

**Report of the fifth meeting of the International Coordinating Group of the
World Health Organization and the Bill & Melinda Gates Foundation project
on eliminating human and dog rabies**

Dar es Salaam, United Republic of Tanzania, 8–10 October 2013

BILL & MELINDA
GATES *foundation*



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Abbreviations and acronyms

ABTC	animal bite treatment centre
BMGF	Bill & Melinda Gates Foundation
CDC	Centres for Disease Control
CHD	Central Health Department
DFA	direct fluorescent antibody test
DoH	Department of Health
GARC	Global Alliance for Rabies Control
dRIT	direct rapid immunohistochemical test
GIS	geographical information systems
FAT	fluorescent antibody test
ICG	International Coordinating Group
ID	intradermal
IM	Intramuscular
KZN	KwaZulu-Natal
LGU	local government unit
MLFD	Ministry of Livestock and Fisheries Development
MoHSW	Ministry of Health and Social Welfare
NARIS	National Rabies Information System
PEP	post-exposure prophylaxis
PLDP	Peer Learning District Programme
PreEP	pre-exposure prophylaxis
RIG	human rabies immunoglobulin
SOPs	standard operating procedures
SPCA	Society for the Prevention of Cruelty to Animals
SSA	special service agreements
WCO	WHO Country Office
WHO	World Health Organization
WRD	World Rabies Day
WSPA	World Society for the Protection of Animals

1. Purpose and objectives

The meeting was opened by the Honourable Deputy Minister for Livestock and Fisheries Development, Dr Benedict Ngalama Ole-Nangoro, who assured support to the objectives of eliminating human and dog rabies in the project sites and subsequently in the United Republic of Tanzania. He acknowledged the importance of the cooperation between the Ministry for Livestock and Fisheries Development and the Ministry of Health and Social Welfare. He thanked the Bill & Melinda Gates Foundation (BMGF) for their generous contribution to the project and to the World Health Organization (WHO) for its support. Dr Rufaro Chatora, WHO Representative for the United Republic of Tanzania, welcomed participants and acknowledged the progress made.

Dr Anastasia Pantelias, Neglected Infectious Diseases Department, Global Health Programme, BMGF, and Dr Bernadette Abela-Ridder, Team Leader, Neglected Zoonotic Diseases, WHO Department for Control of Neglected Tropical Diseases, welcomed participants and outlined the objectives of the 5th meeting of the International Coordinating Group (ICG) of the WHO–BMGF project on eliminating human and dog rabies.

The purpose of the 5th ICG was to review the progress made and coordinate upcoming activities. The project was launched in 2008 but its implementation was delayed; therefore, a no-cost extension was not received until the end of 2015.

The objectives of the meeting were to:

- report and review progress for each project site
- plan activities for the subsequent year
- identify challenges, opportunities and relevant lessons learnt to inform future actions
 - planning the way forward on data collation and analysis for the end-of-project outcome report
 - discussing the transition of projects into wider programmes (national and international).

National coordinators and advisers to the three project sites (KwaZulu-Natal, South Africa; the south-eastern United Republic of Tanzania; and the Visayas, Philippines), WHO staff in country offices, regions and at headquarters, and the BMGF representative participated in the meeting.

The meeting was closed by Dr Seif S. Rashid, Deputy Minister for Health and Social Welfare.

2. Project reports

i. KwaZulu-Natal

Project implementation

Database development

The aim of the database, which has been set up within the past 13 months, is to centrally store, manage and analyse data. To date, it has allowed for more efficient analysis of case information and the use of Geographical Information Systems (GIS) software, enabling the accessibility of up-to-date information on demand. A second database has also been created for the Department of Health (DoH) in order to analyse dog bite cases and post-exposure prophylaxis (PEP) administration. The DoH has not been using these data and so the BMGF project is now analysing the health data, starting with vaccine use. Through the implementation and use of these databases, human case information is available and of good quality; accurate information on vaccine costs and distribution is also now available. Currently, information on PEP administrations is being researched with the use of these databases.

Dog population size data collation

Surveys regarding dog population size have been performed in the region through various methods, including direct observations of marked versus unmarked dogs, household surveys, and the use of official information from national and international authorities and agencies. The current dog population in KwaZulu-Natal (KZN) has been estimated at approximately 1.2 million dogs. The PhD dog ecology study has now been completed and the dog to human ratios are being analysed.

Data collation on animal rabies cases and submissions for diagnosis

The epidemiological data on animal rabies cases and available sample submissions from the regional and national records have been analysed. The data suggest that surveillance in KZN is of a very high standard – this has been partly achieved through the recent accreditation of the laboratory for controlled disease testing. In 2012 and 2013, 1136 and 699 samples were processed with 27% and 11% showing positive results respectively. This demonstrates a dramatic decline in both the number of samples submitted and the number of positive samples. The decline in the number of positive samples is noteworthy, as this percentage typically remains stable; the decline is attributable to the success of the campaigns. In order to compensate for the reduced number of samples submitted, systems of sample collection and submission are being improved through the supply of transport packaging for veterinarians and field staff.

A second diagnostic laboratory located in Vryheid is being renovated and should be operational by the end of 2013. This laboratory will aid in sample submission through the concept of decentralization.

GIS

The in-country capacity for GIS was assessed to aid project planning and the presentation of results. The GIS, geographical and topographical data were compiled and have been applied to the surveillance data. Currently, three GIS sections are available to the project site.

Improved targeted delivery of PEP

The project site aims to significantly improve the delivery of PEP throughout the project area through the achievement of several goals:

1. In the next 3 years, 100% of rabid animal-bite victims reporting to clinics within the study area will receive PEP according to WHO guidelines.
2. In the next 3 years, the number of individuals receiving unnecessary PEP will be reduced by 50%.
3. In the next 5 years, the number of individuals receiving unnecessary PEP will be reduced by 80%.
4. Community awareness regarding methods to prevent rabies exposures and infection will be improved.
5. Monitoring of PEP usage as well as the evaluation of PEP administration will be enhanced.

In order to attain these objectives, several actions have already been taken. For example, a good network of 13 rabies action groups has been established and/or revived across the province. These groups act as a base from which training is launched into the field, and have assisted the development and printing of new educational posters and their distribution.

Rabies vaccine stocks have been increased and there are currently no shortages in KZN. In order to address issues regarding PEP administration and to potentially decrease the amount of PEP used, the 5th dose has been dropped from the vaccination schedule; this action has been incorporated into official policy. Additionally, the intradermal (ID) vaccination route (PEP and pre-exposure prophylaxis (PreEP)) has been rejected by the Medicines Control Council; however, a new effort will be made to alter this decision. The standard operating procedures (SOPs) regarding treatment are widely available and have been agreed upon at a national level, with new booklets and treatment DVDs distributed to more than 400 doctors and nurses. A further 3000 copies are being printed in response to popular demand. Furthermore, training days have been held at centres around the province by the local Centres for Disease Control (CDC), and a toll-free helpline for medics and veterinary services is in place. These contribute to reducing PEP demand and reduced administration. Rabies immunoglobulin (RIG) is available free of charge throughout the province; however, improvements are to improve the efficient use thereof through training. Despite these efforts, 2012 saw a shortage of RIG in response to the national media hype. The only death in KZN in 2013 was due to the unavailability of RIG. A database has also been set up in order to monitor PEP administration and usage in hospitals and clinics.

Unfortunately, achieving the above goals is at risk because of the lack of commitment from the DoH. Despite this, PEP administration in KZN remains at a higher standard compared with other African situations.

Procurement of dog vaccines and equipment, and establishing systems to monitor their usage

Some challenges arose regarding the procurement of vaccine in late 2012 and 2013. For instance, 500 000 doses of rabies vaccine were received late from Merial, ultimately affecting campaigns for a month. This problem was repeated in 2013 with an even greater impact on the campaigns, despite the loan of extra vaccine (an insufficient amount to fully compensate for the shortage) to the project. In order to combat future shortages, a vaccine bank has been established, and new temperature monitoring systems have been installed to monitor and report changes in temperature at the facility.

New cooler boxes have been purchased for technicians to ensure better cold chain management in the field and all basic equipment is in place, including the procurement of extra catch and control equipment for field technicians. Additionally, improvements have been made to the pole syringes to ensure more humane administration of vaccine to certain dogs.

Lastly, a system of compulsory source documents has been instituted whereby communities endorse work done, ensuring a better official record system.

Dog vaccination and dog population management

Several SOPs have been developed by KZN that are being used internationally, for instance the 'Blueprint for rabies control'. Additionally, other such procedures are being developed and improved upon constantly.

Training courses for personnel have been developed, including for 47 members of the Society for the Prevention of Cruelty to Animals (SPCA) and the retraining of staff throughout the province to assist with vaccinations. Additionally, 125 new vaccinators (extension assistants) have been trained and integrated in State veterinary offices.

The project has played an increasing role in creating new clinics at welfare organizations that, through the project's support of both medicines and training, are now serving communities in key areas. A 20 million rand project to sterilize pets in KZN has begun and is achieving good results around KZN.

Steps were taken to build community awareness of the need for dog vaccination as well as for responsible dog ownership. Following the incredible media hype of 2012, there was a dramatic decline in interest towards vaccination, which was measurable by the rate of sample submission. The submission rate declined back to levels prior to the media blitz. In order to compensate for this decline in interest, another large media run was done in July 2013. However, without the dramatic news of deaths of famous people, it did not have much of an effect. For example, senior officials who were interested last year seem uninterested now, which may be a reality of this type of project.

Mass vaccination campaigns were carried out throughout 2012 and 2013, vaccinating a record number of animals (638 392) for the calendar year of 2012. This massive effort has dramatically reduced the number of dog rabies cases from 273 to 80 cases. However, a reduced number of vaccinated animals (approximately 450 000) is expected for 2013 in response to the failure of the DoH's intervention strategy caused by bureaucratic obstacles and vaccination campaigns not being carried out during August and September because vaccine was unavailable. This lost time cannot be recaptured owing to the logistical problems encountered during the rainy season. A further problem is vaccinator fatigue, an underestimated but very important factor.

A new strategy of following up unvaccinated dogs is being rolled out and promises to increase coverage, as has been demonstrated in Sisonke where the disease has been absent for 2 years.

Improved surveillance and diagnostics

Surveillance in KZN is of a very high standard, with the laboratory recently being accredited for control disease testing by the national department and preparing for accreditation by the South African National Accreditation System. In 2012 and 2013, 1136 and 699 samples were processed with 27% and 11% showing positive results respectively. This demonstrates the quality of the current

surveillance as well as the impact it has had on the disease. A further 121 samples were processed from the Eastern Cape, with 96 being positive. Furthermore, a brain bank with approximately 4000 brain samples has been created for testing at a later stage. Systems of sample collection and submission are continuously being improved through the supply of transport packaging for veterinarians and field staff.

Unfortunately, the serological laboratory has not been initiated due to the resignation of the laboratory technician who was running the laboratory. A replacement has not yet been identified.

Ensuring long-term sustainability of the KZN project

The identification of zones for continued vaccination and border control plays an important role in surveillance. Thus far, the evaluation of border areas to assess the danger of reintroducing rabies has been completed and collaboration with neighbouring provinces has been established. SOPs have been shared and training has been conducted to ensure that lessons learnt are addressed. Progress in the border collaborations includes the initiation of campaigns in the Eastern Cape, set to begin in February 2014; the cooperation with Lesotho and the Free State began in September 2013. Mozambique has already completed one vaccination campaign on the border areas shared with northern KZN. Following in the footsteps of KZN, Mpumalanga has already eliminated the disease from one area of the province, and their champion has been asked to tackle the remainder of the province. Unfortunately, staff and funds are lacking. Swaziland has commenced vaccination and technicians have been trained in order to improve laboratory diagnostics. Agreements are in place in all of the bordering countries to ensure improved vaccination and surveillance along these border areas. KZN will assist by supplying vaccine to some of these areas to ensure sufficient vaccination coverage, with further funding and support for the continuation of this programme sourced from the private sector.

Steps towards identifying new cases have been put into place to determine movement pathways – molecular transmission histories are tested to establish response strategies. Existing strategies are in place to respond to outbreaks where ring vaccinations are performed in a 20 km radius around the outbreak.

Plans for the next reporting period

The goal of the Rabies Elimination Project is to control human rabies through dog rabies control. Hence the main activities to accomplish during the next reporting period are as follows.

Human PEP

The evaluation of PEP distribution and administration as well as the ongoing training of human health practitioners to ensure the correct administration of PEP continued throughout KZN. The project will continue to seek approval for the use of the intradermal (ID) PreEP regimen and test four pilot sites for ID PEP.

Awareness and education

As in year one, the project aims to improve rabies education through mass media coverage, including radio broadcasts, posters and training programmes.

Surveillance

In order to improve sample submission and surveillance throughout the region, decentralizing diagnostic laboratories is key. Thus, a main focus will remain on opening the satellite laboratory.

