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12th meeting of the FAO- OIE Joint Advisory Committee for Rinderpest

Paris, 19 – 20 December 2017



1. Welcome and Introduction

The 12th meeting of the FAO-OIE Rinderpest Joint Advisory Committee (JAC) was opened by the Chair, Dr Junaidu Maina, who greeted the participants and welcomed Dr Monique Eloit, Director General of the OIE, to give the opening remarks on behalf of the organization.

Dr Eloit thanked the JAC for their continuous support to rinderpest post-eradication activities and noted that she had reviewed the draft Global Rinderpest Action Plan (GRAP) and the Operational Framework for Management and Deployment of the Rinderpest Vaccine Reserve (OF-RVR), presented to her by OIE staff during the previous week.

Dr Eloit highlighted that the FAO and OIE should ensure that the GRAP has a mechanism that allows for it to be regularly updated during “peace time” and that its implementation mechanism is flexible enough to fit different statuses of national contingency preparedness in countries and different types of outbreaks. She also requested that the JAC provide recommendations on the governance of the Rinderpest Vaccine Reserve (RVR), namely the role that FAO and the OIE should play and the reserve’s fair use. Finally, Dr Eloit mentioned that communications on rinderpest and advocacy messages should be directed to all countries and not only those in selected regions. The JAC was invited to consider these points and provide feedback key messages to be conveyed to OIE Delegates on the occasion of the 86th OIE General Session, in May 2018.

Dr Samia Metwally, on behalf of the FAO Co-Secretariat, and Ms Tianna Brand, on behalf of the OIE Co-Secretariat, presented the organizations’ expectations for the meeting and the work plan for the near future. Dr Metwally identified the top-priorities for 2018-2019 as preparation and preparedness, in the form of diagnostics tests, and vaccine reserves and making the GRAP operational. Ms Brand concurred with FAO’s view and also mentioned that the work that is being done in the post-eradication era is setting the example and standard for other diseases that are targeted for eradication, such as Peste des Petits Ruminants (PPR).

2. Introductory comments and adoption of the agenda

Dr Junaidu Maina (JAC Chair) acknowledged the departure of Dr Greg Smith from the JAC and expressed his appreciation (on behalf of JAC) of Dr Smith’s contribution. Also, he acknowledged Dr Kazutoshi Matsuo, from the OIE Co-Secretariat, who concluded his assignment at the OIE and returned to Japan in October 2017. Dr Maina congratulated the OIE for the success of the 2nd OIE Global Conference on Biological Threat Reduction, where he had the opportunity to present, on behalf of the JAC, on the Rinderpest Post-Eradication Era.

The agenda was adopted with modifications and is included here as Appendix I.

The list of participants is included as Appendix II.

Dr Geneviève Libeau could not be present at this meeting.

3. Action Items from last meeting

The JAC reviewed the status of completion of the Action Items from the 11th JAC meeting, from which there were two outstanding (10 and 12); these are expected to be completed as mentioned below. The 12th JAC meeting action items are included in this report as Appendix IV.

FAO presented the updated map of countries that destroyed RVCM since 2011, that hold RVCM and that have yet to confirm destruction of RVCM to the FAO and OIE (Action Item no 1 from the 11th JAC meeting). With regards to publishing this map, JAC's recommendation is that it should be posted on FAO's website and in public domain.

ACTION ITEM 1 – OIE Co-Secretariat to prepare a template for the final report of re-evaluating Rinderpest Holding Facilities (RHF) by February 2018. (Action Item no 10 from the 11th meeting)

ACTION ITEM 2 – Dr Gerrit Viljoen to cooperate with FAO in preparing a summary on Reference Rinderpest Vaccine Virus Seeds by or before the 13th JAC meeting. (Action Item no 12 from the 11th meeting)

4. Update on RHF and OIE Member Countries' annual reports

The OIE provided an update on RHF and OIE Member Countries' annual reports. It was brought to the JAC's attention that, in some Rinderpest Holding Facilities (RHF), the number of vials of the same samples has changed in annual report for 2016 and for 2017. This is likely due to the fact the facilities have undertaken a closer look at their holdings in light of the sequence and destroy projects; in any case, FAO and OIE will follow up on the inconsistencies and request that duplicates samples simply be destroyed.

Upon the presentation of Member Countries' reports, discussion centered on whether the reference to "85nt Ultramer DNA Oligonucleotides", newly reported by one country, is considered to be rinderpest virus containing material (RVCM) as per the OIE *Terrestrial Code* 2016 definition. It was determined that this material is not RVCM as it is not a full length genome nor does it appear to be recombinant morbilliviruses (segmented or non-segmented) containing unique RPV nucleic acid or amino acid sequences; OIE will subsequently follow up with the concerned country.

The Terms of Reference (ToR) for the RHF Network were presented by Dr Metwally. There were not significant changes made to the document besides wording issues. The ToR is included in Appendix V.

ACTION ITEM 3 – Rinderpest Secretariat to follow up on RHF annual reports by congratulating the facilities on the work being done and:

3.1) Clarify changes in 2016 vs 2017 inventory and propose that valuable samples are included in the ongoing "sequence and destroy" projects.

