.

The first platform discussed which is ASFV-G-ΔMGF Vaccine Platform ARS was presented as a successful experiment in the laboratories with field trials in Vietnam and leading to its commercialization officially as AVAC Vaccine in the country.

ASFV Live Attenuated Vaccine Platform #3 with New Genetic targets was also presented with 3 candidates. In this platform, it was revealed that the deletion of I177L is the leading ASFV vaccine candidate (ASFV-G-∆I177L). The vaccine candidate was reported to be fully attenuated and protective.

USDA-ARS Partnered with NAVETCO, Vietnam to commercially manufacture ASFV-G-∆I177L which was found to be an effective vaccine in both local and European breeds of pigs in which it is known to produce 100% protection with no clinical signs at higher doses, though the genome of the vaccine virus could be detected at some of the tested times in all of the inoculated animals. There is also no systemic replication of ASFV-G-∆I177L in contact animals.

Under field conditions ASFV-G- ∆I177L has a certain level of transmission as some contact animals have systemic virus replication and induction of an ASFV-specific immune response.

From reversion to Virulence Studies, it was revealed that phenotypically the ASFV-G-∆I177L remained stable throughout the five sequential back passages experiment, confirming that the ASFV-G-∆I177L vaccine is genetically stable.

ASFV-G-∆I177L induces protection in European or Vietnamese Pigs IM dose of 102 HAD50, it lacks residual virulence even at an ON or IM dose of 106 HAD50. It is an effective vaccine original ASFV-G strain and the Recent ASFV-G-Vietnamese strain. Vaccine Laboratory Results were repeated on a commercial scale. Large-scale safety studies and Reversion to virulence studies showing genetically and phenotypically stable confirmed ASFV-G-∆ I177L is a safe vaccine.

Field Trials were completed in both North and South Vietnam and there were no adverse vaccine reactions, ASFV-specific antibodies were detected at expected levels and 100% protection was conferred to representative groups of animals challenged under laboratory conditions.

Several other vaccine candidates are reported; among which some are licensed. But the progress and the status of development are undisclosed.

NAVETCO and AVAC are already being expanded beyond Vietnam, namely in the Dominican Republic and the Philippines.

USDA vaccines are Genotype II backbone vaccine platforms which is a virulent strain in Europe/Asia and in parts of Africa. This may not work with unknown number of diverse circulating ASFV in Africa. Solving this problem will require large, concerted laboratories and field studies in Africa.

For the ILRI presentation, participants were updated about vaccine development progress and perspective by ILRI. ILRI revealed that most of the vaccine prototypes in the pipe are focusing on ASFV genotype IX ~~in ILRI~~, which are type under experimental processes. This process consists of assessing the possibility of a replication-deficient genotype IX ASFV 1033, a novel and promising method. Further evaluation is being done on several formulations and the route of administration is also being experimented.

Challenges and obstacles in vaccine development ~~in vaccine~~ in Africa were also highlighted by ILRI.

The ILRI genotype vaccine in process of development still needs to go through evaluation and production development stages.

**FOLLOW-UP ACTIONS / RECOMMENDATIONS:**

**Follow-up Actions**

The GAC Interim Committee made a presentation on the action plan proposed by the three thematic subcommittees and adopted by the previous GAC General Assembly, which were discussed and approved as action for follow-up. These are collaborative activities that can be carried out either by GARA Africa or through the cooperation development initiatives with competent agencies, scientific activities, and communication as follows:

* **Activity 1 (Policy and Strategy Proposed)**: Follow up on the GARA Gap Analysis Meeting in Kampala, Uganda, February 2023.

Examine gaps identified, prioritize those gaps, and propose a way forward to address the gaps.

*Collaborators: GARA Main Group*

* **Activity 2 Policy and Strategy Proposed**: Update and inform members on the African Swine Fever Control Strategy for Sub-Saharan Africa, and explore GAC’s contribution to implementation, elaboration of the regional control programme and national action plans development/update.

*Collaborators: AU-IBAR*

* **Activity 3 (Biosecurity for ASF):** Training of GARA Africa members on compartmentalization: – After the meeting of the Standing Group of Experts for ASF Africa in Abidjan in August 2023 the concept of compartmentalization was understood as crucial for the development of the swine industry in Africa and participation of member countries in trade. The presentation was informative during the 3rd GAC General Assembly. However, it was recommended that a specific capacity-building session for GAC members aim at enabling them for further in-country training;

*Collaborators: WOAH, SAPPO (South African Pork Producers Organisation)*

* **Activity 4 (Biosecurity for ASF):** Capacity building for GARA Africa members on the FAO Progressive Pathway for Biosecurity

The innovative Progressive Management Pathway for Terrestrial Animal Biosecurity by FAO is seen by GARA as an opportunity for sound improvement of the concept and practices of biosecurity towards the efficient control of ASF in Africa, and the safer development of the swine industry. After the concise presentation at the GAC General Assembly, a more appropriate and dedicated training session is adopted as a priority with a more specific VLC or on-site course/training on biosecurity in the pig sector.

*Collaborator: FAO, FAO Virtual Learning Centre (VLC)*

* **Activity 5 (Diagnosis)**: As part of the gap Analysis, there is the need to identify and find ways to address the shortcomings of diagnostic laboratories and build capacity. Evaluation of the laboratory capacity in all the countries by experts from competent bodies (WOAH or IAEA). WOAH is in the process of identifying laboratories with the capacity to be reference laboratories.