Control campaigns

Given the challenges in 2013, the control campaigns will be evaluated and scrutinized to assist in reorganizing campaigns to target priority areas. The training of SPCA, municipal and agricultural volunteers will continue and follow-up campaigns across the province will be expanded.

Primary health care (see also Appendix D)

Monitoring of the primary animal health care and the rabies outreach projects will continue. Static clinics will continue to be supported and the holistic primary health care initiative during mass vaccination campaigns will be improved to include introducing the responsible pet ownership campaign through the awareness teams. Additionally, a campaign for bite prevention will also be launched.

Research

The findings of the ecology study will be finalized and the evaluation of GonaCon will commence. The dog behaviour studies will also continue, including the role of sound in the spread of rabies. Determination of transmission pathways in neighbouring countries and provinces will also be undertaken as well as an evaluation of PEP in KZN.

Financial report

Again, one of the biggest challenges has been securing transfer of funds to the department. This opening statement of 2012 financial report back is echoed in 2013. Central to financial assistance to developing countries is always going to be bureaucracy. The Department of Agriculture pledged 20 million rand (US\$ 2million) to eliminating rabies in KZN but this money arrived 1 month before the end of the financial year. All unspent monies were returned without the possibility of a rollover at the end of the year. Similar delays were experienced via WHO.

These types of bureaucratic issues will be the foundation for projects failing. Much improvement can be made towards smoother financing of projects in order to maintain the flow of field work, which is essential to success. Therefore by this reporting date, no money has been spent from the current (2013) budget as funds are in the process of being transferred. The remaining carry-over budget has all been spent or allocated. However, due to departmental inputs and the late arrival of vaccine last year, along with pre-emptive planning, the year was not a total loss and many objectives were still achieved. Unfortunately, there is a shortcoming in the vaccination season by at least 100 000 vaccinations, which has set the plans of elimination back by at least a year.

ii. Philippines

Project implementation

Eastern Visayas (Region VIII). The Eastern Visayas is one of two regions in the Philippines with no border to another region, the other being MiMaRoPa. It consists of six provinces (Leyte, Southern Leyte, Biliran, Samar, Eastern Samar and Northern Samar), the cities of Ormoc, Baybay, Maasin,

Calbayog, Catbalogan and Borongan, and the highly urbanized City of Tacloban, the regional centre. The Eastern Visayas directly faces the Pacific Ocean. It has a human population of 4 101 322 and a dog population of almost 350 075.

Region VIII was among the top 10 regions with the highest number of human rabies cases in the country, while the provinces of Samar, Northern Samar and Leyte belong to the top 10 provinces with the highest incidence of human rabies cases.

Upon initial implementation of the project in 2009, the number of human rabies cases dropped to 17 (rate: 4.5/million population) from 20 human rabies cases in the previous year. This rate is very high compared with the national reduction target (2.5/million population). Every year, an average of 5500 animal bite cases consult Animal Bite Treatment Centres (ABTC), which are distributed in every province and city.

In 2012, a total of 6 human rabies cases were reported (compared with a total of 11 cases in 2011). For canine rabies, out of 47 dog-head samples submitted in 2012, only 1 tested positive. Mass dog vaccination is still ongoing, with partial coverage (20%) accomplished as of July 2013. More dogs are being shipped out of the region than are coming in.

An increase in awareness has also increased the demand for PEP. Rabies integration in the curriculum, massive IEC campaigns in all schools and barangays, and organization of “Bantay Rabis sa Barangay” and regional call-ups through programme implementation reviews played a role in the sudden decrease of rabies incidence in the region.



Central Visayas (Region VII): Located in the central part of the Visayas island group, the Central Visayas consists of four provinces (Bohol, Cebu, Negros Oriental and Siquijor) and the highly urbanized cities of Cebu, Lapu-Lapu and Mandaue. It has a human population of 6 398 628 and a dog population of about 443 596.

The number of human rabies cases has decreased; animal bite cases have been monitored and given anti-rabies vaccine.

The Central Visayas continually implement activities through the rabies prevention and control programme towards slowly eradicating rabies. Starting from the third quarter of 2013, continuing advocacy to implement the rules and regulations of the Anti-Rabies Act (RA 9482) is being targeted. Since the implementation of this law focuses on the Barangay level, Barangay Captains and secretaries participate in the orientation on responsible pet ownership and quarantine measures to four inter-local health zones of Negros Oriental.

Several ABTCs were certified at the beginning of the third quarter of 2013. The new ABTCs in the region are: Negros Oriental Provincial Hospital, Barili District Hospital, Minglanilla District Hospital and Candijay Community Hospital in Bohol; Vicente Sotto Memorial Medical Centre, Balamban Rural Health Unit in Cebu Province; and Emilio del Valle Memorial Hospital. The ABTCs were monitored and assessed in order to provide immediate care and high-quality treatment and management of

animal bites by the WHO–DoH trained medical personnel. Active surveillance is being conducted based on the second-quarter report of 5 human rabies deaths in Liloan and Bogo (Cebu province) and another reported case in Bohol province, all of which were subsequently confirmed.

The region has recently identified Olympia Island of Bais City (Negros Oriental province) to be targeted as a rabies-free zone. This selection was evaluated based on the level of compliance with the requirements of the rabies prevention and control programme. When declared free from rabies, Olympia Island will be the fifth rabies-free zone in the region.

Mass dog vaccination is still ongoing in the municipalities and cities. Human vaccines are allocated to the City Health Offices and Provincial Health Offices for immediate access to PEP vaccines for patients with animal bites.

Western Visayas (Region VI): The Western Visayas consists of six provinces (Aklan, Antique, Negros Occidental, Capiz, Guimaras and Iloilo) and 16 cities, making it the region with the highest number of cities. Iloilo City is the regional centre. It has a human population of about 6 843 643 and a dog population of about 802 378.

Region VI was labelled the “most rabid” place in the country (2005) but by 2012 the number of human deaths was reduced to 4; this region has been one of the high achievers in overcoming rabies.

Detailed data are provided in the tables below. Table 1 shows the number of municipalities, cities and barangays for each project site. Table 2 shows annual dog vaccination coverage throughout the project’s life-cycle. Table 3 shows the significant drop in human rabies deaths and in Table 5 in dog rabies cases. Table 4 shows the number of registered animal bite cases from 2008 until the second quarter of 2013. Table 6 shows the allocation of dog rabies vaccine by region. Table 7 shows the increasing number of trained dog vaccinators by region.

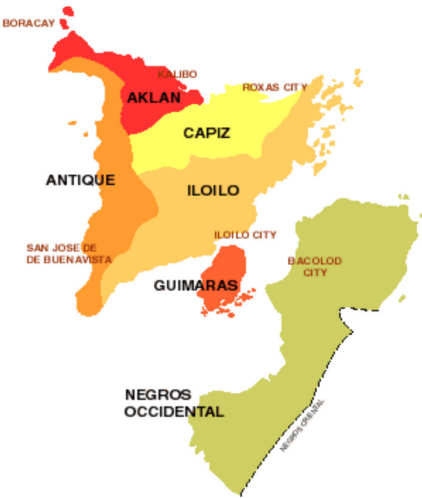


Table 1. Number of municipalities, cities and barangays, by project site

Central Visayas			
Provinces	No. of municipalities	No. of cities	No. of barangays
SIQUIJOR	6	none	134
BOHOL	47	1	1109
CEBU	43	9	2203
NEGROS ORIENTAL	19	6	557
	115	16	4003
Eastern Visayas			
LEYTE	41	3	1641
SOUTH LEYTE	19	1	501
BILIRAN	8	–	132
WEST SAMAR	25	1	949
EAST SAMAR	22	1	595
NORTH SAMAR	24	–	572
CALBAYOG CITY	–	1	157
ORMOC CITY	–	1	110
TACLOBAN CITY	–	1	138
	139	9	4795
Western Visayas			
AKLAN	17	–	327
ANTIQUE	18	–	590
CAPIZ	17	1	473
GUIMARAS	5	0	98
ILOILO	43	1	1721
NEGROS OCCIDENTAL	31	12	601
ILOILO CITY	–	1	180
BACOLOD CITY	–	1	61
	131	16	4051

Table 2. Dog vaccination coverage (%), by region, 2009–2012

Region	2009		2010		2011		2012		2013	
	Number	%	Number	%	Number	%	Number	%	Number	%
Western Visayas	126 383	15.75	600 942	79.83	640 171	78.45	541 668	72.88	186 180	24
Central Visayas	87 655	19.76	112 935	28.15	428 740	85.99	481 993	81.60	178 548	29.33
Eastern Visayas	52 582	15.02	59 818	20.47	140 943	52.64	131 582	49.15	77 797	15

Table 3. Number of human rabies deaths, by region, 2008–2013

Region	2008	2009	2010	2011	2012	2013
Western Visayas	14	14	15	8	3	1
Central Visayas	14	12	13	10	7	2
Eastern Visayas	23	17	12	11	6	1

Table 4. Number of animal bite cases, by region, 2008 – 2nd quarter of 2013

Region	2008	2009	2010	2011	2012	2013
Western Visayas	22 865	25 067	27 497	34 619	41 108	12 959
Central Visayas	17 387	20 338	26 298	28 964	36 690	11 607
Eastern Visayas	(no data)	4599	8525	4654	10 810	2914

Table 5. Number of positive canine rabies cases, 2008–2013

Region	2008	2009	2010	2011	2012	2013
Western Visayas	106	85	82	32	5	3
Central Visayas	88	55	34	47	35	43
Eastern Visayas	(no data)	14	4	7	1	3

Table 6. Allocation of dog rabies vaccine for regions VI and VIII, by province/city, 2010–2013

Region VI.				
Province/city	2010	2011	2012	2013
Aklan	4264	2918	2149	2209
Antique	3796	4003	1631	2268
Capiz	7319	5493	4939	3256
Guimaras	1550	1550	898	1041
Iloilo	18 334	21 457	166 008	12 864
Iloilo City	2000	15 359	13 223	1588
Negros Occidental	11494	3 136	2513	9296
Bacolod City	3211	1888	2039	2437
DARFU	2000		0	0
Total	53 968	55 804	193 400	34 959

Facility	2011	2012	2013
Cebu province	16 589	22 163	14 949
Bohol	0	200	0
Negros oriental	5407	6759	4544
Siquijor	303	375	307
Cebu city	3000	4725	2996
Mandaue city	300	589	413
Lapu-lapu city	100	1000	413
Toledo city	300	0	0
Talisay city	248	0	0
Danao city	330	0	0
Total	26 577	35 811	23 622

Region VIII.			
Province/city	2011	2012	2013
Leyte	7125	7212	6876
SO Leyte	1518	1984	1631
Biliran	1311	1055	720
Samar	1778	1644	2844
E. Samar	2130	1506	1903
N. Samar	2133	1669	2927
Calbayog	684	490	209
Catbalogan	236	471	868
Ormoc	2076	2097	845
Tacloban	715	612	1105
Total	19 706	18 741	19 929

Table 7. Number of dog vaccinators, by region, 2011–2012

Region	2011	2012	Total
Western Visayas	4582	390	5242
Central Visayas	465	565	1030
Eastern Visayas	1099	870	1969
	6146	1825	8241

Ensuring long-term sustainability

The National Rabies Information System (NARIS)

NARIS has been launched as an internet-based information system that allows each ABTC to register rabies/exposure/bite patient records online. The website (<https://rabies.doh.gov.ph>) allows:

- reports to be generated and data on all rabies exposures to be collated and available to programme managers at national, regional and local levels in real time, leading to more efficient and effective delivery of health services;
- publishing of an online bulletin to inform the general public about the government's efforts in rabies prevention and control, accurate information and comprehensive list of animal bite treatment as well as the diagnostic centres.

Currently, the NARIS server is being maintained by the University of the Philippines (UP), Telehealth, which was selected to assist the project in developing NARIS to ensure that any changes, problems and modifications in the NARIS interface and database structure would be addressed efficiently. Once the DoH takes over NARIS from Telehealth, it will be responsible for maintaining NARIS. The NARIS roll-out was conducted to the ABTCs of regions VI, VII and VIII.

Development of the Manual of Operations and Medium-Term Plan of the National Rabies Prevention and Control Programme

To support the project, an updated Manual of Operations and the 5-year Medium-Term Development Plan (MDP 2012–2016) of the National Rabies and Prevention and Control Programme in consultation with all stakeholders is being finalized.

Accomplished milestones – Declaration of rabies-free zones and areas

The provincial island of Guimaras and Boracay Island in Aklan province are the first in the Western Visayas region to be declared as rabies-free by the DoH. In a declaration event held in Boracay (28 September 2013), Boracay and Guimaras joined the rabies-free islands of Batanes, Biliran, Camiguin, Camotes, Limasawa, Malpascua Island, Marinduque, Siquor and Apo in Negros Oriental as the first 10 rabies-free zones in the country. Both islands in the Western Visayas, known as top tourism islands in the region, have reported zero rabies cases for the past 3 consecutive years.

