



Ethiopie

Mission d'organisation de la mise en œuvre

21-27 septembre 2007.

J.-F. Renard



GRIPAVI – Compte rendu de mission en Ethiopie, 21 – 27 septembre 07

La mission avait pour objectifs d'une part d'informer les partenaires notamment sur les résultats du premier comité de pilotage et, d'autre part, d'organiser la mise en œuvre pratique du projet au niveau de l'Ethiopie.

En particulier, le comité de pilotage a demandé de poster sur le site web « avian-influenza.cira.fr » un tableau reprenant activité par activité les dates de démarrage, de fin, les responsables et le budget de manière à permettre un suivi continu; la mission devait organiser la construction de ce tableau pour la composante éthiopienne.

La mission a rédigé au fur et à mesure de ses entretiens des minutes qui ont été revues et approuvée lors de la synthèse finale par le partenaire correspondant principal, le NAHDIC ; ces minutes sont reprises ci-après comme rapport de la mission.

Les échéances convenues sont les suivantes :

- fin octobre 07: envoi par le CIRAD des termes de référence et critères de sélection du PhD ;
- fin octobre 07 : réponse de FVM pour l'inscription du PhD
- fin octobre 07 : commentaires NAHDIC sur PhD objectives
- fin octobre 07 : NAHDIC informe CIRAD de la faisabilité et des coûts de l'installation de l'accès à la broadband pour connection internet
- fin octobre 07 : NAHDIC envoie au CIRAD les coûts réels des différentes analyses
- Novembre 07 : publicité par le NAHDIC du poste de PhD ;
- Fin novembre 07 : finalisation des protocoles des deux Msc (étude marchés finaux et études système d'amélioration génétique) par propositions CIRAD et validation électronique NAHDIC
- Fin novembre 07 : finalisation budget provisionnel et convention particulière par CIRAD avec échange NAHDIC et paiement de l'avance
- Mi décembre 07 : sélection du candidat PhD par le comité du NAHDIC et approbation par le CIRAD ;
- Mi Janvier 08 : fin de la procédure d'engagement contractuel du PhD par le NAHDIC ;
- Mi janvier 08 : finalisation de la procédure d'inscription du PhD
- Février – Mars 08 : mission(s) CIRAD pour détermination des protocoles du PhD et lancement des Msc.
- Mars 08 : ajustement du budget prévisionnel jusque fin 2008 (CIRAD et NAHDIC)
- Mars 08 – Mars 09 : suivis es marchés finaux d'Addis
- Avril 08 – Septembre 08 : évaluation risque lié au système d'amélioration génétique

NAHDIC – CIRAD meeting on GRIPAVI organisation : 24th of September 2007
Minutes amended 27th of September

According to the general agreement signed by the parties the meeting objectives are i) to share information on GRIPAVI development and ii) to organise the cooperation for its implementation in Ethiopia.

1. Project design and content (reminder)

- GRIPAVI is a research project in epidemiology without any direct objective of surveillance, disease control or development action. It aims to provide risks assessment methodologies and tools on NCD and AI and to translate them into recommendations for diseases control. Diseases surveillance and control measures will have to be taken in accordance with GRIPAVI findings but on other funding and implementation structure, like for example the SPINAP project.
- Training through research will be provided by the project with i) two technical workshops in epidemiology and risk assessment in year two, ii) funding of PhD students (1 in Ethiopia) working on project researches implementation, iii) on the job training with technical assistance during project researches' activities.
- GRIPAVI beneficiaries would be the whole Africa. The project concept is to take advantage of the specific situations in some countries to study specific risk assessment or control components which findings may be extended to the other African countries ("méta observatoire"). Specific questions with limited duplication in other African countries, even if of national agenda, e.g. virus transmission by wild birds from lake to lake in the rift valley, will not be investigated by GRIPAVI.
- According to the NAHDIC situation and the Ethiopian specific needs, on the job training in wild birds trapping and sampling may be provided for 1 or 2 technician(s) by joining project team during implementation in another country; possibilities will be explored with the CIRAD ornithologists. Nevertheless, equipment or resources for implementation at national level are not available under GRIPAVI activities and funding.
- The project agreement was notified to CIRAD by the end of August and the implementation starts thus immediately.

