Organisation Mondiale de la Santé Animale

World Organisation for Animal Health

Organización Mundial de Sanidad Animal

Tool for the evaluation of Performance of Veterinary Services

oie PVS Tool

PVS Pathway Follow-Up mission Report

September 2011

Lao Peoples' Democratic Republic

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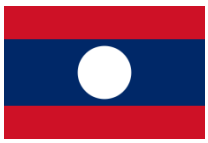
Version 10 June 2010



OIE - PVS EVALUATION

REPORT OF THE

VETERINARY SERVICES OF

the LAO Peoples' Democratic Republic

(August – September 2011)

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Table of contents

List of acronyms, abbreviations and/or special terms

ACIAR	Australian Center for International Agricultural Research	Canberra
ADB	Asian Development Bank	
ADPC	Asian Disaster Preparedness Centre	
AFTA	ASEAN Free Trade Area	
AHI	Avian and human influenza	
AI	Avian influenza	
APTA	Asia Pacific Trade Agreement	
ARAHIS	Asia Regional Animal Health Information System	WAHIS Reg. Core
ASEAN	Association of South-East Asian Nations	
AusAID	Australian Agency for International Development	Canberra
AW	Animal welfare	
BSc	Bachelor of Science	
BSL	Bio-Safety level	
CC	Critical competency	PVS
CE	Continuing Education	
CIA	Central Intelligence Agency	USA
CPD	Continuous Professional Development	CE
CSF	Classical Swine Fever	
CSIRO	Commonwealth Scientific and Industrial Research Organisation	Geelong
CVO	Chief Veterinary Officer	
DA	Department of Agriculture	MAF
DAI	Development Associates Inc.	USA
DAP	Department of Administration and Personnel (2007)	MAF
DDAF	District Department of Agriculture and Forestry	
DF	Department of Forestry	MAF
DFI	Department of Forestry Inspection	MAF
DFZ	Disease-Free Zone	
DI	Department of Irrigation	MAF
Din	Department of Inspection	MAF
DLF	Department of Livestock and Fisheries	MAF
DLFO	District Livestock and Fisheries Office	
DMH	Department of Meteorology and Hydrology (2007)	MAF
DP	Department of Personnel	MAF
DPI	Department of Planning	MAF
DVM	Doctor in Veterinary Medicine	
EAHMI	Environmental Animal Health Management Initiative	FAO/ITA
EC	European Commission	EU
ECTAD	Emergency Centre for Transboundary Animal Diseases	FAO
ELISA	Enzym-Linked Immuno-Sorbent Assay	
ENSV	National School for Veterinary Services	Lyon
EPP	Emergency Preparedness Plan	
EU	European Union	
EUR	Euro	
FAO	Food and Agriculture Organisation	Rome
FDD	Food and Drug Department	MoH
FMD	Foot and Mouth Disease	
FUR	Follow-up report	WAHID
GDP	Gross Domestic Product	
GMS	Greater Mekong Sub-region	
GNI	Gross National Income	
HACCP	Hazard Analysis and Critical Control Points	
HD	Higher Diploma	
HPAI	Highly Pathogenic Avian Influenza	
HS	Hemorrhagic Septicaemia	

IEC	Information, Education, Communication	
ILRI	International Livestock Research Institute	Manila
IMF	International Monetary Fund	
IN	Immediate notification	WAHID
ISO	International Standards Organisation	
ITA	Italy	
JICA	Japan International Cooperation Agency	
KAP	Knowledge, Attitudes and Practices	
L&F	Livestock & Fisheries	
LAAHRP	Lao – Australia Animal Health Research Project	
LAK	Lao Kip	
LAN	Local Area Network	
LCD	Least Developed Countries	UNDP
LPRP	Lao People's Revolutionary Party	
MAF	Ministry of Agriculture and Forestry	
MD	Medium Diploma	
MDG	Millennium Development Goal(s)	
MoC	Ministry of Commerce	
MoH	Ministry of Health	
MoU	Memorandum of Understanding	
MRC	Mekong River Commission	
MS	Master of Science	
MSc	Master of Science	
NADC	National Aquaculture Development Center	DLF
NAFC	Northern Agriculture and Forestry College	
NAFES	National Agriculture and Forestry Extension Service	
NAFRES	National Agriculture and Forestry	
NAHC	National Animal Health Centre	DLF
NAHICO	National Avian and Human Influenza Coordination Office	
NCEL	National Centre of Epidemiology and Laboratory	MoH
ND	Newcastle disease	
NEIDCO	National Emerging Infectious Diseases Coordination Office	
NZAID	New-Zealand Agency for International Development	Wellington
OIE	World Organisation for Animal Health	Paris
OIE-RR	OIE Regional Representation (for Asia and the Pacific)	Tokyo
PAD	Personnel and Administrative Division	DLF
PC	Personal Computer	
PCD	Planning and Cooperation Division	DLF
PDAF	Provincial Department of Agriculture and Forestry	
PDR	Peoples' Democratic Republic	
PhD	Philosophy Diploma	
PLFO	Provincial Livestock and Fisheries Office	
PMO	Prime Minister's Office	
PPE	Personal Protective Equipment	
PPP	Purchase Power Parity	
PPP	Purchase Power Parity	
PRA	Participatory Rapid Assessment	
PSVS	Project on Strengthening Veterinary Services	OIE / AusAID
PVS	Performance of Veterinary Services	OIE
QA	Quality Assurance	
RAISE	Rural & Agricultural Incomes with a Sustainable Environment	USAID
RCU	Regional Coordination Unit	SEA(C)FMD
SEA	South-East Asia	
SEACFMD	South-East Asia & China Foot and Mouth Disease programme	OIE
SEAFDEC	South-East Asia Fisheries Development Centre	
SEAFMD	South-East Asia Foot and Mouth Disease programme	OIE
SOP	Standard operating procedures	
SPF	Specific Pathogen Free	
SPS	Sanitary and Phyto-Sanitary (agreements)	WTO

TAD	Trans-boundary Animal Disease	
TD	Technical Division	DLF
TLU	Tropical Livestock Unit(s)	
UHT	Ultra-High Temperature	milk
UN	United Nations	Geneva
UNDP	United Nations Development Programme	UN
USA	United States of America	
USAID	US Agency for International Development	Washington
USD	United States Dollar	
VAHC	Village animal husbandry worker	
VLIS	Village Livestock Information System	
VS	Veterinary Service(s)	
VSB	Veterinary Statutory Body	
VSU	Veterinary Supply Unit	NAHC
VVW	Village Veterinary Worker	
WAHID	World Animal Health Information Database	OIE
WAHIS	World Animal Health Information System	OIE
WB	World Bank	
WFP	World Food Programme	UN
WHO	World Health Organisation	UN
WTO	World Trade Organisation	UN

Acknowledgements

The PVS evaluation team wishes to acknowledge the support received from the Department of Livestock and Fisheries (DLF) and in particular of the veterinary authority, the National Animal Health Centre (NAHC) in attaining the objectives of this mission. The experts are in particular indebted towards :

- Dr. Bounkhouang Khambounheuang, Director General of the Department of Livestock and Fisheries (DLF) of the Ministry of Agriculture and Forestry (MAF) for the warm welcome extended to the Team and his unconditional support to the logistical arrangements for the travel and appointments of the Team members;
- Dr. Phouth Intavong, Head of the Epidemiology Unit of the National Animal Health Centre (NAHC) of the DLF and assigned as local facilitator to the PVS mission, for his tireless efforts to render the Team's work effective and efficient, the logistical arrangements for the Teams transport and the, no doubt, tiresome translation of numerous interviews and documents from Lao to English.
- Dr. Settha Sinthasak of the NAHC's Epidemiology Unit and seconded to the *Environmental Animal Health Management Initiative* (FAO – Italian Cooperation) for availing very useful maps of livestock densities and disease occurrence in Lao P.D.R.
- All other DLF staff members, project staff, provincial and district staff, as well as private stakeholders and VVW's who offfered up their precious time to clarify and answer the numerous questions and queries of the team members.

PART I: EXECUTIVE SUMMARY

By request of the Government of the Lao P.D.R., a Team of 3 certified PVS – experts conducted a PVS Pathway follow-up mission of Lao's veterinary services, more than 4 years after the first PVS evaluation was conducted (March 2007). The purpose of the mission was to update existing information contained in the first PVS report and complete the report with the evaluation of 15 critical competencies, which were not part of the PVS tool in 2007 (e.g. residue control, animal welfare, etc). The mission was conducted from August 29th – September 8th, 2011 by Drs P. Bastiaensen (team leader) and A. Kamakawa and M. Varas (technical experts) and the present report will serve as a basis for the implementation of the next step in the PVS pathway, the PVS Gap Analysis exercise, which has already been requested by the Government and will probably be conducted in 2012. The Team was thrilled to be welcomed by the Director General of the Department of Livestock and Fisheries, Dr. Bounkhouang Khambounheuang and to benefit from the logistical and technical support, as well as personal attention, of Dr. Phouth Intavong of the NAHC's Epidemiology Unit who had played such a pivotal role in the 2007 PVS evaluation and was again instrumental in attaining the targets set for this 2011 mission. Out of the 11 days, 6 days were dedicated to field visits, both in the northern and in the southern part of the country.

Out of the 31 critical competencies assessed in 2007 under the four headers of *human and financial resources, technical authority and capability, interaction with stakeholders* and *market access,* very few show improvement, or at least to the extent that they justify an increase in the level of advancement, e.g. from 2 to 3. These are the staffing of veterinary para-professionals (proposed level : 2), emergency funding (2), quarantine and border security (2), animal identification and movement control (2), communication (2), international harmonisation (2), equivalence and other types of sanitary agreements (2), transparency (3) and preparation of legislation and regulations (2). The latter improvement is due to the approval of new legislation as such. The content of the new legislation is subject to debate (refer to the relevant C.C. IV.1.).

Out of the 15 newly added critical competencies (5th edition, version 2010 of the PVS tool, with a total of 46 C.C.) most were assessed as being at level one, but some were deemed higher. For level of advancement 2 this refers to *physical resources* (in particular at central level), *the management of resources and operations, disease prevention, control and eradication* (with the recent PRRS foremost in mind) and *residue testing* (though not conducted under the veterinary authority as such). For level of advancement 3 this refers to *external coordination* (with the Ministry of Health mostly).

The issue of staffing in terms of quality and quantity is more complex to compare with the 2007 situation as some critical competencies were added and others maintained, but with a different scope (i.e. definition). Suffice to say that there are notable improvements in the staffing (quantity) and qualifications (quality) of veterinary para-professionals working for the national, provincial and district authorities. In respect of graduate veterinary staffing, the Team was happy to observe that the threat of shortage of veterinary staff in the near future, highlighted in the 2007 PVS report, has been taken seriously and that steps have been taken to address the problem. We are not convinced that the strategy withheld to achieve this – the organisation of a B.Sc.Vet course at the Nabong Faculty of Agriculture - is necessarily the best one. It is definitely the most cost-efficient one, but in the absence of a true body of qualified academics and training facilities (including state of the art veterinary clinical and para-clinical services), we doubt whether graduating veterinarians will indeed possess the necessary day-1-competences that OIE is promoting on a world-wide scale.

From a technical point of view, and from the point of view of regional integration and harmonisation, it would probably have been better to sign proper MoU's with veterinary faculties in neighbouring countries. Irrespective of the expected quality of graduating veterinarians, there are now (quantitative) prospects for the progressive deployment of veterinary graduate-level staff at national and provincial level, both in the public and the private sector. Even if based on a rather theoretical training background, these B.Sc's should at least be aware of issues pertaining to the proper operation of veterinary services and should be able to drastically improve such shortcomings as meat inspection and food safety issues in general, epidemiological surveillance and early detection and emergency response.

Tackling the challenge of qualified manpower alone will however not solve all the problems, the other challenges being two-fold : legislative foundation and enforcement on the one hand and ordinary and extra-ordinary funding on the other hand. The former will remain a challenge as the opportunity was missed of approving a comprehensive and thorough bill on livestock and veterinary matters in 2008. The bill, as it was approved, will make law enforcement extremely difficult in years to come, until such time as there is a political willingness to bury this law altogether and approve a genuinely water-tight, acceptable, affordable and enforceable law, in line with international best practice, i.e. OIE international standards. In the meantime, cautious devising of by-laws and decrees will have to make the best of it and attempt to circumvent – within the boundaries of what is legally acceptable in terms of legal hierarchy- the shortcoming of the main law.

The challenge with regard to funding is being addressed, although at this point to an insufficient degree. The Lao P.D.R. has seen tremendous economic growth and prosperity, but this has not trickled down to the veterinary services. At best, the substantial percentage increase of the budget(s) at DLF level are encouraging (but by no means sufficient), but when looking at the provincial and district veterinary services, i.e. the respective livestock and fisheries offices, it is the Team's considered opinion that the situation has degraded since 2007, rather than improved. There is no evidence to support the assumption that increases in government revenues have led to improved budgetary allocations to these essential veterinary services, to the contrary : it is believed that veterinary services are a money-making business and that therefore DLFOs and PLFOs are perfectly capable of generating their own operating budgets.