Plans for the next reporting period

For the no-cost extension, the project will focus on sustainability at the national, regional and local levels, improving surveillance and documenting, sharing and publishing best practices and success stories, mop-up operations in selected areas, and validating project accomplishment reports. Below are listings of activities for the end of 2013 and for 2014.

2013

1. Support mass dog vaccination campaigns in all local government units
2. Support rabies surveillance
 - a. Human rabies:
 - i. Investigate all suspected rabies cases (notified)
 - ii. Operationalize the online registration of all human rabies cases and rabies exposures in NARIS (dry run is ongoing)
 - b. Animal rabies
 - i. Conjugates have been provided
 - ii. Freight and handling of samples

3. Start documenting and disseminating best practices/success stories
 - a. Identify best practices and success stories
 - i. Audiovisual presentations (AVPs) for the rabies-free Visayas have been developed by the National Centre for Health Promotion-

For posting the NARIS

- i. Biliran Province
- ii. Siquijor
- iii. Guimaras – AVP will be developed soon
- iv. Limasawa
- v. Boracay
- AVPs have been developed by the Central Health Department (CHD) funded by the Disease Elimination Fund
- For posting in the NARIS

Best practices for responsible pet ownership

- i. Reducing unnecessary PEP – initial evaluation done
 - ii. Others
 - b. Posting in the National Rabies Programme Website (NARIS)
 - i. September 28 World Rabies Day celebration declaring the islands of Boracay and Guimaras as rabies-free zones by Assistant Secretary (Asec) Tayag of DoH and Asec Catbagan of Department of Agriculture.
4. Support CHD and LGU (local government unit) activities
 - a. Facilitate the release from the WHO Country Office (WCO) of requested year 4 and 5 funds

2014

1. Conduct mop-up operations in selected Phase II areas with relatively high incidence of human and canine rabies cases and low rates of dog vaccination coverage
 - a. Procure dog vaccines (from the excess money in 2013 and the returned money)
 - b. Realign money for some activities to procure additional dog vaccines, human vaccines and RIG, use savings from conducted activities
2. Continue hiring on special service agreements (SSAs) at the national and regional offices – use funding from the returned money
 - a. Very crucial in ensuring human and animal health collaboration, data collection and collation, implementation of project activities and others.
3. Project documentation
 - a. Hire full-time technical writer – NO FUNDING SOURCE. Hoping that the project can support this activity by providing funds.
4. Surveillance
 - a. Animal rabies
 - i. Procure conjugates
 - ii. Continue supporting the freight and handling of samples
 - b. Human rabies

- i. Improve human surveillance by establishing a reference laboratory to confirm probable cases:
 - Identify possible facilities with laboratory equipment (PCR) – RITM and San Lazaro
 - Utilize more acceptable and practical ante- and post-mortem methods of confirming human rabies – hair follicles (Dr Thiravat of Thailand is willing to share this technology)
 - Visit the laboratory facility and discuss how Thailand can transfer or share the technology (currently NO FUNDING identified).
 - Train laboratory technician in Thailand (currently NO FUNDING identified).
- 5. Advocacy campaign – sustainability of the project – LGU ownership
- 6. Continue documenting and disseminating best practices and success stories
 - a. Locally
 - i. NARIS posting of project accomplishments, best practices and successes
 - ii. Local rabies for annual conferences
 - iii. Media partners
 - 1. Radio and TV talk shows
 - 2. Print
 - b. Internationally: NO FUNDING SOURCE
 - i. Publications
 - ii. International fora and conferences
- 7. Policy (national laws, department issuances, local issuances) development, if needed:
 - a. Lessons learnt
 - b. Best practices/success stories
 - c. To address issues and concerns encountered in implementing the project
- 8. Monitoring and evaluation
 - a. Zonal (all 3 regions)
 - b. Regional
 - c. Provincial
 - d. City/municipal

Financial report

For this year, the Philippines DoH received a total of US\$ 95 555 to implement the Rabies Elimination Project. However, almost all year 5 (2013) funding was not used because the implementers are still using the year 4 funds and the money was received late.

As of September 2013, almost all the total grant funds received for year 1 to 3 have been used (some savings). For Year 4, approximately 44.13% of funds have been utilized. For year 5, most of the expenditures were from the WHO Country Office since no funds from year 5 had been released to NCDPC-IDO, CHDs Western and Central Visayas. So far, only the Eastern Visayas has requested the release of their year 5 funds. As a Phase II project site, the Eastern Visayas is the only region to have used funds as scheduled since it did not experience a 1-year delay in project implementation.

The following challenges have been identified and pose a potential risk to sustainability of the rabies control programme:

- 1. Validating dog population and dog vaccination coverage is very difficult
- 2. Animal rabies surveillance – inadequate samples are being sent to the laboratories in Eastern Visayas; DoH is not allowed to procure dog vaccines against rabies, which is crucial in the

sustainability of the project since the Department of Agriculture cannot provide all the vaccine requirements of the LGUs.

3. Confirming human rabies cases – in our opinion, many of these suspected rabies cases as defined by the national Epidemiology Centre included in our human rabies cases are not true rabies cases.
4. Currently, dog vaccination must be directly supervised by a registered veterinarian. A major factor since almost all municipalities and some cities in the project sites do not have registered veterinarian.

iii. United Republic of Tanzania

Implementation of the rabies elimination demonstration project (September 2012 – August 2013) was successful in various ways. The project is coordinated by the WCO, the lead Ministries of Livestock and Fisheries Development, and the ministries of Health and Social Welfare as main collaborators, and executed in partnership with 24 LGAs and Pemba. Activities relied on increased vaccination of dogs, ensuring availability and improving the delivery of human anti-rabies PEP services in 110 selected health facilities, and continued public/community awareness raising on rabies health risks and prevention measures.

However, with due changes in project management, the coordination of activity implementation in 2012–2013 was taken over in September 2012 by the new country project coordinator Dr Maziku from the former Mrs Pelagia Muchuruza. Therefore, this report covers the implementation period starting from September 2012 up to August 2013. It presents key deliverables and outputs achieved in this period, and also summarizes outstanding activities for continued implementation after October 2013.

Project implementation

Incidence of animal bites and human rabies

- Animal bites in 2012–2013 still represent an important impact on the public's health in the project areas. Dog bites are still the main source of rabies virus infections for most of the fatal rabies cases.
- Of the 1158 animal bite cases, 92% were attacked by dogs, 5% by cats and the remaining 3% by wild animals (jackals, foxes, wild dogs, etc.). Of these biting dogs, 12% were vaccinated.

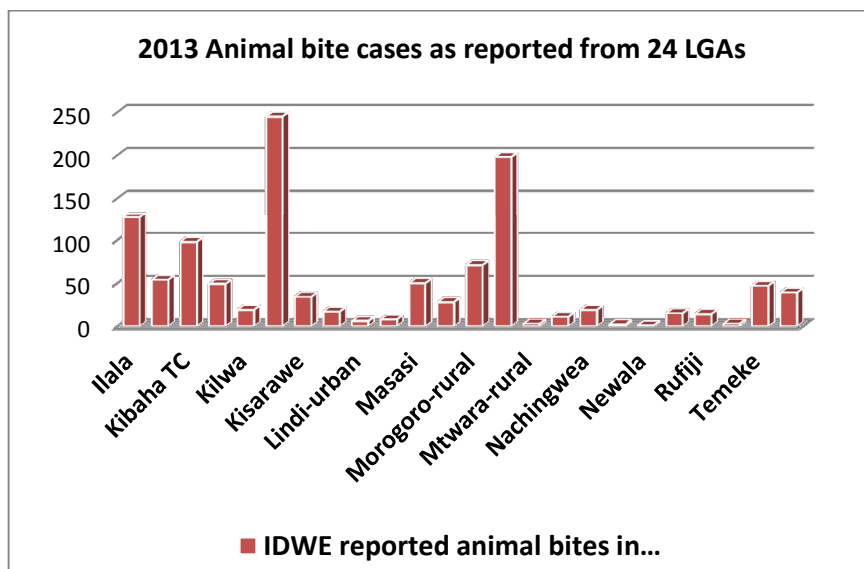
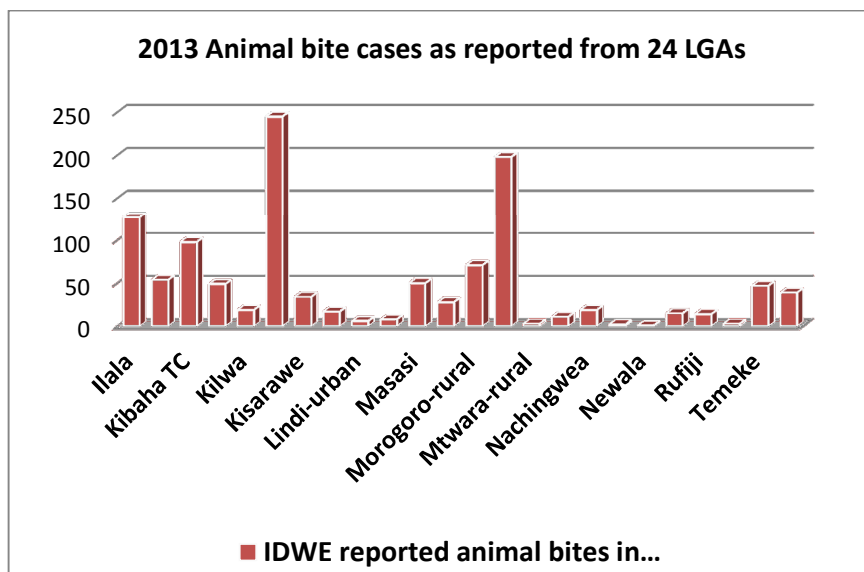


Figure 1. Distribution of rabies virus exposure cases, by district, 2013

- A statistical analysis conducted from the mobile phone data reporting system (MPR) showed that the ever increasing vaccination coverage is significantly reducing the number of animal-bite injuries and human deaths due to (suspected) rabies recorded in hospitals and health centres. This effect was found to be highly significant (z-value=-3.106, p-value=0.0019)

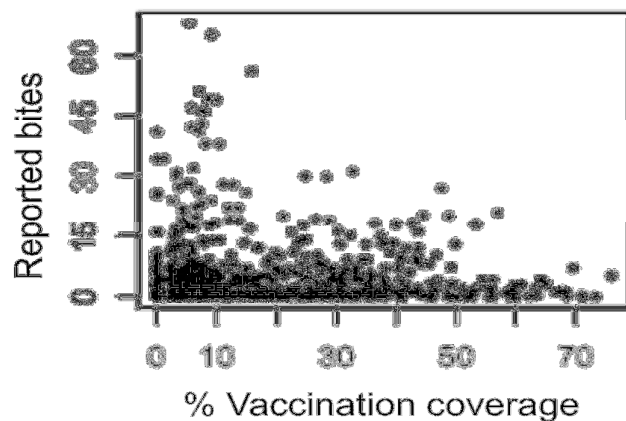


Figure 2. The relationship between vaccination coverage and animal bite injuries: as vaccination coverage increased in project areas, the number of human bites declined.

Improved delivery of post-exposure prophylaxis (PEP) services

- In 2012, PEP vaccine used in 110 health facilities in 24 LGAs showed that of the 1104 animal-bite victims who sought medical care in 2013, more than 72% managed a full regimen of PEP vaccination (57% by ID, 13% by IM (intramuscular) route); 16% received inadequate (2–3 injections) and 8% received single anti-rabies PEP vaccine injection.

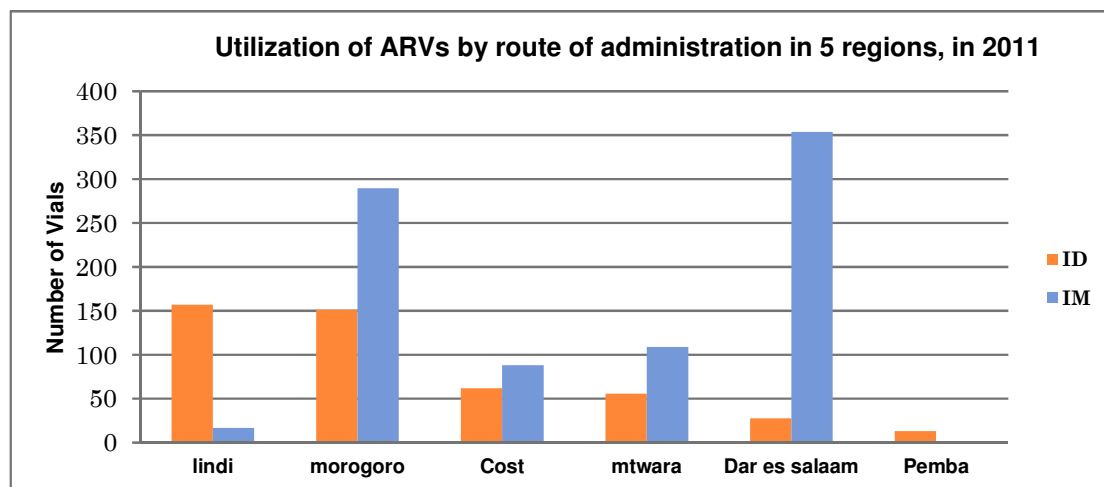


Figure 3. Utilization of post-exposure prophylaxis in the project areas

- In 2012–2013, it was noted that although number of human rabies cases is decreasing as dog vaccination coverage increased, the number of people potentially exposed and presenting for rabies PEP is increasing (Figure 4). It has been shown that ID use within the project area has increased from 0% prior to the intervention in early 2010, to almost >80% of PEP vaccinations given. Even in 2012–2013, more people received PEP than in any other years.

