

Six Month Report N^o.1

Improvement of village poultry production by communities in Limpopo National Park support zone in Gaza Province, Mozambique

January – June 2009



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i. ACKNOWLEDGEMENTS

Our sincere thanks go to all government staff in the Provincial Department of Agriculture (DPA) and the Provincial Livestock Services of Gaza Province. We would also like to thank the staff in the District Services of Economic Activities (SDAE) and the Limpopo National Park (LNP), leaders, male and female farmers, and community vaccinators, for sharing and committing their time to this project.

Thank you also to the Animal Science Directorate (DCA) of the Mozambican Agricultural Research Institute (IIAM) for their contribution towards producing the I-2 vaccine.

We would also like to thank the staff of the International Rural Poultry Centre (IRPC)/KYEEMA Foundation for their participation, coordination, and support of this project.

Tanya Radosavljevic
14 July 2009

ii. LIST OF ACRONYMS & ABBREVIATIONS

AHEAD	Animal Health for the Environment And Development
AI	Avian Influenza
AIDS	Acquired Immune Deficiency Syndrome
DCA	Animal Science Directorate of the IIAM
DNER	National Directorate for Rural Extension
DNSV	National Veterinary Services Directorate
DPA	Provincial Directorate of Agriculture
GLTFCA	Great Limpopo Transfrontier Conservation Area
HH	Household
HIV	Human Immuno-deficiency Virus
HPAI	Highly Pathogenic Avian Influenza
I-2	Thermotolerant, live, avirulent ND vaccine available for local production
IIAM	Agricultural Research Institute of Mozambique
IEC	Information, Education and Communication
IRPC	International Rural Poultry Centre
LNP	Limpopo National Park
M&E	Monitoring and Evaluation
MINAG	Ministry of Agriculture
ND	Newcastle Disease
NGO	Non-governmental organization
PLWHA	People Living with HIV/AIDS
PRA	Participatory Rural Appraisal
SANDCP	Southern Africa Newcastle Disease Control Project
SPP	Provincial Livestock Services
TOT	Training of Trainers
USAID	United States Agency for International Development
USD	American dollars
WCS	Wildlife Conservation Society

iii. EXECUTIVE SUMMARY

The Improvement of village poultry production by communities in Limpopo National Park support zone in Gaza Province, Mozambique project aims to contribute to food security and poverty alleviation through the improvement of husbandry practices and disease control related to village chickens. Disease control activities are being spearheaded by making available an affordable, reliable vaccine for the control of Newcastle disease (ND) in village chickens. To achieve this, the project outcomes aim to:

- a) Contribute toward the control of ND in village poultry;
- b) Improve village poultry husbandry and management;
- c) Development of poultry products suitable for sale to tourist centers; and
- d) Improve household welfare, including improved nutrition and food security.

The project is being implemented by the IRPC/KYEEMA Foundation in collaboration with government colleagues.

This report outlines the activities completed and also being implemented during the reporting period from January – June 2009. The activities covered in this report include:

- The initial Participatory Rural Assessments (PRA) in by the IRPC Social Anthropologist in January 2009. (Annex 4: PRA report)
- The inception activities: arrangement of Agreements, the selection of 14 villages, project awareness in the selected communities, preparation of training materials.
- Training ND control and HPAI awareness of 23 community vaccinators, including 2 extension officers. (Annex 3: Training Report)
- ND vaccination campaigns in April and coordination of delivery of I-2 vaccine.
- Refresher training/technical backstopping for ND control and HPAI awareness.
- Monitoring trip by IRPC/KYEEMA Director and technical advisor.
- Coordination for the first and second vaccination campaigns.

Key Issues:

At the commencement of the project the lack of functional cold-chain facilities at Massingir SDAE was identified. KYEEMA Foundation requested that project funds be used to purchase a refrigerator to store the I-2 theromtolerant vaccine to support ND control activities. A refrigerator was purchased and delivered to District Services of Economic Activities (SDAE) on 17 March in preparation for the first vaccination campaign.

A challenge facing the implementation of the project are the great distances involved in traveling to the selected villages in the LNP. There is also the difficulty of communication and communicating smoothly with the vaccinators in villages within the LNP. The project team intends to spend longer periods of time within the park by camping in the villages when conducting project activities to build a strong relationship with participating communities.

IRPC/KYEEMA has made significant progress in fulfilling the project activities in the reporting period and contributing towards improved ND awareness. The project has had a

positive impact on raising the awareness of ND and increasing number of families vaccinating their flocks during vaccination campaigns.

1. SUMMARY OF PROJECT

1.1 Project Profile

Project name	Improvement of village poultry production by communities in Limpopo National Park (LNP) support zone in Gaza Province, Mozambique
Project period	12 months 11 January 2009 – 11 January 2010
Project location	LNP and LNP support zone, Gaza province
Amount (USD)	58,370
Report submitted by	International Rural Poultry Centre/KYEEMA Foundation
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Date	16 July 2009

1.2 Project background

In Mozambique, village poultry (chickens, Muscovy ducks, turkeys, guinea fowl and pigeons) are generally owned and managed by women and the rural poor and are usually run under a free-range, low input management system (Bagnol, 2005; Lough *et al.* 2001; Mata, *et al.* 2000; Mavale 2001). These village poultry are a very important part of women's livelihoods in rural Mozambique. Small-scale farmers own over 90% of the national chicken flock, which is estimated to be around 25 million birds. Chickens are the type of domestic poultry most commonly raised and fulfill the most roles within the family (sale, barter, consumption and traditional ceremonies; Mavale 2001). Muscovy ducks are also commonly kept under extensive conditions but due to traditional beliefs, duck meat is less utilized in certain parts of the country (Mavale 2001).

In the poorest households, the contribution of chickens is significant, with around 23% of income being derived from chickens. Chickens can be easily sold or exchanged, and are raised to satisfy the basic needs of the family. Some varieties of chicken are exclusively reared for use in traditional ceremonies. Chickens are sold live with about 70% of rural households selling their chickens at the farm gate while the remainders sell along the roads. The poorest and medium poor families rarely raise chickens for home-consumption, and across the social groups, eggs are rarely consumed, as they are more highly valued for

reproductive purposes (Bagnol, 2005; Lough *et al.* 2001; Mata, *et al.* 2000). Less poor families will raise chickens for home consumption. Thus if chicken numbers were to increase, the consumption of eggs would become an option and a very good use of resources (Alders and Spradbrow 2001). Additionally, increased consumption and sale of chickens and eggs in rural areas will decrease demand for bush meat.

One of the major constraints to the production of village chickens in Mozambique is ND. Community-based ND control programs improve the livelihoods of poor livestock keepers in Mozambique through the effective and sustainable control of this devastating disease. The community based experiences in controlling ND in rural areas of Mozambique show that poor farmers are willing to pay for a good quality service provided in an efficient and effective manner, in order to minimize the risk of their investment (Harun *et al.* 2004).

The implementation of an effective ND control program in countries such as Mozambique, has resulted in increased chicken numbers, increased household purchasing power, increased home consumption of chicken products and increased decision-making power for women (Bagnol 2001).

Informal marketing networks are well established in most of Mozambique (Woolcock 2003). With minimal but strategic assistance these networks can improve in efficiency as the number of chickens and eggs available for sale increases.

In many areas, farmers are reluctant to eat surplus chickens or eggs and in some regions, the consumption of eggs is prohibited for children and women by tradition (Bagnol 2001). The conservation of eggs and the hatching of chickens are important in situations of high chicken mortality, where replacement birds are essential. When sustainable ND control programs are implemented and chicken numbers increase, the consumption of eggs becomes an option and a very good use of resources. The egg provides a range of nutrients apart from protein and could make a substantial contribution to the nutrition of children and pregnant women (IRPC 2005).

Other constraints to village poultry production include shortage of feed protein especially for chicks and laying hens; and high chick mortality due to cold, heavy rains, and predators as a result of poor housing and husbandry practices (Lough *et al.* 2001; Harun and Massango 2001).

1.3 Project goal and objectives

The project aims to contribute to food security and poverty alleviation through the improvement of husbandry practices and disease control related to village chickens.

Specific objectives

- a) The control of Newcastle disease in village poultry;
- b) Improved village poultry husbandry and management;
- c) The development of poultry products suitable for sale to tourist centers; and

d) Improved household welfare, including improved nutrition and food security.

Financial contribution of donor

AHEAD has contributed US\$45,550 to IRPC/KYEEMA Foundation to implement the project entitled 'Improvement of village poultry production by communities in Limpopo National Park support zone in Gaza Province, Mozambique'. The project aims at improving village poultry production and overall food security. The project is for a 12 month period from 11 January 2009 to 11 January 2010.

KYEEMA's contribution to the project is US\$10,020 and the Government of Mozambique's contribution is US\$2,800.

See Annex 1 for the Financial Report.

1.4 Study area (LNP) and general background

The LNP covers approximately one million hectares and is located in Gaza Province, Mozambique. The LNP is a part of the Great Limpopo Transfrontier Conservation Area (GLTFCA), shared with South Africa and Zimbabwe and is soon to be Africa's largest protected wildlife areas.

Since the end of the civil conflict and the signing of the Peace Accord in 1992 there has been effort to formulate and implement a management strategy for LNP. The first phase of development is to be achieved through working to improve the lives of people in the Park's surrounding lands and 'enclave communities'.

There approximately 26,535 persons living inside the park.

Table 1: Population of the area

Administrative Post Mavoze (1)	Km	Parque	Families	Persons	Men	Women
Mavoze	22	D	256	2,205	1,063	1,142
Massingir Velho	39	D	171	1,233	641	592
Machamba	69	D	77	612	285	327
Bingo	34	D	57	490	208	282
Chimangue	91	D	88	548	245	303
Macavene	11	D	84	683	332	351
Madingane	36	F om	97	637	270	367
Machaule	20	F om	58	424	190	234
Chibotane	17	F em	173	1,304	584	720
Total						
AP Tihovene (2)	Km	Parque	Agregados	Pessoas	Homens	Mulheres
Tihovene		F	177	5,680		
Mucatine		F em	NA			
Chinyangane	12	F em	188	757		
Cubo		F em	NA			
Decada da Vitória		F em	NA			

Ringane		F em	NA			
Cahane		F em	NA			
Total						
AP Zulo (2)	Km	Parque	Agregados	Pessoas	Homens	Mulheres
Banga		F em	NA			
Chipandzo		F om	61	178?		
Chitare		F em	NA			
Cunze		F om	102	511		
Macaringue	80	F om	536	2,320		
Maconguene		F om	122	419		
Macuachane		F om	82	322		
Manhiça		F em	NA			
Mucatine		F em	NA			
Munhamane		F om	198	484		
Tchake		F em	NA			
Zulo		F em	NA			
Total						

- (1) Data provided by the Chief of the Administrative Post
(2) Data given by the LNP (from: community leaders 2003/2004)
“em” means this side of the river (“*esta margem*”).
“om” means other side of the river (“*outra margem*”).

IRPC/KYEEMA Foundation is working with a total of 14 communities: 7 communities in the support zone of the park (Tihovene, Chitar., Zulo, Manhiça, Mucatine, Cubo and Chingangane) and 7 communities in the LNP (Massingir Velho, Moveze, Macavene, Machaule, Chibotana, Machingane, and Macarrigue).