This again goes against international best practice which recommends that entrepreneurship in the veterinary field is the prerogative of the private sector and that government veterinary services should limit themselves to law enforcement, inspection, certification and regulation. By forcing public veterinary services to scrape up an operational budget through the paid delivery of private services such as the sale of veterinary drugs, any prospect of independence and true law enforcement is comprised and opportunities for conflicts of interest are numerous. At the same time, this dualistic approach to public veterinary services offers no prospects for the emergence of private veterinary services, in terms of veterinary surgeries, pharmacies, but even outsourcing of disinfection, quarantine or meat inspection services, as is applied in a lot of countries under the common denominator of *health accreditation* or *delegation* of state powers to private veterinarians.

Institutionally, what is lacking for the true empowerment of private services, is of course the absence of a *veterinary statutory b ody.* The creation of such a body is not mentioned in the newly approved legislation, while the creation of a veterinary *association*, along with a livestock farmers association, is. This might seem odd as both are predominantly private initiatives, and grass-roots, not usually authorised by agricultural legislation, but must be seen in the political tradition of government-driven agricultural development and the cooperative movement. If and when implemented, both associations will at least have the benefit of being recognized from day-1 as an official spokesperson of both professions in talks with government.

Hence, if the creation of a veterinary association is the required intermediate step towards the establishment of a true VSB as the OIE understands it and defines it, then so be it. One must however clearly differentiate the purpose of a veterinary association, which is a private good, entrusted with the defence of the interests of its members, usually from the private sector, with the purpose of a VSB, which is a public good, for the better of the nation and the veterinary profession, not necessarily the individual professional. While a veterinary association is unlikely to ever come to grips with the challenges surrounding the delivery of veterinary drugs and vaccines by non-qualified individuals and companies, a veterinary statutory body, if endowed with the powers recommended by the OIE, could. It's consideration in future legislation is therefore highly recommended.

Meanwhile, the veterinary authority will have to tackle one of its main challenges, which is (remains) the uncontrolled delivery of veterinary drugs and vaccines in the country. This will have to be done with a lot of consideration for the essential role that these informal distribution networks play in the delivery of veterinary drugs to farmers in remote areas of the country, as well as the public health risks which may result from a sudden crack-down on these networks, considering the poor hygiene observed in most slaughter facilities and meat processing facilities and the current inability of the veterinary authority to monitor residues in animal products in general, and milk and meat in particular. Until such time as a VSB gains control over the attitudes and behaviours of official and private veterinarians and veterinary technicians of all sorts, great care will have to be taken to regulate the sector without disrupting the supply and administering of these essential drugs and vaccines and without creating a clandestine parallel market. Because it must be said : however unsuitable some of the practices encountered, they are very often conducted (committed) within the boundaries of the law.

The upcoming PVS gap-analysis exercise will offer an opportunity to set the record straight for some of these observed shortcomings, by quantifying the required investments needed and setting realistic targets for the next 5 years. Given the average level of advancement (between 1 and 2) there is much room for improvement, some of which can materialise by physical, human and financial incentives, some of which may not, i.e. constraints related to legislation, supply of qualified veterinarians, and challenges related to regional integration (ASEAN), without neglecting the political empowerment of the veterinary services, today largely overshadowed by the attention granted to crop production in general, and rice production in particular. Therefore, any material investment into the veterinary services will have to be accompanied by non-material investments, i.e. a mind-set change. Furthermore, only a broad and regional-minded investment programme is likely to be successful where more narrowly oriented (geographically, or disease-oriented) projects and programmes in the past have failed in devising and consolidating sustainable change.

Table 1: Summary of OIE/PVS evaluation results

PVS results summary of LAO PDR	DLF	PLFO	DLFO	Global Result	Previous PVS (2007)
I. HUMAN, PHYSICAL AND FINANCIAL RESOURCES					
I.1.A. Staffing: Veterinarians and other professionals				**1**	1
I.1.B. Staffing: Veterinary paraprofessionals and other				**2**	1
I.2.A. Professional competencies of veterinarians				**1**	-
I.2.B. Competencies of veterinary paraprofessionals				**2**	-
I-3. Continuing education				**2**	2
I-4. Technical independence				**2**	2
I-5. Stability of structures and sustainability of policies				**3**	3
I-6.A. Internal coordination (chain of command)				**2**	2
I-6.B. External coordination				**3**	-
I-7. Physical resources				**2**	-
I-8. Operational funding	2	1	1	**1**	1
I-9. Emergency funding				**2**	1
I-10. Capital investment				**2**	2
I-11. Management of resources and operations				**2**	-
II. TECHNICAL AUTHORITY AND CAPABILITY					
II-1. Veterinary laboratory diagnosis	2	1	-	**2**	2
II-2. Laboratory quality assurance				**1**	-
II-3. Risk analysis				**1**	1
II-4. Quarantine and border security				**2**	1
II-5.A. Passive epidemiological surveillance				**1**	-
II-5.B. Active epidemiological surveillance				**2**	-
II-6. Early detection and emergency response				**1**	1
II-7. Disease prevention, control and eradication				**2**	-
II-8.A. Ante and post mortem inspection	-	1	1	**1**	-
II-8.B. Inspection of collection, processing and distribution	1	-	-	**1**	-
II-9. Veterinary medicines and biologicals				**1**	1
II-10. Residue testing				**2**	-
II-11. Emerging issues				**1**	1
II-12. Technical innovation				**1**	1
II-13.A. Animal identification and movement control				**2**	1
II-13.B. Identification and traceability of animal products				**1**	-
II-14. Animal welfare				**1**	-
III. INTERACTION WITH STAKEHOLDERS					
III-1. Communications				**2**	1
III-2. Consultation with stakeholders				**1**	1
III-3. Official representation				**2**	2
III-4. Accreditation/authorisation/delegation				**1**	1
III-5.A. Veterinary Statutory Body Authority				**1**	1
III-5.B. Veterinary Statutory Body Capacity				**-**	-
III-6. Participation of producers and other stakeholders in joint programmes				**1**	1
IV. ACCESS TO MARKETS					
IV-1. Preparation of legislation and regulations				**2**	1
IV-2. Implementation of legislation and regulations and stakeholder compliance				**1**	1
IV-3. International harmonisation				**2**	1
IV-4. International certification				**2**	2
IV-5. Equivalence and other types of sanitary agreements				**2**	1
IV-6. Transparency				**3**	2
IV-7. Zoning				**1**	1
IV-8. Compartmentalisation				**1**	1

Key recommendations

There are a total of 14 main recommendations which the upcoming PVS Gap-Analysis exercise will have to take into account to achieve a meaningful impact on the development of the Lao veterinary services in the coming 5 years (i.e. the scope of the programming/action planning).

Human, physical and financial resources

There are three main recommendations : in terms of staffing, it is recommended to pursue the already initiated training of B.Sc.Vet students at the Nabong Faculty of Agriculture, while developing partnership agreements with Universities in neighbouring countries to enable as much students as possible to complete their B.Sc. with Honours degrees or Masters' degrees in view of more specialised (clinical and para-clinical) skills and knowledge.

In terms of continuing education, and in view of the fact that there will not be any Veterinary Statutory Body in the foreseeable future (refer to C.C. III.5.) the DLF should at least develop (or request) a formal training needs assessment, based on the technical evaluation of a limited number of staff at various levels and in various positions. A compulsory continuing in-house education programme should be set up, at least for anyone not having an appropriate diploma for the tasks he/she is conducting (which is the vast majority of 'veterinary' staff). This programme should focus on priorities such as meat inspection, food safety and inspection, epidemiological surveillance and disease recognition, and veterinary pharmacology. Further continuing education could be transferred to the Nabong Agriculture Faculty, which could add existing/experienced veterinary technicians to its group of veterinary technician's students, for some of its courses.

Finally, a long term vision and planning of financial and human resources, should include a planned withdrawal of public veterinary services from the grass-roots level and a progressive shift from intervention and implementation towards legislative supervision, certification, inspection and control. Such a trimmed down public veterinary service should benefit from less, but better qualified and trained human resources, with a thicker pay-slip at the end of the month, completed by performance driven incentives. Governmental budgetary allocations will have to substantially increase, and become commensurate with the economic importance of the livestock and fisheries sector, but more still, with the public veterinary health responsibilities it assumes.

Technical authority and capability

There are five main recommendations : in terms of laboratory activities, the establishment of a computerised laboratory data-management system prepared in Laotian, which enables the NAHC to feed its epidemio-surveillance database to be internally shared and revised, and also to return information to the initiators of the reports and samples at field level. Facilitate PLFO and possibly DLFO to establish internet access so that electric data can be exchanged. As for the provincial laboratories in the north, prioritize one laboratory to function as a regional core of expertise. Allocate qualified human resources, separate budget, even small, for running the lab, and make sure that the BSL complies with the probable biohazard risk of samples and the protocols in use, and at least maintain BSL1.

Border control measures and manpower allocation need to be based on risk analysis and efficiency. For transit control more efforts may be needed for strict containment and consistency check, whether all the sealed containers have transited out or not. Reduce logistics from provincial officers, such as spraying disinfectant to all the vehicles and let them utilise their stand-by time for more sensible inspection. Provide internet access to the checkpoints to facilitate document based communication with other related offices. Provide a simple laboratory for sampling, storage and disinfection (including equipment for autopsy, fridge, freezer, chemicals and steriliser), and possibly for primary clinical inspection (eg. a microscope and staining kits. Some underutilised equipment could be accommodated from other labs).

A strategy regarding passive surveillance programme should be developed as part of a broader animal health strategy. The fact that outbreaks are recognised and reported proves that there is a sound basis to move forward towards the establishment of a passive or general surveillance system. The delays in the design and implementation of such a surveillance system may even prove to be an advantage as the veterinary services could benefit from new technological developments in electronic reporting, cell phone technology and seamless integration into electronic databases.

In terms of veterinary products, legislation, regulation, control and law enforcement are the key words in trying to re-establish order in a currently chaotic, but not (yet) irreversible liberalisation process. Unfortunately, new legislation, as pointed out in C.C. IV.1. rather contributes to the problems related to production, storage, sale, delivery and administration of veterinary drugs and vaccines and provides a blanket framework for a range of private and public operators (producers, importers, wholesalers, and retailers) without any reference to appropriate or suitable technical qualifications. Whether these shortcomings can be overcome by ministerial decrees, as is often argued by DLF and NAHC staff, remains doubtful. In drafting such by-laws in the future, guidance must be sought along OIE guidelines, in particular in terms of strict separation of public and private veterinary services and the avoidance of conflicts of interest, as well as the future role of the Veterinary Statutory Body.

Interaction with stakeholders

There are three main recommendations : in terms of communication activities (not driven by projects or donor-interests, but driven by overall needs as determined through a needs assessment), clarify the operational relationship with NAFES, the *National Agriculture & Forestry Extension Services* agency under the MAF.

The mission further recommends that existing informal consultations with stakeholders be formalised and institutionalised, leading to a documented body of information, which could guide future consultations with stakeholders, not only from the (semi-industrial, urban) farmers, but also from rural smallholders, importers and suppliers of animal feed and veterinary drugs, the private veterinary profession and the Veterinary Statutory Body.

Pursue the establishment of a veterinary association, as foreseen under the new framework law on livestock and veterinary matters (2008) as a precursor to the eventual establishment (under legislation still to be drafted) of a genuine veterinary statutory body or veterinary council, in line with recommendations from the OIE *Terrestrial Animal Health Code*, section 3.2.12.

Access to markets

There are three main recommendations : legislation, legislation and legislation ! The shortcomings of the new legislation will for the foreseeable future, have to be circumvented (within the boundaries of what is acceptable in legal terms) by strong by-laws, decrees and regulations, in an attempt to avoid a further deterioration of field veterinary services and a further erosion of the already weakened veterinary authority.

The question whether the OIE's Veterinary Legislation Support Programme could be of any use is not easy to answer as the Programme usually focusses on assisting the development of the primary veterinary legislation, not the secondary legislation, which is precisely what is needed in Lao today. Furthermore, it is not clear whether existing decrees, such as the Prime-Ministerial Decree (Prime Minister's Office) 085/PMO (1993) and the Ministerial Decrees (Agriculture and Forestry) 004/MAF (1997), 005/MAF (1997) and 313/MAF (2000) on livestock management in Lao P.D.R. have been abolished by the new law or not.

PART II: CONDUCT OF THE EVALUATION

II.1 OIE PVS Tool: method, objectives and scope of the evaluation

To assist countries to establish their current level of performance, form a shared vision, establish priorities and carry out strategic initiatives, the OIE has developed an evaluation tool called the OIE Tool for the Evaluation of Performance of Veterinary Services (OIE PVS Tool[1]) which comprises four fundamental components:

Human, physical and financial resources
Technical authority and capability
Interaction with stakeholders
Access to markets.