*Collaborators: IAEA, WOAH*

* **Activity 6 (Diagnosis):** Development of diagnostic tools for differential diagnosis of ASF and other swine diseases. During the workshop, the Joint FAO/ IAEA Lab demonstrated the innovative multiplex PCR tool developed and its availability. Thus, partnership should be explored for the implementation of these tools and appropriate techniques for swine disease diagnosis.

*Collaborators: IAEA, WOAH*

* **Activity 7 (Diagnosis):** Improve access and use of available point-of-care tests for ASF and advocate for their use for frontline diagnosis in member countries. This will disease reporting, control spread, and guide farmers in making informed decisions.

Collaborators: IAEA, FAO

* **Activity 8 (Diagnosis):** Promotion of collaboration between laboratories in the region.
* Assistance of reference laboratories and laboratories with better capacity to laboratories with lower capacity should be explored and encouraged. Access to reagents, equipment, and training should be facilitated.
* Joint activities such as round-robin (proficiency) testing of samples should be undertaken to ensure the quality of laboratory services.

*Collaborators: IAEA, WOAH, FAO*

* **Activity 9 (Communication and logistics)** Promotion of GAC:**:**
* Exploration of training opportunities
* Creation and keeping an updated list of members (including names, emails, phone numbers, employing institution, area of research, ongoing research or to be done in future, etc.)
* Design and production of posters for the upcoming congress (collection of articles of ongoing work or other educative articles on African swine fever) in collaboration
* Search for platforms and other avenues to promote the GARA Africa Chapter to the international community.
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* Creation of email, LinkedIn profile, and Facebook profile for the GARA Africa chapter
* **Activity 10 (scientific**): organization of bimonthly scientific presentations to discuss practical solutions for farmers, including biosecurity measures and identifying gaps
* **Activity 11 (scientific)**: Prioritizing ASF research based on gaps suggested. The following research areas suggested as priority are ASF vector research, ASF vaccine research, Research related to local breeds of pigs and ASF resistance, Socioeconomic impact of ASF on communities and livelihoods.
* **Activity 12 (resources)**:
* resources mobilization for GAC activities implementation
* Developing proposals to secure funding from potential donors and industry partners based on identified 2

**Recommendations:**

1. **To AU-IBAR, ILRI, GAC, and other research institutions involved in ASF vaccine research**: Whatever vaccine is being developed for African use, should be put on cross-protection between those many genotypes.
2. **To AU-IBAR:** Involve GAC in the validation process and implementation of the ASF regional strategy. Encourage participation of GAC in the development of the regional ASF control programme and the national ASF control plan development/update
3. **To GAC:** GAC should expand and ensure representation in all the sub-regions and ASF-affected countries. They should play the role of a specific ASF research network, bridge the gap between researchers and users of research outcomes, and continue monitoring in country's ASF situation for better national ASF and ASFV genotype status knowledge.
4. **To Africa GF-TAD (WOAH, FAO, AU-IBAR)**: Involvement of GARA in SGE beside other experts and CVO’s
5. **To Africa ASF SGE**: the issue of compensation to be addressed to improve outbreak reporting for efficient control ASF outbreaks and ASFV spread in the Continent should be added in the next ASF SGE meeting agenda for discussion with CVOs and Experts, as well as modified stamping-out policy adapted to sub-Saharan Africa countries.
6. **To WOAH and GAC**: organize a specific training to build capacity of GAC members to support compartmentalization in Africa.
7. **To GAC**: Considering the importance of the concept, GAC is invited to make good use of available WOAH tools and recommendations on compartmentalization;
8. **To FAO and GAC**: To organize specific training to build capacity of GAC members to for customizing the implementation of the Progressive Management Pathway for Terrestrial Animal Biosecurity in Africa context.
9. **To FAO/IAEA and GAC**: Explore collaboration framework between FAO/IAEA and GAC, to create more capacity among Africans laboratories, to build capacity of GAC members in differential swine diseases using multiplex PCR technics, and for technical support of GAC and national laboratories by IAEA.
10. **To AU-IBAR, FAO/IAEA and GAC:** Explore collaboration framework to address the gap related to the lack of genomes of African ASFV genotypes in gene banks.
11. **To USDA and vaccine development institutions**: Facilitate collaboration with production laboratories and field studies trials of the ASF Genotype II vaccine platforms which are undoubtedly efficient for ASF Europe/Asia virulent strain, before its commercialization Africa region.
12. **To USDA, ILRI, GAC, AU-IBAR and vaccine development institutions**: To collaborate on the several complexities associated with the ASF vaccines that need to be addressed through research: looking into the genomics that relates to immune responses, looking at all the issues around synergistic interactions among genes, persistence infection associated with attenuated vaccines, vaccines side effects and cross protection among genotypes. Among these, Cross protection studies are needed to explore vaccine that can be protected against several genotypes in Africa.
13. **To AU-IBAR, ILRI, GAC, USDA, FAO, WOAH: a specific meeting between** GAC and each of the collaborating institution for discussion and exploring a specific collaboration network for implementation of the above adopted action points should explore

ANNEXES

1. GARA Africa TOR,
2. LIST OF PARTICIPANTS,