2. SUMMARY OF ACTIVITIES IMPLEMENTED

The project is being implemented by IRPC/KYEEMA Foundation in collaboration with the Department of Animal Science (DCA) and the Technology Transfer Centre (TTC) of the Mozambican Agriculture Research Institute (IIAM), and the National Directorate for Rural Extension (DNER) and National Veterinary Services Directorate (DNSV) of the Ministry of Agriculture (MINAG).

A wide range of activities have been implemented by IRPC/KYEEMA during the reporting period (Table 2).

Table 2: Activities implemented by IRPC/KYEEMA during the reporting period.

Month	Activity implemented
11 – 17 January	<ul style="list-style-type: none"> - PRA and gender analysis completed by Dr Brigitte Bagnol. (Annex 4: PRA Report) - Selection of villages for the project. Selected villages are: Tihovene, Chitar., Zulo, Manhiça, Mucatine, Cubo and Chingangane, Massingir Velho, Moveze, Macavene, Machaule, Chibotana, Machingane, and Macarrigue.
9 – 14 February	<ul style="list-style-type: none"> - Conducted project awareness in the selected communities.

	<ul style="list-style-type: none"> - Meetings with village elders, leaders and communities regarding project awareness and selecting two community vaccinators per village. - Collection of baseline data information. - Project awareness and baseline data collection. - Design and printing of community vaccinator materials: training manuals, reporting,
February	<ul style="list-style-type: none"> - Collection of quotations for the purchase of a refrigerator. - Preparation and printing of ND control training extension materials: posters, uniforms, training manuals, registration booklets, etc.
March	<ul style="list-style-type: none"> - 4 – 6 March: AHEAD working group meeting, Namaacha, Mozambique. Presentation of KYEEMA Foundation’s project. - 17 March: transported the refrigerator to SDAE to enable them to preserve and store the I-2 vaccine. - 17 – 20 March: Training of 21 community vaccinators (10 women and 11 men) and 2 extension officers in ND control and HPAI awareness by IPRC technical advisor Dr Filomena dos Anjos. Extension materials were distributed and used during the training. Each community vaccinator received a uniform. (Comprehensive report is found in Annex 3) - Preparation for the April vaccination campaign.
April	<ul style="list-style-type: none"> - Meetings with DCA on strengthening vaccine production at the laboratory. - 6-7 April: Monitoring trip by the Regional Manager to meet Ministry staff at SDAE Chokwe, and SDAE Massingir. Coordinated transporting vials of I-2 vaccine from SDAE Chokwe to SDAE Massingir for the April vaccination campaign. - 13 – 16 April: Field trip by KYEEMA’s veterinarian in collaboration with key virologist from DCA, Dr Mapaco, to monitor and provide technical backstopping during the April vaccination campaign. - 13 – 16 April: Collection of pre-vaccination serum samples from several villages: Massingir Velho, Mavoza, Macavene, Chibotana, Zulo and Mahiça.
May	<p>Analysis of information from target villages. Preparation of questionnaires for technical backstopping trip.</p> <p>15 May: Coordination with SDAE in preparation for a meeting with IRPC/KYEEMA Director (Dr Robyn Alders)</p> <p>25 – 27 May: 3 day monitoring trip, preparation for the arrival of the Tufts University students by IRPC/KYEEMA Director (Dr Robyn Alders), and KYEEMA’s technical veterinarian (Dr Ana Zandamela). Meetings with Director SDAE Massingir, Protection and Conservation Area, LNP (Mr Zinio Macameno).</p> <p>Liaising with SPP Gaza, MINAG, for results from first vaccination campaign. Preparation for the arrival of Tufts University veterinary students: Sarah Raabis and Samantha Swisher. The students conducted their research with funds provided by Tufts University. Organised agreements from villages for the students to camp and work in the villages.</p>
12 – 22 June	<p>13 June: Conducted refresher training of community vaccinators from the support zone of the park: Tihovene, Zulo, Maniça, Mucatine and Cubo.</p> <p>14 June: Conducted refresher training of community vaccinators from the villages inside of the LNP: Massingir Velho, Movoze, Macavene, Machaule, Chibotana, Machingane, and Macarringue.</p> <p>Facilitation with DPP and SPP on preparing for the vaccination campaign,</p>

	<p>including requests for materials.</p> <p>9- 11 June: Arrival of Tufts University veterinary students and preparation for the field trip to LNP.</p> <p>12 – 16 June: Introduction of Tufts University veterinary students to Moveze and Massingir Velho villages.</p> <p>13 – 14 June: Conducted refresher training for ND control activities for the community vaccinators in the LNP support zone: Tihovene, Cubo, Chinhangane, Chitar, Zulo, Manhiça e Mucatine.</p> <p>14 – 16 June: Collaboration with the Tufts University Students in the collection of serum samples.</p> <p>15 – 19 June: Collection of serum samples from chickens in the following villages: Mavoze, Chibotana, Macavene, Massingir Velho, Manhica and Zulo. The samples will be used to test the antibodies against ND.</p> <p>16 – 19 June: Collection of additional data and infrastructure from the following villages: Chibotana, Macavene, Massingir Velho, Mavoze, Cubo, Mucatine, Manhica, Zulo and Chitar.</p> <p>15 June: Meeting with SDAE staff (Mr Macavene, and Dr Sara Macie), and Mr Zinio Macamero from Protection and Conservation Area of LNP. The team introduced the Tufts University Students and their input in to the IPRC/KYEEMA project.</p> <p>17 June: Meeting with the District Director for the Ministry of Education in Massingir (Ms Ester Mbembele) to present IPRC/KYEEMA’s project and activities and to discuss the procedures required to be able to hold awareness-raising conference in the schools.</p> <p>20 June: Traveled to Bingo, Machamaba and Chimangue villages to conduct project awareness and to discuss the project’s objectives and current progress of activities. IPRC/KYEEMA discussed the possibility of future collaboration.</p> <p>21 June: Traveled to Madingane village to conduct project awareness-raising with the population. The project team discussed the benefits of supporting and participating in the vaccination campaign. IPRC/KYEEMA collected additional information from the community on the existing infrastructure for its baseline data.</p> <p>22 June: Meeting with the Director of SPP Gaza (Dr Sara Macie) and the Director of Rural Extension Gaza Province (Dr Domingos Tchamane) to inform of the project’s progress, and provide vaccination data from the target communities, and to discuss how to improve coordination between MINAG and IPRC/KYEEMA Foundation.</p>
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2.1 Activities and trainings implemented

The following activities and training programs have been implemented during the project:

- PRA and gender analysis, conducted by Dr Brigitte Bagnol.
- Project awareness with communities and community leaders.
- Training of community vaccinators in ND control and HPAI awareness, conducted by Dr Filomena dos Anjos.
- Collection of pre-vaccination serum samples, conducted by Dr Filomena dos Anjos, Dr Ana Zandamela and Dr Lourenço Mapaco.
- Monitoring visit by Dr Robyn Alders and Dr Ana Zandamela.

- Refresher training and technical backstopping, conducted by Dr Ana Zandamela.
- Training of community vaccinators in ND control and vaccination campaigns for community vaccinators in target communities.
- Awareness-raising on human nutrition and the benefits of eating eggs and chicken meat and the benefits of poultry nutrition for chickens.
- Collection of baseline data, community mapping, and information on existing infrastructure.

2.1.1 PRA and Gender Analysis

The IRPC anthropologist/gender specialist, Dr Brigitte Bagnol, conducted the PRA and gender analysis from 11 - 17 January 2009. During the PRA the project team met with SDAE Massingir, to discuss the details of the project and to obtain information on the LNP and LNP support zone.

During the PRA the project team selected 14 target communities, 7 inside the LNP and 7 support zones.

LNP: Massingir Velho, Movoze, Macavene, Machaule, Chibutana, Madingane, and Macarringue.

LNP support zone: Tihovene, Cubo, Chinhangane, Chitar, Zulo, Mactine, and Manhiça

Table 3: Population of the target area

Village	Inside/Outside LNP	Population	N° of families
Massingir Velho	Inside	1,734	205
Mavoze	Inside	2,626	345
Macavene	Inside	533	92
Machaule	Inside	387	74
Chibotana	Inside	1,255	153
Madingane	Inside	359	81
Macarringue	Inside	1,956	427
Tihovene	Outside	5,680	177
Cubo	Outside	420	
Chinhangane	Outside	813	187
Chitar	Outside	295	
Zulo	Outside	396	104
Mucatine	Outside	390	
Manhiça	Outside	276	90

During the PRA the issue of coldchain was discussed and it was recommended that the project support SDAE Massingir by purchasing a refrigerator. See Annex 4 for the PRA report.

2.1.2 Project-Awareness

The project is built on cooperation and collaboration with MINAG, the LNP, and local communities. IRPC/KYEEMA has concentrated on project-awareness in the target and surrounding communities and has communicated clearly the project activities. The project team takes every opportunity in the project area to promote the project goal, objectives, and activities. The project promotes the benefits of vaccinating against ND and describes the details of the vaccination campaigns.

From 9 – 14 February, IRPC/KYEEMA conducted project-awareness in the selected 14 villages for the project implementation. The project team met with MINAG staff, village leaders/chiefs and communities to discuss the project activities, the role of the community vaccinator, the prerequisites required by a community vaccinator, and finally the selection of community vaccinators. The communities and leaders selected the following community vaccinators (Table 4).

Table 4: List of selected community vaccinators

Village	Inside/Outside LNP	Community Vaccinators	Gender (Male/Female)
Massingir Velho	Inside	Domingos Sabonete Constancia Mongwe	Male Female
Mavoze	Inside	Filimone Machaule Tomas Samisone	Male Male
Macavene	Inside	Vódia Chirindza	Female
Machaule	Inside	José Mongwe	Male
Chibotana	Inside	Frazão Ngulele Racelina Ngovene	Male Female
Madingane	Inside	David Mandlaze	Male
Macarringue	Inside	Generosa Valoi	Female
Tihovene	Outside	Alda Abilio Chivoze Alcidio Novela Simiao Zitha	Female Male Male
Cubo	Outside	Hermnia Manuel Julio Mate	Female Male
Chinhangane	Outside	Pedro Jossias Cuna	Male
Chitar	Outside	Samaria Mbalane	Female
Zulo	Outside	Clemência Mundlovo	Female
Mucatine	Outside	Cacilda Mundlovo Sergia Cossa	Female Female
Manhiça	Outside	Rochete Ngovene	Male
SDAE	SDAE Massingir	Alberto Nhatumbo	Male
SDAE	SDAE Massingir	Juencio Tomo	Male

The project team has continued to carry out monthly project-awareness during each monitoring and training trip. The following trips include: 9 – 14 February, 17 – 20 March, 6 – 7 April, 13 – 16 April, 25 – 27 May, 12 – 22 June.

2.1.3 Training of community vaccinators in ND control and HPAI awareness

The IRPC technical advisor, Dr Filomena dos Anjos, conducted ND and HPAI awareness from 17 – 20 March 2009, Massingir Velho. (A comprehensive report is found in Annex 3). A total of 21 community vaccinators and two district extension officers, who will supervise and support community vaccinators at the district level, were trained.