These four fundamental components encompass 46 critical competencies, for each of which five qualitative levels of advancement are described. For each critical competency, a list of suggested indicators was used by the OIE Evaluation Team to help determine the level of advancement.

A glossary of terms is provided in Appendix 2.

The report follows the structure of the OIE PVS Tool and the reader is encouraged to consult that document to obtain a good understanding of the context in which the evaluation was conducted.

The objective and scope of the OIE PVS evaluation includes all aspects relevant to the OIE Terrestrial Animal Health Code and the quality of Veterinary Services. In addition, the scope and objectives were clarified before the mission (see Appendix 7) as appropriate to the mandate and context of the VS in this country.

II.2 Country information (geography, administration, agriculture and livestock)

Laos, officially the *Lao People's Democratic Republic*, is a landlocked socialist republic in southeast Asia, bordered by Myanmar and the People's Republic of China to the northwest, Vietnam to the east, Cambodia to the south, and Thailand to the west. It shares 5,083 km of boundaries with its neighbours.

The Mekong River forms a large part of the western boundary with Thailand, whereas the mountains of the Annamite Chain form most of the eastern border with Vietnam *(also refer to the Mekong River Commission in appendix 9).* Laos is divided into 16 provinces and one "prefecture" (or municipality), the names of which can be found on the next page.

The unit of currency in Laos is the new "Kip" or LAK (LAK 7,900 equaled USD 1.0 and LAK 11,000 equaled EUR 1.0 at the time of the mission).

[1] Available at http://www.oie.int/eng/oie/organisation/en_vet_eval_tool.htm?e1d2

Administrative divisions (+ alternative spelling)

1. Attapu	1. Attapue
2. Bokeo	2. -
3. Bolichamxai	3. Boulichamxai
4. Champasak	4. Champassack
5. Houaphan	5. Houamphan
6. Khammouan	6. -
7. Louang Namtha	7. –
8. Louang Prabang	8. Louang Phabang
9. Oudomxai	9. -
10. Phongsali	10. Phonsaly
11. Xaignabouli	11. Sayabury
12. Salavan	12. Saravan(e)
13. Savannakhet	13. -
14. Xekong	14. Sekong
15. Vientiane Capital	15. Vieng Chan
16. Vientiane Province	16. Vieng Chan
17. Xiangkhoang	17. Xieng Khaung

Map 1. Administrative divisions of Lao PD.R. Source : Wikipedia [http://en.wikipedia.org/wiki/Laos]

The climate is tropical and characterized by monsoons. There is a distinct rainy season from May to November, followed by a dry season from December to April.

The capital and largest city of Laos is Vientiane, and other major cities include Luang Prabang, Savannakhet and Pakxe (Pakse).

Laos traces its history to the Kingdom which existed from the 14th to the 18th century when it split into three separate kingdoms. In 1893, it became a French protectorate, with the three kingdoms, Kingdom of Luang Phrabang, Kingdom of Vientiane and Kingdom of Champasak, uniting to form what is now known as Laos. It briefly gained independence in 1945 after Japanese occupation, but returned to French rule until it was granted autonomy in 1949. Laos became independent in 1954, with a constitutional monarchy under Sisavang Vong. Shortly after independence, a long civil war ended the monarchy, when the Communist Pathet Lao movement came to power in 1975.

Laos is a single-party socialist republic. The only legal political party is the *Lao People's Revolutionary Party* (LPRP). The head of state is President Choummaly Sayasone, who is also the General Secretary of the Lao People's Revolutionary Party.

On 2 December 1975, after taking control of the country, the Pathet Lao government under Kaysone Phomvihane renamed the country as the *Lao People's Dem ocratic Republic* and signed agreements giving Vietnam the right to station armed forces and to appoint advisers to assist in overseeing the country. Laos was requested in 1979 by the Socialist Republic of Vietnam to end relations with the People's Republic of China, leading to isolation in trade by China, the United States, and other countries.

In 1992, elections were held for a new 85-seat National Assembly with members elected by secret ballot to five-year terms. This National Assembly, which essentially acts as a rubber stamp for the LPRP, approves all new laws, although the executive branch retains authority to issue binding decrees.

The most recent elections took place in April 2006. The assembly was expanded to 99 members in 1997 and in 2006 elections had 115.

Laos is a member of the *Asia Pacific Trade Agreement* (APTA), *Association of Southeast Asian Nations* (ASEAN), *East Asia Summit* and *La Francophonie.* Laos applied for membership of the *World Trade Organization* (WTO) in 1997. It became a member of the OIE in 1951.

The official language is Lao. The country's ethnic make-up is extremely diverse, with only around 60% belonging to the largest ethnic group, the Lao. The term "Laotian" does not necessarily refer to the ethnic Lao language, ethnic Lao people, language or customs, but is a political term that also includes the non-ethnic Lao groups within Laos and identifies them as "Laotian" because of their political citizenship.

Table 2. Demographics and geographical area of Lao PDR according to province.

Number	Province	Capital	Area (km²)	Population
1	Attapeu	Attapeu	10,320	124,000
2	Bokeo	Ban Houayxay	6,196	162,000
3	Bolikhamsai	Paksan	14,863	256,000
4	Champasak	Pakse	15,415	644,000
5	Hua Phan	Xam Neua	16,500	310,000
6	Khammouane	Thakhek	16,315	368,000
7	Luang Namtha	Luang Namtha	9,325	160,000
8	Luang Phrabang	Luang Phrabang	16,875	440,000
9	Oudomxay	Muang Xay	15,370	293,000
10	Phongsali	Phongsali	16,270	174,000
11	Sainyabuli	Sainyabuli	16,389	367,000
12	Salavan	Salavan	10,691	358,000
13	Savannakhet	Savannakhet	21,774	891,000
14	Sekong	Sekong	7,665	95,000
15	Vientiane Capital	Vientiane	3,920	754,000
16	Vientiane Province	Muang Phon-Hong	15,927	467,000
17	Xieng Khaung	Phonsavan	15,880	264,000
Total				**6,128,000**

Source : City Populations [http://www.citypopulation.de/Laos.html]

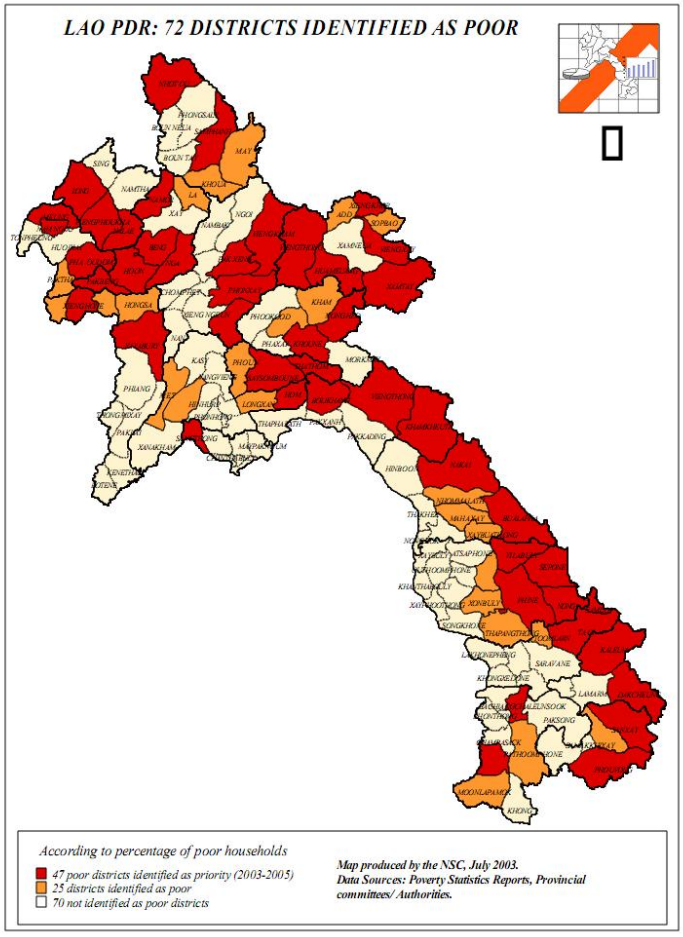
Human population	
Total number [2]	**6,128,000**
Total number [3]	**6,777,070**
Average density / km²	**50**
% of urban[4]	**33%**
% of rural	**67%**

[2] Estimate 1 : City Populations [http://www.citypopulation.de/Laos.html]

[3] Estimate 2 : World Bank (2011)

[4] World Bank (2011) Lao P.D.R. Development Report 2010 : **http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/LAOPRDEXTN/**

Laos has the youngest population of any country in Asia with a median age of 19.3 years. Laos' population was estimated at 6.8 million in early 2009, dispersed unevenly across the country. Most people live in valleys of the Mekong River and its tributaries. Vientiane prefecture, the capital and largest city, had about 740,010 residents in 2008. The country's population density was 27 per km²



Map 2. Percentage of poor households per administrative division (district). Source : NSC, 2003

The *Lao P eople's De mocratic Republic* remains one of the poorest and least developed countries in the East Asian region. Social indicators are among the worst in the region.

Nevertheless, Lao has made particularly noteworthy progress increasing access to sanitation and improved sanitation Lao's predominantly rural (84%) population makes investing in sanitation difficult, and in 1990 only 8% of the rural population had access to improved sanitation. Poverty in Laos is primarily rural with 38 % of the 4.25 million rural people living below the poverty line (2003).

Lao is therefore classified by the United Nations as a *Least Developed Country*, the other three countries in the region being Cambodia, Myanmar and Timor Leste. The level of rural poverty is strongly linked to agro-ecological zones (map 3 on page 13). Poverty remains highest in the Central-Southern Highlands (50 %) and Northern Highlands (46 %), which are the agro-ecological zones characterized by remoteness, mountainous terrain, and poor conditions for farming. Poverty is lower in the Mekong Corridor (40 %) and Northern Lowlands (32 %), where natural conditions for agriculture are generally better and irrigation most prevalent, and lowest in the Vientiane Plain (17 %) where there are dynamic economic interactions with Vientiane Municipality. However, poverty is also linked to population density. The highest number of poor is found in the densely populated Mekong Corridor (more than 603,000 poor people), followed by the Northern Highlands (476,000 poor people) and the Northern Lowlands (329,000 poor people). [WFP, http://foodsecurityatlas.org/lao/country/access/poverty]

Male life expectancy at birth was at 63.2 and female life expectancy was at 65.9 in 2007.Healthy life expectancy was at 54 in 2006. In 2006, two fifths of the population were not using an improved water resource. Government expenditure on health is at about 4 % of the GDP. Its amount was at USD 18 (PPP) in 2006.

Glutinous rice represents the main food in the Lao diet. In 1999, rice provided 69% of the energy supply and 64% of the protein supply [FAO, 2007].

The adult literacy rate exceeds two thirds. The male literacy rate exceeds the female literacy rate. In 2004 the net primary enrollment rate was at 84%. The National University of Laos is the Laos state's public university. The total literacy rate is 73% (2010 estimate).

Private enterprise has increased since the mid-1980s, but development has been hampered by poor communications in the heavily forested and mountainous landscape.

The economy of Laos grew at 7.2% in 2006, 35th fastest in the world, and further grew to an estimated 7.7% in 2010 [CIA World Factbook, July 2011].

As in many developing countries, the major urban centers have experienced the most growth. The economies of Vientiane, Luang Prabang and Savannakhet in particular have experienced significant booms in recent years. Laos' economy is heavily dependent on investment and trade with Thailand. In 2011, the *Lao Securities Exchange* began trading.

The economy receives development aid from the IMF, ADB and other international sources, and foreign direct investment for development of the society, industry, hydropower and mining, most notably copper and gold.

Tourism is the fastest-growing industry in the country. The tourism sector has grown rapidly, from 80,000 international visitors in 1990, to 1.876 million in 2010. Tourism is expected to contribute USD 679.1 million to gross national product in 2010, rising to USD 1.6 billion by 2020. In 2010, one in every 10.9 jobs was in the tourism sector. Export earnings from international visitors and tourism goods are expected to generate 15.5% of total exports or USD 270.3 million in 2010, growing in nominal terms to USD 484.2 million (12.5% of total) in 2020.

Economic development in Laos has been hampered by brain drain, with a skilled emigration rate of 37.4 percent in 2000.

Laos is rich in mineral resources but imports petroleum and gas. Metallurgy is an important industry, and the government hopes to attract foreign investment to develop the substantial deposits of coal, gold, bauxite, tin, copper and other valuable metals. In addition, the country's plentiful water resources and mountainous terrain enable it to produce and export large quantities of hydroelectric energy. At the same time however, Laos is increasingly suffering from environmental problems, with deforestation a particular issue as expanding commercial exploitation of the forests, plans for additional hydroelectric facilities, foreign demand for wild animals and non-wood forest products for food and traditional medicines, and a growing population put increasing pressure on the forests.