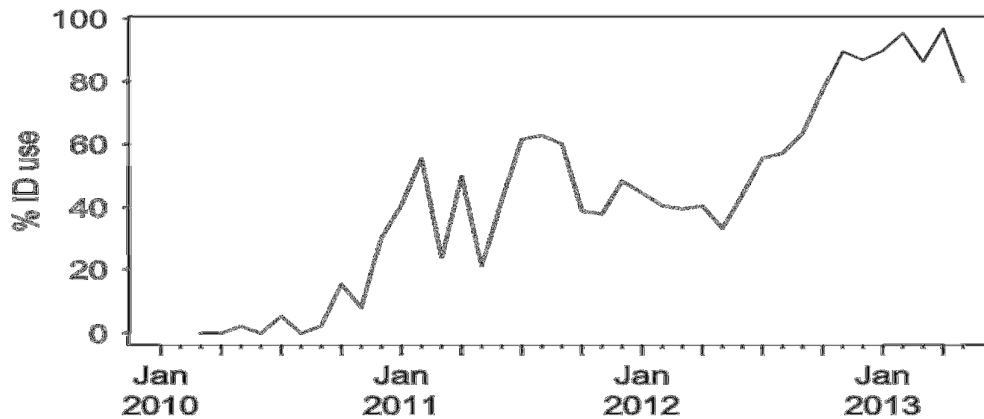


Figure 4. Proportion (%) of patients given intradermal post-exposure prophylaxis, 2010–2013

- In 2012–2013, no human rabies cases were identified in all project areas in patients who received appropriate wound care, 4 or 5 doses of anti-rabies vaccine and RIG immunizations.

Implementation of mass dog vaccinations

- In 2012–2012, the 3rd phase of dog vaccination campaign was implemented in 7 LGAs of Temeke, Kinondoni, Ilala, Morogoro (rural and urban), Ulanga and Kilombero where 51 195 dogs and 8759 cats were vaccinated in April 2013 (Figure 5).
- WCO also participated in a post-vaccination households' survey in 6 out of 7 LGAs (Ilala, Temeke, Kinondoni Ulanga, Kilombero and Morogoro (rural) to determine dog vaccination coverage. It was established that the 7 LGAs in 2013 attained average vaccination coverage of 82% (lowest 70% Morogoro-rural, highest 90.5% Kilombero (Figure 6)). This exceeds the 70% dog vaccination coverage recommended by WHO.

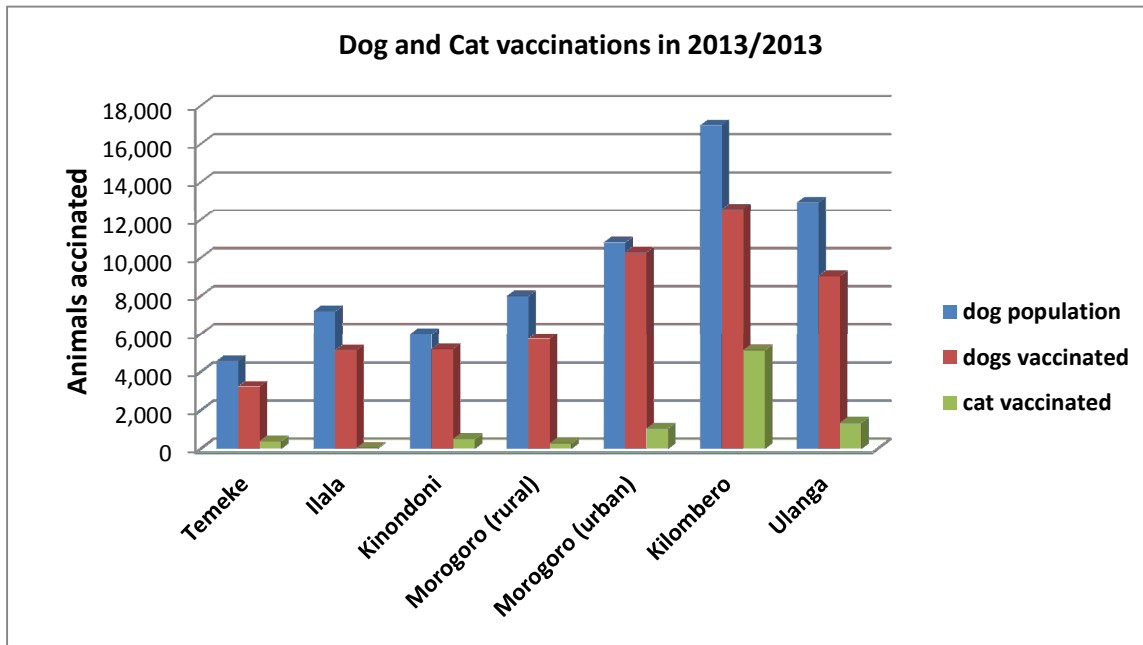


Figure 5. Dog and cat vaccination data, 2012–2013

- On dog management practices, Figure 6 shows that dog confinement is more common in urban areas (70%) than in rural areas (47%); but interestingly, almost all dogs (95.30%) in urban areas and over 78.64% in rural areas are given some feeding from their owners.
- Further analysis of survey data (Figure 7) shows that 83.22% of the people ($n = 770$) interviewed in Morogoro region and 46% ($n = 1510$) of those interviewed in Dar es Salaam region are aware of rabies risks and prevention measures, suggesting that substantial community awareness raising is required in Dar es Salaam region than in Morogoro region.

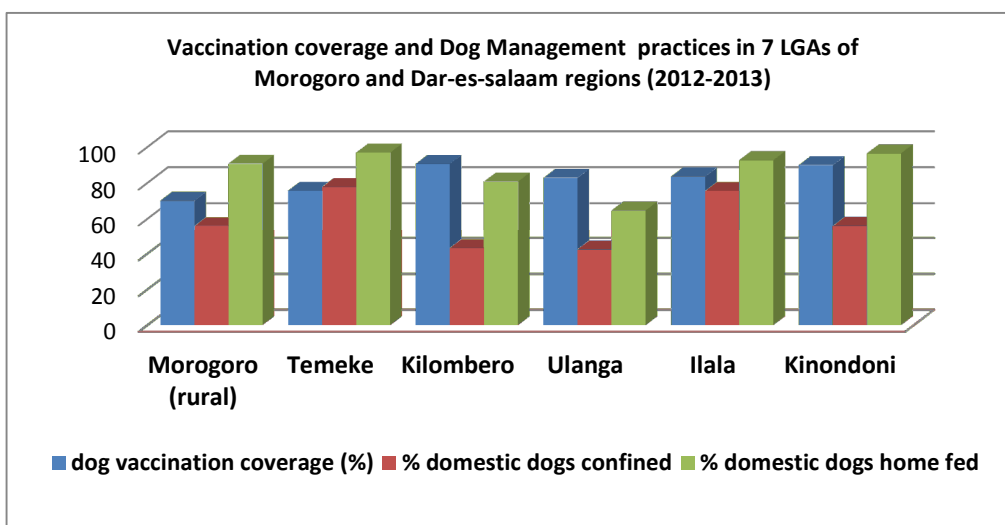


Figure 6. Dog vaccination coverage and management practices in 7 local government areas in two regions, 2012–2013

Disease surveillance, investigations and diagnosis

- In the project context, an effective surveillance system entailed early case detection and reporting, which is vital for initiating a timely response, generating data on the progress and cost effectiveness of interventions, and enabling informed decisions about when and where to intensify disease control efforts.
- In 2012–2013, zero human rabies (suspected) cases and deaths were recorded; 2 rabid dog samples were confirmed out of 17 tested by direct fluorescent antibody (DFA) test. The trends of sample submissions and number of positive test results (as per laboratory confirmations) are depicted in Figures 8 and 9.

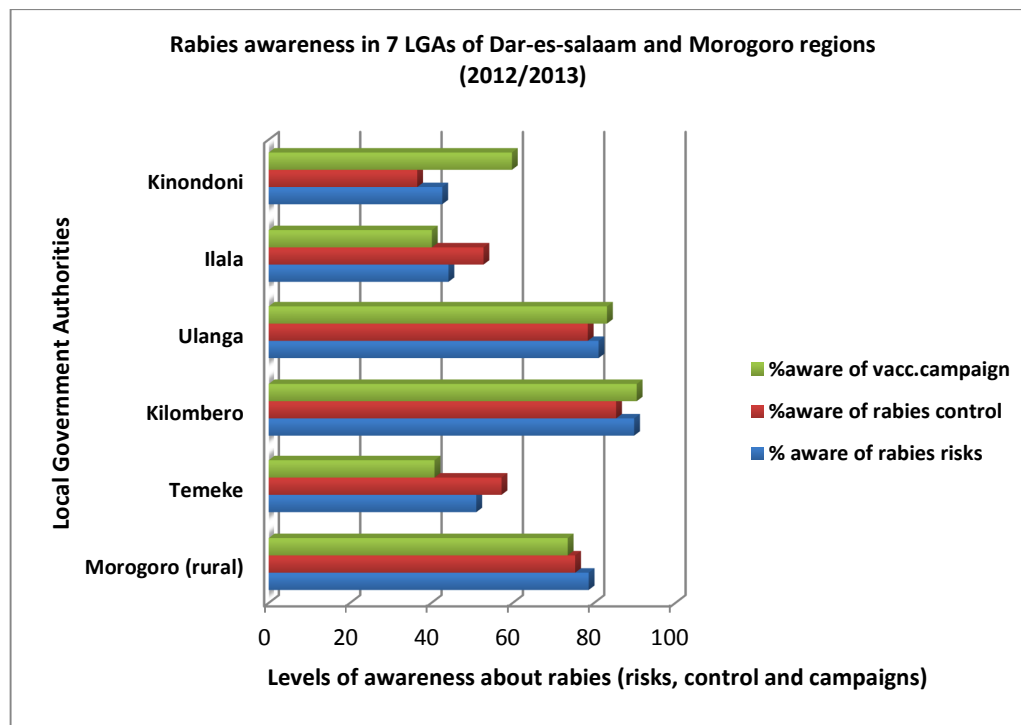


Figure 7. Rabies awareness levels in the 7 local government areas surveyed, 2013

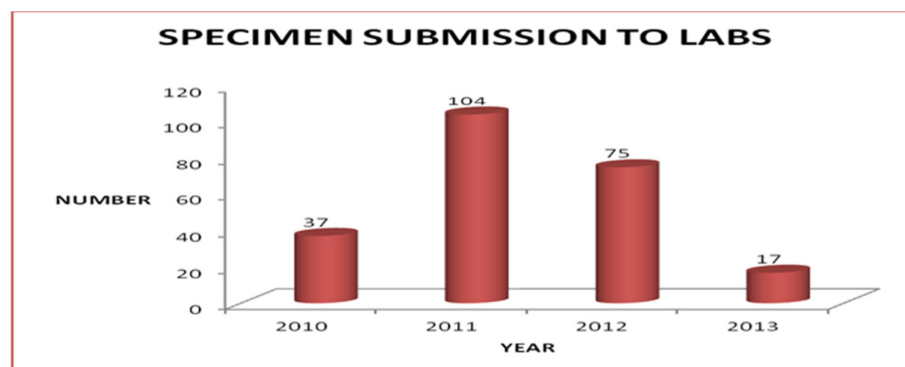


Figure 8. Specimen submissions by local government areas to diagnostic laboratories, 2010–2013

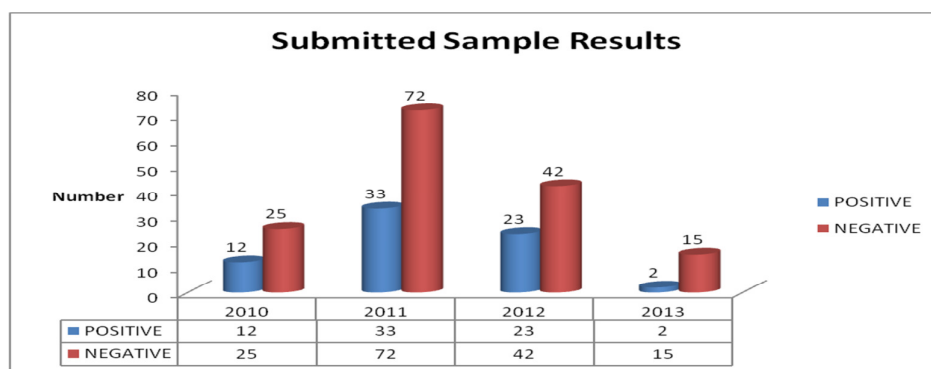


Figure 9. Comparative positivity rates of direct fluorescent antibody test samples, 2010–2013

Training and capacity development activities

- Trained 24 district and 5 regional cold-chain officers on handling SOPs and administration protocol for anti-rabies vaccines, and RIG.
- Participated in supportive supervision, on-site training and feedback-sharing meetings to 110 health facilities selected to provide PEP services in the project areas; carried out in collaboration with the Ministry of Health and Social Welfare (MoHSW) and Ministry of Livestock and Fisheries Development (MLFD) Rabies Focal Persons.
- Participated in regionwide pre-campaign training and planning meetings involving 20 LGA staff in Lindi, Mtwara and Coast regions in July 2013. These have in turn trained 175 vaccinators in Dar es Salaam and 230 vaccinators in Morogoro regions.
- Trained 17 public/government staff (mixed disciplines) working at Tanzania–Mozambique frontier posts on their sanitary mandates to prevent cross-border transmissions of rabies.
- Participated in data review meeting conducted at the University of Glasgow, United Kingdom (May 2013) to review project performance data while the framework for assessment/evaluation of mass dog vaccination coverage and estimation of dog population size were designed for further testing in the United Republic of Tanzania.