The practical and theoretical aspects of the training included:

- The role of village chickens in the local communities;
- Characteristics of the chicken production system in the family sector;
- Characteristics of healthy and sick chicken and a basic clinical examination;
- Introduction to ND;
- Introduction to the vaccine and the process of vaccination;
- Appropriate methods for conserving and transporting the thermostat vaccine;
- Other techniques to control ND;
- Awareness raising of chicken owners, cost recovery and organization of vaccination campaigns;
- Registration, planning and coordination of ND control activities; and
- Monitoring and evaluation of vaccination campaigns against ND.

During the training each community vaccinator received a basic instruction manual on the handling and use of the I-2 vaccine on ND, a ND control flip chart, a registration book, a pen, as well as a uniform (t-shirt and cap).

During the course of the training the participants prepared a work plan, with the assistance of the IRPC advisor and KYEEMA's veterinarian. The participating community vaccinators mapped out the plan for vaccination campaigns, commencing immediately for the March/April 2009 vaccination campaign (Table 5).

See Annex 3 for a comprehensive report on the training of community vaccinators from the target villages in LNP and the LNP support zone.

Table 5: Planned activities for the 1st vaccination campaign by community vaccinators.

Date	Activity	Objective
23 March	Meeting with community leaders	Discuss ND and the vaccination campaign
25 March	Reunion with the community	Awareness-raising on ND, the vaccination campaign, the registration of chickens for the vaccination campaign, and the date of the campaign.
27 – 29 March	Registration of chickens for the vaccination campaign	Awareness-raising of ND, the benefits of vaccination campaigns, and the registration of number of chickens for the first vaccination campaign in April 2009.
30 March	Organization of the distribution of the I-2 ND vaccine	
1 – 15 April	Vaccination campaign	Vaccination of chickens in the community
15 – 18 April	Data collection/reporting	Collecting of data for the report.
19 April	Provide report to SDAE Massingir	
20 – 30 April	Evaluation	Monitoring and evaluation of the vaccination campaign. Liaising with families to see the results of the campaign.
7 – 10 May	SDAE finalizes report	
May	SDAE provides final report to KYEEMA Foundation	
June	Refresher training	

2.1.4 Refresher training and technical backstopping

Refresher training and technical backstopping of community vaccinators was conducted from 13 – 16 June.

On the 13 – 14 June, a refresher training was conducted a for the community vaccinators from Tihovene, Cubo, Chinhangane, Chitar, Zulo, Manhiça and Mucatine. . A total of 9 participants attended, of which 5 were women and 4 were men. From 15 – 16 June, training was conducted in Massingir Velho, Mavoze, Macavene, Machaule, Chibotana, Madingane and Macarringue. A total of 9 participants attended the training, of which 3 were women and 6 were men

During the refresher training the following subjects were emphasized:

- ND control activities and vaccination campaigns: This subject covered planning for a vaccination campaign, village leader involvement, awareness-raising, registration,

coordination for the vaccine, the vaccination campaign, collection of data, follow-up with the families on the results of the vaccination.

- The reproduction of chickens, using the flip chart series *A reprodução da galinha*. The flip chart contains illustrations relating to poultry reproduction presented in conjunction with an oral presentation. This section covered the reproductive cycle of a chicken, how to see when an egg has been fertilized, the development of a chick inside an egg, how to identify eggs suitable for cooking,
- Poultry husbandry: Training was covered in the flip chart series on *Healthy chickens, Healthy*, looking at the importance of good food and water, shelter, and vaccination to prevent disease.

During the training the community vaccinators knowledge was tested, the subjects included: the clinical signs of ND, transmission of the disease, the role of the vaccine, the usage and handling of the vaccine, the procedures for vaccination, the vaccination calendar, the appropriate methods of vaccine storage and transportation. In addition, the community vaccinators received revision on the use of extension materials, and received flip charts on poultry husbandry and healthy human nutrition, and instructions on the usage of the “wet” I-2 vaccine.

An evaluation of the April 2009 vaccination campaign was held with the vaccinators, and vaccinators were able to share their experiences and discuss ways of managing the challenges.

2.1.5 Nutrition awareness

IRPC/KYEEMA has been raising awareness on improving the understanding of human nutritional intake in conjunction with the refresher training for community vaccinators. IRPC/KYEEMA provides a variety of nutritional information, including the components of a healthy diet and the nutritional value of eggs and the benefits of eating eggs. A flip chart series called *Healthy chickens, Healthy People* was used to for the training. The flip chart contains illustrations relating to healthy human nutrition (using information developed by the Mozambican Ministry of Health) and healthy poultry practices, mainly covering the importance of good food and water, shelter, and vaccination to prevent disease for both humans and chickens. The illustrations are demonstrated together with an oral presentation.

3. PROJECT IMPACT

3.1 Results from the April 2009 vaccination campaign

Table 6: Summary of the April 2009 vaccination campaign data.

Name the village	N° of vaccinators	N° of HH involved	N° of Chickens vaccinated	N° of chickens/ HH	Average N° of chickens vaccinated/ vaccinator	N° of HH which raise chickens	% of HHs involved
Massingir Velho	2	34	588	17.3	294	185	18.4
Mavoze	2	161	1,327	8.2	663.5	161	49.1
Macavene	1	57	599	10.5	599	57	62
Machaule	1	**	387	**	387	**	**
Chibotana	2	30	386	12.9	193	130	23.1
Madingane	1	24	510	21.3	510	73	32.9
Macarringue	1	**	804	**	804	**	**
Tihovene	3	12	131	10.9	43.7	256.2	4.7
Cubo	2	**	159	**	79.5	**	**
Chinhangane	1	27	519	19.2	519	159	17
Chitar	1	**	240	**	240	**	**
Zulo	1	**	**	**	**	**	**
Manhiça	1	43	421	9.8	421	81	53.1
Mucatine	2	**	55	**	55	**	**

** Data missing from the forms that IRPC/KYEEMA collected from each community vaccinator.

3.2 Common poultry husbandry practices and attitudes

The target communities raise village poultry under a extensive, low-input system and so provide limited inputs to their birds. During community consultations, farmers indicated that they do not provide poultry housing for their flocks because of concerns of theft, and also because of the belief that when one chicken is diseased all the chickens in close proximity will be affected. Chickens are housed overnight either with families in their homes or in the trees. The survival rate of newly hatched chicks is low, and IRPC/KYEEMA is collecting additional information on this aspect. It has been reported that many newly hatched chicks do not survive because of predators.

The farmers in the target villages also reported that they do not feed the chickens any food scraps. As supplementary feeding will improve egg production and chick growth rate and survival, further attention will be given to this area over the coming months.

3.3 Challenges

There are several significant challenges that the project has tackled. These included the lack of cold-chain at the commencement of the project, the great distances within the park, the lack of a communication network, poor village leader support in some villages, and a lack of resources to stay longer periods in the LNP and LNP support zones to implement the project.

There are also challenges in the implementation of the vaccination campaigns. One of the challenges mentioned by community vaccinators was a lack of support from leaders. Another issue that they faced was in vaccinating a full flock of chickens, as some farmers do not collect the chickens prior to the vaccination campaign. Transporting the vaccine from SDAE Massingir to the community vaccinators in a cooler-box with ice is also a challenge that requires attention.

At the community level the challenge is encouraging whole communities to participate and support the ND campaigns and to raise communities' level of interest. The communities understand the consequences of ND, however as there has been no outbreak of ND since the first campaign, farmer confidence in the vaccination campaigns is yet to develop. It is important to continue with the awareness-raising and following-up post vaccination campaign monitor the success.

Another challenge at the community level is improving poultry husbandry practices in a cost-efficient manner. The community does not invest in overnight shelter for poultry because of theft, or the belief that keeping the birds together is not healthy because if one bird is sick, they all get sick. Constructing and maintaining appropriate overnight shelter for birds will be addressed in the second phase of the project.

There is no association in the villages to overlook and support the activities as people advised that they do not have time to get together. It would be beneficial for the community vaccinators to join existing associations to support the coordination of their activities with the community.

4. RECOMMENDATIONS & CONCLUSION

4.1 Recommendations

The recommendations include the following points. These recommendations need to be considered for the improved implementation of the project and for any future project:

- The distance between villages is great, which has created challenges with communication, organizing training, and sufficient time for training. The project would benefit from the purchase of camping equipment for the project team to allow them to stay in the communities to conduct activities. A communication plan is necessary to effectively communicate with the villages deep inside the park as the

sole way of communication is currently in-person. Alternatively, the project could work in fewer communities.

- Additional activities and awareness is needed with village leaders and chiefs. It is necessary for village leaders/chiefs to be aware and support the project activities. The project will focus on activities to encourage further village leader input to the project. Active village leaders/chiefs have a positive affect on the participation of the community during the vaccination campaigns.
- Additional encouragement from the community vaccinators and village leaders to the communities to collect their flocks the day before the vaccination campaign is required. This will benefit both the farmers as well as the community vaccinators.
- Further dialogue with and experimentation by the target populations to improve poultry husbandry, including building appropriate chicken housing, providing alternative feed to the chickens is required.
- Provide the SDAE Massingir with a cooler box and ice packs for the transport and distribution of the I-2 ND vaccine.

4.2 Conclusion

The project has made significant progress in raising-awareness of ND and coordinating ND control activities in the target communities. The participation in vaccination campaigns is increasing, with the implementation of the second vaccination campaign (July campaign) currently taking place. The target communities in the LNP and the LNP support zone now have broader knowledge on the clinical signs of ND and the benefits of vaccinating against ND as well as issues of related to the nutritional value of eggs and chicken. Communities have begun increasing their participation in the vaccination campaigns.

The project team has worked diligently to ensure that the project is being completed successfully within the allocated budget. The project team has provided trainings in vaccination campaigns, handling and storing the vaccine to communities, refresher training/technical backstopping and collaboration with government colleagues on the implementation of activities.