The United Nations Development Programme warns that: *"Protecting the environment and sustainable use of natural resources in Lao PDR is vital for poverty reduction and economic growth."* [UNDP – Laos Environment & Energy. United Nations Development Programme].

The country's most widely recognised product may well be Beerlao which is exported to a number of countries including neighbours Cambodia and Vietnam. It is produced by the Lao Brewery Company.

Table 3 : Data summary for geography, agriculture and livestock

	2000	2005	2008	2009
Population, total (thousands)	6 085,19	6 468,56	6 699,31	6 777,07
Population growth (annual %)	1,3	1,2	1,2	1,2
Surface area (km²)	133 921	133 922	134 122	134 122
GNI[5], Atlas method[6] (current USD) (millions)	32 206	46 130	58 290	59 099
GNI per capita, Atlas method (current US$)	5 293	7 132	8 701	8 721
GNI, PPP (current USD) (millions)	42 042	56 928	71 404	71 703
GNI per capita, PPP (current USD)	6 909	8 801	10 658	10 580
GDP (current USD) (millions)	32 211	45 620	61 257	58 112
GDP growth (annual %)	4,3	3,6	1,5	-2,0
Primary sector : agriculture (% of the GDP)	4	3	3	3
Secondary sector : industry (% of the GDP)	29	28	27	
Tertiary sector : services (% of the GDP)	68	69	70	

Source : World Development Indicators database, December 2010 (World Bank, 2011)

	2000	2005	2008	2009
GNI, PPP (current USD) (millions)	9 000	12 290	13 980	14560
GNI, PPP, per capita (current USD)	1 700	2 000	2 200	2300
GDP - real growth rate [7]	4	7.3	7.5	6.5

Source : CIA World Factbook, July 2011 (IndexMundi.com, 2011)

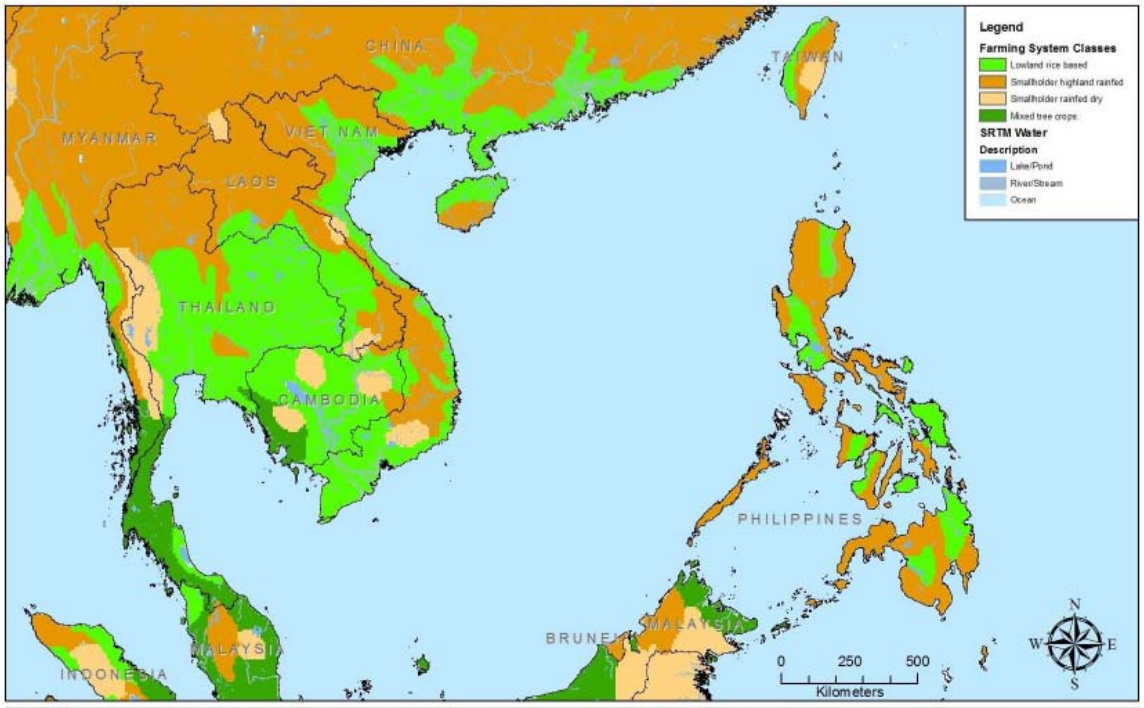
Much of the country also still lacks adequate infrastructure. Laos has no railways, although a short link is planned to connect Vientiane with Thailand over the Thai-Lao Friendship Bridge. The major roads connecting the major urban centres, mainly forming Route 13, have been significantly upgraded in recent years, but villages that are far from major roads are accessible only through unpaved roads that may not be accessible year-round. There is limited external and internal telecommunication, but mobile phones have become widespread in urban centres. In many rural areas electricity is at least partly available. Songthaews (pick-up trucks with benches) are used in the country for long-distance and local public transport.

Subsistence agriculture still accounts for half of the GDP and provides 80 % of employment. Only 4.01 % of the country is arable land, and 0.34 % used as permanent crop land, the lowest percentage in the Greater Mekong Subregion.

[5] Gross National Income is the Gross Domestic Product without the export surplus. It stands for the final goods and services that a country produced and sold within the country. The GDP is the total within and outside the country.

[6] The Atlas Method is a method used by the World Bank to estimate the size of economies in terms of gross national income (GNI) in U.S. dollars. The country's GNI in national currency is converted into U.S. dollars using the Atlas conversion factor, which uses a three-year average of exchange rates to smooth effects of transitory exchange rate fluctuations, adjusted for the difference between the rate of inflation in the country (using the country's GDP deflator), and that in a number of developed countries (using a weighted average of the countries' GDP deflators).

[7] Definition of GDP - real growth rate : This entry gives GDP growth on an annual basis adjusted for inflation and expressed as a percent.



Source: Food and Agriculture Organisation of the United Nations GeoNetwork: http://www.fao.org/geonetwork/srv/en/main.home. Disclaimer: This map is an output of the Sub-regional Environmental Animal Health Management Initiative for enhanced smallholder production in Cambodia, Laos and the Philippines, implemented by their Ministries of Agriculture and the Food and Agriculture Organisation of the United Nations, funded by the Italian Government. No legal endorsement is implied for the boundaries indicated and no legal liability is accepted for interpretation of any of the information presented.

Map 3. Farming system zones	Colour [8]
Lowland rice-based	
Smallholder highland rainfed	
Smallholder rainfed dry	
Mixed tree - crops	

Rice dominates agriculture, with about 80 % of the arable land area used for growing rice [approximately 18,000 km²]. Approximately 77 percent of Lao farm households are self-sufficient in rice.

Through the development, release and widespread adoption of improved rice varieties, and through economic reforms, production has increased by an annual rate of 5 percent between 1990 and 2005, and Lao PDR achieved a net balance of rice imports and exports for the first time in 1999. Lao PDR may have the greatest number of rice varieties in the Greater Mekong Subregion. Since 1995 the Lao government has been working with the International Rice Research Institute to collect seed samples of each of the thousands of rice varieties found in Laos.

The contribution of the agricultural sector to international trade is small. For 2002, food and agricultural exports (about USD 15 million) represented only about 5% of the country's exports; the share of food and agricultural imports was about 17%. Still unofficial exports across the border to Thailand, China and Vietnam are perhaps larger than registered exports. The illegal trade arises mostly to circumvent requirements and high transaction costs. Informal border trade (therefore), especially of agricultural products, is large. Besides the local trade between villages on both sides (of the border), there is smuggling of goods from and to destinations beyond the SEA region (World Bank, 2005)

[8] Colours of the legend for the map above.

Table 4. Agro-ecological and topographical parameters of Lao PDR.

Topography	km²	%
Total area	236 800	
Total land area	230 800	
Agricultural land	19 590	*8.50 %*
of which arable land	*10 000*	*4.01 %*
of which permanent crops	*805*	*0.34 %*
Forest		
Inland waters	6 000	

The second agricultural sector, second only to rice, is livestock. Smallholders own 95 % of the country's livestock. Livestock are an important component of smallholder farms in the Lao PDR with sales of livestock accounting for more than 50% of cash income in many upland and highland areas (ADB/ILRI, 2002). The livestock sector has seen a sustained growth of between 4 and 5% between 2006 and 2009, only mitigated by a reduction in the consumption of broilers following the HPAI outbreaks of 2006 and 2007.

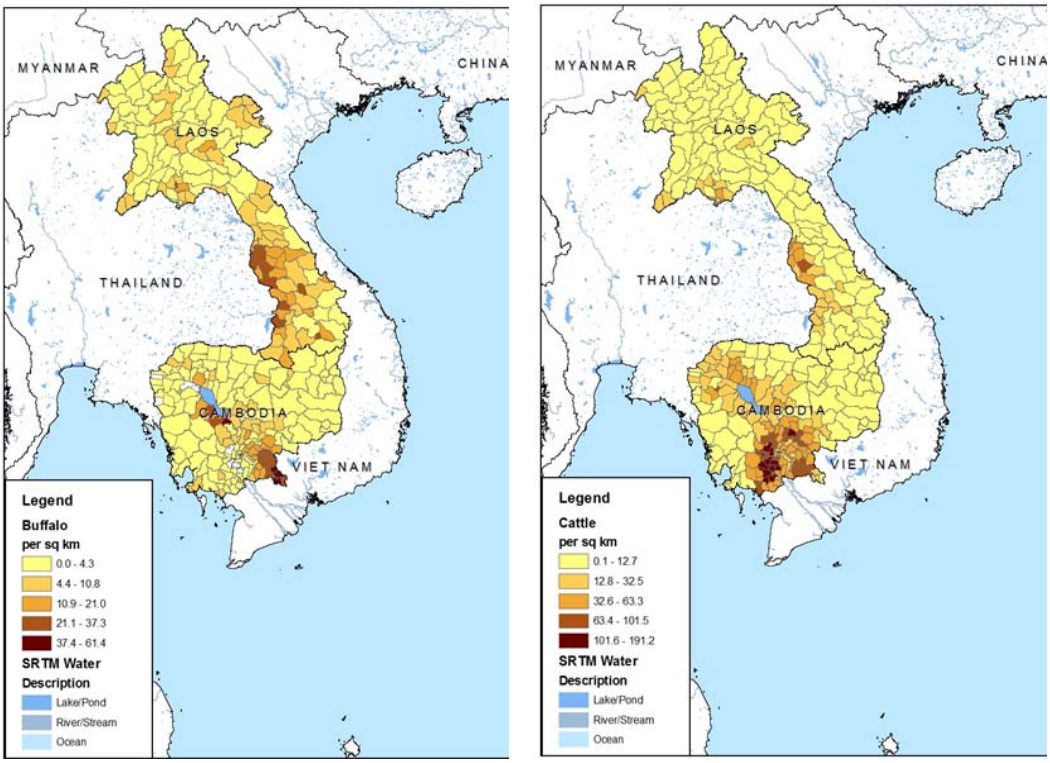
Table 5. Livestock census data over the past 5 years

	2006	**2007**	**2008**	**2009**	**2010**
Buffalo	1 110 838	1 122 858	1 154 456	1 177 545	1 185 580
Cattle	1 300 169	1 353 013	1 397 726	1 425 699	1 474 196
Goat/sheep	216 607	242 602	268 866	367 450	366 707
Pigs (suids)	2 035 137	2 186 208	2 358 558	2 947 288	2 752 510
Poultry	20 427 252	20 452 946	21 213 726	22 521 032	24 078 983

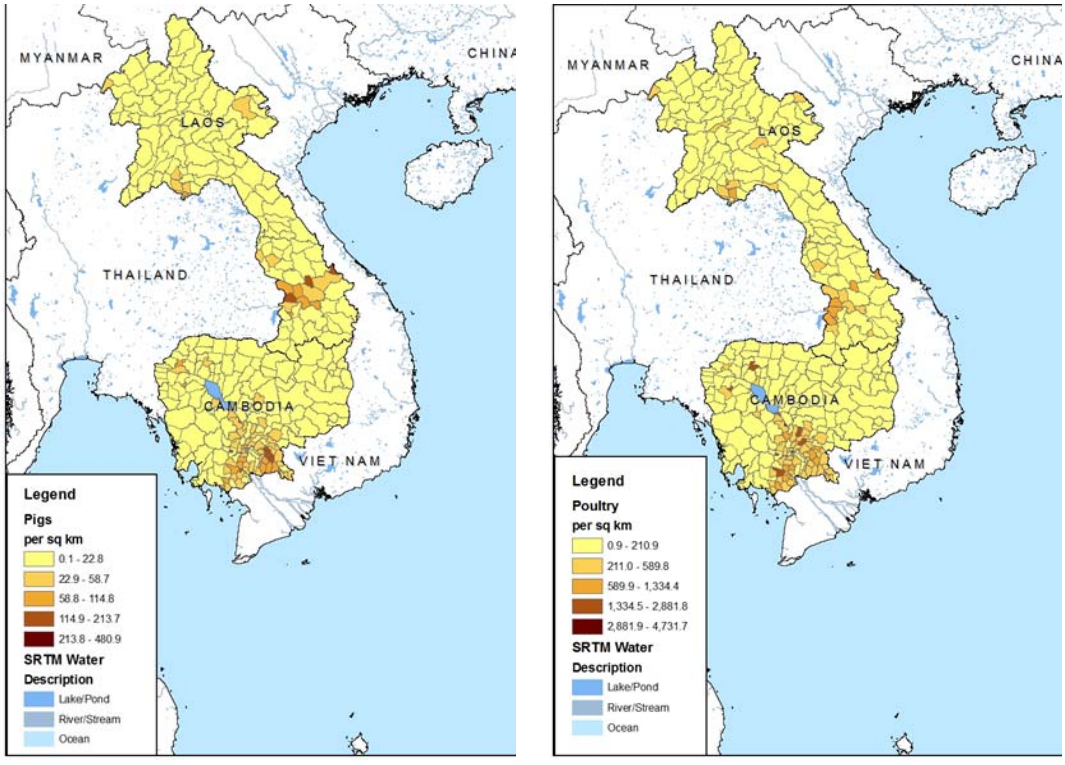
Source : Department of Livestock and Fisheries, Lao PDR