2. Ethiopian component

- The topics planned to be investigated in Ethiopia during the first period are i) the most important factors influencing the spread of diseases between backyard flocks, ii) the role of live birds markets for disease diffusion, iii) the comparison of markets, villages and in place surveillance for diseases warning and iv) the risk assessment of a public managed genetic improvement programme.
- As AI is not present in the African countries where GRIPAVI will be implemented, NCD will be the model disease (and low path. AI for virus circulation), even if HPAI control remains the broad objective.
- Some national preoccupations seem to be recently appeared on Gumboro disease; it is thus proposed to keep the samples (duplicated) harvested by GRIPAVI in order to be able to use eventually them with the project models for Gumboro disease even if the disease is not a GRIPAVI target. Analytical costs funding for Gumboro assessment, both diagnostic lab and modelling analysis will have to be found within or out of the project funding according to the funds availability.

- The project activities could be reoriented or changed, including in Ethiopia, according to i) the evolution of AI situation and ii) the project findings and the new hypothesis formulated. Flexibility in activities, in implementation and among the budget lines is thus possible.
- Nevertheless, all the changes in activities suppose a prior discussion during a technical committee and a prior approval by the steering committee.

3. Steering Committee

- The first steering committee (composition given by the financial agreement) was held the 10th of September. It approves both the project strategy and the planned activities for the first period, including in Ethiopia.
- Nevertheless, the steering committee requested an action plan indicating activity by activity responsible, starting and finishing dates and planned budget, posted on the web site for its follow up for the beginning of December. The covered period would have to be extended to the whole calendar year 2008.
- The present mission will gather the elements to establish for Ethiopia the requested action plan which will be finalized by further electronic exchanges.

4. Partnership

- As convinced in the general agreement, NAHDIC will be the project referent partner for Ethiopia. This is coherent with its mission (since the transfer of research on livestock to the MoARD), namely diagnostic and test on the animals, researches on zoonotic diseases, coordination of regional labs, labs quality insurance and training.
- Accordingly, NAHDIC will manage and coordinate the activities and relationships with the other Ethiopian institutions involved. All the specific funding including for those institutions will transit through NAHDIC.
- The parties convinced to work transparently.
- Some confusion in this organisation, notably for the position of the PhD student, and in the project documents circulation exists at the MoARD level. To improve transparency, the mission will open direct access to the GRIPAVI room in the web site for the MoARD responsible in order to give him immediate and total access to all the project documents. NAHDIC will ensure that project documents' understanding is fully assumed.

5. PhD student recruitment

- According to the Ethiopian rules, the process and agenda for the PhD recruitment will be the following in order to be effective in the beginning of the year 2008:
 - i) Preparation of ToR, including job description, and selection criteria by CIRAD by end of October – mid November
 - ii) Local advertising by NAHDIC during 1 month
 - iii) Selection of the candidate by a NAHDIC and MoARD committee and CIRAD approval in 2 weeks
 - iv) Employment arrangement by the NAHDIC in 1 month
- The PhD student will be a NAHDIC employee during the project implementation period (3 years) and has to be fully dedicated to GRIPAVI activities. If the selected candidate is part of its present staff, his/her salary costs will be paid by the project in order to allow NAHDIC to hire on a temporary basis adequate human resource to

replace him. If the selected candidate is coming from out of the NAHDIC, all his/her salary costs will be covered by the project.

- The project will cover i) the PhD salary costs on real and provable basis and ii) a receiving fee of 599 € a month during the period of effective presence in Ethiopia without any other justification. Contributions to core budget and/or top up salary are not allowed by the funding agency and NAHDIC will manage on its own and sole discretion these issues with the related total contribution (real salary costs + receiving fee).
- NAHDIC is also supposed to provide the PhD student under the receiving fee with an equipped office and to cover its running costs (electricity, communication, stationary...). The research costs themselves (in the field and for diagnostic purpose) will be covered separately by the project.
- GRIPAVI will also take in charge the related tuition fees for the University and the insurance costs.
- The project will also provide the PhD student with a two month period a year abroad.