3.2) Recommend that duplicate samples be destroyed.

ACTION ITEM 4 – The Secretariat will liaise directly with RHF representatives to clarify their participation in biennial meetings according to the point 9 of the mandate for RHF Category A, defined by OIE Resolution No 23 (2014), by or before the 13th meeting of the JAC.

5. Update on pending applications for RHF

FAO and OIE gave an update on the status of the pending applications for RHF. There were no developments in the application of CIRAD. The Rinderpest Secretariat will contact the Head of the Institute to assess the status of completion of the actions that were outstanding for designation and that had been targeted for completion by the end of 2017.

The on-site inspection to the candidate facility in China is tentatively scheduled for March 2018. FAO is spearheading the organization of the inspection.

Iran is still lacking an updated National Contingency Plan (NCP) for rinderpest, in order to be eligible to progress in its application. As, at the moment, neither FAO nor OIE are in the position to help Iran in writing the plan. Therefore, FAO would send the guide to develop rinderpest NCPs to Iran and review the resulting NCP.

FAO mentioned that India showed interest in becoming a RHF during the International Advocacy Meeting on Maintaining Global Freedom from Rinderpest, held in Nepal from 13 to 16 June 2017. No further information has been received in the meantime from India. FAO has an upcoming project in India and is taking such opportunity to visit the country and discuss rinderpest-related issues. OIE has been invited to take part in this visit that will take place in 22-23 January 2018.

ACTION ITEM 5 – The Rinderpest Secretariat will follow up on RHF pending applications:

5.1) The Rinderpest Secretariat will contact CIRAD in January 2018 to determine the status of the actions that were to be implemented by the end of 2017.

5.2) FAO to arrange the on-site inspection to the facility in Beijing, China, in March 2018.

5.3) FAO to contact Iran and explain that expertise to review the plan can be provided, but it is not possible for the organizations to engage a consultant to assist in drafting a NCP.

6. Debrief of the Tabletop Exercise (TTX) in Africa and considerations about the TTX in Asia

Dr David Ulaeto provided a presentation on the TTX for the Global Rinderpest Action Plan (GRAP) that took place in Nairobi, Kenya, from 21 to 23 November 2017. This exercise was organized by FAO with the collaboration of AU-IBAR and the OIE, and had the participation of 6 African countries. The participants were led through a situation where rinderpest virus spread across a fictitious country. The participants played the roles of the concerned country, its neighbours, and the relevant international organizations, using only national policy documents such as national contingency plans (NCPs), the GRAP and the Rinderpest Vaccine Reserve-Operational Framework as the resources to guide responses.

It was noted that, NCPs for rinderpest from participant countries were either outdated or non-existent, the GRAP and its gaps ended up not being the center of attention, as the countries did not have national strategies in place to complement it.

It was concluded that rinderpest is a low priority despite the high consequences of its re-occurrence. One way of getting stakeholders engaged is to highlight the existing figures on the socioeconomic impacts of on rinderpest and the eradication efforts.

It was pointed out that the African Union (AU) should continue to be directly engaged in this type of exercise, in addition to its bodies, so that the role of AU in rinderpest preparedness and its level of engagement with the GRAP are clear for all. The need to engage with partners who would provide emergency funds in case of an outbreak was also stressed.

Besides the above-mentioned items, it was suggested that the participating countries should be encouraged to send their plans to the organization with more time in advance and that the outcome of the meeting should provide countries with improvement plans that can be taken home. The TTX in Asia is planned for 13 to 15 March 2017 in Colombo, Sri Lanka. The Chair encouraged FAO to invite Regional Economic Commissions in Asia, such as ASEAN and SAARC to the exercise. Dr Mo Salman offered to assist in reviewing the next scenario. Dr Alejandro Costa will tentatively represent the JAC at the TTX Asia.

The JAC recommended that FAO and OIE bring the TTX findings to regional and global conferences, and any forums where Ministers of Agriculture and Chief Veterinary Officers are present. Also, having the TTX findings being shared in relevant scientific publications would be beneficial.

7. Status of the GRAP and Rinderpest Vaccine Reserve-Operational Framework (RVR-OF)

FAO presented the status of the GRAP post TTX Africa and pointed out which were the biggest gaps in terms of chapters that are not fully written and issues that are not yet addressed. FAO is hiring a consultant to help finalize the documents.

The JAC recommended that FAO and OIE involve other relevant regional and international organizations besides the AU, such as the EU, ASEAN, INTERPOL, etc. to comment and for awareness purposes of the role they could play in an outbreak of rinderpest. It was suggested to study the EU strategies in place for Lumpy Skin Disease as a model for the GRAP.

ACTION ITEM 6 – JAC to review and provide comments on the GRAP and the RVR-OF by 11 January.

ACTION ITEM 7 – FAO and OIE need to have a short SOP/flow diagram of the plan and associated actions with contact information for emergencies/suspicion/diagnostics, etc.