	2006	**2007**	**2008**	**2009**	**2010**
Buffalo	1 108 000	1 123 000	1 155 000	1 178 000	
Cattle	1 321 000	1 353 000	1 499 000	1 426 000	
Goat	210 000	268 000	289 000	367 450	
Horses	31 000	31 000	31 000	31 000	
Pigs	2 033 000	2 186 000	2 548 000	2 947 000	
Chickens	20 803 000	20 453 000	21 983 000	22 521 000	
Ducks	3 200 000	3 200 000	3 200 000	3 200 000	
Geese and guinea fowls	100 000	100 000	100 000	100 000	

Source : FAOSTAT | © FAO Statistics Division 2011 | 04 September 2011



Maps 4 and 5. Density map of water-buffalo / carabao *(Bos bubalis)* left and cattle *(Bos taurus, B. indicus)* right, in Lao and Cambodia.
Source : Environmental Animal health Management Initiative (FAO – Italy) NAHC (2011)



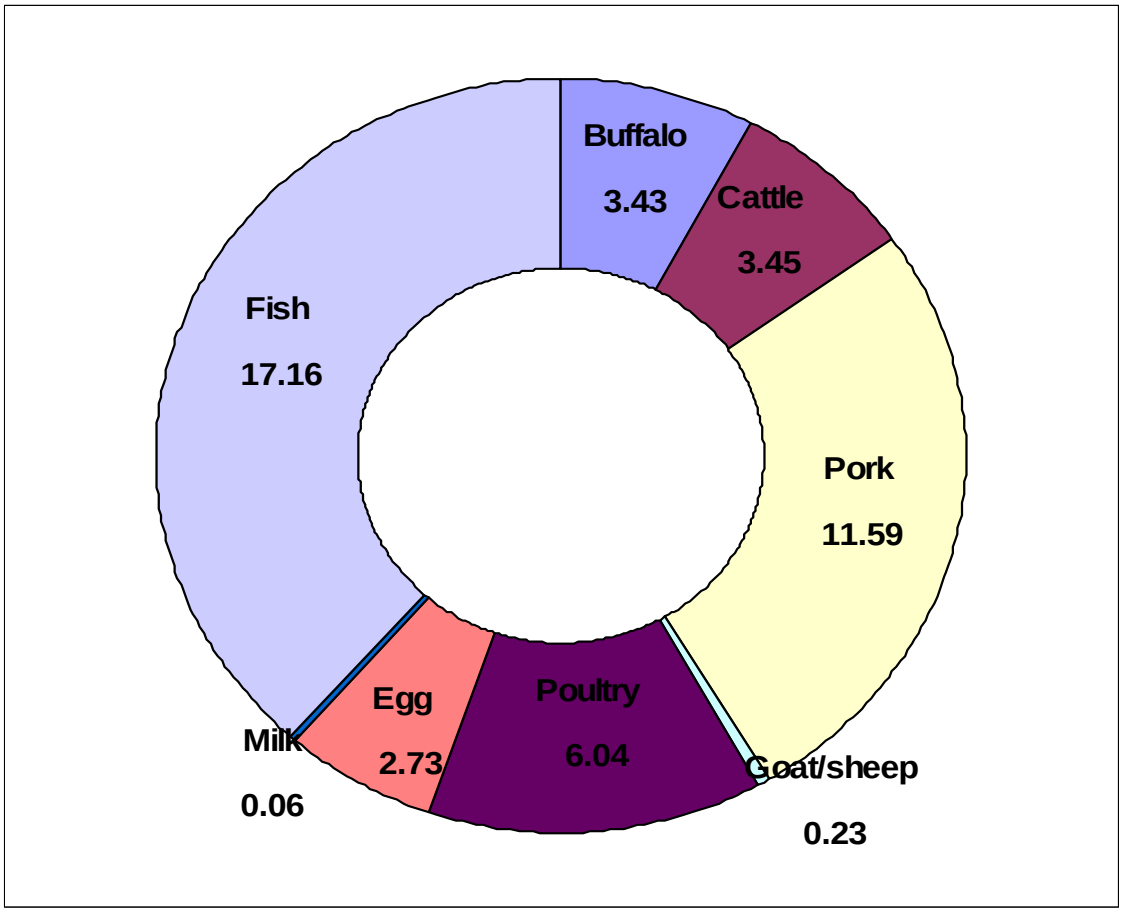
Maps 6 and 7. Density map of pigs *(Suis* spp.*)* left and poultry (right) in Lao and Cambodia.
Source : Environmental Animal Health Management Initiative (FAO – Italy) NAHC (2011)

In terms of availability of animal products, both terrestrial and aquatic, FAO reports that the availability of animal products per capita per annum adds up to around 48 kg.

Table 6. Commodity-based availability of animal products over the past 8 years

Commodity	2000	2001	2002	2003	2004	2005	2006	2007
Bovine Meat	6,11	6,25	6,71	7	6,84	6,9	6,9	6,93
Crustaceans	0,13	0,11	0,15	0,16	0,01	0,08	0,07	0,07
Demersal Fish	0	0	0	0	0,01	0,08	0,08	0,08
Eggs	1,65	1,87	1,98	1,93	1,91	1,89	1,96	1,88
Freshwater Fish	13,2	14,71	16,64	16,64	16,38	18,34	18,02	17,7
Meat, Other	0	0	0	0	0	0	0	0
Milk – excl.butter	3,13	4	3,99	4,17	4,21	4,87	4,23	4,63
Molluscs, Other	0	0,01	0	0	0,27	0,06	0,06	0,06
Mutton, Goat	0,08	0,09	0,09	0,09	0,11	0,13	0,14	0,17
Offals, Edible	1,27	1,31	1,37	1,38	1,41	1,44	1,49	1,53
Pelagic Fish	0,5	0,33	0,35	0,39	0,38	0,31	0,31	0,3
Pigmeat	5,3	5,73	5,64	6,24	6,4	6,63	7,19	7,55
Poultry Meat	2,21	2,42	2,38	3,14	3,36	3,36	3,43	3,33
Total p.a.	**33,58**	**36,83**	**39,3**	**41,14**	**41,29**	**44,09**	**43,88**	**44,23**

DLF data present a similar average for 2009 of 44.6 kg per capita (see pie-chart below).



Map. 8. Political map of Lao P.D.R.
Source : Maps of (the) World © 2008 - 2009
http://www.mapsofworld.com/laos/laos-political-map.html

II.3 Context of the evaluation

II.3.A Availability of data relevant to the evaluation

A list of documents received by the Team before and during the PVS Evaluation mission is provided in Appendix 6.

All documents listed in Appendix 6 are referenced to relevant critical competencies to demonstrate the levels. Documents and pictures are also referenced to relevant critical competencies to support the related findings.

The following table provides an overview of the availability of the main categories of documents or data needed for the evaluation, taking into account the information requirements set out in the OIE Terrestrial Animal Health Code.

Table 7 : Summary of data available for evaluation

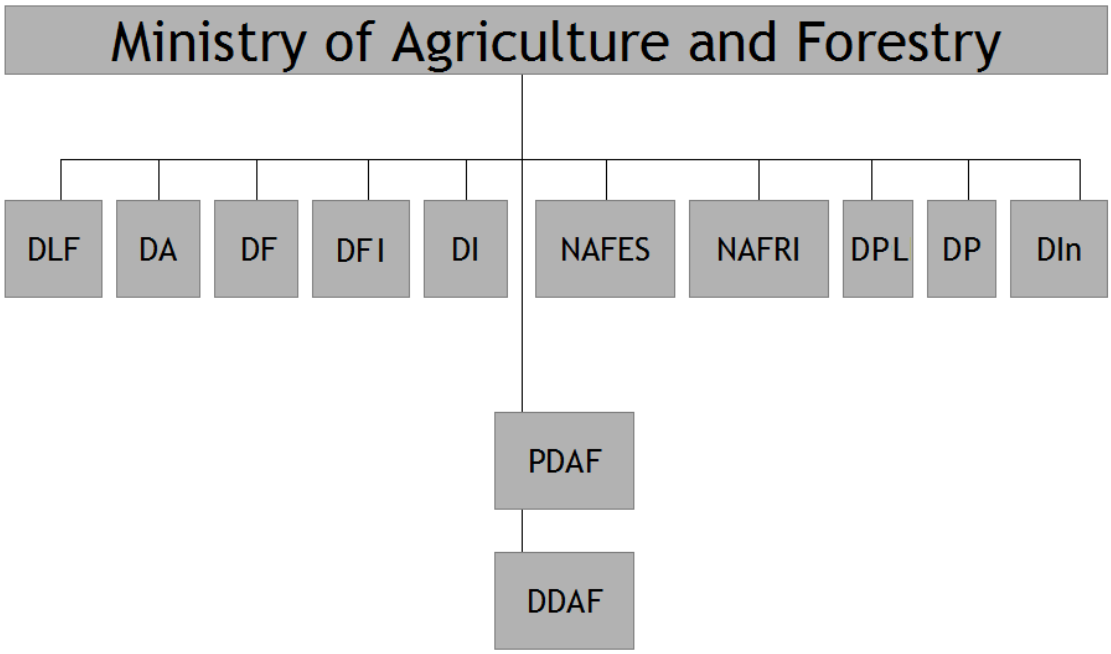
Main document categories	Data available in the public domain	Data accessible only on site or on request	Data not available
→ **Animal census:**			
o at 1st administrative level		●	
o at 2nd administrative level		●	
o at 3rd administrative level		●	
o per animal species		●	
o per production systems			●
→ **Organisations charts**			
o Central level of the VS		●	
o 2nd level of the VS		●	
o 3rd level of the VS		●	
→ **Job descriptions in the VS**			
o Central levels of the VS		●	
o 2nd level of the VS			●
o 3rd level of the VS			●
→ **Legislations, regulations, decrees …**			
o Animal health and public health		●	
o Veterinary practice		●	
o Veterinary statutory body			●
o Veterinary medicines, biologicals		●	
o Official delegation			●
→ **Veterinary census**			
o Overall (public, private, veterinary, para-professional)		●	
o Per level		●	
o Per function		●	
→ **Census of logistics & infrastructures**			●
→ **Activity reports**		●	
→ **Financial reports**		●	
→ **Animal health status reports**	●		
→ **Evaluation reports**		●	
→ **Procedures, registers, records, letters**		●	

II.3.B General organisation of the Veterinary Services

The veterinary services in Lao P.D.R. are centred around three core sectors :

a) public sector veterinary services : *the veterinary administration* [9]
b) private sector veterinary services
c) stakeholders institutions, organisations

The veterinary administration, as a public service, is part of *the Ministry of Agriculture and Forestry*, and in particular the *Department of Livestock and Fisheries* (DLF), one of the 8 departments of the Ministry.



DA	Department of Agriculture
DF	Department of Forestry
DFI	Department of Forestry Inspection
DI	Department of Irrigation
Din	Department of Inspection
DLF	Department of Livestock and Fisheries
DP	Department of Personnel
DPL	Department of Planning
NAFES	National Agriculture & Forestry Extension Services
NAFRI	National Agriculture & Forestry Research Institute
DDAF	District Department of Agriculture and Forestry
PDAF	Provincial Department of Agriculture and Forestry

[9] ***Veterinary Administration*** means the governmental *Veterinary Service* having authority in the whole country for implementing the animal health measures and international veterinary certification process which the OIE recommends, and supervising or auditing their application. **Veterinary Authority** means a *Veterinary Service*, under the authority of the *Veterinary Administration*, which is directly responsible for the application of animal health measures in a specified area of the country. It may also have responsibility for the issuing or the supervision of the issuing of *international veterinary certificates* in that area.

The *Department of Livestock and Fisheries* has four management divisions and four operational centres, as defined in the organisational flow-chart adopted in 2004 and revised in 2007-2008.