6. PhD inscription and support

- The inscription at the FVM is the best possibility but looks quiet difficult. FVM has presently no PhD programme in epidemiology and has limited capacities for supporting even if the project will also provide the PhD student with two support missions (from abroad for TA or to abroad for thesis committee members) a year that may help FVM to provide the candidate the adequate support. Meanwhile the project is funding only one PhD student position, FVM will answer during the next weeks if epidemiology may be added to its PhD programme under construction.
- If this adequate support and the inscription at FVM appear to be impossible, both NAHDIC and CIRAD will look after other inscription possibilities. Nevertheless, possibilities may be limited thanks to the fact that FVM Msc programme is not recognized everywhere: South Africa if acceptable, France if compatible with immigration requirements, Belgium... CIRAD and FVM will assume technical supports by presence support (Prof Kyule at FVM) or through support missions (CIRAD)
- As the PhD student has to be immediately fully operational for field researches, specific criteria may have to be added in the selection process.

7. PhD objectives (see proposal in annexes)

- A proposal with the PhD objectives has been provided NAHDIC, explained and discussed. It has been considered as relevant by the NAHDIC even if some questions (e.g. the assessment of incidence by cross sectional surveys) look still unclear. Comments and exchanges will be made electronically with Dr Goutard and Dr Roger (copy Mr Renard) for clarification as soon as possible.
- The first study area will be limited in order to be correctly covered, related to the markets and commodity chains already investigated (M.M. Olive Msc) in order to capitalize on the first efforts, easily accessible and allowing the necessary cooperation for data collection. Models formulated based on the data collected in this area will then be validated later on in a second similar area.
- The first area and the detailed protocols (including sampling size) will be accurately determined by a CIRAD support mission as soon as the candidate will be recruited.

8. Research activities

- According to the planned Ethiopian activities and the PhD objectives, the following activities will be undertaken during the first period (until end of December 2008):
 - i) cross sectional surveys in villages and related markets for prevalence assessment (1 in high incidence period and 1 in low incidence period)
 - ii) longitudinal assessment by questionnaire on the risk factors at village level
 - iii) participatory analysis to complete questionnaire follow up
 - iv) case control study(ies) at village level
 - v) cross sectional survey for prevalence assessment and risk factor identification on the markets related to the villages investigated
 - vi) identification and follow up of the critical points on the related commodity chains
 - vii) follow up for seasonal variations of the terminal markets in Addis
 - viii) assessment and modelling the risks related to the genetic improvement programme.

9. Topics for Master students

- Within these activities the project will gain to be implemented with the involvement of Msc students/thesis in 3 fields, namely:
 1. Participatory risk assessment in village
 2. Final market follow up
 3. Risk assessment linked to the genetic improvement scheme
- For these Msc theses the project will cover data collection, data analysis and redaction costs but no salary nor scholarship fee.
- Ethiopian or European students may be used. 1 and 3 would gain to be assumed by twinning (European bringing support respectively on participatory techniques and modelling; Ethiopian on translation and cultural knowledge).
- Nevertheless academic agenda are not similar and according to FVM the twinning possibilities are rather difficult at this level even if the FVM is now better equipped for adequate support to the potential Msc thesis.
- The idea is thus to hire on temporary basis under project funding young graduated Msc who may be twinned for a limited research period with French/European Msc students.
- Support missions to Msc and PhD students would be opportunities for related lectures which would benefit other NAHDIC/FVM staff and students.
- 1 needs to wait the PhD deployment whereas 2 and 3 may be implemented independently. These last ones may thus start from March/April 08 as soon as foreign Msc students will be available. The related protocols would thus be finalized before the beginning of December 07 in order to be proposed to Msc students for their decision: CIRAD will make proposals that will be finalized by electronic exchanges.