The OIE gave an update on the state of play of the RVR-OF. Since the last time the group reviewed the document, the sections concerning vaccination strategy and size of the reserve were written by Dr Paul Rossiter, who had been working as a Consultant to the FAO for the TTX in Africa.

During discussions concerning the governance mechanism, the JAC recommended that FAO and OIE established a formal agreement with the two Category B RHF's that have vaccine stocks (AU-PANVAC and National Institute of Animal Health, Tsukuba, Japan), for them to agree to send at least 10% of their vaccine reserve to any country in an emergency. The JAC also advised that FAO and OIE should maintain their own stock through an agreement with manufacturers concerning an eventual pre-paid stock.

The JAC recommended that FAO and OIE commit emergency funds to establishing a fresh stock of rinderpest vaccine to be held at a neutral location and be use in case of emergency in any country. This reserve would amount to a minimum of 1 million doses and the manufacturer of this vaccine would be chosen in accordance with established criteria for rinderpest vaccine manufacturers.

ACTION ITEM 8 – Dr Costa to write justification, based on the experience of WHO and the governance of the smallpox stockpile, for FAO and OIE to have a reserve of vaccine that belongs to both organisations and can be used in any country in case of emergency before the 13th JAC meeting.

ACTION ITEM 9 – Rinderpest Secretariat to work on the contents of letters of agreement with AU-PANVAC and Japan to commit a minimum of 10% of the respective vaccine reserves to be used in an emergency by any country in need.

8. Debrief of the Technical Expert Meeting on Criteria for Rinderpest Vaccine Manufacturers

Dr Costa provided the group with a debrief concerning the discussions had during the Technical Expert Meeting on Criteria for Rinderpest Vaccine Manufacturers, that had been held at the OIE Headquarters during the previous afternoon and morning.

In the first place, it was clarified that these criteria were to be used by FAO and OIE to establish whether manufacturers are interested in producing rinderpest vaccine, either for replenishment of the reserve or for emergency production, are eligible to be included in a roster of facilities which would undergo further scrutiny before being authorized to produce vaccine.

Similar to the designation of the rinderpest holding facilities for Category A and Category B, a procedure for vaccine manufacturers for a vaccine production campaign in “peace time” (e.g., to augment current stocks at AU-PANVAC) or during an emergency situation will need to be established.

ACTION ITEM 10 – JAC to provide preliminary comments on the criteria by 15 of January 2018.

ACTION ITEM 11 – FAO and OIE to finish the criteria together with the group of experts by the end of February 2018 for further review and recommendations by the JAC before seeking agreement of the management of FAO and OIE including identification of a procedure for the designation of vaccine manufacturers.

9. Update on the Guidelines for Biorisk Management in the (re)Evaluation of RHFs

The OIE gave an update on the Guidelines for Biorisk Management in the (re)Evaluation of RHF's. The comments made by the JAC after the 11th meeting, in June, were held in consideration when continuing the development of the Guidelines. Also Dr Greg Smith, former member of the JAC, worked closely with the hired consultant to ensure that the modifications that the document required would be implemented and this would steer the project in the right direction. The OIE will continue to work with the consultant aiming to finish the Guidelines in early 2018.

After finalizing the Guidelines, these will be used as the basis for renewing the mandates of the RHF's, as these come to an end 2018.

ACTION ITEM 12 – OIE to finish the Guidelines in early 2018 and share the proposed renewal documentation with FAO before the end of February 2018.

10. FAO and OIE activities since the last meeting

a. *The Pirbright Institute – AU-PANVAC twinning project*: The OIE gave an update on the twinning project between The Pirbright Institute (TPI) and AU-PANVAC. It was mentioned that the scoping, training, and documentation review visits to AU-PANVAC have taken place from April to August 2017

and now TPI is waiting to have feedback from AU-PANVAC on the implementation of the corrective and preventive actions identified during the visits. FAO and OIE would use this feedback to assess whether the corrective actions have been addressed.

ACTION ITEM 13 – Rinderpest Secretariat to request the Director of AU-PANVAC for a report on the completion of the twinning activities. The report will be reviewed by the JAC along with the Rinderpest Secretariat to determine if the corrective actions have been addressed.

b. *Rinderpest Virus Tracking System*: The OIE provided an update on the progress of development of the Rinderpest Virus Tracking System (RVTS) for the FAO-OIE RHF as well as redesign of the Electronic Rinderpest Reporting System for OIE Members' annual reports. The project is on track and the testing phase will begin in 2018, when OIE will engage with FAO and the RHF to ensure that the system fits everyone's needs. The RVTS is to be implemented by April 2018. FAO will have full access to the RHF inventory and reports.

c. *Rinderpest Virus Containing Material (RVCM) definition*: The OIE informed the group that the new definition of RVCM had been discussed and accepted by the Specialist Commissions and will be proposed for endorsement by the OIE World Assembly of Delegates in May 2018. It is expected that the definition will be changed to exclude sera that is heat treated at 56°C or a higher temperature for more than 2 hours will no longer be considered RVCM.