ANNEX 1: FINANCIAL REPORT

Type of Expense	Description	Budget	Spent to 30 June 2009	Remaining
Salaries Field / Staff and Assistants	Staff and assistants	2,600.00	9,603.27	2,996.73
Purchased Services		-	-	-
Equipment \$250-\$5,000	Vaccinator's kits	720.00	250.68	469.32
Equipment over \$5,000		-	-	-
Expendable supplies and materials	Training materials	2,300.00	1,555.92	744.08
Repairs and maintenance	Equipment and office maintenance	3,600.00	507.98	3,092.02
Food/per diems	696 people and \$31.39/day	1,850.00	9,057.16	12,792.84
Communications	Meetings	800.00	-	800.00
Postage and freight		-	-	-
Travel	Airfares, vehicle transport	3,500.00	903.90	2,596.10
Miscellaneous	Bank fees	180.00	170.76	9.24
	TOTAL	45,550.00	22,049.67	23,500.33

ANNEX 2: PHOTOGRAPHS



Photo 1: Boy from Massingir Velho collecting chickens for the Vaccination campaign, April 2009. (Photo by Tanya Radosavljevic)



Photo 2: Community vaccinators performing theatre as part of their training in ND control activities, April 2009. (Photo by Ana Zandamela)



Photo 3: Chickens to be vaccinated during the April 2009 vaccination campaign. (Photo by Tanya Radosavljevic)



Photo 4: A girl from Mavoze participating in the 1st vaccination campaign, April 2009. (Photo by Tanya Radosavljevic)



Photo 5: A chick being vaccinated in Mavoze, April. (Photo by Kate Holt)



Photo 6: Photo of a village chicken scavenging for food scraps (photo by Tanya Radosavljevic)



Photo 7: Chicken being vaccinated with the I-2 ND vaccine, Massingir Velho, April. (Photo by Kate Holt)



Photo 8: Community vaccinator, Constanca Mongwe, and Dr Ana Zandamela (IRPC/KYEEMA) vaccinating a chicken during the April 2009 vaccination campaign in Massingir Velho. (Photo by Kate Holt)



Photo 8: Community vaccinator, Constanica Mongwe, and Armando Romão (IRPC/KYEEMA) vaccinating a chicken during the April 2009 vaccination campaign in Massingir Velho. (Photo by Kate Holt)



Photo 10: Children from Mavoze collecting chickens for the vaccination campaign, April. (Photo by Kate Holt)



Photo 11: Dr Brigitte Bagnol (IRPC/KYEEMA) conducting the PRA in LNP, January. (Photo by Ana Zandamela)



Photo 12: Community members participating in the PRA conducted in January. (Photo by Ana Zandamela)



Photo 13: Community members from Chinhangane, February. (Photo by Ana Zandamela)

Improvement of village poultry production by communities in the Limpopo National Park Support Zone in Gaza Province

Gaza Province (11 to 17 January 2009)

**By Brigitte Bagnol
Gender/Social Anthropology Advisor**



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ABBREVIATIONS

ACIAR	Australian Centre for International Agricultural Research
AHEAD	Animal Health for the Environment And Development
CAHW	Community Animal Health Worker
DPA	Provincial Directorate of Agriculture
HH	Household
IRPC	International Rural Poultry Centre
LNP	Limpopo National Park
ND	Newcastle disease
NGO	Non-governmental Organization
PME	Participatory Monitoring & Evaluation
PRA	Participatory Rural Appraisal
SDAE	District Services of Economic Activities
SPA	Provincial Agricultural Services
SPER	Provincial Rural Extension Services
SPP	Provincial Livestock Services
ToR	Terms of Reference
TOT	Training of trainers
USAID	United States Agency for International Development

In January 2009 1 US\$ = 27 MZM

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1. INTRODUCTION

Newcastle Disease (ND) is a high-risk factor to chicken-raising with a mortality rate ranging in village flocks between 50% and 100% (Mavale, 1995; Wethli, 1995; Harun and Massango, 1996). There is a consensus that vaccination campaigns have a vital role to play in the improvement of household food security and family income (Harun and Massango, 1996; Mavale, 1995; Wethli, 1995).

Improving the quality of poultry services, their reliability and accessibility to small farmers will offer an opportunity to increase inadequate household incomes and to curtail food shortages. The introduction of a thermotolerant Newcastle Disease vaccine into a region with an adequate extension package offers us a possibility to contribute to the relief of extreme levels of poverty registered in Southern African countries.

The International Rural Poultry Centre (IRPC) of the KYEEMA Foundation is undertaking activities that aim to improve village poultry production in and around the Limpopo National Park (LNP). The project is financed by AHEAD and has a duration of one year with a beginning in January 2009. Vaccination campaigns using I-2 will be carried out in April, July and November 2009. The project aims to train 28 vaccinators in 2009 (in the LNP and in the buffer zone or resettlement area).

The objectives of the projects are:

1. The control of Newcastle disease in village poultry;
2. Improved village poultry husbandry and management;
3. The development of poultry products suitable for sale to tourist centers; and
4. Improved household welfare, including improved nutrition and food security.

The LNP was created in 2000 and affects approximately 27,000 people. Of these, approximately 6,000 live inside the park and the remaining are located in the buffer zone. Households living inside the park will be resettled in the buffer zone or in the periphery of the park.

During the mission carried out between the 11 and the 17 January 2009, the gender/social anthropologist was requested to (see Annex 1: Terms of Reference (ToR):

- Conduct initial social/gender analyses in each of the target areas to gain an understanding of the community's readiness, local priorities, perceptions, attitudes, resources and capabilities, as well as an understanding of local farming system and the role of chicken raising within the system.
- Conduct project awareness in target communities.
- Study the perceptions of disease and disease control held by key stakeholders to assist with the preparation of effective information, education and communication material.
- Meet with farmers (male and female), extension workers, extension supervisors, livestock officers (*delegados pecuários*), veterinarians, trainers and respective NGO coordinators and appraise their readiness for the initiation of ND control activities.

- Facilitate the definition of baseline indicators by the target communities that will be used to monitor project progress.
- Assist with the identification of community members who are to be trained as community vaccinators against Newcastle Disease (ND).
- Prepare a final report within three weeks of the end of the input.

In order to carry out this task, several meetings were held with the District services of Livestock, vaccinators and beneficiaries of vaccination campaigns (see annex 2: List of people met and activities undertaken).

2. BACKGROUND INFORMATION ON THE LNP

The LNP created in 2000 spreads over three districts Chicualacula (59%), Massingir (35%) and Mabalane (15%). As the map below shows it has its border defined by the Limpopo river on the East, the Elephant river at South. There approximately 26,535 persons inside the park. The villages along the Xigweze river are the one whose population need to be displaced.

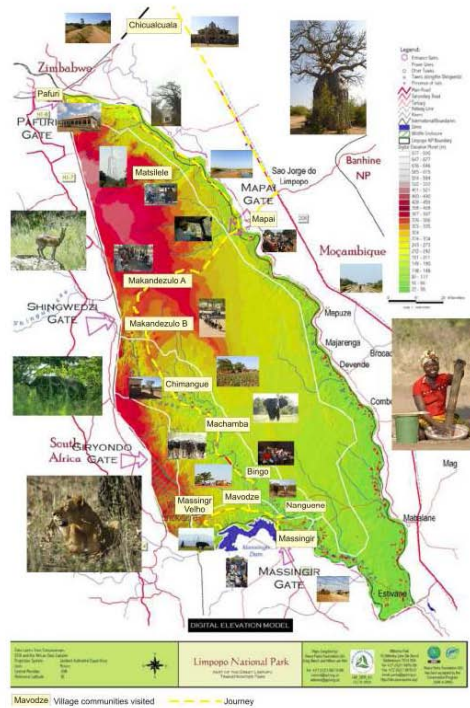


Figure 1. Map illustrating journey and places visited

Figure 1: Limpopo National Park (From: Ministry of Agriculture and Ministry of Tourism, 2007)

The notion of inside and outside the park is fluid. Strictly speaking only the villages along the Xiguese are inside. There is a buffer zone which is 5 km from the rivers inside the park. But for management purposes, the LNP considers all villages within the borders of the rivers as inside the park. The explanation given is that “it is impossible to stop the elephants and other animals 5 km away from the river”.

The population started to be displaced slowly and 18 families were installed in Chimbangane at the time of our visit.

Table 1: Population of the area (Source: SDAE 2008)

Administrative Post Mavoze (1)	Km	Parque	Families	Persons	Men	Women
Mavoze	22	D	256	2205	1063	1142
Massingir Velho	39	D	171	1233	641	592
Machamba	69	D	77	612	285	327
Bingo	34	D	57	490	208	282
Chimangue	91	D	88	548	245	303
Macavene	11	D	84	683	332	351
Madingane	36	F om	97	637	270	367
Machaule	20	F om	58	424	190	234
Chibotane	17	F em	173	1304	584	720
Total						
AP Tihovene (2)	Km	Parque	Agregados	Pessoas	Homens	Mulheres
Tihovene		F	177	5680		
Mucatine		F em	NA			
Chinyangane	12	F em	188	757		
Cubo		F em	NA			
Decada da Vitória		F em	NA			
Ringane		F em	NA			
Cahane		F em	NA			
Total						
AP Zulo (2)	Km	Parque	Agregados	Pessoas	Homens	Mulheres
Banga		F em	NA			
Chipandzo		F om	61	178?		
Chitare		F em	NA			
Cunze		F om	102	511		
Macaringue	80	F om	536	2320		
Maconguene		F om	122	419		
Macuachane		F om	82	322		
Manhiça		F em	NA			
Mucatine		F em	NA			
Munhamane		F om	198	484		
Tchake		F em	NA			
Zulo		F em	NA			
Total						

(1) Data given by the Chief of the Administrative Post

- (2) Data given by the LNP (from: community leaders 2003/2004)
 “em” means this side of the river (“esta margem”).
 “om” means other side of the river (“outra margem”)

3. EXPERIENCE WITH VACCINATION CAMPAIGNS AGAINST NEWCASTLE DISEASE

The district of Massingir was one of the first districts to benefit from ND control in 1998 through vaccination campaigns every four months carried out by community animal health workers (CAHWs) with the support of VetAID (a British NGO with a livestock development project in Gaza Province) (Bagnol, 2000). The vaccine chosen was NDV4-HR administered via eye drop, due to its low cost, ease of use and conservation, safety and easy substitution by Vaccine I-2, which has been produced in Mozambique since 1999 within the framework of the ACIAR Project (Pagani: 1999 quoted in Bagnol, 200).

From the beginning, payment of the vaccines was introduced in all areas, pamphlets having been distributed through the CAHWs to the poultry farmers, on the vaccination and the price. The price of 300 MZM per bird vaccinated covered the costs of the labour of the CAHW and the cost of the vaccine (Pagani: 1999 quoted in Bagnol, 200). At the end of 1998 audio cassettes about ND control produced by the ACIAR Project and INIVE were duplicated and distributed (with songs and radio programs in Portuguese, Shangana and Chitswa) to poultry farmers (Bagnol, 2000).

Some of the CAHWs still working in the area were trained in 1999 and vaccination campaigns have been carried out since then with support from the government services after VetAID left. However the activity is registering serious difficulty due to the lack of transport for distribution of the vaccine, the lack of a refrigerator at the district agriculture office to keep the vaccine and lack of per-diem for the staff to do the supervision in the field and contact the vaccinators/CAHWs. The vaccinators only carry out vaccination against ND while CAHWs are involved in all veterinarian activities such as the caring for cattle and goats.

In 2006 a total of 10 vaccinators were trained by district services. Table 2 below shows the evolution of the number of birds vaccinated during the 3 campaigns of 2007 and 2008. In Annex 3 the same data is available per village.

Table 2: Number of birds vaccinated with I-2 ND vaccine per campaign in 2007 and 2008

Village	March 07	July 07	Nov. 07	March 08	July 08	Nov. 08
PA Mavoze	2288	1820	1483	1154	0	723
PA Tihovene	1161	1559	866	238	1266	186
PA Zulo	238	431	0	0	0	0
GENERAL TOTAL	3687	3810	2349	1392	1266	909

The data available shows that the number of birds decreased from 6,687 in March 2007 to 909 birds in November 2008. In discussion with leaders and vaccinators it was explained that the last vaccination campaigns was very poor due to two consecutive bad harvests in September/November 2007 and 2008. Most of the birds were sold to buy food. Similarly cattle were sold showing the seriousness of hunger. Selling animals serves as a buffer and allows households to buy food. In addition to this factor, vaccinators mentioned the farmers' lack of money to pay for the vaccination and the lack of supervision by district services. Each bird vaccinated is charged 0.5 MZM. All the money is for the vaccinator/CAHW. The price of the vial is not charged to the vaccinator.