10. Vehicles

- The purchase of a vehicle will not be possible according to CIRAD procedures.
- For its activities the project will use the CIRAD vehicle presently under NVI management, the LABOVET vehicle when available considering that priority is for the LABOVET project, any other NAHDIC vehicle potentially available and if

necessary rented vehicle, considering that renting is in the present situation in Ethiopia probably the most costly way.

- The CIRAD vehicle looks to be not enough reliable for long field trips and its use has reasonably to be limited in the area around Addis, notably with the Msc students. The NVI confirms its availability for these uses thanks to the fact that its present use is limited for the reason here above mentioned.
- The mission suggested MoARD the attribution of an additional vehicle to NAHDIC. Decision has to be followed by NAHDIC.
- The best option looks to be the repair and maintenance under subcontract with a specialised company of a Toyota belonging to NAHDIC and the use of this vehicle. The cost of such a contract will be between 6,300 and 7,200 € According to the volume of activities a second vehicle following the same scheme may be necessary during the 3 years project implementation period.
- The project will cover all the vehicle running costs (fuel, maintenance, repairs, tyres, rent fee...) on real cost basis. Considering that this budget line is limited and that the related expenses have to be minimized and strictly controlled.
- The NAHDIC will justify vehicle costs simultaneously by two parallel ways: i) the real costs to allow reimbursement/replenishment by CIRAD and ii) kilometres register to allow payment to CIRAD by the Ministry of foreign Affairs.

11. Local staff

- As mentioned here above for the young Msc graduate, the project will cover the additional personnel expenses fully dedicated to its research activities. These staff may be hired on temporary basis by NAHDIC.
- Cost justifications will be salary costs justification for the staff hired and receipts for the field staff not contracted.
- According to a planned increase of salary level in Ethiopia, the provisional basis for budget purpose will be 4,000 ETB/month (360 €) for a scientist, 1,000 ETB/month (90€) for a driver and 500 ETB/month (45€) for a local field staff.

12. Lab Analysis

- The real costs including consumables of the various analysis will be provided CIRAD by NAHDIC in the next weeks in order to finalize the provisional budget. The total related project budget line looks to be scarce and the previous on the job fee ("mesure d'urgence") can not be applied again.
- Gumboro diagnosis costs will also be provided thanks to the specific request here above mentioned.
- Diagnosis data management will be organised also in Ethiopia in order to train other NAHDIC staff and to allow them such a usual follow up.

13. Communication

- The electronic access has absolutely to be improved at NAHDIC level to allow a smooth project implementation.
- The broadband solution appears to be the most relevant because it would allow NAHDIC to use it for its other activities too (10 to 20 computers linked). It has to be assessed in the 2-4 coming weeks by NAHDIC who will inform CIRAD. The proposal is then to cover the installation costs and the related antivirus and other needed

software (around 1,200 €) on the project and the running costs (around 232 €monthly) on the PhD receiving fee.

- To secure the communication it is also proposed to take in charge by the project an individual internet account for the PhD student with a provision of around 50 €on the opening and a running cost limited to around 40 €monthly.

14. Procedures

- A provisional budget by activity will be established for the first period as soon as NAHDIC will provide the missing information (analysis costs, communication...) and as soon as surrounding conditions (PhD inscription...) will be clarified in order to allow the signature of a specific agreement and advance instalment. Electronic exchanges will allow common budget agreement.
- Estimates will be made on sample size, presences in the field and local staff requirements in order to allow both the specific agreement finalization and the table requested by the steering committee without delay. Adjustments will be made as soon as the support mission to the PhD and the protocol design will allow a more accurate determination.
- For the present mission, Mr Renard will pay directly the vehicle costs (driver and fuel).
- For missions abroad to attend technical committees, the project doesn't take in charge salary costs nor per diem. Salary costs are considered as the partner contribution; the project assumes all the additional costs to salary (accommodation, food, transport...). Nevertheless the organisation has to be improved in order both to be sure to cover these additional costs and to minimise the travel lack of comfort.