d. *Rinderpest chapter in the OIE Manual*: The updated rinderpest chapter of the OIE Manual of Diagnostic Tests and Vaccines was discussed. The group was satisfied with the statement that was included concerning diagnostics in the post-eradication era.

e. *FAO activities*: FAO provided an update on the activities implemented since the last meeting and the work plan covering the period up to 2019. The TTXs, targeted advocacy for sequestration and destruction of RVCM, as well as FAO's "Communications for Development" projects were presented. In this regard FAO and OIE will further discuss cooperation for new communications projects. FAO's presentation mentioned that several events are to take place in the first quarter of 2018. Among them are the Outreach Meeting in India, in 22-23 January, the TTX Asia, in Colombo, Sri Lanka, from 13 to 15 March, the site inspection to the RHF candidate facility in China, in 19-20 March, and, finally, the Stakeholder Meeting, in 28 March, in Rome. The latter is meant to gather countries, international and regional organizations, donors, and other relevant stakeholders, to launch the GRAP, clarify the roles and responsibilities of relevant parties and raise awareness over the gaps that need to be addressed to ensure rinderpest preparedness at a global level.

11. Update on Sequence & Destroy projects

Following the receipt of the 3rd report of the Sequence and Destroy projects that are underway at CIRAD and TPI, the OIE provided an update on the efforts made by these laboratories to extract rinderpest virus genetic information from historical samples and to subsequently destroy them.

The JAC commended the work done by both laboratories and recognized that without the provision of further resources that would allow for the development of new methods for extracting more information from the samples, progress would be stalled. There was discussion on whether extending the timeframes of the project through the hypothetical provision of additional funding would be of interest. It was recommended by the JAC that the Rinderpest Secretariat should continue to follow

these projects closely and encourage destruction of samples that are fully sequenced and their duplicates, as well as samples from which it is clear that it is not possible to extract useful data from. At the same time, the JAC agreed that should the projects be extended and the process used for extraction of genetic material be the same, and therefore, the projects would not require further review from the JAC.

ACTION ITEM 14 - Contact TPI and CIRAD to congratulate the work done to date and inform them that the development of a new extraction technology, upon eventual extension of the project, would require the submission of a new research proposal. The samples that are fully sequenced (and their duplicates) should be destroyed as soon as possible. The same applies to samples that are hopeless in terms of getting any useful genetic information extracted from them.

12. Update on other research projects

The OIE provided an update on the research projects that are ongoing within the Network of RHF and Reference Laboratories for rinderpest. Namely, the project for titration of AU-PANVAC's vaccine seeds at TPI, the quality control of historical cELISA kits at TPI, and the non-infectious control for real time RT-PCR developed by FADDL were discussed; the latter sparked further discussion concerning the inter-laboratory comparison that is to take place during the third stage of the project. Laboratories participating on this stage are to be selected the Rinderpest Secretariat but, before, that, there is the need to define a procedure for following in case "non-negative" cases are found. The JAC emphasized that even though the basis for this project is maintaining diagnostic capacity at regional level, not every country or every laboratory should have access to this technology – similarly to what happen to smallpox diagnosis.

The JAC was given preliminary information on a tentative project to be developed cooperatively by the Network of RHF, concerning the development of a non-infectious cELISA prototype test. TPI would spearhead the project and count on the other laboratories for provision of materials, SOPs and information whenever necessary, as well as for validation of the test. The JAC was extremely supportive of the project, as it would fill in the existing gap on surveillance for recovery of freedom following an outbreak of rinderpest, as described by the OIE Terrestrial Code. This project will follow the usual procedure for the approval of rinderpest research activities but will likely only move forward should a donor accept to fund it.

13. Implications of horsepox *de-novo* synthesis for rinderpest post-eradication era

Dr Ulaeto led the discussion on the implications of horsepox *de-novo* synthesis for rinderpest in the post-eradication era. It was mentioned that this event had some well-defined outcomes, such as that it was clear that society is aware of the dangers of re-synthesizing extinct viruses, and is willing to penalize individuals who insist in doing so, and that better regulation must be implemented to prevent similar cases to arise in the future. The JAC deemed that it is pertinent to take action to avoid that the same happens to rinderpest virus.

In this regard, publication of rinderpest virus sequence data was discussed by the group. So far, eight full sequences have already been published by Japan on GenBank. After considering the case of other eradicated or soon-to-be-eradicated diseases, as well as the relative risk of publishing the information, the JAC deemed that withholding this information would generate more interest and attention than

having it publically accessible. Hence, the JAC unanimously recommended that the newly determined sequences are published. However, at the same time, the Rinderpest Secretariat should release a cautionary statement for the public to be aware that using this information to resynthesize rinderpest virus is unacceptable.

ACTION ITEM 15 – FAO and OIE to release a statement saying that it is unacceptable/unethical and could even be considered a crime to use published sequence information for resynthesizing rinderpest virus.

14. Update the Roadmap, dates of the next meeting and other items

The next meeting will be held in the IAEA, in Vienna, Austria, in 12-13 June 2018.

