



Follow-up mission in the framework of GRIPAVI
« FSP Ecologie et épidémiologie de la grippe aviaire dans les pays du Sud »

Ethiopia

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Résumé:

La présente mission a été effectuée dans le cadre du projet «Ecologie et épidémiologie de la grippe aviaire dans les pays du Sud» visant à étudier les dynamiques des pestes aviaires – influenza aviaire hautement pathogène et maladie de Newcastle – et à renforcer les méthodes de surveillance et de contrôle de plusieurs pays africains. L’Ethiopie, bien qu’indemne de grippe aviaire hautement pathogène due au virus H5N1, est un haut lieu stratégique de surveillance de cette maladie du fait de la présence de nombreux oiseaux migrateurs dans les lacs de la Vallée du rift. L’aviculture villageoise en Ethiopie joue un rôle essentiel dans la réduction de la pauvreté et dans le maintien de la sécurité alimentaire des familles rurales. Ainsi l’introduction et/ou la diffusion de maladies aviaires hautement pathogènes dans un pays comme l’Ethiopie peuvent avoir des conséquences dévastatrices non seulement sur l’industrie de la volaille mais également dans le domaine de la santé publique.

Cette mission avait pour objectif premier de clarifier la situation au près du NADHIC concernant la Thèse d’Université du Dr Hassen Chaka qui a débuté au 1^{er} Janvier 2009 mais qui a pris du retard dans sa mise en route. Plusieurs réunions individuelles avec le Dr Mesfin (le directeur du NAHDIC), Dr Melesse (coordinateur du projet), Dr Chaka et E. Vallée (étudiante du Master SEAPS en Stage) ont permis au Dr Monicat (CIRAD) de prendre contact avec nos collaborateurs éthiopiens, de rencontrer le thésard et de se rendre compte de la situation de terrain. La troisième convention, pour les analyses de laboratoire, a été discutée au cours de la mission. Il a été décidé que le NAHDIC effectuait 300 PCR et 50 isolements viraux pour l’année 2009 à partir des prélèvements qui seront effectués au cours de la thèse de H. Chaka, et qu’un fond de 9000 Euros seront mis à disposition du labo en cas de suspicion (AI ou maladie de Newcastle) dans la zone d’étude du projet.

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Summary:

This mission was realised within the frame of the project ‘Ecology and Epidemiology of Avian Influenza in Southern Countries’ which aims at studying the dynamics of avian diseases – Highly Pathogenic Avian Influenza and Newcastle disease - and strengthening the surveillance methods and the control strategies of several African countries. Although Ethiopia is free from HPAI H5N1, it represents a strategically important surveillance site for this disease, as it encompasses the Rift Valley lakes where lot of migratory birds is nesting during winter time. Poultry farming in Ethiopia of traditional low input systems which play an important part in the poverty reduction and food safety of rural families. Thus the introduction and/or the dissemination of highly pathogenic diseases in a country as Ethiopia could have devastating consequences not only on poultry industry but also on the field of the hunger relief and public health.

The main objective of this mission was to clarify the PhD situation with the NADHIC, PhD which has started the 1st January 2009 but was delayed during 3 months. Several private meetings with Dr Mesfin (director of NAHDIC), Dr Melesse (project coordinator), Dr Chaka and E. Vallée (Master student) have given the opportunity to Dr Monicat to meet our Ethiopian partners, to meet the PhD student and to understand the field situation. The third specific agreement, for laboratory analysis, was discussed during the mission. We agreed that the NAHDIC will undertake 300 PCR analyses and 50 virus isolation for 2009 from the samples collected during the field study of H. Chaka. A fund of 9000 Euros will be available for further analysis in case of NCD or AI suspicions in the area of study.