Experience of famers with vaccination is good especially in Mavoze and Massingir Velho. In Chinyangane the women complained that in 2007 after the vaccination campaign the chickens died and they suspect that the vaccination was carried out too late with an outbreak already underway in the village.

In the district of Massingir there are two extension officers who are already trained to carry out and supervise ND control.

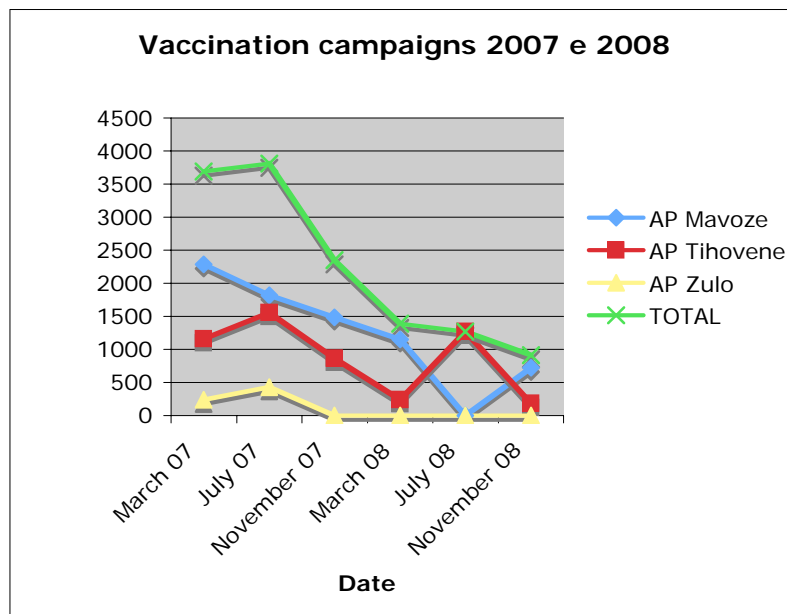


Figure 2: Graph of the number of birds vaccinated per campaign in 2007 and 2008

4. GENDER AND SOCIAL ANALYSIS AND CHICKEN RAISING CALENDAR

The focus group and PRA exercises carried out indicated that the harvest period is between March and April (see Table 1 below depicting the agricultural and chickens breeding calendar). It is during the harvest period from March to April that the chickens flock starts to grow again. Usually birds scavenge during the day and come back at night to sleep on the trees around the house or in a chicken house. During the months of

January and February there is no food for people or chickens, hence the low number of chickens available.

They characterise “*muzungo*” as a disease that kills most of the chickens every year and whose clinical signs are those of ND. It occurs generally between August and September. People seem to know the signs quite well. Most know about vaccination campaigns by drop in the eyes but not all are fully aware of the need to vaccinate three times per year. When the birds are sick they do not know anything, they let the birds die and then bury them. In Massingir Velho and Chinyangane, women said that they do not eat dead birds but said they eat them before they die: “before they die we kill and eat them”.

In Chinyangane men said that pox around the eyes occurs at the same time as “*muzungo*”.

In Massingir Velho the leaders said that 80% of the households have chickens and that they have only 2-3 chickens per house due to the bad harvest as explained above. There was an outbreak in 2005 but except in July 2008 vaccination campaigns were regularly carried out by the local male vaccinator.

Table 3: Agricultural and chicken-breeding activity in Limpopo National Park

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
ND								X	X	X		
Rainy season	X	X										X
Hunger	X	X					X	X	X	X	X	X
Harvest			X	X	X							
High n° of chickens/eggs				X	X							
Less chickens	X	X					X	X	X	X		

There are no passing traders that sell and buy chickens in the villages visited. According to participants the price of chicken is stable being 100 MZM for a big bird and 80 MZM for a small one. People never sell eggs. They also said that they never eat eggs in Chinyangane. It seemed that in Massingir Velho people were more likely to eat eggs. Participants explained that there is less strict division of the part of the chickens according to sex and age. However, they still mentioned that wings are for children, the legs for women, the liver for the mother and the gizzard for the father. They do not eat the head of the chicken.

People usually sell chickens when they need cash in their own neighbourhood or by going to the district capital. It is often by selling birds that a family can afford to pay the healer, the health centre or the school fees, buy soap and oil. The birds translate into petty cash, the smallest bank or purse which is managed by women. Women usually take care of the birds and manage the money to pay for the household expenses.

Based on people’s assessment of the evolution of the flock of chickens and on the fact that up to 90% of the flock is wiped out by ND every year (Wethli 1996:19), I developed a chart to show the importance of vaccinating before ND outbreaks. The same table also shows that the flocks reach their lowest levels between Christmas and New Year. It is during this period of celebration of the festive season that most rural families eat chicken for the first and only time in the whole year. This is also a period when hunger generally occurs, thus the importance of chicken vaccination to improve households’ cash availability to buy staple food.

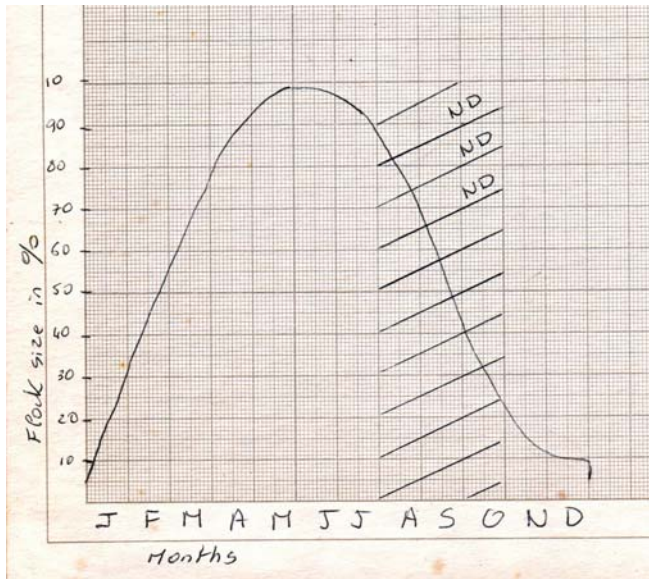


Figure 3: Evolution of flock size during the year and period of incidence of ND Limpopo National Park (From: Ministry of Agriculture and Ministry of Tourism, 2007)

Table 4: Recommended vaccination calendar against ND using I-2 vaccine

Months	J	F	M	A	M	J	J	A	S	O	N	D
I-2												

In most of the provinces of Mozambique, according to data collected over the last 10 years, ND outbreaks occur in the months of August, September, and October and sometimes continuing into November.

Most of the activities related to chicken raising are mainly under the responsibility of women and girls. The birds usually live outside and roost in the trees. As a consequence they have difficulties to isolate the chicken when there is an outbreak and to catch the chickens to vaccinate.

Table 5: *Activities carried out by men and women related to poultry raising*

Activities	Adult men	Adult women	Boy	Girl	Older men	Older women
Large species of animal (general)	×		×			
Small species (general)	×		×			
Chicken raising	×	×	×	×	×	×
Give feed		×				
Give water		×				
Build the poultry house	(1)					
Prepare the place for the hen to brood	×	×				
Clean the house		×				
Receive information on poultry raising	×	×				
Control birds	×	×				
Decide when to sell birds	(×)	×				
Decide when to sell eggs	×	×				
Decide to vaccinate		×				
Open and close the poultry house door		×				
Collect eggs		×				
Eat birds	×	×	×	×	×	×
Eat eggs						
Take care of sick birds	×	×	×			
Decide if vaccination was positive		×				
Slaughter the bird		×		×		
Cook the birds		×		×		

(1) The birds live in the trees

5. MAIN PROBLEMS WITH CHICKEN RAISING

The main problems related to chicken raising are related to ND although there was vaccination carried out in 2007 and 2008.

Table 6: Prioritization of chickens raising problems

Problems	Men(%) Chinyangane	Women(%) Mavoze	Women(%) Chinyangane
Newcastle	32.4	75	51
Predators	15.5	0	
Fleas	2.5	0	5
Worms		0	
Thieves		0	
Snakes	7.7	0	
Intestinal parasites	7.7		
Diarrhea	10.3		
Ticks		25	5
Fowl pox	23.3		39
	100	100	100

6. OTHER ANIMALS AVAILABLE AND SALE AND CONSUMPTION

In addition to chickens participants explained that they also have cattle, goats, sheep and pigeons. The most valuable animals are cattle but not everybody owns them. Goats are the most popular after the chickens. Goats also can be sold in time of need. Thus, even if cattle are most valued by men and women they mentioned that chicken and goats are more important for their livelihood. Cattle are valued both because they allow men to give bride-wealth to the bride family (“*lobolo*”) and can be sold in time of hunger. Animal traction is also quite common and cattle are used to plough and to cart water, the harvest, construction material and other goods.

However, the displacement of people outside the park and the possible loss of the communal area for grazing the cattle or access to lower quality and overcrowded areas is an issue of much concern. Sheep and pigeons even if mentioned are extremely rare. People also mentioned that they have dogs. In relation to bees, it seems that nobody harvest the honey and it was not possible to see traditional beehives in trees as it is common in other regions.

Table 7: *Sale and consumption of animals in 2008 in Mavoze (Focus Group with seven women)*

Animal	Consumption	Sale
Chicken	Once a week	1 - 10 birds
Duck	Once a month	never
Cattle	Never	3 - 5 because there was hunger
Goats	Twice a year on the 25 th of December and the 1 st of January	5 - 10 last year because of hunger
Fish	Every day more often fresh than dry	They buy close to the dam; they do not sell

In Massingir Velho it seems that people are better off than in Chinyangane with higher intake of chicken and fish per week. In Chinyangane, women said they can spend two to three weeks without eating fish or even a whole year because they do not have money to buy it. Chickens were not vaccinated in Chinyangane in March and July 2008 which might explain the low consumption and availability of bird to eat and sell.

Table 8: *Sale and consumption of animals in 2008 in Chinyangane (Focus Group with seven women)*

Animal	Consumption	Sale
Chicken	2 - 3 per year	Whenever there was hunger
Duck	Once a month	Never
Cattle	Never only few eat when there is a marriage	Never it is to work in the fields
Goats	Twice a year on the 25 of December and the 1 st of January and when there are visitors	Only one person sold 3 in 2008
Fish	3 times per year	They buy close to the dam they do not sell

People living in the park complained that since the LNP was created and the elephants allowed to circulate they invade their fields and never again they had a good harvest. “It is hunger every year” they complained. Every body complained of the very bad harvest in the last three years. In Chinyangane, the women explained that this year they were expecting a good harvest. According to them, due to an accident in the dam, the doors were opened flooding and fertilizing the fields along the river.

Table 9: *Sale and consumption of animals in 2008 in Mavoze (Focus Group with ten men)*

Animal	Consumption	Sale
Chicken	Once per week	Never
Cattle	Twice in December	4 per year
Goats	Four times a year	3 or 4 per year
Fish	Daily	They buy close the dam they do not sell

7. DISTRIBUTION OF VACCINATORS

During the mission the team met with the SDAE, community leaders and vaccinators to develop the most suitable plan for the implementation of the ND control. The table below shows the distribution of vaccinators by village and sex.