Finally, the idea of creating an “Eradicated diseases day”, that would celebrate the achievement of smallpox and rinderpest eradication, while raising awareness for the quasi-eradication of polio and the PPR eradication campaign, was proposed by Dr Ulaeto and discussed by the group. The Secretariat will discuss this idea with the respective management.

ACTION ITEM 16 – FAO and OIE to update the correct version of the Roadmap before the next meeting.

12TH MEETING, RINDERPEST JOINT ADVISORY COMMITTEE

Paris, 19-20 December 2017

Agenda

Tuesday 19 th December 2017		Item	Speaker
14:00 – 14:20	Opening remarks		DG or DDG of the OIE J Maina
	FAO and OIE expectations for JAC (priorities for rinderpest activities)		S Metwally and T Brand
14:20 – 14:30	Adoption of the agenda		
14:30 – 15:00	Rinderpest at the 2 nd OIE Global Conference on BTR Action items from the last meeting		J Maina
15:00 – 15:30	Update on annual RHF reports and the OIE ERRS reports received to date		OIE
	RHF network ToR		FAO
	Update on RVCM holdings outside of RHF's		FAO
15:30 – 16:00	Update on pending applications for RHF's		FAO and OIE
	– CIRAD		
	– China		
	– Iran		
	– India		
16:00 – 16:15	<i>Coffee break</i>		
16:15 – 17:15	Debrief of Regional Rinderpest Tabletop Exercise in Africa		D Ulaeto
	Considerations about the Regional Rinderpest Tabletop Exercise in Asia		S Metwally
17:15 – 17:45	Status of the Global Rinderpest Action Plan		FAO
	Status of the Operational Framework for the Rinderpest Vaccine Reserves		M Marrana
	Feedback on discussions on restocking the vaccine reserve		FAO
	Feedback to the OIE DG “3 key comments”		All
17:45 – 18:15	Criteria for Rinderpest Vaccine Manufacturers – meeting debrief and way forward		A Costa
19:00	<i>Dinner</i>		All

Wednesday 20 th December 2017		Item	Speaker/Chair
9:00 – 9:15	Summary of day 1		J Maina
9:15 – 10:00	Guidelines for biorisk management in the (re)evaluation of RHF's		M Marrana
10:00 – 10:30	Re-evaluation of approved RHF's		FAO and OIE
10:30 – 10:45	FAO and OIE's activities since last meeting <ul style="list-style-type: none"> – AU-PANVAC twinning project – Rinderpest virus tracking system – Status of the revised Manual Chapter (including discussion on diagnostics and surveillance in case of recovery) and RVCM definition – Presentation from FAO about the work plan 2018 - 2019 		FAO and OIE
10:45 – 11:00	<i>Coffee break</i>		
11:00 – 11:15	Update on <i>Sequence and Destroy</i> projects at TPI and CIRAD <ul style="list-style-type: none"> – Discussion on an acceptable threshold for ceasing sequencing and keeping samples that are not under the project. – Publishing the sequence data in open source? How much sequence data should be published in the public domain? 		FAO
11:15 – 12:15	Status update on research projects <ul style="list-style-type: none"> – Titration of vaccine seeds (extension of approved S&D project) - TPI – Quality control of C-ELISA - TPI – Cross-protection test of LA-AKO vaccine - NIAH-Tsukuba (to be submitted) – Cooperation project FADDL – TPI “non-infectious control for diagnostic testing” – new cELISA cooperation project TPI (TBD) 		FAO and OIE
12:15 – 12:45	Implications of horse poxvirus de-novo synthesis for rinderpest post-eradication era <ul style="list-style-type: none"> – Consideration on the release of rinderpest sequencing data into public domain 		D Ulaeto
12:45 – 13:30	Update on communications - “awareness”		FAO and OIE
13:30 – 14:00	Update Rinderpest Roadmap Meeting summary and dates for the next meeting		All J Maina

12TH MEETING, RINDERPEST JOINT ADVISORY COMMITTEE

Paris, 19-20 December 2017

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Appendix III

MEETING OF THE RINDERPEST JOINT ADVISORY COMMITTEE

Paris,

Roadmap for Rinderpest Post-Eradication Activities

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
1. Rinderpest holding facilities (RHF)						
1.1	Develop Application form	FAO, OIE, JAC	Oct 2012	April 2013	Used for TPI, FADDL, NIAH, AU-PANVAC, CIRAD, IVDC and RAZI applications	Completed
1.2	Develop criteria and checklist for reviewing applications	JAC	Dec 2012	April 2013		Completed
1.3	Open application process to OIE/FAO Ref Labs and PANVAC	FAO, OIE	May 2013	Feb 2014	All applied	Completed
1.4	Update of application form	JAC	March 2015/ April 2016	October 2017	Completed Feb 2016	Completed; version 2