Acronyms

FAO: Food and Agriculture Organisation

FVM : Faculty of Veterinary Medecine (Debre Zeit)

ILRI: International Livestock Research Institute

IFPRI: International Food Policy Research Institute

MoARD: Ministry of Agriculture and Rural Development

NAHDIC: National Animal Health and Disease Investigation Centre

NVI: National Veterinary Institute

Schedule:

02/06/09: Arrival at Addis Ababa - Sebata

- Work planning preparation (F. Monicat & F. Goutard)
- Departure for Sebata
- Meeting with Dr M. Shale (NAHDIC)

03/06/09: Addis Ababa – Sebata

- Discussion with Dr P. Caufour (CIRAD)
- Departure for Sebata
- Meeting with Dr M. Balcha (NAHDIC)
- Meeting with Dr H. Chaka (NAHDIC – PhD CIRAD)
- Debriefing of the mission with Dr M. Shale (NAHDIC)

04/06/09: Debrezeit

- Field trip with Dr H. Chaka and E. Vallée (Master Student)
- Visit of markets
- Visit of NVI
- Work discussion with Dr H. Chaka, Dr F. Monicat and E. Vallée about the research protocol

05/06/09: Addis Ababa

- Work discussion with Dr F. Monicat and E. Vallée
- Departure

Detailed report on the mission

1. GRIPAVI: appraisal of activities

- During the last mission of Dr Goutard the NAHDIC produced the details records and original receipts for the payment of the last 20% of the previous specific agreement. The documents were transmitted to the financial department of CIRAD, but the payment is still outstanding. Dr Goutard should check the procedure.
- The second specific agreement of 50 700 Euros has been signed and the pre-payment of 50% has been paid.
- The second interlaboratory proficiency test is still in progress. Results should be expected before September.
- The third agreement, specific for the laboratory analysis has been discussed in depth with Dr Melesse and Dr Mesfin. Several points were agreed:
 - A total of 2500 swabs will be collected during the field study of H. Chaka. 300 of them will be analysis by the NAHDIC and the CIRAD.
 - A total of 50 virus isolation will be funded by the CIRAD out of PCR positive from the 300 samples.
 - A total of 1000 serum will be taken and analyzed at Sebeta using Elisa and HI tests.
 - CIRAD will pay for an interlaboratory proficiency test between the NAHDIC and Weybridge Laboratory for the ELISA test. NAHDIC will be in charge to organise its participation to this interlaboratory proficiency test.
 - An emergency fund of 9000 Euros is available for PCR or virus isolation in case of HPAI or NCD suspicions in the area of the field study of the project.
 - One point was raised during the meeting about the exchange of virus strains between the CIRAD and the NAHDIC. It has been reminded that a clause on confidentiality exist in the general agreement signed by all the GRIPAVI partners and that for every material exchange a specific MTA will be signed. It has been emphasised during the discussion that sharing results (data or biological material) in order to write joint publications will be a benefit for both partners.
- The total laboratory material for sampling has been sent to the NAHDIC in March. The complete list of materials is available at the end of this report.
- In the framework of GRIPAVi, it's possible to add some specific activities in Ethiopia. The NAHDIC should assess their needs in terms of short field studies (wild birds, ecological studies...) and in terms of trainings (Laboratory, risk analysis...) in order to make proposal for GRIPAVI funding. Activities should be in the field of poultry infectious diseases.
- A vehicle and a driver have been assigned to Dr Goutard and Dr Monicat for the duration of the mission.

2. GRIPAVI: PhD student

- After a tree-month break, Dr Hassen Chaka has decided to start again his PhD.
- But as he is registered at the faculty of Pretoria since January 2009, it has been decided that he should finish his PhD not later than the 31st of December 2011.
- The PhD stipend will be paid through specific agreement under the GRIPAVI project for the year 2009 and 2010 and after the end of the project the CIRAD undertakes to finance the last year salary of Dr Hassen.
- Because of his 3-months break the ministry did not yet recognise Dr Hassan Chaka as a PhD student, the situation should be put in order from June.