The divisions are :

a) the livestock and veterinary regulatory division (RD)

b) the fisheries division (FD)

c) the planning division (PD)

- statistics and information
- planning
- cooperation and investments
- projects

d) the administrative division (AD)

- administration
- finances
- human resources

The centres are :

a) the National Animal Health Centre (NAHC)

b) the Veterinary Vaccine Production Centre (VVPC)

c) the Livestock Management Centre (LMC)

d) the National Aquaculture Development Centre (NADC)[10]

The latter two will not be discussed as they are not subjected to the OIE guidelines as defined in the OIE Terrestrial Animal Health Code.

The public veterinary services are represented by the *National Animal Health Centre* of the DLF, which *de facto* detains many, but not all[11], prerogatives of a veterinary services department, as we understand it according to the OIE Terrestrial Code.

It covers 5 areas of intervention, as reflected in the administrative breakdown :

a) the diagnostic laboratory unit;
b) the veterinary supply unit;
c) the meat inspection unit;
d) the epidemiology and disease control unit;
e) the administration and information unit.

Extension services are entrusted to an independent pluri-disciplinary extension service (NAFES[12]), coping with agricultural, livestock, fisheries and forestry issues.

[10] Also referred to as the *Inland Fisheries Centre* in some sources
[11] Border inspection and meat inspection for instance are under the provincial administration's mandate.
[12] Likely following a World Bank driven reform. A similar body exists with regard to agricultural and forestry related research (NAFRI)

Wildlife monitoring and conservation services are provided through the Forestry Department of the same Ministry.

Laos having adopted a very decentralized political system, most prerogatives of the public veterinary services reside within the PLFO, the *Provincial Livestock and Fisheries Offices* (17), which receive technical advice from the DLF, but are otherwise very independent, in part because they are funded by provincial budget allocations. These provincial bodies in turn, are not entirely in control, because several tasks of the veterinary services are entrusted to the *District-level Livestock and Fisheries Offices* , administered and funded by the District.

Provincial Livestock & Fisheries Offices (17) are subdivided in three (sub)divisions :

a) veterinary services (VS), including public veterinary surgeries, pharmacies and laboratories, meat inspection in provincial abattoirs (slaughterhouses), as well as international border check points;
b) livestock services;
c) fisheries services.

District Livestock & Fisheries Offices (141) are –in principle- also subdivided in the same three (sub)divisions :

a) veterinary services (VS), including meat inspection in district abattoirs (slaughterslabs), some international (minor) border check points.
b) livestock services;
c) fisheries services.

Within these different departments and different administrative and political levels, government is said to be involved in the management of 8 breeding stations and 4 specific poultry breeding stations, 32 state hatcheries, 2 animal feed-analyses laboratories, 8 provincial animal disease diagnostic laboratories and 12 international border check points.

Pictures 00 - 01. *Visit of the* Provincial Livestock and Fisheries Office *(PLFO) in Vientiane Capital in 2007 (left) and in 2011 (right). Pictures © Phouth Intavong (2007, 2011)*

The flowchart on page 23 is an attempt to elucidate this set-up, and to differentiate political authority, administrative authority and technical authority.

The staff numbers (also see critical competencies I.1 and I.2) across the three layers (national, provincial and district-levels) and for the three sectors (livestock, fisheries and veterinary services) are as follows (2010) : 1,469 permanent staff and 457 contract staff.

These 1,469 permanent staff are allocated as follows :

DLF (headquarters)	41 persons
Technical Centres (NAHC, VVPC, NADC)	81 persons
PLFO	361 persons
DLFO	986 persons

In terms of qualifications, the breakdown is as follows (figures from 2006 – 2010) :

Qualifications	persons	share (%)
Medium diploma holders and others	1,154	78.6
Higher diploma	205	14.0
Bachelor degree (BSc)	67	4.6
Master degree (MSc)	35	2.4
PhD	8	0.5
Total	1,469	100.0

Sources : Department of Livestock and Fisheries (2011), DLF-NAHC (2010)

In addition, the DLF claims that there are 12,079 *Village Veterinary Workers* (VVW) working under the auspices of the various provincial and district authorities. The NAHC annual report for 2009 – 2010 argues that there are 11,751 VVWs of which 61% is estimated to be still active; this represents approximately 7,000 VVWs.

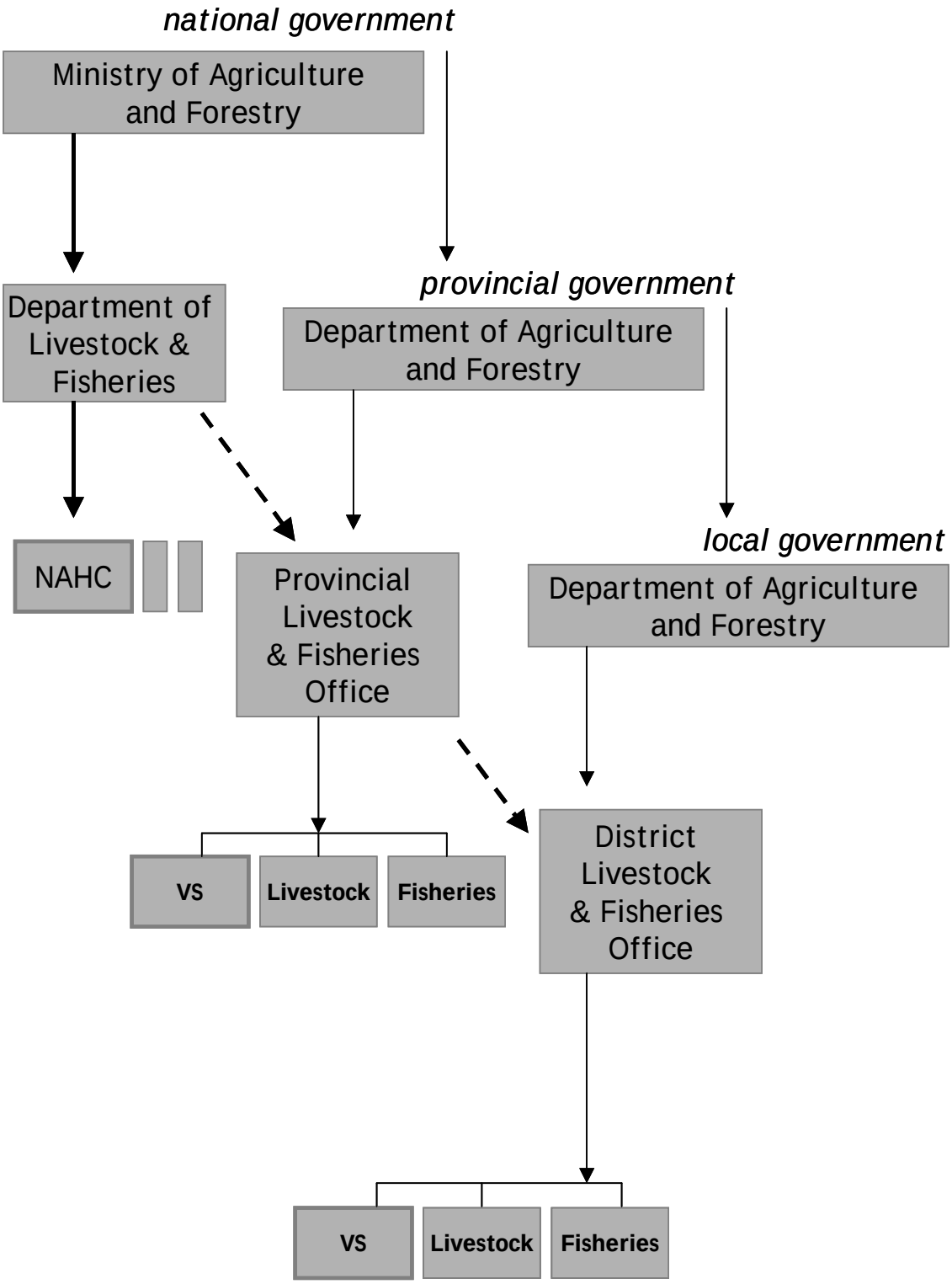
The private delivery of veterinary services, is not documented in terms of legislation and regulations, but is undeniably present and fast growing. A very simplified list will include the following categories of private veterinary service providers, both formal and informal (*italic*) :

a) private veterinary surgeries and pharmacies;
b) private veterinary pharmacies;
c) private pharmacies, also selling veterinary drugs and biologicals;
d) private animal feed retail shops, also selling veterinary drugs and biologicals;
e) (private) veterinary village workers (VVW).

Finally, the stakeholders, as end-users[13] of the veterinary services or otherwise involved in the veterinary and/or livestock sector as partners or counterpart organisations, can be defined as follows :

a) small scale livestock farmers in 11,400 villages nation-wide
b) village animal husbandry workers (VAHW)
c) village fisheries workers (VFW)
d) model smallholders (estimated 2,000)
e) the pig farmers' association
f) the poultry farmers' association
g) livestock and fisheries enterprises (commercial farms)

[13] Consumers, farmers, livestock traders and/or industry


national government
Ministry of Agriculture and Forestry
Department of Livestock & Fisheries
provincial government
Department of Agriculture and Forestry
local government
Department of Agriculture and Forestry
NAHC
Provincial Livestock & Fisheries Office
District Livestock & Fisheries Office
VS
Livestock
Fisheries
VS
Livestock
Fisheries

II.3.C Animal disease occurrence

Information on animal disease occurrence from the OIE website (see table 8)

Table 8 : Disease status of the country

Diseases present in the Country

	Domestic		Wild	
Disease	Notifiable	Status	Notifiable	Status
Aujeszky's disease	✗	Suspected (not confirmed)	✗	No information
Bovine viral diarrhoea	✗	Suspected (not confirmed)	✗	No information
Brucellosis (Brucella abortus)	✗	Suspected (not confirmed)	✗	No information
Brucellosis (Brucella melitensis)	✓	Suspected (not confirmed)	✗	No information
Classical swine fever	✓	Clinical Disease	✗	No information
Contagious cap. pleuropneumonia	✗	Suspected (not confirmed)	✗	No information
Duck virus hepatitis	✗	Suspected (not confirmed)		Not Applicable
Echinococcosis/hydatidosis	✗	Clinical Disease	✗	No information
Foot and mouth disease	✓	Clinical Disease	✗	No information
Fowl cholera	✗	Clinical Disease	✗	No information
Fowl typhoid	✗	Suspected (not confirmed)	✗	No information
Haemorrhagic septicaemia	✓	Clinical Disease	✗	No information
Highly path. avian influenza	✗	Clinical Disease	✗	No information
Japanese encephalitis	✓	Confirmed infection (no clinical disease)	✗	No information
Porcine reproductive/respiratory syndr.	✓	Clinical Disease	✗	No information
Pullorum disease	✗	Clinical Disease	✗	No information
Rabies	✓	Clinical Disease	✗	No information
Sheep pox and goat pox	✓	Suspected (not confirmed)	✗	No information
Swine vesicular disease	✓	Suspected (not confirmed)	✗	No information
Vesicular stomatitis	✗	Suspected (not confirmed)	✗	No information

From this list the following diseases are regarded as very important from an economic or zoonotic perspective :

- Classical Swine Fever (CSF)
- Foot and Mouth Disease (FMD)
- Hemorrhagic Septicaemia (HS)
- HPAI
- PRRS [14]
- Rabies

[14] The statement that PRRS is a notfiable disease is not actually trustful as no evidence of this could be provided to the Team while in Lao. Apparently, no decree was ever adopted to this effect.

Diseases never reported

Disease	Notifiable	Type of surveillance
African horse sickness	✗	
African swine fever	✓	
Bluetongue	✗	
Bovine spongiform encephalopathy	✗	
Encephalomyelitis (West.)	✗	
Equine encephalomyelitis (Eastern)	✗	
Maedi-visna	✗	
N. w. screwworm (C. hominivorax)	✗	
Nairobi sheep disease	✗	
O. w. screwworm (C. bezziana)	✗	
Ovine epididymitis (B. ovis)	✗	
Peste des petits ruminants	✗	
Rift Valley fever	✗	
Scrapie	✗	
Venezuelan equ.encephalomyelitis	✗	

Diseases not reported in 2010

	Domestic			Wild		
Disease	Notifiable	Last occurrence	Surveillance	Notifiable	Last occurrence	Surveillance
Anthrax	✓	06/2009	General Surveillance	✗	Unknown	
Avian chlamydiosis	✗	Unknown		✗	Unknown	
Avian infect. laryngotracheitis	✗	Unknown		✗	Unknown	
Avian infectious bronchitis	✗	Unknown		✗	Unknown	
Avian mycoplasmosis (M.synoviae)	✗	Unknown		✗	Unknown	
Bovine anaplasmosis	✗	Unknown		✗	Unknown	
Bovine babesiosis	✗	Unknown		✗	Unknown	
Infec bursal disease (Gumboro)	✗	Unknown		✗	Unknown	
Marek's disease	✗	Unknown		✗	Unknown	
Mycoplasmosis (M. gallisepticum)	✗	Unknown		✗	Unknown	
Newcastle disease	✓	Unknown	General Surveillance	✗	Unknown	
Paratuberculosis	✓	1974		✗	Unknown	
Porcine cysticercosis	✓	Unknown		✗	Unknown	
Rinderpest	✓	1966	General Surveillance	✓	1966	General Surveillance
Theileriosis	✗	Unknown		✗	Unknown	
Transmissible gastroenteritis	✗	Unknown		✗	Unknown	
Trichinellosis	✓	2005	General Surveillance	✗	Unknown	
Trypanosomosis	✗	Unknown		✗	Unknown	
Turkey rhinotracheitis	✗	Unknown		Not Applicable		

Source : WAHID (OIE) November 10th, 2011

II.4 Organisation of the evaluation

II.4.A Timetable of the mission

Appendix 3 provides a list of persons met; Appendix 4 provides the timetable of the mission and details of the facilities and locations visited by the OIE-PVS Team and Appendix 5 provides the international air travel itinerary of team members.