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
1.5	Guidelines and criteria for inspecting facilities (Guidelines developed by OIE Consultant, UMD)	FAO,OIE, JAC	January 2017	December 2017		Ongoing. To be reviewed by Catherine Robertson
1.6	Operational guidance for designation of RHF	FAO, OIE	Nov 2014	Dec 2014	Completed	Completed
1.7	Form for RHF annual report 2 nd edition	JAC	Sept 2017	Oct 2017	Oct 2017 sent to RHF's	Completed
1.8	Conduct site inspection for RHF applications	FAO, OIE	Jan 2015	Ongoing	6 RHF's had been inspected, 2 in progress (IVDC, RAZI)	Ongoing; completed - AU-PANVAC, NIAH, FADDL, TPI, CIRAD
1.9	Review submitted applications	JAC	Oct 2013	Ongoing	5 RHF's approved, 3 new applications in progress	Ongoing; pending AU-PANVAC Cat A
1.10	FAO and OIE facility designation	FAO, OIE	May 2015	Ongoing	5 official designations by FAO and OIE completed	Ongoing

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
1.11	Facility re-approval	OIE, FAO	May 2018	Every 3 years	Process was determined during the 11 th JAC meeting	Guidelines to be reviewed and finalized with Catherine Robertson
1.12	Open application for RHF designation	FAO, OIE		Ongoing	IVDC and RAZI applied	Ongoing
1.13	Re-evaluation of RHF		May 2018	Every 3 years	TBD	See 1.11
2. Research using RVC						
2.1	Research application form	JAC, OIE, FAO	Nov 2013	Jan 2014/April 2016	3 rd version	Completed
2.2	Criteria for reviewing application	JAC, OIE, FAO	Nov 2012	Jan 2013		Completed
2.3	Review proposals submitted to OIE and FAO	JAC	Jan 2013	Ongoing	Ten projects reviewed by JAC. 9 approved by FAO and OIE. One application from non-RHF rejected	

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
2.4	<p>Approval of research proposals</p> <ol style="list-style-type: none"> 1. Non-infectious diagnostic control (FADDL & TPI) 2. Sequence & Destroy (TPI, CIRAD, FADDL (suspended)); 3. PPR vaccine (TPI); 4. Vaccine production (NIAH); 5. Accreditation of diagnostic test (TPI) 6. Detection of RPV antibodies using C-ELISA (TPI) 7. Titration of RPV vaccine seeds and stocks in cell culture (TPI) 	FAO, OIE		Ongoing	Nine approved	Sequence and Destroy projects might be extended.
2.5	Review reports of research project on a regular basis	JAC		Ongoing	Reporting: TPI (3), CIRAD (3), FADDL (0)	<ul style="list-style-type: none"> • Sequence and Destroy (TPI and CIRAD)
2.6	Completion of research project and submission of final report	Research Institute		Ongoing; S&D, diagnostics, vaccine titration	One final technical report received	One research project on PPR vaccine completed and published – PPR vaccine does not protect against RPV

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
2.7	Review outcome of project and review next steps if any	JAC		Ongoing	No next steps necessary	
3 Rinderpest virus containing material (RVCМ) destruction and sequestration (DAS)						
3.1	Establish database holding RVCМ inventory at country level	OIE	June 2013	Yearly reporting as of 1 st Nov	RPV Tracking System to be implemented for 2018 reporting	Ongoing
3.2	Standard operating procedures for Destruction and Sequestration	JAC, FAO, OIE	June 2012	April 2016	Four SOPs have been completed	Completed
3.3	Support countries in Destruction and Sequestration	FAO	Feb 2015	Ongoing	Botswana, Sudan, Nigeria, Senegal, Kenya, Taiwan, Canada, and Germany are finalized	Next is South Africa
3.4	Develop disease spread risk model	FAO	Dec 2014	June 2016	It was decided there is not enough value to pursue disease spread risk model	

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
3.5	Offer support to Destruction and Sequestration targeting countries known to hold RVCM	FAO	July 2013	Ongoing	Botswana, Nigeria, Senegal, Kenya, Switzerland, Germany, Sudan, Taiwan, Canada and Netherlands are completed	Mongolia, Viet Nam, and South Korea and South Africa are in the pipeline
3.6	Engage with countries that did not respond to surveys in 2010 and 2011	FAO, OIE	March 2013	Ongoing	A list of countries is already started	5 countries to be re-confirmed (Egypt, Mongolia, Viet Nam, Kazakhstan, South Korea)
3.7	OIE Member Countries report on status of RVCM	OIE	Nov 2013	Annually	First report completed May 2014	
3.8	Report to OIE World Assembly on global status or RPV stocks	OIE	May 2014	Annually		
3.9	Identify countries needing support for RVCM Destruction and Sequestration	FAO	Jan 2015	Ongoing	Asian countries identified during Nepal meeting	

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
3.10	List of rinderpest virus prototype and vaccine strains	JAC/OIE	June 2015	Oct 2017	OIE shares annual reports on RVCVM with the FAO annually in May	RVCVM stocks need to be confirmed in several countries
3.11	Reduce number of laboratories holding RVCVM	FAO/OIE	June 2013	Ongoing		OIE publishes the summary of the yearly survey annually in May
4. National Contingency Plans (NCP) and Global Rinderpest Action Plan (GRAP)						
4.1	Develop template for NCP	FAO	Feb 2013	June 2013		Completed
4.2	Develop international rinderpest post eradication preparedness, linking existing international mechanisms (reporting mechanisms, response mechanisms, legal instruments, national contingency plans, vaccine banks)	FAO, OIE, JAC	June 2012	March 2018	Zero draft of the GRAP was presented to the JAC in June 2017. Draft was updated after TTX AFR.	Publication by end of March 2018