Table 10: *Proposed distribution of vaccinators*

PA Mavoze	Families	Cur. Vacs	New vacs	Women	Vaccinators	CAHWs
Mavoze	256	2	0	0		Fillimone Machaule (1998) James Geren
Massingir Velho	171	2	0	1		Domingos Sabonete
Machamba	77	1	1	1		
Bingo	57	1	0	1		Elisabeth
Chimangue	88	1	1	0		1 homem na AS?
Macavene	84	1	1	1		David Mongwe (a substituir/doença)
Madingane	97	1	1	1		David Manjaze (nunca vacinou galinhas)
Machaule	58	1	1	0		
Chibotane	173	2	1	1	1 mulher (2006)	
Total		12	6	6	1	
PA Tihovene	Agregados	Tot	Nov os	Mulheres	Vaccinadores	Promotores
Tihovene	177	2	2	1		
Mucatine	NA	0	0	0		
Chinyangane	188	1	0	0	Pedro Kuna (2006)	
Cubo	NA	2	2	1		
Decada da Vitória	NA	0	0	0		
Ringane	NA	0	0	0		
Cahane	NA	0	0	0		
Total		5	4	2	1	

Table 10: *Proposed distribution of vaccinators (Cont.)*

PA Zulo	Agregados	Tot	Nov os	Mulheres	Vacinadores	Promotores
Banga	NA	0	0	0		
Chipandzo	61	0	0	0		
Chitare	NA	1	0	0	1 mulher	
Cunze	102	0	0	0		
Macaringue	536	2	0	2	2 mulheres	
Maconguene	122	0	0	0		
Macuachane	82	0	0	0		
Manhiça	NA	1	0	0	Ngovene Rochete	
Mucatine	NA	2	2	2		
Munhamane	198	0	0	0		
Tchake	NA	0	0	0		
Zulo	NA	1	1	1		
Total		7	3	5	4	

8. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

1. Both community and district services are welcoming the support to improve the ND control.
2. Vaccination against ND has occurred since 1998 in the district and there is a good preparation for the activity. It was carried out in 2007 and 2008 but there is a lack of supervision and support to extension workers and veterinarian technician to monitor the activities and carry out refreshment training regularly.

RECOMMENDATIONS

1. Carry out the training of 28 vaccinators (50% of women) as soon as possible working when ever possible with existing promoters and vaccinators.
2. Provide a refrigerator to the SDAE to store the vaccine.
3. Ensure that the community leaders from the Administrative Post and the secretary and of each village are invited to an afternoon meeting to support the activity and receive basic information on ND control.
4. Realize a viability study to commercialize organic village chicken from LNP to Maputo and inside the park.

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ANNEX 1: TERMS OF REFERENCE

Position: Gender/Social Anthropology Advisor

Location: Limpopo National Park

Tasks:

- Conduct initial social/gender analyses in each of the target areas to gain an understanding of the community's readiness, local priorities, perceptions, attitudes, resources and capabilities, as well as an understanding of local farming system and the role of chicken raising within the system.
- Conduct project awareness in the target communities.
- Study the perceptions of disease and disease control held by key stakeholders to assist with the preparation of effective information, education and communication material.
- Meet with farmers (male and female), extension workers, extension supervisors, livestock officers (*delegados pecuários*), veterinarians, trainers and respective NGO coordinators and appraise their readiness for the initiation of ND control activities.
- Facilitate the definition of baseline indicators by the target communities that will be used to monitor project progress.
- Assist with the identification of community members who are to be trained as community vaccinators against Newcastle Disease (ND).
- Prepare a final report within three weeks of the end of the input.

ANNEX 2: LIST OF PEOPLE MET AND ACTIVITIES UNDERTAKEN

Date	Activity
Sunday 11 January	<ul style="list-style-type: none"> • Flight Johannesburg/ Maputo • Trip Maputo/Xai-Xai with Ana Zandamela to fetch Agostinho de Nazare, SPP Gaza • Trip Xai- Xai /Massingir
Monday 12 January	<ul style="list-style-type: none"> • Meeting with Ana Zandamela; Agostinho de Nazare and Francisco Passe, Veterinary in charge in Massingir SDAE • Trip to Massingir Velho to prepare work with Ana Zandamela; Agostinho de Nazare and Francisco Passe. Meeting with promotor Domingo Sabonete and Simão Manuel Sitoi secretary of the village to prepare meeting with leaders • Trip to Mavoze with Ana Zandamela; Agostinho de Nazare and Francisco Passe and meeting with Filimone and Thomas (promoters) and the Administrative Post Chief Boaventure to prepare meeting with leaders • In Macavene meeting with David Mongwe (promotor) to prepare meeting with promoters
Tuesday 13 January	<ul style="list-style-type: none"> • Meeting in Mavoze with Ana Zandamela; Agostinho de Nazare and Francisco Passe and with 4 promoters to explain future activities and discuss their past activities (Filimone, Thomas, James and David) • Meeting in Mavoze with Ana Zandamela; Agostinho de Nazare and Francisco Passe and with leaders (Administrative Post chief, Boaventure; president of locality and secretary of village) and promoters (same as above) to explain future activities • Meeting with Ana Zandamela; Agostinho de Nazare and Francisco Passe and with leaders in Massingir Velho to explain the future activities. 16 men participating including Domingos the promotor, the traditional leader, the leader and the secretary of the village • Meeting with Leaders in Chibangane Brazão Simangaisse Manhique , secretary; Daniel Cossene Boven, leader; Pedro Josia Cune, vaccinator to prepare focus group discussion for PRA with Ana Zandamela; Agostinho de Nazare and Simone (livestock technician from SDA Massingir) • Meeting with Ana Zandamela, Francisco Passe, Agostinho de Nazare and Simone to discuss distribution of vaccinators to be trained
Wednesday 14 January	<ul style="list-style-type: none"> • FGD for PRA with 7 women in Massingir Velho with Ana Zandamela and Agostinho de Nazare • Meeting with staff in the park to get population data • Brief introduction to LNP delegate • FGD for PRA with 7 women in Mavoze with Ana Zandamela; Agostinho de Nazare
Thursday 15 January	<ul style="list-style-type: none"> • Meeting with with Ana Zandamela; Agostinho de Nazare to define distribution of vaccinators • FGD for PRA with men in Mavoze carried out by Ana Zandamele. • FGD for PRA with women in Chibangane with Agostinho de Nazare • FGD for PRA with men in Chibangane with Agostinho de Nazare
Friday 16 January	<ul style="list-style-type: none"> • Meeting with Ana Zandamela; Agostinho de Nazare, Simone and Francisco Passe, Veterinary in charge in Massingir SDAE to give feedback on mission work and to discuss ways forwards and Ana Zandamela next visit to prepare training • Trip back to Xai- Xai to drop Agostinho de Nazare

	• Trip back from Xai-Xai to Maputo
Saturday 17 January	• Brigitte Bagnol fly back to Johannesburg

Contacts

Massingir Velho

Community leader: William Valoi : 828252382

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Secretary, Simão Manuel Sitei: 828732325

Mavoze

Promotor, Filimone: 826141078

Promotor, Tomas: 825168333

Chief of the Administrative Post: 828970654

Chimbandane

Vaccinator, Pedro Josia Cune: 823647580

Leader, Daniel Cassene Bovene: 825850475

Secretary, Brazão Simangaisse Manhique: 826143765

Secretary Neighbourhood 1, Julião Manuel Manhique: 8298217528

ANNEX 3: BIRDS VACCINATED PER VILLAGE AND CAMPAIGNS IN 2007 AND 2008

Aldeia	2007			2008		
	Março	Julho	Novembro	Março	Julho	Novembro
PA Mavoze						
Bingo	92	0	0	0	0	0
Chibotane	435	246	0	0	0	0
Chimangue	0	0	0	0	0	0
Macavene	312	223	279	0	0	0
Machamba	0	0	0	0	0	0
Madingane	0	0	0	0	0	0
Massingir Velho	708	676	330	552	0	280
Mavoze	741	675	874	602	0	443
Muchaule	0	0	0	0	0	0
TOTAL	2288	1820	1483	1154	0	723
PA Tihovene						
Cahane	143	0	0	0	0	0
Chinyangane	712	562	673	0	0	186
Cubo	0	147	0	0	0	0
Decada da Vitória	0	0	0	0	0	0
Macaringue	306	850	193	238	0	0
Mucatine	0	0	0	0	0	0
Ringane	0	0	0	0	0	0
Tihovene	0	0	0	0	1266	0
TOTAL	1161	1559	866	238	1266	186
PA Zulo						
Chipandzo	0	0	0	0	0	0
Chitare	162	220	0	0	0	0
Cuze	0	0	0	0	0	0
Maconguene	0	0	0	0	0	0
Macuachane	0	0	0	0	0	0
Manhiça	0	0	0	0	0	0
Munhamane	0	0	0	0	0	0
Tchake	0	0	0	0	0	0
Zulo(1)	76	211	0	0	0	0
TOTAL	238	431	0	0	0	0
TOTAL GERAL	3687	3810	2349	1392	1266	909

(1) e Manhiça em Março 07

ANNEX 4: TABLES FOR THE MONITORING AND EVALUATION SYSTEM

1- Collection of data from each campaign

Table 1. Households Involved in the Vaccination Campaign in XXXX by vaccinator and neighbourhood

Vaccinators/group of vaccinator	N° of HH in village/ neighborhood	N° HH vaccinating	% HH vaccinating
Vaccinator/group 1			
Vaccinator/group 2			
Vaccinator/group 3			
Vaccinator/group 3			
Vaccinator/group 4			
Total			

When each vaccinator or group of vaccinators work in a single clearly identified village or neighbourhood it is possible to obtain the number of Households (HH). Then it is possible to obtain the % of Households vaccinated in this village or neighbourhood. This provides an idea of the coverage of the vaccination.