- **But as the project will be over end of 2010, it's clear that all the field study work and all the samples analyses must be done by the NAHDIC before the December 2010.**
- A new planning of activities has been agreed with Dr Hassen Chaka for his field studies on markets and on villages:

2009							2010										
06	07	08	09	10	11	12	01	02	03	04	05	06	07	08	09	10	11
Markets						Markets						Markets					
			Villages								Villages						

3. GRIPAVI: Master student

- A master degree student, E. Vallée, is in Ethiopia for 5 months to undertake a study on poultry trade. The title of her study is: **“Exploring trade patterns and contact structure of poultry movement in Oromia Region, Ethiopia, to determine potential role of markets in the spread of NCD between villages”**.
- Dr Goutard is her direct supervisor and she will be supervised by Dr Duboz for the modeling aspect of her study. For NAHDIC, as a GRIPAVI coordinator Dr Melesse, will be her supervisor for the duration of her field study in Ethiopia.
- The objectives of this training are to describe poultry flows between markets and some villages.
- The data that she will collect will be used to make a study using Social Network Analysis approach. This method, which is quite new in epidemiology, was used to describe contact structure and spread of STDs. It is based on a network approach, considering links between individuals which are seen as “nodes”. This network is then used to calculate some parameters which can give information on how the nodes are connected, the intensity of the connection, etc. In animal epidemiology, we use this network considering a disease, and a link symbolizes an infecting contact between two animals or group of animals. Thus, if we know all this contact, we can model how the disease could spread, using S-I-R models. We can also identify premises or animals with many links, on which the surveillance must be targeted. It could also be useful to make a link between this network and the prevalence of a disease in each node, to know more about the disease spread and its epidemiology. She will work in the same area than Hassan Chaka for his PhD. Markets and villages will be selected using snowball sampling
- **Results: beginning of June, Emilie has already identified 22 markets and 115 related villages, and she has interviewed 240 farmers in their household, 242 at the markets place and 60 traders.**
- She will present her final results during a meeting of restitution end of July before leaving Ethiopia.

Conclusion: schedule of next activities

End of June:

- Finalization of the specific agreement for laboratory analysis between NAHDIC and CIRAD PhD candidate selection
- Starting sampling at markets
- Registration of Dr H. Chaka to the international congress ISVEE in Durban

July:

- Going on with the market field study
- Restitution of the work of E. Vallée at NAHDIC
- Invitation letter for South Africa and France

August:

- Going on with the market field study
- ISVEE – Durban

September:

- Gripavi meeting – 31-08 and 01/02-09 – in Montpellier
- PhD committee (date to be selected) - Ethiopia

LAB EQUIPEMENT – GRIPAVI - ETHIOPIA

	Description	Provider	Total quantity
Protective equipments	White coat (50)	DUTSCHER	150
	Protective glasses	DUTSCHER	3
	Masks FFP2 (20)	DUTSCHER	140
	Examination gloves powdered size L (50)	DUTSCHER	150
	Examination gloves powdered size M (50)	DUTSCHER	200
	Cryogloves size L	VWR International SAS	1
	Manugel-plus (disinfecting gel) 300 mL (6)	VWR International SAS	6
Sampling equipments	Long swabs (1000)	DUTSCHER	3000
	Short swabs (1000)	DUTSCHER	3000
	Syringes 2ml (100)	VWR	2500
	Needles 23G (100)	VWR	2500
	<i>Tips 1000μL (576)</i>	<i>VWR</i>	<i>2304</i>
	Micropipettes VWR 100-1000 μ L	VWR	2
	Centrifuge – Galaxy 7D	VWR	1
	Microtubes for centrifuge 1,5 mL (500)	VWR	2500
	Storage boxes x100 with hinge (5)	DUTSCHER	1
	Dissecting tools kit	DUTSCHER	2
	Rack of 40 holes	DUTSCHER	4
	4 cryopen (vert, rouge, bleu, noir)	DUTSCHER	1
	Sampling containers (50)		1
	Cryotubes with transport medium		4500
Shipping equipment	Cryopack 12 liters	E3 CORTEX	5
	Cryogel		5
	GPS Garmin		
	Elisa Kits	5 A	

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