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
4.3	Secure funding for simulation exercise (point 4.3)	FAO	March 2015	Dec 2017	One project funded by Canada Phase II proposal had been accepted by DTRA	Completed
4.4	International simulation exercise in high risk regions	FAO	Feb 2016	November 2017 for TTX in Africa, March 2018 for TTX in Asia	One regional simulation exercise took place in November 2017 in Africa	Preparations are ongoing for TTX in Asia
5. Rinderpest vaccine reserve (RVR)						
5.1	Approved a SOP for quality control testing to extend vaccine shelf-life, included in rinderpest chapter	OIE				Need to draft SOP
5.2	Develop SOP for vaccine quality control testing using non-infectious tests	JAC	March 2015			Need update from JAC
5.3	Identify vaccine manufacturers for production of emergency vaccine	FAO, OIE, JAC	Aug 2014 (FAO)	2020		2017 technical meeting will provide guidance

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
5.4	Develop spread model to determine doses and location of RVR	FAO, OIE/JAC	Jan 2016	Dec 2016	Study was declined	The size of the reserve depends on a series of determinants listed in the OF-RVR.
5.5	Define strategic geographic location of RVR and number of doses	FAO, OIE, JAC	Jan 2015	March 2018		In progress
5.6	Vaccine deployment plan and activation of RVR	OIE, FAO	March 2017	March 2018		Ongoing
5.7	Annual inventory on vaccine doses	FAO, OIE	May 2013 (FAO)	Annually		PANVAC - 444,715 doses NIAH - 428,700 doses NVI (Ethiopia) – 2M doses
6. Database for virus inventory and country status						
6.1	Establish country level database (ERRS)	OIE	Nov 2013	Ongoing		Each Member Country submit inventory as an annual report to the OIE

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
6.2	Develop and implement web-based RP virus tracking system for RHF	OIE	Jan 2015	April 2018		Ongoing
7. Advocacy and increase awareness						
7.1	Creation of JAC	FAO-OIE	Dec 2012	April 2012		Completed
7.2	develop 10 reasons leaflet	JAC	June 2012	Sep 2012		Completed
7.3	Video on virus sequestration and destruction (OIE rinderpest eradication)	OIE		May 2013		Completed
7.4	Regional Community Outreach (Egypt, Ethiopia, Kenya, Nigeria, Senegal)	FAO	Feb 2015	Dec 2016	Dissemination of materials to be completed by March 2018	Target livestock holders, wildlife handlers and governments
7.5	Regional Outreach for Government Education and Training	FAO	March 2015	Jan 2016	2015 and 2016 meetings	Completed
7.6	Moratorium on live rinderpest virus research and handling (nature publication and others)	FAO,OIE,JAC	June 2012		Feb 2013 lifting moratorium on research approved by FAO and OIE	Completed

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
7.7	Disseminate 10 reasons leaflet	FAO,OIE	Jan 2013		Distribution to various potential stockholders was accomplished	Completed
7.8	Distribute flyers and materials in relevant FAO and OIE assemblies and conferences	OIE, FAO	April 2013	Ongoing		Flyers distributed to West Eurasian countries FAO 2013, countries participated in the Sharm (2016), Rome (2017), Nepal (2017), BTR (2017), Kenya meetings and OIE General Assemblies
7.9	Transform JAC guidance on biological materials may contain RPV into media-friendly, easy to understand format	JAC	April 2013	Dec 2016		Completed
7.10	Designate Rinderpest Day (cf Rabies Day). Suggest 23 October (last outbreak)	FAO, OIE		April 2018		To be discussed

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
7.10	Include rinderpest chapter in the veterinary and animal science curriculum	FAO, OIE	Jan 2016	Sept 2019	OIE Communications campaign has tools for students and teachers	Part of DTRA phase 2 concept note
7.11	Interactive Website/twitters	FAO	Jan 2016	Ongoing		Regular updates
7.12	Advocacy video for Destruction and Sequestration	FAO		August 2016		Completed. Published on FAO and OIE's websites.
8. Surveillance and Early warning						
8.1	In-country training in surveillance and early warning activities in risk regions	FAO	Jan 2015	Ongoing		Training in Togo complete
8.2	Improve data capture of disease rumors at national and regional levels	FAO	Jan 2015	Ongoing		Ongoing, Part of DTRA Phase I and II Projects
8.3	Improve exchange of information on potential RP events between organizations	FAO, OIE, GLEWS	March 2013	Ongoing		Ongoing, Information is exchanged between RP Secretariats and JAC
8.4	Improve passive surveillance, field investigations and reporting at the national level	FAO	Jan 2015	Ongoing		December 2017 in 5 countries