The map in Appendix 5 (page 154) indicates the travel undertaken by the assessors.

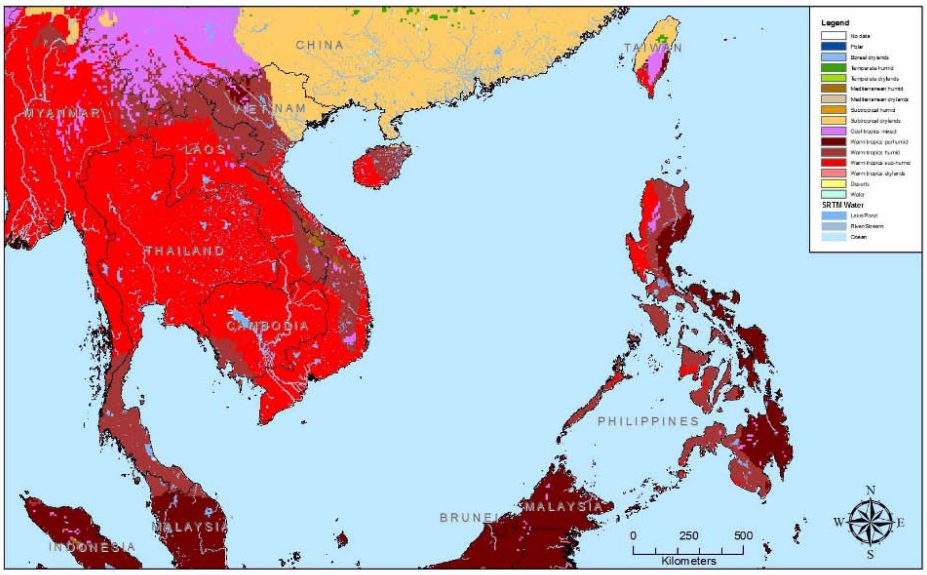
II.4.B Categories of sites and sampling for the evaluation

The table 9 lists the categories of site relevant to the evaluation and the number of each category of site in the country. It indicates how many of the sites were visited, in comparison with the suggested sampling framework ("ideal" sampling) recommended in OIE PVS Manual.

Appendix 4 provides a detailed list of sites visited and meetings conducted (page 150)

Table 9 : Site sampling	**Terminology used in the country**	Number of sites	"Ideal" sampling	Actual sampling
GEOGRAPHICAL ZONES OF THE COUNTRY				
Climatic zone *(see map 9 on next page)*	*Warm tropical and sub-humid, Warm tropical and humid*	2	2	2
Topographical zone	*Northern region Central region Southern region*	3	3	3
Agro-ecological zone	*Mekong corridor, Central – South high-lands, Vientiane plain, Northern highlands & Northern lowlands*	5	5	4
ADMINISTRATIVE ORGANISATION OF THE COUNTRY				
1st administrative level	*National*	1	1	1
2nd administrative level	*Province*	17	10	8
3rd administrative level	*District*	141	12	14
4th administrative level	*Villages*	11 400	106	1
Urban entities	*Cities*	4	4	4
VETERINARY SERVICES ORGANISATION AND STRUCTURE				
Central (Federal/National) VS	MAF	1	1	1
Internal division of the central VS	DFL	4	4	3
1st level of the VS	NAHC	1	1	1
2nd level of the VS	PLFO	17	10	8
3rd level of the VS	DLFO	141	12	8
Veterinary organisations (VSB, unions…)	None	0	-	-
FIELD ANIMAL HEALTH NETWORK				
Field level of the VS (animal health)	VVW	12 079	109	2
Private veterinary sector	Private vet. surgeries	6	6	1
Public veterinary sector	Public vet. surgeries	< 20	10	4
Other sites (dip tanks, crush pens….)	None	0	-	-
VETERINARY MEDICINES & BIOLOGICALS				
Production sector	None	0	-	-
Import and wholesale sector	Public : vet. supply unit Private : < 10	< 10	5	1
Retail sector	Veterinary pharmacy	unknown	-	3
Other partners involved	Animal feed shops	unknown	-	1

Table 9 : Site sampling (continued)	**Terminology used in the country**	Number of sites	"Ideal" sampling	Actual sampling
VETERINARY LABORATORIES				
National labs	Central Vet.Laboratory	1	1	1
Regional and local labs	Province Vet.Laboratory	4	4	3
Associated, accredited and other labs	None	0	-	-
ANIMAL AND ANIMAL PRODUCTS MOVEMENT CONTROL				
Bordering countries	China, Myanmar, Vietnam, Thailand, Cambodia	5	5	3
Airports and ports border posts		1	1	0
Main terrestrial border posts		12	10	5
Minor terrestrial border posts		11	10	0
Quarantine stations for import		Unknown	-	0
Internal check points		2	2	1
Live animal markets		Unknown	-	3
Zones, compartments, export quarantines		0	-	-
PUBLIC HEALTH INSPECTION OF ANIMALS AND ANIMAL PRODUCTS				
Export slaughterhouse	none	0	-	-
National market slaughterhouses	Vientiane Modern	1	1	1
Local market slaughterhouse		17	10	3
Slaughter areas/slabs/points		> 300	17	0
On farm or butcher's slaughtering sites		unknown	-	0
Processing sites (milk, meat, eggs, etc)		unknown	-	0
Retail outlets (butchers, shops, restaurants)		unknown	-	0
TRAINING AND RESEARCH ORGANISATIONS				
Veterinary university	Nabong (B.Sc.)	1	1	1
Veterinary paraprofessional schools	Nabong (Dipl. & HD) Agricultural Colleges	5	5	1
Veterinary research organisations	NAFRI	1	1	0
STAKEHOLDERS' ORGANISATIONS				
Agricultural Chamber / organisation				
National livestock farmers organisations	Pig farmers association Poultry farmers assoc.	2	2	0
Local livestock farmers organisations	None	0	-	-
Other stakeholder organisations		unknown	-	0
Consumer organisations		unknown	-	0



Source: Food and Agriculture Organisation of the United Nations GeoNetwork: http://www.fao.org/geonetwork/srv/en/main.home. Disclaimer: This map is an output of the Sub-regional Environmental Animal Health Management Initiative for enhanced smallholder production in Cambodia, Laos and the Philippines, implemented by their Ministries of Agriculture and the Food and Agriculture Organisation of the United Nations, funded by the Italian Government. No legal endorsement is implied for the boundaries indicated and no legal liability is accepted for interpretation of any of the information presented.

Map 9. Climatic zones in Laos : warm tropical and sub-humid (red) and warm tropical and humid (brown)

PART III: RESULTS OF THE EVALUATION & GENERAL RECOMMENDATIONS

This evaluation identifies the strengths and weaknesses of the veterinary services, and makes general recommendations.

FUNDAMENTAL COMPONENTS	
1.	HUMAN PHYSICAL AND FINANCIAL RESOURCES
2.	TECHNICAL AUTHORITY AND CAPABILITY
3	INTERACTION WITH STAKEHOLDERS
4.	ACCESS TO MARKETS

Veterinary services are recognised by the international community and by OIE Members as a '**global public good**'. Accordingly, it is essential that each country acknowledges the importance of the role and responsibilities of its veterinary services and gives them the human and financial resources needed to fulfil their responsibilities.

This OIE-PVS Evaluation examined each critical competency under the 4 fundamental components, listed strengths and gaps where applicable, and established a current level of advancement for each critical competency. Evidence supporting this level is listed in Appendix 6. General recommendations were provided where relevant.

The previous level of advancement for each critical competency (as established in 2007) is shown in cells shadowed in grey (15%) in the table. The new proposed level of advancement is shown in dark blue cells and white characters in the table.

Picture 02. *Waterbuffalo or "carabao", a prominent feature of Lao animal husbandry. Picture © M. Varas (2011)*

III.1 Fundamental component I: Human, physical and financial resources

This component of the evaluation concerns the institutional and financial sustainability of the VS as evidenced by the level of professional/technical and financial resources available and the capacity to mobilize these resources. It comprises eleven critical competencies:

Critical competencies:

Section I-1	**Professional and technical staffing of the Veterinary Services**
	A. Veterinary and other professionals (university qualification)
	B. Veterinary para-professionals and other technical personnel
Section I-2	**Competencies of veterinarians and veterinary para-professionals**
	A. Professional competencies of veterinarians
	B. Competencies of veterinary para-professionals
Section I-3	**Continuing education**
Section I-4	**Technical independence**
Section I-5	**Stability of structures and sustainability of policies**
Section I-6	**Coordination capability of the VS**
	A. Internal coordination (chain of command)
	B. External coordination
Section I-7	**Physical resources**
Section I-8	**Operational funding**
Section I-9	**Emergency funding**
Section I-10	**Capital investment**
Section I-11	**Management of resources and operations**

Terrestrial Code References:
Points 1-7, 9 and 14 of Article 3.1.2. on Fundamental principles of quality: Professional judgement / Independence / Impartiality / Integrity / Objectivity / Veterinary legislation / General organisation / Procedures and standards / Human and financial resources.
Article 3.2.2. on Scope.
Points 1 and 2 of Article 3.2.3. on Evaluation criteria for the organisational structure of the Veterinary Services.
Point 2 of Article 3.2.4. on Evaluation criteria for quality system: "Where the Veterinary Services undergoing evaluation… than on the resource and infrastructural components of the services".
Article 3.2.5. on Evaluation criteria for human resources.
Points 1-3 of Article 3.2.6. on Evaluation criteria for material resources: Financial / Administrative / Technical.
Points 3 and Sub-point d) of Point 4 of Article 3.2.10. on Performance assessment and audit programmes: Compliance / In-Service training and development programme for staff.
Article 3.2.12. on Evaluation of the veterinary statutory body.
Points 1-5 and 9 of Article 3.2.14. on Organisation and structure of Veterinary Services / National information on human resources / Financial management information / Administration details / Laboratory services / Performance assessment and audit programmes.

I-1. Professional and technical staffing of the Veterinary Services *The appropriate staffing of the VS to allow for veterinary and technical functions to be undertaken efficiently and effectively.* **A. Veterinary and other professionals (university qualification)**	**Levels of advancement**
	1. The majority of veterinary and other professional positions are not occupied by appropriately qualified personnel.
	2. The majority of veterinary and other professional positions are occupied by appropriately qualified personnel at central and provincial levels.
	3. The majority of veterinary and other professional positions are occupied by appropriately qualified personnel at local (field) level.
	4. There is a systematic approach to defining job descriptions and formal appointment procedures for veterinarians and other professionals.
	5. There are effective management procedures for performance assessment of veterinarians and other professionals.

Terrestrial Code reference(s): Annexe 1

Evidence (references of documents or pictures listed in Appendix 6) : E01, P03, P04, P05, H05

Findings:

There was no veterinary graduate training available in Laos in 2007 but today, Nabong faculty provides the courses to obtain the degree in Veterinary Medicine. Most veterinarian today, if not all, acquired their B.Sc, M.Sc. or Ph.D. diplomas outside Laos, usually in states of the former Soviet-Union (Russia, Moldavia) or in countries under the then Soviet-influence, such as Hungary or Yugoslavia. Since the collapse of the iron curtain in the 1990-ies and the shift in political and economic policy of the Lao Government around the same time, only very few veterinarians have been trained, most of them in neighbouring Thailand or Vietnam.

Amongst the 483 staff working for the livestock and fisheries departments at national and provincial level, only 36 are graduate-level *veterinarians*[15] (dvm). In contrast, 60 veterinary positions are defined for these same levels (32 at provincial level and 28 at national level). At national level, 23 of the 28 veterinary positions (82%) are occupied by graduate veterinarians, against 13 of the 32 positions at province level (40%), which is still considerably better than in 2007. No veterinary positions are foreseen at district level. Many of these "veterinary" positions are occupied by non-veterinarians, at best agricultural graduates detaining a Higher Diploma (HD) or a B.Sc. in agricultural sciences from the National Faculty of Agriculture in Nabong (Vientiane Capital). In a few cases, technicians (agriculture, zootechnicians) have been trained abroad.