Table 2. Average number of chickens vaccinated per vaccinator/group and per household in the Vaccination Campaign in XXXX by vaccinator/group

Vaccinators/group of vaccinator	N° vaccinators	N° HH vaccinating	N° chickens vaccinated	Average n° of chickens vaccinated per HH	Average n° of chickens vaccinated per vaccinator/group	N° of vials
Vaccinator/group 1						
Vaccinator/ group 2						
Vaccinator/ group 3						
Vaccinator/ group 3						
Vaccinator/ group 4						
Total						

2. Analysis per Administrative Post/village

Table 3. Households Involved in the Vaccination Campaign in XXXX by vaccinator and neighbourhood

AP/ village	N° of HH in village/ neighborhood	N° HH vaccinating	% HH vaccinating
Total			

Table 4. Composition of beneficiaries of the vaccination campaign XXXX per village

AP/ village	N° vaccinators	N° HH vaccinating	N° chickens vaccinated	Average n° of chickens vaccinated per HH	Average n° of chickens vaccinated per vaccinator/group
Total					

3. Data from different campaigns

Table 5. Number and Percentage of Households Registering their Chickens during the XXX Vaccination Campaigns

	N° HH/ villages	1 st campaign		2 nd campaign		3 rd campaign	
		N° of HH	% of HH	N° of HH	% of HH	N° of HH	% of HH
Village 1							
Village 2							
Village 3							
Village 4							
Village 5							
Total							

Table 6. Data from the campaigns carried out in XXXX per Village

	N° of vaccinators	N° of households involved	N° of chickens vaccinated	N° of chickens / household	Average n° of chickens vaccinated	N° of vials

1 st campaign 2005						
2 nd campaign 2005						
1st campaign 2006						
2 nd campaign 2006						
1 st campaign 2007						
2 nd campaign 2007						
1 st campaign 20078						
2 nd campaign 2008						

Basic indicators

Indicators	Periodicity	Target	Qualitative	Quantitative	Means of verification
N° of chickens vaccinated/HH/ campaign	Each campaign	8 (in July)		X	Vaccination records
Average N° of birds per vaccinating HH in project area	yearly	8		X	Vaccination records
Total number of households in the neighborhood X where vaccination is carried out	idem				Data from population census
% of households vaccinating/village	idem	60%	X		Vaccination records; local govt records
% of vaccinators trained and carrying out the vaccination	idem	80%		X	Vaccination records
% of vaccinators trained dropping out	idem	20%		X	Vaccination records
% of female vaccinators	idem	50%		X	Vaccination records
Average number of chickens vaccinated per vaccinator	idem	300		X	Vaccination records
% of HH raising chickens in project area	yearly	80	X		PRA; Local & govt records
Total number of Household with orphans	Per campaign			X	Vaccination records
Total number of households with orphans raising chickens	idem	100%		X	Vaccination records
% of farmers knowing and accepting that disease in their chickens is caused by an infectious agent	yearly	60%	X		PRA

ANNEX 5: THE POPULATION OF LNP

(fonte: líderes comunitários 2003/4)

DISTRICT	ADMINISTRATIVE POST	VILLAGE		FAMILIES	HABITANTS
Chicualacuala (1.583 Famílias e 6.615 Habitantes)	Pafuri (817 Famílias e 3.303 Habitantes)	1	Pafuri (Chicumba e Malhangalene)	100	328
		2	Mbuzi	64	196
		3	Ndlala	39	191
		4	Muguambane	103	420
		5	Chitsutsuine	83	363
		6	Salane	71	392
		7	Chicoro	40	165
		8	Mbeti	53	215
		9	Matsilele	85	455
		10	Sehogone	53	170
		11	Makandazulo 'A'	26	80
		12	Makandazulo 'B'	100	328
	Mapai (766 Famílias e 3.312 Habitantes)	13	Lissenga	121	673
		14	Chicumbane	268	1226
		15	Tchoe	113	437
		16	Panhame	120	336
		17	Nwamavique	54	231
		18	Hassane	50	242
		19	Chipeluene	40	167
Massingir (2.534 Famílias e 11.467 Habitantes)	Zulo (1.096 Famílias e 4.234 Habitantes)	20	Macaringue	536	2320
		21	Maconguele	122	419
		22	Chipanzo	61	178??
		23	Munhamane	198	484
		24	Cunze	102	511
	Mavoze (1.438 Famílias e 7.233 Habitantes)	25	Macuachane	82	322
		26	Madingane	78	359
		27	Chibotane	262	972
		28	Malhaule	112	402
		29	Macavene	128	691
		30	Mavoze	345	2039
		31	Massingir Velho	206	1105
		32	Bingo	105	548
		33	Machamba	107	632
Mabalane (2.604 Famílias e 8.453 Habitantes)	Combomune (667 Famílias e 2.692 Habitantes)	34	Chimangue	95	485
		35	Muchacha/Dzovo	24	104
		36	Chiconzo	98	397
		37	Mvundla	37	129
		38	Matafula	83	333
		39	Hassane	68	356
		40	Macuva/Mahawane	31	182

		41	Matsambo	240	960
		42	Zulo	82	231
	Hlavene (1.941 Famílias e 5.761 Habitantes)	43	Ngacha/Chirete	221	618
		44	Ndope/Chivanzane	250	832
		45	Dgelene/M'wanzo	194	620
		46	Nyimbayinwe A/Tsinane	308	801
		47	Nyimbayinwe B/Nhanganhanga	212	701
		48	Chimangue	89	251
		49	Hlavene/Muvamba	303	949
		50	Nkumba	82	221
		51	Maguezi/Chinhezane	89	257
		52	Mahanuque/Psitima	193	511
	TOTAL*	52		6,721	26,535

IMPROVEMENT OF VILLAGE POULTRY PRODUCTION BY COMMUNITIES IN THE LIMPOPO NATIONAL PARK SUPPORT ZONE IN GAZA PROVINCE, MOZAMBIQUE

FIRST TRAINING OF COMMUNITY VACCINATORS,
EXTENSION WORKERS AND SUPERVISORS IN NEWCASTLE
DISEASE CONTROL, HPAI PREVENTION, APPROPRIATE
HOUSING AND SUPPLEMENTARY FEEDING

Training Report submitted to KYEEMA Foundation



Report by: Filomena dos Anjos
Technical Advisor

March, 2009

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I would also like to express my deep gratitude to my colleagues in the IRPC/KYEEMA Maputo office, in particularly Ana Zandamela and Armando Romão for the selection of Village Area Groups (VAGs) and preparation of 4 days training of the community vaccinators, extensionistas and supervisors.

1. INTRODUCTION

The improvement of village poultry production by communities living inside Limpopo National Park (LNP) is vital to the long-term conservation and development success of this core Mozambican section of the Great Limpopo Transfrontier Conservation Area (GLTFCA). Increased productivity, brought about through empowerment of local people with the concepts and tools underlying community-based animal health care, will in turn have positive impacts on the health and welfare of both the people themselves and the wildlife populations living alongside them. Village chickens can be found in all developing countries, including Mozambique and play a vital role in many poor rural households (Alders 2004; Alexander *et al.* 2004; Spradbrow 1993/94). They provide scarce animal protein in the form of meat and eggs and can be sold or bartered to meet essential family needs such a medicine, clothes and school fees.

The overall goal of the project is to contribute to food security and poverty alleviation through the improvement of husbandry practices and disease control related to village chickens. One of the major constraints to the production of village chickens in Mozambique is Newcastle disease (ND). To ensure that ND is controlled in a way that will be least expensive to farmers, it is important that farmers themselves learn how to vaccinate chickens against the disease as well as how to raise their chickens in a way that is more likely to keep them healthy.

In order to achieve the goal one of the activities planned is training of community vaccinators, extension workers and supervisors in ND control. The training of community vaccinators is just one part of a comprehensive ND control program. In order for the control of ND to make a long-term contribution to the wellbeing of the village chicken, farmers and their families, control activities must be well coordinated.

The aim of this document is to report on the training on the control of ND and prevention of the Highly Pathogenic Avian Influenza (HPAI), as well as the supplementary feeding for the chickens in the LNP. The training was conducted from 17th to 20th of March. Twenty-five (25) vaccinators from twelve villages, namely Massinger Velho, Mavodze, Macavene, Machaule, Chibotana, Madingane, Chitare, Zulo, Manhica Tihovene, Cubo, Mucatine, Xinhangane, and Macarringue were trained.

2. TRAINING COURSE

The training was carried out in Tihovene village, in the locality of Massingir. Six (6) vaccinators live inside the park and will cover 5 villages; the remaining fifteen vaccinators are located outside of the park and will cover 7 villages. Ten vaccinators are women and 10 are men. The age average age of the women was about 36.6 years old for the men 39.9 years.

Sixteen (16) community vaccinators, five promoters and two extension officers, were trained on extension activities for ND control, HPAI prevention, appropriate housing and supplementary feeding.

Table .1 below presents the name, age, and place of the participants

Table. 1. Participants trained

	Name	Age	Place	Position	Years of work experience
1	Domingos Sabonete	39	Massingir Velho	Promotor	6
2	Constancia Mongwe	30	Massingir Velho	Community vaccinator	
3	Filimone Machaule	50	Mavodze	Promotor	11
4	Tomas Samisone	42	Mavodze	Community vaccinator	
5	Vodia Chirindza	31	Macavene	Community vaccinator	
6	Jose Mongwe	58	Machaule	Community vaccinator	
7	Frazaio Ngulele	49	Chibotana	Promotor	8
8	Racelina Ngovene	46	Chibotana	Community vaccinator	3
9	David Mandlaze	47	Madingane		
10	Samaria Mbalane	36	Chitare	Community vaccinator	3
11	Clemência Mundlovo	28	Zulo		
12	Rochete Ngovene	43	Manhiça	Promotor	6
13	Pedro Jossias Cuna	45	Xinhangane	Community vaccinator	
14	Alda Abilio Chivoze	40	Tihovene	Community vaccinator	
15	Alcidio Novela	23	Tihovene	Community vaccinator	
16	Simiao Zitha	46	Tihovene	Community vaccinator	
17	Hermnia Manuel	47	Cubo	Promotor	5
18	Julio Mate	68	Cubo	Community vaccinator	
19	Cacilda Mundlovo	26	Mucatine	Community vaccinator	3
20	Sergia Cossa	24	Mucatine	Community vaccinator	
21	Generosa Valoi	48	Macarringue	Community vaccinator	3

22	Alberto Nhatumbo		(SDAE)	Extensionist officer	
23	Juvencio Tomo		(SDAE)	Extensionist officer	10

The participants that live far away from the Tihovene village arrived day before the training course. The opening ceremony was driven by Mr Passes the livestock technician of SDAE. During his speech, Mr Passes appealed to the participants to profit from the training in order to help their community on mitigating ND and towards strengthening peoples' livelihoods towards relieving poverty.

The session started by introducing each other and following by discussing the time table (see Table.2.) and the preferred language for conducting the sessions.

Table 2. Time table

Morning	Break	Lunch
08:00- 10:00 h	10:00- 10:20 h	
10:30- 12:30 h		12:15 -13:15h
Afternoon		
13:15- 15 :00 h	15:00- 15:20	
15:20 - 16:30		

The training was conducted using Portuguese and the local language Changane.

After introduction some participants shared their experiences as community vaccinators, which is summarized below. During the sessions the following constraints facing the implementation of vaccination campaigns:

- i. Lack of the community's collaboration in the collection of chicken during the vaccination campaigns;
- ii. Farmers are reluctant to pay for the service;

- iii. In Madingane village there is a large number of chickens but people do not support the campaigns and there is a high number of mortality;
- iv. Some people do not believe that the chickens can be vaccinated;
- v. Reluctance in the participation of the vaccination campaigns;
- vi. Lack of chicken housing; and
- vii. Lack of collaboration and support of the community leaders in the sensitization of the campaigns.

It was decided that during the training the group work together to provide solutions in how to overcome all this constraints.

In order to know what the participants hoped and anticipated to learn during the course of the Training of Trainers (ToT) the participants were divided into four groups. The expectations are mapped on Table 3.

Table 3. Training expectations

Groups	Expectations
1	<ul style="list-style-type: none"> ▪ Ways of combating the diseases that attack chickens. ▪ Forms of influencing the population to adhere the vaccination campaigns.
2	<ul style="list-style-type: none"> ▪ How the chicken gets the disease. ▪ How to identify healthy and sick chickens. ▪ How can ND be identified. ▪ To know the I-2 ND vaccine against ND. ▪ To know how to apply the vaccine. ▪ To know when it should be applied. ▪ How to take care of the vaccine to guarantee good storage and conservation.
3	<ul style="list-style-type: none"> ▪ Why the vaccine is not put in the chicken feed. ▪ Why a sick chicken cannot be vaccinated. ▪ Why the vaccine only has validity of 2 days after the opening of the flask. ▪ Why sick or dead chickens are not eaten. ▪ What are the forms of transmission of the disease.
4	<ul style="list-style-type: none"> ▪ To have knowledge how to vaccinate. ▪ To have the veterinary agents' support in the community's awareness and knowledge in the following areas: <ul style="list-style-type: none"> ▪ Importance of the vaccine.