Project missions, meetings and retreat

- Participated in the 4th ICG meeting held in Cebu, Philippines (October 2012) attended by the International Project Coordinator (WHO/NZD/NTD/HQ), the Focal Person, project advisers, and National Project Coordinators (NPCs) from the three project sites. The meeting deliberated a no-cost extension, project evaluation, a compendium of lessons learnt for regional strategies, improved surveillance, and project reach beyond its borders.
- Participated in the WHO Expert Consultation on Rabies to develop the Second WHO Rabies Technical Report Series, September 2012.
- Supported and attended the SEARG (Southern and Eastern African Rabies Group) meeting held (February 2013) at which Member States agreed to increase resource commitments for rabies prevention/control, improve surveillance and information flow, network, as well as set mechanisms to retrieve and analyse epidemiological data at local level where rabies occurs.
- Hosted the high-level meeting of WHO/HQ delegate, BMGF Focal Person, permanent secretaries and directors from lead ministries (livestock, health) (February 2013). All consented to increase collaboration, and acknowledged the growing evidence of decreasing rabies incidences and the need to enhance advocacy on rabies control within the NTD/One-Health

concept; ministries promised sustainable support of project results/impact in implementing districts.

- Coordinated ministries (health, livestock) and 24 LGAs in compiling expenditure data from project and non-project actors to compute vaccination cost per dog and other health economic interests involved in rabies elimination for Global Alliance for Rabies Control (GARC) consultants assigned by BMGF.

Financial report (2012–2013 budget)

Implementation of 2012–2013 budget

- In 2012–2013, a total of US\$ 632 260 was awarded to the project; however, according to expenditure records for the period September 2012 to 3 September 2013, only US\$ 300 632.30 (including encumbrances) was spent during this period.
- Using these expenditure records/data, an arguable balance of US\$ 331 636.70 remains untouched and will finance the remaining activities (see Tables 1 and 2 with exception of cost of dog vaccines) whose total costs is US\$ 255 120.85.
- Furthermore, by deducting costs for activities in Tables 1 and 3, a total of US\$ 76 515.80 seems to remain but will be further reduced by the costs of non-reflected SSA salaries, clearance costs for imported human and dog vaccines, and office operational costs, etc. Only a small amount of these funds (<25%) will be saved and potentially carried over to 2013–2014.

Plans for the next reporting period

- The budget for implementing the 2013–2014 annual workplan is US\$ 632 260, and implementation is expected from early October 2013 onwards. It is suggested that all bulky procurements be ordered between October and November 2013 to enable smooth implementation of the project's activities during 2013–2014. These include human PEP, laboratory supplies, IEC materials, etc. The following is the financial allocation plan for main deliverables in 2013–2014. The detailed budget for each deliverable is attached with this project report.
- The implementation of planned project activities for the period September 2012 to August 2013 succeeded on many levels. During the 3rd phase of mass dog vaccinations conducted in 7 LGAs of Dar es Salaam and Morogoro regions, covered achieved 82.97% and 83.46% of the dogs in these regions respectively.
- For animal bites, dogs were responsible for 92% of the human bite injuries; therefore, controlling the dog population and their movements is necessary to achieve feasible and regular vaccination by LGAs and prevent the spread of rabies.
- Significant success was achieved in 2012–2013 whereby despite having 1158 animal bites in the project areas, no human deaths occurred, i.e. high dog vaccination coverage prevented human deaths from rabies, which continued to decrease from 17 cases in 2010, 9 in 2011 and 2 in 2012 to 0 in 2013.
- For financial expenditures, although a number of backlog activities have not been implemented, measures have been put in place to ensure implementation during September and October

2013. Nevertheless, most of these backlogs are related to procurements and short (1–3-day) project management meetings.

The following challenges to the project were identified:

1. limited completeness of vaccinated villages – i.e. outreach to the villages by vaccinating teams and insufficient information among dog owners in some LGAs (especially municipalities in Dar es Salaam) have contributed to their respective low coverage.
2. insufficient project ownership by LGAs – districts have not sufficiently owned the project. Thus more advocacy and follow up is required to ensure LGAs provide financial support, and properly manage dog populations through awareness-raising campaigns on dog registration, leashing/confinement, mandatory vaccination and animal welfare, and enforcement of relevant by-laws and regulations.
3. limited awareness on washing bite wounds coupled with cultural beliefs and distance to health facility – travel, occasional costs for fares and accommodation, number of trips to health facilities and occasional shortage of anti-rabies vaccines at health facilities have affected completeness of PEP dosages for a few affected people/victims.

3. General summary of discussions

The discussions from the meeting are summarized below by theme to supplement reports provided from each project site. Items identified for follow up during specific discussion are marked “Action”.

iv. Sustainability

Sustainability was a main focus of this meeting. The funding provided over the past 5 years was meant to spur the projects sites and catalyse self-sustaining, country-led programmes. Each project site presented different approaches towards self-sustainability, but some common key themes were the need for:

- governmental support at local and national levels;
- coordination and uptake of support from other interested nongovernmental organizations (NGOs);
- different players (researchers, NGOs, etc.) to work closely with the government to assure sustainability of an effective rabies elimination programme;
- national programmes to take into account regional dynamics, strategies and programmes.

KwaZulu-Natal

Kwa-Zulu-Natal (KZN) is in the final stages of rabies elimination, with an elimination target of 2015. As long as there is continued cooperation from all involved parties, there is a very low risk for human cases in the project area. KZN has employed a “follow-up system” based on voluntary compliance in which a small dog vaccination team revisits an area after a mass vaccination campaign to vaccinate any dogs that were missed and maintain high vaccination coverage.

A maintenance phase has also begun in certain areas in the final stages of the elimination campaign. This phase is envisioned to be slightly cheaper than the elimination phase and will focus primarily on the vaccination of puppies. The vaccination of adult dogs will only occur every 2–3 years during this

phase. Another focus during the maintenance phase will be education – regarding both dog bites as well as continued training of health workers. Continued training of health workers is important due to high turnover, in order to maintain the quality of PEP administration and interest. Education regarding bite prevention is also an important aspect in reducing the number of bite exposures and the requirements for PEP.

Lastly, in order to maintain KZN as a rabies-free region, the project will need to expand into bordering areas. Given the weak control at the borders and the possibility of imported cases into the rabies-free areas, a rapid response team has also been assembled to manage future incursions or outbreaks. Some collaborations with bordering regions have already begun, but these will need to be expanded. A national plan is being compiled for the expansion of the project; and contributing to a pan-African strategy was discussed at the SEARG meeting.

Philippines

The Department of Health of the Philippines has published a national medium-term plan for 2012–2016.¹ This plan was developed for the current presidential term (refer to lessons learnt and aims to declare the Visayas islands rabies-free by 2016). It also aims to decrease the number of all rabies cases (both human and animal) by 50% by 2016 with an eventual outcome of declaring the Philippines rabies-free by 2020). Furthermore, the Philippines hope to reduce the out-of-pocket costs of PEP, making it more accessible to the public. They also aim to link NARIS² with PhilAHIS, which captures dog rabies data in order to maintain a “One Health” approach.

This year, the Philippines declared 2 of the 9 islands in the Visayas region as rabies-free areas. This declaration was made public on the NARIS website and was based on the WHO/OIE guidelines as well as other criteria (including whether a specific rabies programme is in place).

United Republic of Tanzania

The United Republic of Tanzania has begun to focus efforts on an exit strategy from the project with the development of a national programme. Some of their most immediate focus is on developing institutional capacities of both medics and vets as well as engaging senior management at the ministries of Health and of Livestock through the project technical and steering committees. Tanzania also aims to promote the establishment of a Zoonotic Disease Control Unit (ZDCU) that will be run with a primary focus on rabies, under the leadership of the MoHSW, MoLFD and universities. The ZDCU will:

- support districts in order to make the vaccine more available;
- access technical support from technical committees;
- strengthen data collection and assessment;
- ensure the timely and acceptable delivery of PEP;
- coordinate dog population management programmes;
- ensure accurate monitoring and evaluation of rabies elimination projects throughout the country;
- implement the Peer Learning District Programme (PLDP);

¹ http://www.doh.gov.ph/sites/default/files/FINAL_MTP_Rabies.pdf

² <http://rabies.chits.ph/>

- monitor and evaluate progress and achievements of the PLDP;

The PLDP is expected to coordinate experienced districts (with regards to rabies elimination programmes) with new districts in order to aid and advise them. The introduction of a rabies elimination strategy in a new district will be adapted to best suit the district. The PLDP also aims to address the issues of strengthening data collection and coordinating coherent mass dog vaccinations. Finally, it is expected to address questions and enthusiasm from other groups and veterinarians who have asked for advice from the project site and when their districts will be included into the programme.

v. Lessons learnt

Many important lessons have been learnt throughout this initiative, some of which were highlighted during the discussions. The majority of the challenges faced were overcome through good initiative and innovative thinking in order for the project sites to continue. Most of the challenges faced at one project site were echoed at the other sites, but each issue was resolved in a unique manner best suited to the respective project. The Philippines has already compiled a joint DOH-DA manual with lessons learnt from their project site. Below are some of the lessons learnt throughout the initiative at the different project sites, and some of their solutions:

1. Lower the barrier for initiating new projects or expanding existing projects
 - Example: In Kenya, the success of a neighbouring initiative stimulated the development of a National Plan; initial barriers were lowered through the donation of vaccine to commence activities on a small scale and gain momentum from this initial activity;
2. Successful campaigns require cooperation from all areas or regions involved, otherwise the entire programme could be jeopardized
 - Example: In KZN, no buy-in for mass vaccination campaigns in a few localities resulted in an explosion of cases in those areas. Once vaccination teams were able to reach dogs in the area, the disease was under control within 4 months.
3. Champions are a vital driving force for any campaign, especially for initiating a successful project on a regional scale and developing this into a national programme.
 - A project becomes less reliant on a champion when it is embedded in a local or national programme and has been well deliberated.
4. Politics influence projects/programmes in a variety of ways and need to be considered at every stage
 - Example: In the Philippines, no dogs were vaccinated from March to May 2013 (the usual vaccination months) due to a local government election occurring at that time.
5. It is important to develop programmes incrementally through time and space, and to demonstrate support in order to maintain momentum.
 - Example: KZN is now working with all bordering provinces and countries to expand activities and ensure a rabies-free area. This momentum and expansion have created opportunities for future research and improved political support.

6. Data management is vital to the smooth operation of a project, as well as for rapid responses to new outbreaks.
 - Example: In the Philippines, requesting and receiving raw data from each region took weeks to reach the project leader. In response to this challenge, a new data management system for entering human rabies cases and exposures was developed and piloted in the project site.
7. Large bureaucratic organizations may be a barrier to rolling out large-scale intervention programmes.
8. Critical resources and attention may be diverted from the project to another disease outbreak if the project is run by a unit with multiple disease responsibilities.
 - Example: In KZN, resources were diverted away from the rabies campaign to manage an outbreak of foot and mouth disease.
9. Before an elimination project/programme is initiated, it is important to determine the baseline data. Estimated baseline data are often flawed and inconsistent, and these will need to be refined as the project progresses.
10. Estimations of dog population size and vaccination coverage can pose several challenges and may influence the final conclusions of the elimination project. There are multiple means to estimate dog population and vaccination coverage, and the challenges involved should be adequately addressed (discussed above).
11. Partnerships between the public and private sectors (including private veterinarians) can be beneficial to an elimination programme especially during the maintenance phase of the programme.