ANNEXES

Abréviations

ILRI: International Livestock Research Centre

FAO : Food and Agriculture Organisation

FVM : Faculty of Veterinary Medecine (Debre Zeit)

MoARD: Ministry of Agriculture and Rural Development

NAHDIC : National Animal Health and Disease Investigation Centre

NVI: National Veterinary Institute

SPINAP – AHI: Support Programme to Integrated National Action Plans for Avian and Human Influenza

SPS – LMM: Sanitary & Phytosanitary Standards and livestock & Meat Marketing Programme

Calendrier

21/09/07 :

- séance d'ouverture du premier Comité de pilotage de projet SPINAP – AHI
- Entretien avec J. Mac Dermott (ILRI)
- Entretien avec M. Balcha (NAHRC)
- Entretien avec G. van't Klooster (FAO) et Y. Jobre (FAO)

22 et 23/09/07 : déplacement sur Awassa (logement sur place)

- visite des lacs de la vallée
- entretien avec éleveurs
- visite centre de multiplication
- visite marché et discussion avec traders
- visites fermes industrielles

24/09/07 :

- discussion au NAHDIC (Drs Mesfin, Gopilo, Melesse et Fedoku)
- visite installations NAHDIC

25/09/07 :

- entretien au MoARD (Dr Daninet)
- entretien avec la FVM (Pr Kelay)
- entretien avec Mr Dawit Solomon
- dîner de lancement du projet avec partenaires

26/09/07 :

- entretien au NVI (Dr Berhe Gebreegziabher)
- entretien Pr Feseah (Donkey Trust)
- entretien Mr Tadelle Dessie (ILRI)
- entretien Mr Laikemariam Ygezu (SPS – LMM)

27/09/07 :

- synthèse et approbation des minutes au NAHDIC (Dr Mesfin)
- synthèse à l'Ambassade de France (Perron)

PhD proposal

Objectives

The aim of this work is **to identify the most important factors influencing the spread of NCD infection between backyard chicken in Ethiopia** and to develop simulation model of transmission which could be used to improve control programme in case of NCD outbreaks and in case of H5N1 introduction in Ethiopia. To answer this research question, we need to, achieve the following specific objectives:

1. To estimate the prevalence of NCD at backyard production level and at market level (cross-sectional survey)
2. To identify risk factors for NCD at the farm level (case-control, repeated cross sectional survey);
3. To identify the role of market in the diffusion of the disease and develop a metapopulation model of the between-flock (village) transmission of NCD.

Study areas

Two study areas could be selected, in order to capture any potential regional variability. The first area of study could be in Oromya region (East Shewa zone) where several studies have been already done (Wild birds sampling for H5N1, description of the poultry marketing flow), this area is known to be important area for poultry production (commercial and semi-commercial sector), to have a high backyard chicken density and to harbour on the rift valley lakes a high number of waterfowl species which could be potential reservoir of NCD and H5N1. In a second phase, another region could be included in the study (SNNP, zone to be determined between Sidama, Welayta and Gamo Gofa) in order to validate our model.

1. Estimation of the prevalence of NCD at the village and market levels

Assumption: Several strains of LPAI and NCD virus are circulating at the same time between villages and poultry market

A- Prevalence survey at the village level:

Implementation of a cross-sectional survey in randomly selected villages twice a year: during period of high viral circulation and low viral circulation. We should consider poultry farms as units of interest. Considering the absence of sampling frame for each poultry owner, a

stratified random sampling using administrative units should be chosen. Within study areas, the list of woredas and kebele should be obtained with an estimation of farmers with poultry in each kebele. Proportional sampling should be used in each kebele then every chicken of each farm is sampled. Tracheal swabs and cloacal swabs will be collected from each randomly selected bird to detect the eventual presence of AI and NCD virus.