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
8.5	Develop a non-infectious molecular diagnostic tool for screening of rinderpest suspect cases (for ref labs and selected facilities)	FAO	June 2016	2018		TPI and FADDL are collaborating on the positive control standard for RT-PCR
8.6	Secure funding for point 8.5	FAO	June 2016	March 2018		Completed
9. Publications						
9.1	OIE rinderpest code chapter	OIE		May 2018		Update code on definition of sera (heat inactivated sera is not RVCM)
9.2	Rinderpest history book	FAO, OIE	2015	Scheduled mid 2018	Ongoing	One book chapter is to Secretariat and JAC to co-author
9.3	Update on progress of post eradication activities- peer-reviewed article	FAO, OIE, JAC	June 2015			FAO's article is in progress
9.4	Documents and SOPs related to rinderpest post-eradication published on FAO and OIE websites (toolbox)	FAO, OIE	Jan 2015 (FAO)	Ongoing		

	Activity	Responsible	Starting date	Expected completion date	Outcome	Remarks
9.5	Peer-reviewed publication on research projects	Principle investigators	2015	2016	Study on PPRV as vaccine against RPV is published in 2016	Completed
9.6	Book chapter on rinderpest post-eradication activities	FAO, OIE	Jan 2017	Sep 2017		Done

Appendix IV

MEETING OF THE RINDERPEST JOINT ADVISORY COMMITTEE

Paris, 19 – 20 December 2017

Action Items from the 12th Meeting

No	Item	Responsible Party	Deadline
1	Prepare a template for the final report of re-evaluating RHF (outstanding item from the 11 th meeting)	Secretariat (OIE)	February 2018
2	Prepare a summary on Reference Vaccine Virus Seeds (outstanding item from the 11 th meeting)	Gerrit to collaborate with FAO	13 th JAC
3	Follow up on RHF annual reports: 3.1) Clarify changes in 2016 vs 2017 inventory (NIAH) and propose to include valuable samples in one of the ongoing “sequence and destroy” projects	Secretariat	13 th JAC
	3.2) Discuss duplicated samples and opportunities to reduce holdings (FADDL)	Secretariat	13 th JAC
4	Follow up with members of the RHF network with regards to the Network meetings	Secretariat	13 th JAC
5	RHF pending applications: 5.1) Follow up with CIRAD to determine the status of the corrective actions that were to be implemented by the end of 2017.	Secretariat	January 2018
	5.2) Arrange the on-site inspection to the facility in Beijing, China	Secretariat (FAO)	January 2018

	5.3) Provide Iran with NCP template	Secretariat (FAO)	January 2018
6	Review and provide comments on the GRAP and on the Operational Framework for the RVR	JAC	11 January 2018
7	Develop a SOP/flow diagram and contact info of the GRAP	Secretariat	13 th JAC
8	Write justification for FAO and OIE to commit to owning a vaccine stockpile that can be used by any country in case of emergency.	Alejandro	Before 13 th JAC meeting
9	Establish an agreement (letter of agreement) with Japan and AU in order to commit 10% of their reserve for global use.	Secretariat Alejandro to provide template in use	Before 13 th JAC meeting
10	JAC to provide preliminary comments to the criteria	JAC	15 January 2015
11	FAO and OIE to finish the criteria together with the group of experts by the end of February 2018 for further review and recommendations by the JAC before seeking agreement of the management of FAO and OIE including identification of a procedure for the designation of vaccine manufacturers.	Secretariat	End of February 2018
12	Finalize the Guidelines for Biorisk management in the (re)evaluation of Rinderpest Holding Facilities and share the proposed renewal form with FAO	OIE	End of February 2018
13	Liaise with the Head of AU-PANVAC to assess the status of completion of the corrective actions identified during the 2015 inspection, after the implementation of the twinning project with TPI	Secretariat (OIE)	January 2018
14	Sequence and Destroy 14.1) Contact TPI and CIRAD to congratulate the progress to date and to inform them that the use of a new extraction technology, upon eventual extension of the project, would require the submission of a new research proposal. The samples that are fully sequenced (and their duplicates) should be destroyed as soon as possible. The same applies to samples that are sequenced to the utmost possible completion within reason.	Secretariat (OIE)	January 2018

15	Release a statement saying that using rinderpest virus genetic sequence information for resynthesizing RPV is unacceptable/ unethical and would be considered criminal.	Secretariat	13 th JAC
16	Update the Roadmap	Secretariat	13 th JAC

Appendix V

RINDERPEST HOLDING FACILITY NETWORK

TERMS OF REFERENCE

Coordinator: Dr Carrie Batten

Purpose: To promote collaboration between rinderpest holding facilities

Frequency of meetings: Annual (from 2018)

Remit:

- 1) Contribute to the global rinderpest action plan particularly with regards to vaccines and diagnostics
- 2) Develop a strategy to reduce the remaining stocks of RVCM across RHF's
- 3) Collaborate on identifying gaps and research needs to sustain the global freedom from rinderpest
- 4) Develop and implement a Biennial workplan
- 5) Collaborate on diagnostic development aiming to adapt diagnostic tools to the post eradication era
- 6) Promote the work of OIE and FAO in relation to RPV.