Action (all project sites): Systematically document lessons learnt for compilation in the final report during the remainder of the project.

vi. Laboratory surveillance

One of the main issues, especially emphasized by KZN, was the need to decentralize laboratories on a national scale. Several satellite laboratories would improve the ease of sample submission, reduce freight/transport costs and shorten turnover time regarding diagnosis. KZN is in the process of setting up a satellite laboratory in Vryheid, Eastern Cape. Despite some fixed-cost benefits, KZN highlighted that only US\$ 4 of the US\$ 15 required for diagnostic testing of samples goes towards reagent costs, as the bulk of the costs go towards labour and transport of the sample. However, the main challenges encountered were not due to funding but to the lack of on a systematic process of surveillance, for example use of validated diagnostic assays, safety considerations and SOPs to ensure diagnostic accuracy and consistency adaptable to the diversity of country/regional contexts.

Action (ICG): Give more thought to these considerations and subsequently constitute a section in the surveillance chapter of the final report.

The direct rapid immunohistochemical test (dRIT) is a possible alternative diagnostic test that has the potential to be cheaper than the DFA test. The dRIT is already being used successfully in satellite

laboratories in the United Republic of Tanzania, although confirmation of the diagnosis – at the central laboratory with the DFA – is still required.

Some questions regarding the efficacy and reliability of the dRIT were raised; however, most delegates agreed that the global perceptions determined this test to be reliable and accurate. One concern was the specificity of the monoclonal antibodies supplied by the CDC, as these antibodies do not detect all RABV variants – the use of a region-specific monoclonal antibody cocktail would be required. South Africa has used an experimental polyclonal antibody for the dRIT, which is available through the SEARG network.

The main advantage of the dRIT is that the assay requires a light microscope as opposed to the fluorescent microscope required for the fluorescent antibody test (FAT). The Philippines do not have any microscopes in their provincial satellite laboratories; dRIT has not been used at all, apart from in the island of Bohol. The cost of diagnosis (~US\$ 5–7) is borne by the pet owner as part of the responsible pet ownership drive. In project sites, conjugate required for diagnosis was provided through the project and therefore the fee to the pet owner could be waived.

Action (ICG): Discuss alternatives to FAT with OIE (World Organisation for Animal Health) for potential consideration in its Manual of Diagnostic Tests and Vaccines for Terrestrial Animals.

Lateral flow kits, especially for use in remote areas, have a 94% sensitivity; this observations sparked the debate between no surveillance in an area (due to lack of laboratory infrastructure), compared with some surveillance (with a lower sensitivity) using the lateral flow kits. However, current prices are not yet competitive for extensive use outside the research context in low-resource settings.

vii. PEP demand

Improved access to PEP through clinics and hospitals, coupled with improved awareness (through education campaigns, animal bite centres and clinical staff training), has generated a significant increase in the demand for PEP at the project sites. With the accompanying increased costs of PEP, this rise in demand potentially jeopardizes the sustainability of the projects if it does not decline as rabies progresses towards elimination. Although rabies cases have decreased in the pilot project area, bite cases remain high (i.e. ~67 000 cases reported in KZN; ~140 000 in the Philippines). Potential solutions were discussed: the Philippines have introduced judicious use of PEP under certain conditions, including the incorporation of a quarantine period for the animal if it is thought to have been vaccinated; while KZN is working on a bite prevention education pilot (see 'Bite prevention'), which they estimate could reduce bites by 50%. A pilot bite prevention project in KZN has already started in a small area.

Action (longer term): Prepare guidance on assessing the risk of dog bites for the administration or withholding of PEP as countries or areas eliminate rabies.

viii. Bite prevention

Bite prevention is an integral part of rabies elimination campaigns and the collection of baseline data – especially in high incidence areas – is important to monitor progress. Bite incidences do not necessarily decrease in correlation with the number of rabies cases in the region, as not all dog bite cases are rabies-related, but the majority of rabies cases are bite-related. In lieu of this, educational

programmes targeting the prevention of dog bites are critical to improve general public health and decrease the necessity to administer costly PEP.

Action (ICG): Assemble the educational and awareness materials so these are available to others. Educational posters have been designed for mass distribution.

ix. Essential data, analysis and final report

The discussion was initiated by the University of Glasgow with a presentation entitled “Towards a framework for evaluating the impact and sustainability of the WHO-Gates rabies projects” on indicators of the impact and sustainability of the projects.

Action (IMG and Glasgow University): Prepare a guidance document outlining the data required for calculating project performance indicators and conducting high-powered analysis (see outline in Table 8).

Action (all project sites): Collate minimum data for site and overall analysis; explore additional resource for this activity to assure rigorous analysis.

Table 8. Proposed indicators for evaluating the impact and sustainability of projects

	Indicator	Examples of useful data	KZN	Visayas	Tanzania
Surveillance	Surveillance sensitivity	Probability of confirming a case (only calculable from transmission tree reconstruction or contact tracing data) Proportion of submitted suspect samples that are confirmed positive			
	Surveillance quantity	Submitted samples from suspect cases			
	Dog rabies incidence	Confirmed cases Clinically suspect, unconfirmed cases			
	Dog bite injuries	Clinical records			
	Human rabies incidence	Clinically diagnosed human rabies deaths Laboratory confirmed human rabies deaths			
Prevention	PEP coverage	No. clinics providing PEP Time between bite and treatment			
	PEP completion	No. suspect bite injuries receiving full treatment			
	RIG coverage	No. category 3 bite injuries receiving RIG			
Control	Dog vaccination coverage	Vaccinated dogs Vaccine vials used Target population size* Post-vaccination surveys			
	Dog vaccination completeness	% villages vaccinated in each district/municipality in each round			
	Dog vaccination coverage maintenance	Time between vaccination campaigns in same village			
	Cost per dog				
	Cost per human death averted				
Sustainability	% of budget from Gates Foundation funding				
	% ID use relative to IM	ID vials used IM vials used			
	External infection rates	Length of borders onto infected areas Number of ports of entry Numbers of dogs in quarantine No. dog cases where evidence supports infection occurred outside			
	Public awareness	Household surveys before and after intervention Number of public awareness material disseminated			
	Improved understanding of rabies epidemiology and control	No. research projects conducted to support, inform or study rabies program			
Communication	Research projects	No. research papers arising from rabies program			
	Policy change	How long it took to change legal framework Number of policy changes that have taken place			
	Media interactions (e.g. newspaper reports)				

*Methods and the uncertainties associated with dog population estimations were discussed during the meeting.

Dog population size and vaccination coverage estimation

The estimation of the vaccination coverage, surveillance and the declaration of rabies-free areas rely on the dog population estimates at that site. Dog population estimates can be performed using a variety of methods, each with their own advantages and disadvantages. Household surveys may be the most accurate, but these are impractical as they are labour intensive and timely to perform. Alternatively, mark–resight surveys may be performed directly after the vaccination campaign, but this method is only viable in areas where central point vaccination strategies are performed. Alternatively, human to dog ratios may be used, but a 20% variation in dog vaccination coverage can occur with minor changes in the human population. The Philippines have initiated the use of dog registries to record and track each owned dog over its lifetime in order to overcome these difficulties;

however, these registries are not yet being used comprehensively and it may take weeks to obtain the data. Although useful, this method only covers the owned dog population.

Community-based administration or programme implementation

Several challenges have arisen with the mass vaccination campaigns as well as the subsequent mop-up activities because an insufficient numbers of vets are available. The use of paravets or vaccinators would be ideal, but most legislations require that they are directly monitored by a veterinarian. In certain regions of the United Republic of Tanzania, there are two levels of paravets: those allowed to vaccinate dogs without veterinary supervision and those who are not. It is therefore important to clearly define the term “paravet”. In the United Republic of Tanzania, the use of paravets is 5–10 times cheaper than using vets, allowing for a more sustainable programme – especially since the majority of costs involved in this region are from per diems and staff salaries. Additionally, the use of community workers would aid in the sustainability of and interest in the programme. However, in other regions such as KZN and the Philippines, the legislation will need to be altered to allow vaccinators or paravets to vaccinate without the direct supervision of a vet. The legislation may need to be changed at either a local government level or a national level, depending on the country and its circumstances. WSPA has had some experience in integrating paravet training programmes into the national legislation as well as amending legislation to incorporate paravets as licensed vaccinators without vet supervision.

x. Improved access to vaccine

The aim of this discussion was to identify ways to improve access to and availability of dog and human vaccine. A vaccine stockpile in KZN is being established through BMGF for US\$ 100 000 to cater for neighbouring countries and regions adjacent to KZN that are keen to embark on an elimination programme as a natural progression of the project. The thinking was that this would attract vaccine companies to match the donation. The available vaccine can be used as a catalyst for initiating activities in new areas as well as for emergency vaccination following incursions in rabies-free zones.

Merck recently donated dog vaccine to Kenya, spurring the development of a Kenyan National Plan for rabies elimination, and similarly in KZN with Pfizer’s donation for adjacent areas. The stockpile would need to be accompanied by equipment, staff training, vaccine and syringes to initiate a successful vaccination campaign.

The group assembled a draft concept for a “Vaccine catalyst bank”. Feedback to donor/supplier vaccine companies will be essential for sustainability. Northern Tanzania has received vaccine donations from Merck for the past 10 years.

Future considerations will need to include expanding the vaccine stockpiles in KZN to other areas, and exploring the potential for a local, regional or large-scale vaccine bank.

Vaccine banks are generally used for outbreak situations, where companies respond to tender to deploy a rolling stock of ongoing production and increases its reserve stock by the quantity of the tender.

Action (WHO): Approach vaccine companies to negotiate the best price for vaccine stockpiles, and work alongside OIE.

xi. Health economic analysis of data from the project sites

The analysis of health economic aspects of the project sites was commissioned to GARC by the BMGF in 2012, and a short update was provided during the meeting. The data collection was conducted in collaboration with the various project officers; it covers the same project sites, the timeframes of 2010–2012 and involved field visits. GARC and GARC consultants are finalizing the data analysis of the project sites in South Africa and the Philippines, and manuscripts for publication are in progress. The data collection in the Tanzanian project sites is ongoing, particularly on the human health side.

xii. Preparing to assemble the final project report

A draft outline of the final report is provided in Figure 11 with the possible working title “Practical handbook of considerations for a rabies elimination programme”.

In addition to the final report, the proof of concept for rabies elimination through the results of the individual project sites and the overarching comparative analysis of all of the project sites is planned for publication in peer-reviewed journals in 2015.

Figure 10. Draft outline of final report

1. *Introduction*
 - Include current public perception via media scanning
 2. *Surveillance and proof of burden*
 - Quality of surveillance
 - Dog population estimates
 - Period between no cases detected and declaration of rabies-free zone
 - Decentralisation of laboratories
 - Diagnostic challenges
 - Costs of freight/transport
 - Increasing diagnostic turnover time
 3. *Target population*
 - Dog ecology
 - Dog population size
 - Coverage
 4. *Human health*
 - Animal bite treatment clinics
 - Education and bite prevention
 - PEP demand
 - Demand initially increases as rabies cases decrease
 5. *Communication*
 - Within projects - One Health
 - Between projects
 - Dissemination plan – packaged differently for different audiences
 - Blueprint for rabies control
 - Supporting new projects
 - Role of the press
 6. *Policy change and legal frameworks*
 - Government/legal structures in different settings
 - Individual country experiences and recommendations
 - How long has it taken to change legal framework?
 - Public/private partnerships
 7. *Steps to elimination*
 - Lessons learnt at each step
 - Timeline for implication of different steps (e.g. estimate dog population before vaccinating)
 8. *Sustainability*
 - Health economics
 - Continued vaccination
 - The possibility of biennial vaccination
 - Other projects in region and strategies for collaboration/maintenance
 - Scaling up
 - Champions
- Key messages*

4. Additional information

- The sixth ICG meeting is planned for 22–24 September 2014. Government clearance will be sought to hold the meeting in KZN.
- The final (7th) ICG meeting is scheduled to be held in Geneva and will include participation from multiple stakeholders. This meeting will be conducted to showcase the projects and act as a pre-launch of the final results from the project sites.
- The fourth Neglected Zoonotic Diseases meeting will be held on 19–20 November in Geneva. The purpose of the meeting will be to showcase the projects to officials involved in policy-making and operational coordination. The WHO, ICONs, EU and DFID will be represented. Plan to showcase projects.
- All project sites to submit annual reports in BMGF format by 31 October 2013.
- Circulation of draft meeting report for comment by 30 November 2013.
- Refine and expand vaccine catalyst bank concept.
- Compile the final project report via a smaller working group under the coordination of WHO.
- Explore option for supplementary BMFG funds for additional human resources for each project for data collection, collation and analysis.
- BMFG representative to participate in World Rabies Day in KZN 2014.
- Follow up on actions in discussions section.