	<ul style="list-style-type: none"> ▪ Constructions of poultry house the value of the creation. ▪ Ducks do not have vaccine. ▪ Improvement of the conservation of the vaccine.
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During the session the IRPC/KYEEMA technical trainer explained that she would try and respond to all of the issues raised by the participants during the 3 days of training. The IRPC/KYEEMA technical trainer advised that by the end of the training each community vaccinator should be able to:

- a. Identify a healthy and sick chickens;
- b. Recognize the signs of ND and other diseases like HPAI;
- c. Safely handle a chicken;
- d. Use the syringes, needles, and eye-droppers to administer the I-2 ND vaccine and their roles;
- e. How to clean the material;
- f. Read and check the number of doses of ND vaccine per vial and the expiry date of the vaccine;
- g. Control the ND (organize ND campaign, mobilization of farmers, data collection, and vaccination);
- h. Know how to preserve the I-2 ND vaccine;
- i. Determine the price of the vaccine;
- j. Knowledge on general husbandry including feeding;
- k. Planning vaccination campaigns; and
- l. Monitoring and evaluation following the vaccination campaign.

2.1. Village chickens and Community vaccinators

To start the session basic material was distributed. During the session a discussion was held on the characteristics of successful a community vaccinator. A summary of the participants' discussion was:

- The vaccinator should be someone who know how to vaccinate a chicken;
- Should be able to communicate with farmers;
- Should be hard working; and

- Should have knowledge about ND.

And it was added by the facilitator that:

- Should be selected and respected by farmers;
- Should be able to read, write and do basic calculations;
- Should be able to travel long distances as required to purchase vaccine and to vaccinate chickens; and
- Able to protecting his/her own chicken from ND.

2.2. Introduction to Newcastle disease (*Muzungu*)

In this session participants in four (4) groups discussed and described the differences between sick and healthy chickens and the different local treatments or remedies that the farmers use for reduce the mortality. Coming back to the sessions, the groups presented their findings. The results are presented in the two tables below (Table.4. and Table .5).

Table. 4. Sick chicken and treatment

Groups	Sick chicken	General Treatment
1	Swollen eyes Wounds in the mouth Diarrhea	Garlic + piri- piri Omo/soap
2	Yellowish feces Swelling of the feet Swelling of the eyes	Dzanga la nguwa Garlic soap
3	Swelling of the eyes Blindness	Garlic Soap Aloe Piri piri Dzanga la nguwa
4	Diarrheas Blindness bite of fleas	

Table. 5. Signs of ND

Groups	Chicken with Muzungu (ND)
1	Weakness, whitish feces, do not eat.
2	Coat dress, sleepiness, green feces, nasal discharge, crooked head and neck, swelling of the feet.
3	Weakness, don't eat, hunched over, salivation, crooked neck
4	Hunched over, green and liquid feces. Crooked necks, weakness, do not eat. Cough, bristled feathers, swollen head. Dribble

After the group's presentations, pictures of sick and healthy chicken were shown for more participatory discussion. Apart from ND, the participants talked about other problems facing chickens and ducks, mainly: internal and external parasites and high mortality. All participants were sure that ND is the disease that kills more chickens in the village followed by external parasites.

HPAI was also presented as other disease that is able to cause high chicken mortality. The main signs and how to deal with were presented. At the end it was explained how the chickens can be sick and how ND can be spreads from chicken to chicken. In the some it was mention that like AIDS there is no treatment for ND. The only way to avoid ND is the prevention, by vaccinating all chickens the mortality will be reduced and the number of chicken will increase.

2.3. Working with farmers and handling chickens

Many of the participants as previously mentioned have already been engaged with vaccination campaigns. However it was important to discuss with the whole group how to interact with farmers in order to have successful vaccination campaign. This was highlighted by the group as a key constraint. The discussion focused around mobilization and awareness-raising of farmers, taking in account that all work should be coordinated with

community leaders. It was highlighted also how important it is that the farmers approach should be implemented according to the region and the cultural issues and sensitivities. The community vaccinators should have a good understanding and respect of farmers work. It means that it is important to respect them, as well as their time and commitment.

Concerning on how to handle a chicken, two chickens were bought to use for the training and for demonstration. This part of the session was easy to explain and demonstrate as many vaccinators have experience with chicken handling.

As part of the training the participants learned how to use the tools (syringes, needles and eye-droppers) and to read carefully the vaccine label in order to get all the important information about the vaccine.

2.4. Introduction to vaccines and vaccination

The participants were informed that vaccines protect animals and people from getting diseases. The means for the prevention of the disease was carefully discussed by participants. To provide a more in-depth understanding of vaccination, the trainers used children's vaccination as an example. The participants formed an interesting discussion about the difference between children vaccination and chickens vaccination. This was the moment to revise the first day where the participants were asking why the vaccine is not given through the feed. The community vaccinators were taught that there are various ways of administering the vaccine, such as through drinking water, eye drops, through injection, or aerosol spray. The IRPC/KYEEMA technical trainer explained to the trainers that vaccinating a bird is like training soldiers to defend an area and it takes about 7 to 14 days for the vaccine to become effective. For complementing the picture from the manual was shown to provide a visual explanation from the administration and entrance of the vaccine to the development of adequate protection

against ND. It was also shown that the vaccine campaigns should occur 3 times (March, July and November) per year. It was recommended that the I-2 vaccine should be administered to the birds using an eye drop, because it is the best way to making a stronger defensive response to the bird and it is easy to utilize.

Community vaccinators were also trained on how to use the I-2 vaccine as recommended that the best method to administer the vaccine is by putting drops in the chicken's eyes. Taking into consideration the dosage regime there is need to regard to the following:

After open, see within two days according to the following guide:

Day 1: 1 eye drop per chicken.

Day 2: 2 eye drops per chicken.

Day 3: Throw away the flask.

It is important to mention that the vaccinators were not taught to dilute the vaccine as to not confuse vaccinators as the vaccine was presented on liquid form not in freeze dried form. There was further discussion around the vaccine label as well as the transportation, storage and conservation of the vaccine.

For closing the session the participants were trained on how to determine the field vaccine price. A practical session on using a thermometer to compare temperatures of the vaccine transportation and conservation was done. The practical demonstration of the vaccination of chickens conducted using chickens from producers/farmers around Tihovene village. A total of 27 chickens were vaccinated as part of the ToT.

2.5. Extension materials for ND control and other diseases control

The ranges of extension material available to assist vaccinators were used for the ToT. With regard to other disease control activities, there was a discussion again about bird flu (HPAI). The community vaccinators had a lack of information about the disease and how to control. Thus, it was a good opportunity to explain the simple measures that can be use to control the HPAI. In groups it was possible to show in the computer chicken slides with HPAI and the stronger hemorrhage of the different organs as well as the different external and internal chicken parasites

2.6. General husbandry (poultry house and feeding)

Lack of poultry housing was one of the problems addressed by the community vaccinators because it is difficult to catch all birds to be vaccinated. There was opportunity to discuss the different types of houses and problems regarding the size of the house. Good husbandry practices were discussed such as quarantining new birds for 14 days at the village or household level; burying dead birds in a pit; keeping night housing clean; and providing birds with supplementary feed and water to improve chickens nutritional status. Community vaccinators were advised to be very careful and report to the veterinary authorities should their vaccinated birds experience high mortality.

Feed supplementation, different ways of feeding chickens and other related issues such as how to feed poultry. Including simple techniques for growing maggots and termites were discussed.

2.7. Keeping records and planning a Vaccination campaign

In order to have plan and implement successful vaccination campaigns, the trainers were taught to collect data/information (before and after the campaign) and the planning of the vaccination campaign. The exercise was not easy because they did not know the procedures or steps to mobilize the communities and as well as obtaining information on the number of birds. These stages are important for the organization of the vaccination campaign. There was a big discussion about how to interact with local leaders for gaining their support on the mobilization of farmers. These factors are the key to improving farmers' participation in a vaccination campaign. Another important issue was the planning and mapping out of the activities. In groups the vaccinator made a plan that was later discussed by the group.

Table 6. below details the activities in the vaccination campaign.

Table.6. Vaccinator working Plan (March 09)

Date	Activity	Objectives	Time frame	Responsibility
23/3/09	Meet Headman	To talk about ND and ask them to organize the meetings with meeting poultry farmers for mobilizing them and organize together with farmers the vaccination campaign	14:00 h	Community vaccinators (CV)
25/3/09	Farmer poultry meeting	Addressing poultry farmer about vaccination	14:00 h	CV
27-29/3/09	Counting the chickens (registration)	To know the number of chickens so as to order the vial vaccine		CV
30/3/09	Ordering the vaccine	To vaccinate the birds		CV
1/4 - 15/4	Vaccinating birds	To vaccinate the birds (prevent ND		CV
15/4 -18 /4	Monitoring the campaign	To check the bird vaccinated		CV
19/4	Submit the report to Mr. Passe	Verification of the results		CV
20 -30/4	Community vaccinators meeting	Evaluation of the campaign		CV
Til 30/5	Submit the report to KYEEMA	Having information about the vaccination campaign		
June	Refreshing course	to explain possible you doubt and planning the next campaign		Dr. Ana Zandamela

In order to having a better coordination of the activities groups were formed according to the surroundings of the villages. The table below presents the different groups.

Villages Groups	Responsibly
Massinger Velho, Mavodze e Macavene	Filimone Machaule
Machaule, Chibotana e Madingane	Frazão Ngulele
Chitare, Zulo e Manhica	Rochete Ngovene
Xinhangane Tihovene e Cubo	Simião Zitha
Mucatine	Cacilda Mondlovo
Macarringue	Generosa Valoi

3. EVALUATION OF THE TRAINING

The course was evaluated by the participants divided in groups. The general comment was that the training was well conducted and they learnt how to participate in the control of ND. They are more confident in developing their activities as community vaccinators. The community vaccinators made the following complaints about the training: i) that the timeframe was not long enough, and ii) that they would like more snack food during the intervals.

The closing ceremony of the ToT was done by the Permanent Secretary with participation of the Director of SDAE. The Permanent Secretary encouraged the community vaccinators to work hard putting the voluntary spirit in order to reduce the ND in their villages.

4. CONCLUSION AND RECOMMENDATIONS

The group of community vaccinators is a very strong and interested in learning. Many of the vaccinators have already been engaged in the vaccination of birds and other animals. This is very good because it was easier to teach them.

In general, the training course was completed and the group was very dynamic and everyone could participate on the different subjects during the discussions. The discussions were good and innovation. It is important to notice that for the successful of the training there was a good support from SDAE officers and the vaccinators as well.

As a recommendation it is important for KYEEMA to make frequent visits to communicate and support the community vaccinators and farmers as well. It would be equally advisable for KYEEMA to having more contact with SDAE and take opportunity for participate in one of the vaccinators coordinated meeting.

After many years of training community vaccinators I realize that it is important to show pictures from the computer when it was possible. The group was really excited to see and comment on what was shown. Thus I can recommend that when possible it would be good to make presentation to the group using a power point presentation.