Blood samples will also be collected from each randomly selected bird to detect the eventual circulation of antibodies against AIV and NCD virus. Correlation between serological and virological status will also be assessed;

The number of poultry to be sampled will be calculated based on a 95% confidence of detecting virus; we will need to have:

- the list of wereda and kebele in the selected district
- the list of poultry owner and and estimation the number of poultry for each farm
- the sensitivity and the specificity for the diagnostic test used and
- an expected prevalence of farms to be infected

In order to avoid transmission of NCD between villages, strict biosecurity measures should be applied.

B- Prevalence survey at the market level:

Implementation of a cross-sectional survey on markets at the same time than the village survey. Market to be included in the sampling frame should be:

- Primary and secondary markets serving sale of the villages included in the study
- Terminal markets

Our unit of interest is the poultry. The number of poultry to be sampled will be calculated based on a 95% confidence of detecting virus, the estimated number of poultry for each market, the sensitivity and the specificity for the diagnostic test used and an expected prevalence of poultry to be infected . Blood samples, tracheal swabs and cloacal swabs will be collected from each randomly selected bird to estimate the prevalence of AI and NCD virus and to detect the eventual presence of virus. In order to avoid transmission of NCD between markets, strict biosecurity measures should be applied.

2. Identification of risk factors for NCD at the farm level

Assumption: There are risk factor of NCD infection at village level

A- Cross-sectional survey at the village level:

At each village under investigation, a standardised questionnaire survey with face-to-face interviews should be used to collect information on outbreak patterns and NCD virus introduction, persistence and dissemination risk factors, including tracing backward and forward. Questionnaire for poultry owners should investigate, flock management, attitude to biosecurity, past outbreaks of NCD, symptoms used for diagnosis and attitude in case of suspicion. GPS position of all points of epidemiological interest (farms, ponds, roads, markets, etc) will be recorded for each village. Other questionnaire should be designed in order to collect information about attitude toward biosecurity from traders, development agent and veterinary services agent. List of person to be interviewed should be obtain from agricultural office.

B- Participatory appraisal at the village level (study which could be done by a Master student):

To conduct a descriptive study using Participatory Appraisal methods to collect data on the main poultry diseases, on marketing behaviour and on attitude of farmers to biosecurity. Villages should be selected according to occurrence of NCD outbreaks, density of poultry and presence or not of markets. Tools which could be used to complete the objectives of the study are diverse: direct observations (mapping, drawing of seasonal calendar), interviews (meetings with groups of farmers, semi-structured interviews with farmers), proportional piling, matrix scoring, etc. In case of outbreaks, samples should be collected in order to validate farmer declaration and real diagnosis of diseases.

C- Case control study.

The objective is to compare characteristics of infected and non-infected sites to explore potential risk factors associated with infection.

Depending on the result of the first prevalence study, a specific number of non-infected villages will be selected to be included in our study as control. A precise case-definition should be defined at the beginning of the study (depending on the level of the seroprevalence or on the virus isolation)

Univariable and multivariable analyses will be done in order to investigate factors associated with NCD.

3. Identify the role of markets in the diffusion of the disease and development of a simulation model of the between flock (villages) transmission of NCD.

A- Longitudinal study at market level (MSc study)

Assumptions: Circulation of LPAI and NCD are subjected to seasonal and regional variations. Prevalence are different according to season and areas. Longitudinal study over one year period in markets previously identified. This study should allow the follow up of the virus circulation within different neighbouring chicken population and to analyse the pattern of the prevalence of virus isolation according to disease declaration

B- Evaluation of different type of model

SEIR model could be developed in order to examine the effect of vaccination on the transmission of NCD (two stage model with transmission between market and villages)

Model could be developed in order to examine the role of spatial processes in NCD transmission: spatial model, and social network model.

B- Expert Opinion Workshop to evaluate risk factors of emergence or re-emergence of NCD at village level.

Expert elicitation workshop could be organised to quantify some factors for which available data are not relevant. Expert should be selected on precise criteria and a structured questionnaire should be designed.

Coordonnées des correspondants

<u>Nom</u>	<u>Prénom</u>	<u>Organisation</u>	<u>fonction</u>	<u>Tél Bureau</u>	<u>tél Dom</u>	<u>Mobile</u>	<u>e-mail</u>
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