5. Future discussions and needs

The following areas require further discussion and are based on the needs identified during the project's life-cycle:

- Guidance on “adequate” laboratory surveillance and the declaration of rabies-free areas
 - The United Republic of Tanzania recognizes that their own surveillance is not yet sufficient for declaring freedom; however, the Philippines have already declared several areas rabies-free despite poor laboratory surveillance.
 - There are several other alternatives, yet the primary issue remains the specific definition of a rabies-free area as well as the acknowledgement of this definition by international organizations.
- Options and guidance on decentralizing surveillance
- Plans for publication in peer-reviewed journals
 - These plans are to be revised following the drafting of the final report
- Development of and need for a life-long vaccine for dogs, preferably without need of a cold chain (potential research need).
- A main concern remains vaccination coverage being based on variable dog population estimates.

Appendix A: List of participants

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Appendix B: Agenda

DAY 1: Tuesday, 8 October 2013		
Time	Session	Facilitator
09:00–10:30	Welcome addresses Dr Nsengwa, Acting Director, Veterinary Services R. Chatora, WHO Representative, United Republic of Tanzania B. Abela-Ridder, WHO HQ A. Pantelias, BMGF Honourable Deputy Minister for Livestock and Fisheries Development, Dr Benedict Ngalama Ole-Nangoro, United Republic of Tanzania Group photo and coffee break	
10:30–13:00	Technical progress reports from the project sites and WHO	B. Abela-Ridder, WHO HQ
	• KwaZulu-Natal, South Africa – K. Le Roux & D. Stewart	
	• The Philippines – R. Deray	
	• United Republic of Tanzania – M. Maziku	
	• WHO – B. Abela-Ridder, WHO HQ	
13:00–14:00	Lunch break	
14:00–15:30	Brainstorming on essential data	Professor Kazwala
	• Existing data collection, storage and analysis – All project leads	
	• Surveillance with mobile phones in the United Republic of Tanzania – S. Townsend and M. Maziku	
	• Expectations of the BMGF – A. Pantelias, BMGF	
15:30–16:00	Coffee break	
16:00–18:00	Brainstorming on essential data (continued)	Professor Louis Nel
	• Agreement on essential data and final analysis of project and final report – All	
	• Plans for publication of results in peer-reviewed journal – All	

DAY 2: Wednesday, 9 October 2013		
Time	Session	Facilitator
	<ul style="list-style-type: none"> Economic analysis with GARC – L. Knopf 	
08:30–10:00	Administrative and financial reports	
	<ul style="list-style-type: none"> KwaZulu-Natal, South Africa – K. Le Roux 	
	<ul style="list-style-type: none"> The Philippines – R. Deray 	
	<ul style="list-style-type: none"> United Republic of Tanzania – M. Maziku 	
	<ul style="list-style-type: none"> International coordination – B. Abela-Ridder 	
	<ul style="list-style-type: none"> BMGF – A. Pantelias 	
10:00–10:30	Coffee break	
10:30–13:00	Lessons learnt and project sustainability – All project leads	A. Pantelias
13:00–14:00	Lunch break	
14:00–15:30	<ul style="list-style-type: none"> BMGF expectations – A. Pantelias 	
	<ul style="list-style-type: none"> Discussion on challenges, opportunities and threats of project implementation and sustainability beyond 2015 – All 	
15:30–16:00	Coffee break	
16:00–18:00	<ul style="list-style-type: none"> Way forward – All 	
DAY 3: Thursday, 10 October 2013		
Time	Session	Facilitator
08:30–10:00	Review project site activity plans for 2013–2014 and no-cost extension period	B. Abela-Ridder WHO HQ
	<ul style="list-style-type: none"> KwaZulu-Natal, South Africa – K. Le Roux 	
	<ul style="list-style-type: none"> The Philippines – R. Deray 	
	<ul style="list-style-type: none"> United Republic of Tanzania – M. Maziku 	
	<ul style="list-style-type: none"> International coordination – B. Abela-Ridder 	
10:00–10:30	Coffee break	
10:30–13:00	Agreement on activity plan	B. Abela-Ridder WHO HQ
	Other business	
	Preparation of conclusions and recommendations	
13:00–14:00	Lunch	
14:00–15:30	Conclusions and recommendations Rapporteur, WHO Secretariat, BMGF and all participants	B. Abela-Ridder WHO HQ
	Closing session	

Appendix C: WSPA report to WHO: Animal welfare standards in the Gates Foundation funded rabies projects 2009–2013

1. Introduction

As outlined in the WHO Agreement for Performance of Work with the World Society for the Protection of Animals (WSPA), WSPA will support the three rabies projects by the following services:

- Primarily to discuss and observe the activities of the rabies projects that have the potential to negatively animal welfare impact. Where the current protocols are below a minimum standard (minimum standard based on the concept of avoiding significant negative animal welfare impacts) to make recommendations for improvements that are realistic in the local conditions and will not adversely affect rabies control. In addition, where needed and possible, to provide training to implement these recommendations. In addition we will provide a description of the 'ideal' standard for each activity.
- To provide advice on any additional components that could be incorporated to maximise animal welfare or population management benefit.
- To provide advice and support on data collection and the development of indicators of animal welfare, human attitudes and behaviour relating to dog welfare/ownership and dog population dynamics.

These services are to be made available from 2009 until end of Gates Foundation funding (November 2013), subject to annual review and approval by WHO and WSPA.

2. Annual report: activities (WRD 2011 - WRD 2012) and summary evaluation

2.1. South Tanzania

Due to lower density of dogs at vaccination points and better handling of dogs by owners there were no significant welfare concerns raised in Mtwara. However there were some challenges observed in Pemba:

- Most dogs are not restrained (without leash) when brought to vaccination points, allowing for mixing and fighting between unrestrained dogs – presenting an animal welfare, disease transmission and human safety concern
- Congregation of large numbers of dogs in vaccination point, mainly due to high turn-out of dogs for vaccination, which outpaced the technicians speed of vaccination and writing vaccination certificates - this led to more fighting between dogs
- Poor handling of dogs by technicians and dog owners, sometimes grabbing the scruff of the neck of distressed dogs, or not holding them firmly enough, allowing the dogs to turn and bite owners or technicians.

Advice/retraining given in Pemba:

- During awareness campaign ahead of actual vaccination, need to advise owners to put dogs on leash when brought to the vaccination centres and provide information on proper handling of dogs. WSPA can offer advice during design of campaign materials to include humane dog handling to minimize animal welfare problems at the time of vaccination.
- To avoid dogs' bites it was advised that technician should demonstrate to the dog owners' proper humane handling of dogs before starting vaccination exercise and where possible encourage dog owners to restrain their own dogs, as dogs tend to respond best to restraint by their owners. Alternatively if dog is too aggressive we advised the team to use catching nets which proved to be effective and humane.

Summary evaluation

Welfare concerns occur around the handling of dogs for vaccination and fighting between unrestrained dogs at vaccination points, especially when densities become high. These concerns can be addressed through training of vaccinators, maintenance of improved techniques and adjustment of vaccination strategies. Following the catching and handling training course on Pemba vaccination coverage was reported to have increased from 30% to 60.2%. This increase is believed to be associated with the use of dog catching nets and the use of house-to-house strategies to access dogs that were not brought to the vaccination point.

Adjusting strategies for delivering vaccination would also help reduce fighting between dogs by reducing density and potentially also increase vaccination coverage. Although central point vaccination at set intervals may work for some locations, other locations maybe better served by more frequent vaccination points to reduce dog density at any one time. Or by a house-to-house approach to ensure good coverage, especially where houses are dispersed and the number of dogs owned by each household are high and hence difficult to move. District Veterinary Officers require the flexibility to alter vaccination strategies to suit their local community, with maximising animal welfare, human safety and vaccination coverage in mind.

The issue of euthanasia has been discussed both in project technical meeting and in the field visits, as current practice is below minimum standard. There is currently no routine euthanasia protocol carried during rabies vaccination campaigns and there is no funds dedicated for purchase of the euthanasia drugs. In the event of suspected rabid dogs, owners report to members of vaccination team, who confine dog for 7 days, if develop sign for rabies they wait until the dog dies then they collect sample for laboratory confirmation. These dogs should be euthanized once rabies signs progress using humane methods. Further, many suspected rabid dogs are inhumanely killed by owners before they report to vaccination team, presumably this is in part because euthanasia services are not offered. We recommend the project to set aside budget for purchase of euthatal. WSPA is able to work with the project to find affordable sources of euthatal.

Workplan 2013 – final report to be submitted at the end of the project phase.

- Assess animal welfare standards during rabies vaccination campaigns in Coastal region and Morogoro in 2012
- Support project team coordinators in accessing affordable euthanasia drugs to help implement euthanasia protocol. Deliver training for technicians in the safe, humane handling of dogs for euthanasia, the correct administration of the euthatal and disposal of the body post sampling for rabies.
- Deliver training to field vaccinators where required, including follow-up training in Pemba to further increase vaccination coverage humanely.

2.2. KwaZulu-Natal, South Africa

No significant welfare concerns regarding vaccination were observed; however, several recommendations were given to address minor issues, including technician training in the proper restraint of animals for vaccination. To this end, Mr Stewart videoed much of the visit in Umzimkulu district February 7 as a means to generate the required training materials. Additional recommendations have been made to either address minor concerns or enhance the existing or planned programmatic activities to reach an ideal level of animal welfare. These are available in the detailed 2012 visit report that has been shared with the project leaders.

Summary evaluation

With respect to those aspects of the program observed by WSPA representatives, the KZN rabies project adheres very well to the animal welfare principles within the boundaries of the projects capacity. Further, the project provides an excellent example of successful collaboration between the public health sector and an animal welfare organisation as a means to enhance program delivery. In conclusion this project reaches and often exceeds minimum animal welfare standards.

The use of house-to-house strategy may help in reducing potential welfare concerns seen during central point vaccination, as this limits dog density at any one time and the movement of dogs to unfamiliar areas where they may become anxious.

The delivery of primary animal health services through mobile clinics provides a valuable service to impoverished communities that would otherwise be unable to access veterinary services under normal circumstances. The clinics are an adjunct to the Rabies Control Project and aim to improve the welfare of dogs and cats at the individual level, raise the awareness of animal welfare and community health, particularly the provincial rabies vaccination campaign, and reduce population density (although this last aim may not be achieved due to the large number of animals that would need to be reached). These services are due to be increased significantly due to additional investment by the provincial Department of Agriculture.

Euthanasia of suspect rabid dogs is carried out by private, government or SPCA vets using intravenous barbiturates. Euthanasia for other untreatable clinical conditions or behaviour is also conducted by the mobile clinics. This service used to be offered by the rabies project staff but was discontinued due to incinerator breakdown. Although not essential to meet minimum standards, restarting this service would be of benefit to animal welfare in the province, but would require

training of technicians in the safe, humane handling of dogs for euthanasia, the correct administration of pentobarbitone and disposal of the body.

Workplan 2013

- Visit by WSPA representative in early 2013 to observe vaccination campaign and preferably also assess expanded primary health care provision.

Report 2013

Visit conducted 30/09/13 – 3/10/13

The KwaZulu-Natal; Gates/WHO Rabies Elimination Project is being delivered by the Department of Veterinary Services based in Allerton Complex, Pietermaritzburg, KZN, South Africa. The project started in 2009 and has been running for 5 years.

The principal focus of the project is to conduct mass rabies vaccination of the estimated 1.4 M dog population of KZN. The Province covers an area of 94361 km² with a terrain that is full of hills and steep valleys. The majority of the population is very dispersed and except for the conurbations of Durban and Pietermaritzburg, Newcastle and Vryheid in the north, residences are widely scattered and not congregated in traditional villages. This makes it challenging to rapidly and efficiently access a high percentage of the dog population as they do not live in defined areas.

The KZN Rabies Unit no longer deals with Primary Health Clinics (ABC), this responsibility having been passed on by the South African government to the Pietermaritzburg SPCA in May 2012.

The KZN Rabies project is an integral part of the Department of Agriculture and Veterinary Services with field staff and equipment being utilised to address all disease threats in the province. This presents a challenge for the rabies elimination programme as a number of other diseases are considered higher priorities and should outbreaks occur the entire workforce is diverted into dealing with them.

The Rabies Control Unit is headed by Kevin Le Roux as the Project manager supported by Daniel Stewart as the Primary Animal Health Care Coordinator. The Vet Department has 13 State Vet officers and 154 Animal Health Technicians. The Headquarters at Allerton Veterinary Centre has a Provincial Veterinary Laboratory that has the capacity and competency to undertake a suit of analytic tests including Rabies diagnosis. Advanced analysis and typing is undertaken at Onderspoort University in Pretoria. A sophisticated and effective surveillance system is in place with capacity to collect suspect samples from throughout the province and rapidly convey them to the facility at Allerton.

