

Perspectives of South-South Collaboration: Twinning experiences and future outlook.

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Outline of presentation

- Background to the twinning project
- The planning meeting,
- Activities undertaken during the training
- Experiences from the twinning project
- Future perspectives

What were the reasons that led to collaborating between the ARC and NVRI?

- Co-supervision of a postgraduate student who is a veterinarian at NVRI (2007)
 - Some samples had been reported to be negative (on initial diagnosis), but were PCR positive for lyssavirus infection.
- Awarded an International Development Fund (SGM) to conduct a training in rabies diagnostics (2009) at NVRI.



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Summary of 2009 cell culture training



- 3-week training period -[23 February - 12 March 2009] in well equipped laboratories [FMD and avian influenza facilities].
- 8 scientists (to include veterinarians, researchers and technical personnel)



Training (continued)

- Outputs:

- reconstitution of culture media (Eagle's minimum essential media (EMEM),
- reconstitution of OIE dog reference standard and anti-lyssavirus conjugate,
- BHK-21 and MNA cell culture
- Freezing and recovery of cells
- Production of CVS undertaken on BHK cells

- Outputs

- Rabies tissue culture isolation test (RTCIT) on a panel of samples.

- **The FAVNT was not performed as initially planned.**

- Simulated situations/examples of typical FAVNT results to work (individually) using the Spearman-Kärber formula



Training (continued)

- Outputs
 - direct Fluorescent antibody test (dFAT) was demonstrated on the panel of 6 samples (reduced test time) [Sellers staining method of choice].
 - Overall, the training gave the participants an insight into some of the techniques used in rabies diagnostics.



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Limitations (L) and Positives (P)

- Lack of a functional fluorescent microscope (L) (this was frustrating).
- Facilities for rabies diagnosis dispersed throughout the institute (L).
- No one individual assigned to specific equipment for maintenance (L).
- Critical mass for undertaking rabies diagnosis and research available [molecular epidemiology, pathology, cell culture and surveillance, diagnosis (P).
- NVRI's geographical position perfect for an OIE Reference Laboratory for Rabies for the west African region.
 - Serological test for rabies (Tunisia and Onderstepoort)

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Limitations (L) and Positives (P)

- New opportunities:
 - Need to consider and introduce new diagnostic tests in replacing histological methods (New opportunities to improve surveillance).
- Reliable and quick communication channels (P).
- Management support for training and collaboration (P).



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ARC-NVRI twinning project

- To improve the capacity and expertise of NVRI to perform rabies diagnosis and surveillance.
 - Management of project: C Sabeta (Project Leader and Financial Management)
 - Technical and financial reports (3 in total, April 30, 2010; December 31, 2010 and December 30, 2011.
 - Expert for NVRI – C Nwosuh



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ARC-NVRI twinning project

- Objectives;
 - Replace the Sellers staining method with DFAT,
 - Rabies tissue culture isolation test (may do away with MIT)
 - fluorescent antibody virus neutralisation test (FAVNT)
- Strain differentiation (**using Mabs**)



ARC-NVRI twinning project

- Several exchange visits were undertaken in 2010 & 2011
- These have led to improvements/changes for both the parent and candidate labs:
 - Facility to handle diagnostic tests at NVRI is under refurbishment,
 - DFAT being validated (NVRI has participated in proficiency test organised by Anses, France),
 - FAT test done once a day,
 - Protocols developed and improved,
 - Safety knowledge enhanced,
- Quality system improved:
 - New equipment has been procured and is regularly serviced,
 - Documentation records kept up to date (equipment, cell passage, tracking cell reagents)
 - Exchange of samples between the two labs