The vaccination campaign is run primarily from January to October to avoid the rainy season. An annual work-plan is developed that maps out the sequence of districts that will be vaccinated through this period. The modus operandi is to use a vehicle manned with trained Animal Health Technicians as the basic unit. Between 20–30 units are mobilized at once and enter the target area travelling down every road while announcing through a PA system that residents should bring their

dogs to the vehicles for vaccination. This system avoids congregation of dogs into one area with the risk of spreading disease and causing dog fights.

During a vaccination campaign the resident team within the target district are supplemented by units from neighbouring state vet offices to build up to 20–30 units for each operation.

The system has been designed to facilitate access to the dispersed population and their associated dogs. It is however very expensive to operate due to large staff compliment and the need to accommodate the visiting staff while outside their normal place of work.

Animal welfare attributes of KZN programme

From an animal welfare perspective, it has a number of advantages:

1. Owners only have to walk their dogs a short distance to the vaccination point, this being the ambulatory vehicle at the nearest access road to the household
2. Dogs are usually within their own territorial range so do not feel as threatened
3. Owners are more likely to be able to get assistance from others in their household to handle dogs while being presented for vaccination
4. While mobilizing and generating awareness among the target population prior to vaccination day, the opportunity is used to pass on messages about RPO

Areas where animal welfare could be improved:

1. The main issue is beyond the direct control of the Rabies Unit and involves dog owners manhandling their animals. Mitigating this will require long term investment in educating the population on RPO

2.3. Visayas islands, Philippines

Summary evaluation

Rabies control in the Visayas is implemented by local government units (LGUs) according to the National Rabies Act or local ordinances. Initial assessment by WSPA in 2009 identified some rabies control activities that were below minimum animal welfare standards, and these were detailed in the initial ICAM Coalition report with recommendations for improvement. Challenges are still presented by rabies control legislation (both National Rabies Act and local ordinances) where impounding and destruction of stray dogs and confinement of owned dogs may be required, as both LGUs and dog owners do not have the capacity to implement this legislation humanely.

Specifically on stray dog destruction, practices used in the Philippines including gassing with exhaust fumes and shooting (shooting as a standard approach as opposed to only in emergency situations when other options not available) are below minimum international standards (OIE Terrestrial Animal Health Code Chapter 7.7). However gassing with exhaust fumes has recently become illegal under an Administrative Order (AO 09 series of 2011) and several LGUs have moved to using barbiturates, although some LGUs do still use gassing legally as a phase out period is yet to be

outlined under implementation of AO 09. An additional challenge is that barbiturates have now become difficult to access in the Philippines, hence WSPA investment in the Euthanasia Stakeholders group to re-establish access and provide advice on alternative humane measures in the short-term. Whilst dog destruction is still conducted in the Visayas islands using inhumane methods this project is unfortunately below minimum standards.

Specifically on dog-keeping practices, legislation to confine owned dogs and catch and impound all roaming dogs presents a challenge for many owners. In particular for the many households that do not have dog-proof fencing dogs this would require tethering or kennelling the dog permanently, leading to obvious animal welfare concerns. Roaming dogs do not prevent the control of rabies if they are vaccinated, hence more efficient disease control is a focus on increasing vaccination coverage as opposed to reducing roaming dog populations. We understand that many LGUs currently selectively implement the relevant ordinances in order to focus on vaccination as opposed to stray dog elimination or dog confinement.

Effective rabies control is achieved through consistent mass vaccination of dogs (at least 70% at annual vaccination) with no requirement for stray dog elimination or dog confinement. The declaration of Biliran as rabies free on World Rabies Day 2012 is an example of an island that has achieved rabies control by using mass vaccination without the need for stray dog elimination. We recognise the project leaders share this dedication to reaching rabies free status across the Visayas and hence applaud their continued support of the LGUs in their focus on vaccination. We suggest further efforts are made to ensure messaging from the NRPCP follows this focus and the need for humane practices in rabies control. In particular Joint Department Administrative Order No 1 series of 2008 between the Department of Health and Department of Agriculture entitled 'Guidelines for declaring areas as rabies-free zones' would benefit from further guidance for LGUs in humane implementation of the criteria and emphasis of dog vaccination over other measures.

The collaboration between the NRPCP and WSPA was formally forged in January 2011. The main objective of the collaboration is to facilitate activities that will promote and enhance animal welfare standards, particularly in: handling of dogs during vaccination; impounding and containment; improving techniques in vaccine transport and handling; advocating the use of humane euthanasia procedures; promoting the adoption of neuter surgery with high levels of asepsis, and enhancing dog population surveys and estimates of vaccination coverage.

In general the local government personnel we work with directly have been enthusiastic and committed to phasing out inhumane practices such as catching with wire loop catching poles and gassing with exhaust fumes. Several have also proven to be good animal welfare ambassadors within their Region. Budget is always the constraint but we have been able to demonstrate how changes can be made without incurring any cost. Examples of sustained changes since the initial trainer's training in March 2011 can be found in: handling of dogs during vaccination; impounding and containment; improving techniques in vaccine transport and handling; advocating the use of humane euthanasia procedures; promoting the adoption of neuter surgery with high levels of asepsis, and enhancing dog population surveys and estimates of vaccination coverage.

There are also some exemplary measures being implemented by some LGUs, including selective enforcement of legislation to focus more on what is needed for effective rabies control, work within traditional dog keeping practices, and tolerate roaming dogs (so long as they are vaccinated) and

hence minimise potential animal suffering. Collaboration with Humane Society International (HSI) for LGU dog population management training has proved cost-effective and prevented duplication of efforts of animal welfare organizations in the Visayas area, particularly given their existing training infrastructure and “big brother” initiative with the Cebu City Veterinary Office.

Workplan 2013 – final report to be submitted at project end 31 December 2013

- Develop guidance for LGUs in practical and humane implementation of the criteria for rabies free status set by Joint Department Administrative Order No 1 series 2008
- Following initial training in Cebu for 17 delegated trainers, localized training is continuing to be conducted in the three regions.
- There will be a further train-the-trainers workshop in 2012 (schedule to be arranged) with the aim of training participants to train others in considering the root causes of problems with dogs in their LGU and implementing comprehensive solutions in line with their responsibilities under the National Rabies Act.
- Learnings from the pilot mass vaccination and dog population survey in Sibonga will be disseminated in the form of simple guidance.
- LGUs will continue to be supported in accessing euthanasia drugs to enable humane euthanasia of dogs and investigation of partnership with private veterinarians to address the issue of a lack of government vets to perform euthanasia.
- Increasing awareness among LGUs nationally that “Tambucho gassing” is now illegal and assisting them to phase this out.
- Trialling of central point vaccination rather than the more costly door-to-door campaigns, maximising the high level of ownership in the Philippines and placing responsibility on dog owners. National rabies coordinators in agreement that this ‘paradigm shift’ is required especially given the prohibitive cost in terms of human resources for implementation of door-door campaigns.

Please note that where possible, expenditure has been minimized by combining this work with other WSPA work. WSPA staff time is contributed to the project without cost and is not included in estimated expenditure above.

(Final report to be submitted at the end of project 31 December 2013).

Appendix D: Primary animal health-care report for KZN project

Highlights

Behaviour research

1. Behavioural aspects surrounding a rabid dog that went on a biting rampage in a community, which led to 21 individuals being bitten, has highlighted many aspects of canine and human behaviour that highlights why bite prevention education is needed in communities.

In brief, a rabid dog left home wandering the streets. It moved as far as four blocks away from home and returned after 36 hours, having bitten 21 people, and finally died at home and was buried. Six days later the body was exhumed and tested positive for rabies. All patients were treated correctly with PEP.

Investigation showed that all victims had been making noise before being bitten (children playing; neighbours shouting over the fence; people chasing the dog; etc.). Dog bite prevention education may well have reduced these bites even though the dog was rabid.

Awareness generated around this case and three others in the area highlighted the need for careful follow up which is lacking within the state services as it requires a lot of effort and manpower. A mass campaign in the area seems to have stopped the outbreak and improved local education, both amongst community members and health officials. This may be the reason the disease has now disappeared from the area.

2. Work is under way with other behaviour experts to publish the analysis of tracking data that was obtained from dogs in townships to improve the understanding of what unrestricted dogs in villages do and how this knowledge can benefit rabies control.
3. Research into behaviour is being highlighted through the health economics study. There are vast areas without rabies, and many people are bitten daily. Training material for bite prevention is in preparation which includes bite cases. This aims to improve bite prevention campaign planning and implementation.
4. Response to requests for assistance from different organisations and across KZN about problem dogs living within communities and causing damage to humans and livestock is important. Finding a positive solution to this problem is important from the following standpoints:
 - a. Averted cost for the treatment of bite victims
 - b. Decreased suffering of animals and people
 - c. Increased rabies vaccination coverage
 - d. Avoids resentment towards dogs in the community and lack of social responsibility to present dogs for vaccination.

Other research

1. Research trials for GonaCon™. GonaCon is a gonadotropin-releasing hormone (GnRH) immunocontraceptive vaccine developed by scientists at the U.S. Department of Agriculture. This vaccine stimulates the production of antibodies that bind to GnRH, a hormone in an animal's body that signals to reduce sexual activity in animals
 - a. Renovation of research kennels completed.
 - b. Kennel workers Identified and trained.

- c. Dog management protocols for the trial reviewed.
- d. Animals identified for trial.

In the future

- a. The Gonacon GnRH contraceptive research will take up a large amount of time (4 months) and the plan is to have dogs in our dedicated kennels by the end of August 2013.
- b. Conclusion to video footage of equipment and handling training.
- c. Bite prevention campaign

Cost–benefit analysis:

- a. Analyse utilization of human vaccine and RIG in KZN, as this information is available but not being utilized by the Department of Health.
- b. Already analysed 3 years of human vaccine distribution in KZN to identify trends in use, and evaluate high human usage areas against the disease in animals: Findings:
- c. Very little is known about the efficient use of the human vaccine.
- d. Large amounts of vaccine being used in areas where the disease has disappeared. This begs the questions regarding bite prevention, research and training.
- e. Poor record keeping systems of the Department of Health.

Training

- 1. Retraining and authorization of either welfare staff or volunteers has been ongoing. I have had to request other department of agriculture staff to transport me to different areas of KZN to train; 22 people have been re-examined in the past 6 months.
- 2. Compilation of project video footage for training on handling and equipment usage is now being finalized.
- 3. The need for bite prevention education is possibly the biggest new development as this is now the first line of defense in reducing costs of PEP. A mass campaign is being planned to roll out bite prevention information, for which visual material is being prepared.
- 4. Requests to speak on animal behaviour and disease control in schools, dog training facilities and animal welfare organizations is on the increase. This is much needed education and awareness for children and adults which need to be expanded.

Primary animal health care

- 1. PHC clinics have now been completely handed over to SPCA's/animal welfare societies and the new government funded project called "The KZN Outreach Project". Well over 10 000 animals have been sterilized since the inception of this new project.
- 2. Continue to visit mass rabies vaccination campaigns, to evaluate humaneness and effectiveness of the vaccination procedures.

General

- 1. The SEARG meeting was a success, with KZN rabies project featuring in a large percentage of the presentations and is clearly leading the way in rabies control.

2. International collaboration is still ongoing, with Lesotho being the next country to be assisted. We have tried to keep communication open and visited the country to understand the logistics around vaccinating dogs in the highlands of Lesotho (KZN's border). The villages and the homesteads of the people of Lesotho are spread far apart and it takes hours, on extremely bad roads, to get anywhere. These people are nomadic and having travelling herdsman with dogs becomes even a bigger obstacle.
3. Attend an International Rabies day clinic in Swaziland in September. This is an annual event and we normally speak to a large portion of a community about rabies and the importance of annual vaccinations.
4. A Local SPCA in Kloof has taken it upon themselves to make sure that their community is fully vaccinated against rabies. This society, for the past 2 years, has offered this service to the community for one week of the year to vaccinate any animal brought into their society. Through donations at this clinic, creates a sustainable and community responsibility programme for animal welfare.
Numbers of animals vaccinated:

- a. 4500 animals in 2012
- b. 1114 animals in 2013

Remarks

The first quarter of the year was more productive than the second, due to the availability of a vehicle. Operational funds from the Gates Foundation are still not available for this year (2013), and the special funds from the government have been removed. Without a vehicle, it is very difficult to do any work efficiently and it is also taxing on my own pocket as I need to utilize my personal vehicle for work-related travel.

Appendix E: Biennium budget for no-cost extension

South Africa	251 578	only for 2014
Philippines	423 366	only for 2014
United Republic of Tanzania	894 600	2014–2015
HQ coordination	130 456	
Total	1 700 000	