ARC-NVRI twinning project

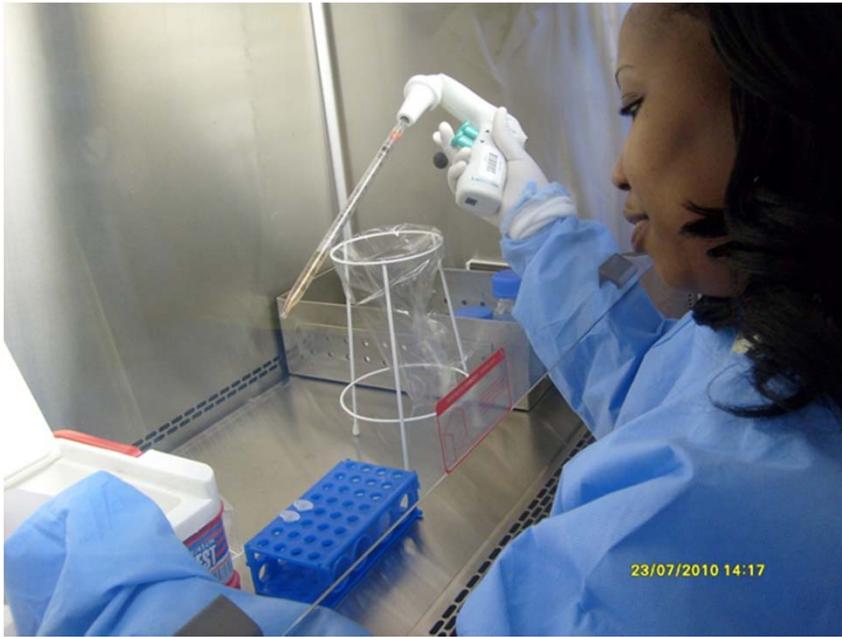
- One to one attention: 14 personnel from NVRI received training during this project.
- The Nigerian group is very enthusiastic about the project.
- Management support is key to the success of such a project.
- Power disruptions occur frequently (again frustrating from our side)



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Accommodation





Experiences and benefits .

- Challenges:
 - Sending materials to Nigeria e.g. cell lines
 - Procurement process and allocation of funds (charges for consignment)
 - Visas to travel to Nigeria
- Participation in the FAT inter-laboratory proficiency test (NVRI)
 - Morocco (3 labs), South Africa (2 labs) and Nigeria (NVRI)
- Archiving of samples
- Preparation of reference serum (MOKV, LBV, DUVV)
 - As part of the ELISA project
- Mab typing of selected isolates

Experiences of the twinning project from the two labs

- Enhanced visibility of the ARC on the African continent
 - Fulfilment of one of the mandates of the OIE
- Improved diagnostics underlined with a quality control approach,
- Teamwork (particularly for the NVRI team),
- Need for appropriate safe practices (biohazard cabinet for the FAT)
- An opportunity for further research collaborations between scientists from the two labs,
- Although NVRI will learn from Onderstepoort, they need to come up with a quality system that suits them well,

Experiences continued....

- Substantial progress was made during the 2 years:
 - Appreciation of quality, safety and good laboratory practices,
 - Development of protocols and surveillance study for lyssaviruses,
 - Competence evaluation (FAT) [encourage NVRI to participate in international ring trials],
 - Linking NVRI to international partners e.g. CFIA (Mabs), OIE (forthcoming twinning workshops),
 - Team work (at NVRI one co-ordinated diagnostic and research unit) and Onderstepoort,
 - Appreciation of the FAT test (OIE prescribed method),
 - Exchange of personnel (information exchange **in both directions**),
 - Provision of good quality biologicals (to NVRI)
 - More opportunities for joint research (further research work on ELISA, epidemiology)
 - Regular servicing of equipment
 - » FAT microscope (at NVRI) is a big limitation

Experiences and the future

- Overcome cultural barriers
- Strengthened professional and personal relationships:
 - Joint collaboration,
 - Information exchange
 - Exchange of biologicals
 - Provision of training in new areas outside the realm of the twinning project
- NVRI should now take lead and work with other regional members in west Africa.

Future perspectives.

- South-South collaboration:
- Bilateral agreements in the area of science and technology
 - South Africa and European and African countries agreements
 - Mozambique, Kenya, Zambia, Namibia, Egypt
 - Joint research
 - Development of methods
 - Training of personnel
 - Provision of equipment

Outside the working environment.....











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Thank you for your attention!!!