A PLFO, such as the Vientiane Capital PLFO, will operate with 22 staff positions (against 26 in 2007), of which 9 veterinary positions (main office, meat inspection, port, airport, surgery). Only 2 of these positions are filled by qualified veterinarians.

Picture 03. *The entrance to the Nabong Agricultural Faculty. Picture © M. Varas (2011)*

Picture 04. *Discussions held with academic staff from the Nabong Faculty. Picture © A. Kamakawa (2011)*

[15] **Veterinarian** means a person registered or licensed by the relevant *veterinary statutory body* of a country to practice veterinary medicine/science in that country.

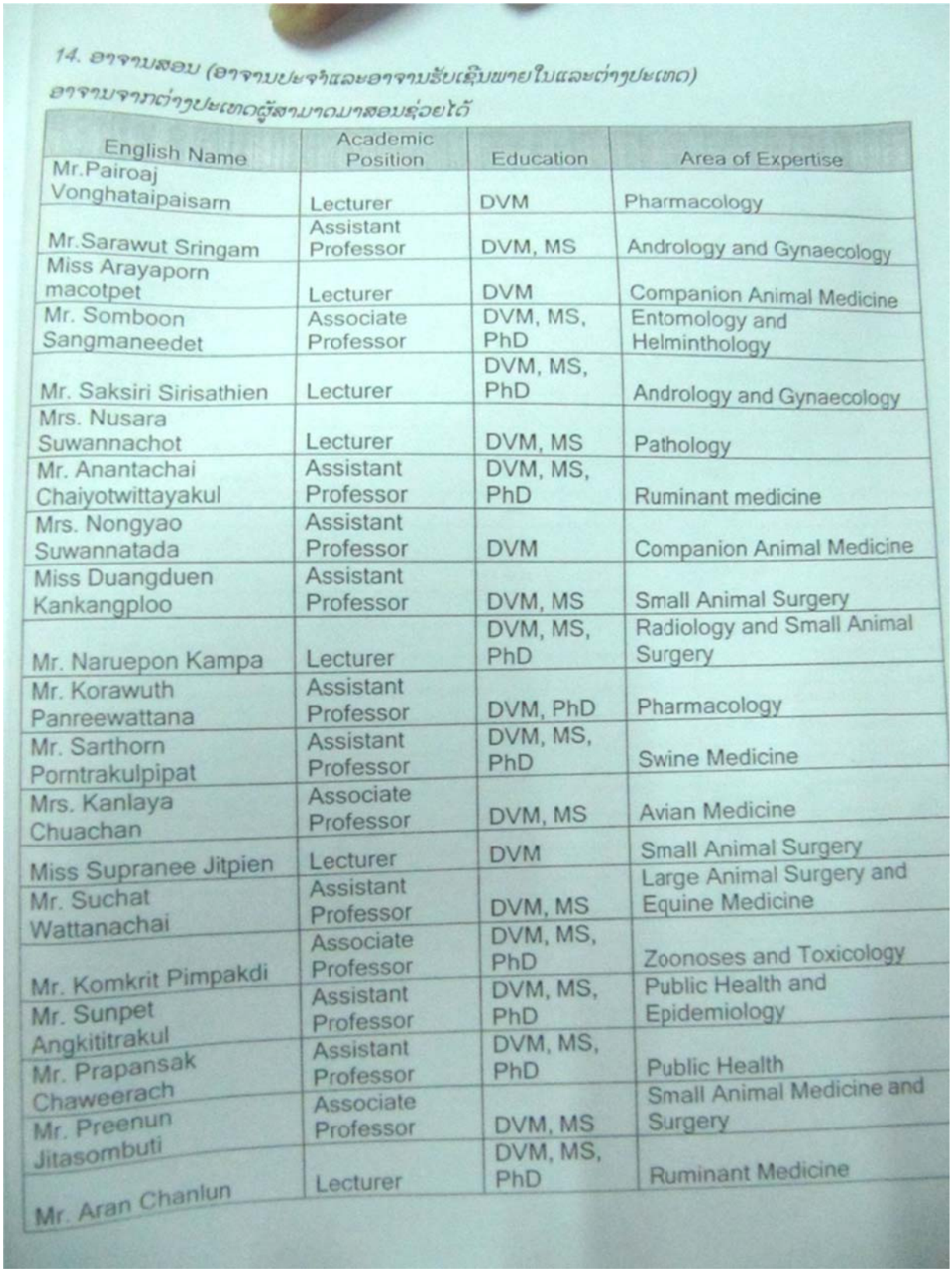
In Savannathek province the PLFO operates with 35 staff positions (against 30 in 2007), of which 5 are veterinary positions. None of these positions are occupied by veterinary graduates. This situation is especially troublesome, given the importance of livestock production in this province (approximately 679,000 TLU). In Champassack province the PLFO accounts for 16 staff positions, of which 7 are veterinary positions, only one of which is occupied by a Vietnam-graduated animal scientist. There are no actual veterinary graduates appointed.

Gross estimates set the number of graduate veterinarians (dvm) nation-wide at around 50 (estimates vary from 40 to 60, according to the source). The other veterinarians work either within the Ministry, at management level, and are not involved in the delivery of veterinary services (Ministers, Heads of Departments of Agriculture and Forestry, etc…) or they are found in other public sectors (other Ministries, local governments, development projects), as well as in the private sector, with a few working as private veterinary surgeons (estimated at 6).

Scholarships and grants, funded by donors, are usually provided for post-graduate courses or PhD research and benefit to the few existing veterinarians. Today, these scholarships have seen their number decrease in the past years. They are therefore not an answer to the overall shortage of veterinarians in the country, nor does it provide much needed training skills in field-level veterinary activities.

Table 11. Staff positions up to province-level, as compared to veterinary positions, and compared with the importance of the livestock sector (per province), as expressed in tropical livestock units (TLU)

	Total staff positions	**DVM positions**	**Positions occupied by DVM**	**Ratio (%)**
National level (total)	**101**	**28**	**23**	**82%**
DLF	9	1	1	
AD	8	0		
PD	8	3	4	
RD	7	3	3	
FD	7	1	0	
NAHC	28	13	10	
VVPC	12	6	4	
NADC	13	1	0	
LMC	9	0	1	
Province level (total)	**361**	**32**	**13**	**TLU (.000)**
Vientiane Capital	22	9	2	*93*
Phongsaly	-	-	0	*91*
Luang Namtha	-	-	0	*61*
Oudomxai	-	-	1	*96*
Bokeo	-	-	0	*58*
Luang Phrabang	-	-	1	*107*
Houaphan	-	-	0	*193*
Xaignabouli (Sayabury)	-	-	3	*163*
Xieng Khouang	-	-	3	*220*
Vientiane	-	-	2	*199*
Boulixamsai	12	7	0	*81*
Khammouane	-	-	0	*146*
Savannakhet	35	5	1	*679*
Saravan	-	-	0	*286*
Xexong	-	-	0	*84*
Champassack	16	7	0	*279*
Attapeu	-	-	0	*66*



14. อาจารยสอน (อาจารยประจำและอาจารยรับเชิญพายในและต่างประเทศ)
อาจารยจากต่างประเทศผู้สามารถมาสอนช่วยได้

English Name	Academic Position	Education	Area of Expertise
Mr.Pairoaj Vonghataipaisarn	Lecturer	DVM	Pharmacology
Mr.Sarawut Sringam	Assistant Professor	DVM, MS	Andrology and Gynaecology
Miss Arayaporn macotpet	Lecturer	DVM	Companion Animal Medicine
Mr. Somboon Sangmaneedet	Associate Professor	DVM, MS, PhD	Entomology and Helminthology
Mr. Saksiri Sirisathien	Lecturer	DVM, MS, PhD	Andrology and Gynaecology
Mrs. Nusara Suwannachot	Lecturer	DVM, MS	Pathology
Mr. Anantachai Chaiyotwittayakul	Assistant Professor	DVM, MS, PhD	Ruminant medicine
Mrs. Nongyao Suwannatada	Assistant Professor	DVM	Companion Animal Medicine
Miss Duangduen Kankangploo	Assistant Professor	DVM, MS	Small Animal Surgery
Mr. Naruepon Kampa	Lecturer	DVM, MS, PhD	Radiology and Small Animal Surgery
Mr. Korawuth Panreewattana	Assistant Professor	DVM, PhD	Pharmacology
Mr. Sarthorn Porntrakulpipat	Assistant Professor	DVM, MS, PhD	Swine Medicine
Mrs. Kanlaya Chuachan	Associate Professor	DVM, MS	Avian Medicine
Miss Supranee Jitpien	Lecturer	DVM	Small Animal Surgery
Mr. Suchat Wattanachai	Assistant Professor	DVM, MS	Large Animal Surgery and Equine Medicine
Mr. Komkrit Pimpakdi	Associate Professor	DVM, MS, PhD	Zoonoses and Toxicology
Mr. Sunpet Angkititrakul	Assistant Professor	DVM, MS, PhD	Public Health and Epidemiology
Mr. Prapansak Chaweerach	Assistant Professor	DVM, MS, PhD	Public Health
Mr. Preenun Jitasombuti	Associate Professor	DVM, MS	Small Animal Medicine and Surgery
Mr. Aran Chanlun	Lecturer	DVM, MS, PhD	Ruminant Medicine

Picture 05. *List of academic personnel entrusted with the B.Sc.Vet course at the Nabong Agricultural Faculty. Many of these are guest lecturers from Thailand. Picture © M. Varas (2011)*

Documented job-descriptions are available for all veterinary positions within the veterinary services. These can be found at the national DLF, but are usually unavailable when visiting provincial veterinary offices; the latter usually refer to the letters of appointment which lists part of the job-description.

As mentioned before, the Nabong Agricultural Faculty, now part of the University of Lao, has started a B.Sc.Vet course which is now in its 2nd year, with a total of 26 students for the first year and 41 students for the second year. Third year is to be started in mid-September 2011. The purpose is to fill the competence gap created by the lack of qualified veterinarians in the shortest possible time and at lesser cost. The courses are delivered by Lao veterinarians, assisted by academic staff from the Faculty for para-clinical subjects and by guest-professors from Thailand (mostly) for clinical subjects. Evidently, the course is entirely theoretic, save the occasional visit to one of the municipal veterinary clinics or one of the farms in the neighbourhood.

Recommendations

Education of future veterinarian should be evaluated and adjusted according to the needs.

I-1. Professional and technical staffing of the Veterinary Services *The appropriate staffing of the VS to allow for veterinary and technical functions to be undertaken efficiently and effectively.* B. Veterinary para-professionals and other technical personnel	Levels of advancement
	1. The majority of technical positions are not occupied by personnel holding technical qualifications.
	2. The majority of technical positions at central and state / provincial levels are occupied by personnel holding technical qualifications.
	3. The majority of technical positions at local (field) levels are occupied by personnel holding technical qualifications.
	4. The majority of technical positions are effectively supervised on a regular basis.
	5. There are effective management procedures for formal appointment and performance assessment of veterinary para-professionals.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, H04

Findings:

There is currently no veterinary technical training available in Laos.

Three levels of livestock and fisheries-oriented training are available though :

a) *Diploma on livestock and fisheries*, awarded by provincial agriculture and forestry schools or colleges (3 year course)

b) *Higher Diploma* (HD) on livestock and fisheries, awarded by the only national faculty of agriculture (in *Nabong*[16]) following a 4-year course *(refer to § A on the previous page).*

c) *Bachelor of Science* (B.Sc.) diploma, also awarded by the only national faculty of agriculture (in Nabong) following a 5-year course, to be completed soon with a first batch of B.Sc.Vet graduates *(refer to § A on the previous page)*.

The agriculture and forestry colleges (officially, there are 4) are administered by the Ministry of Agriculture and Forestry (unlike the Nabong Faculty, which is part of the Ministry of Education). They train mid-level agriculture and forestry technicians, with a focus on all-round skills and competences, intended mainly for the agricultural extension services in the districts.

In contrast to the conclusions of the 2007 PVS evaluation, evidence (both documented and through visits) shows that most technical positions (for veterinary para-professionals) are today indeed occupied by appropriately qualified (livestock) technicians, in particular at national and provincial level(s). While the staffing requirements and diploma requirements (qualifications) are apparently increasingly met, the actual '*competencies'*, in terms of "skills and knowledge-base" still leave a lot to be desired (refer to C.C. I.2.B.).

[16] As part of the National University of Laos

I-2. Competencies of veterinarians and veterinary para-professionals *The capability of the VS to efficiently carry out their veterinary and technical functions; measured by the qualifications of their personnel in veterinary and technical positions* [17.] **A. Professional competencies of veterinarians**	Levels of advancement
	1. The veterinarians' practices, knowledge and attitudes are of a variable standard that usually allow for elementary clinical and administrative activities of the VS.
	2. The veterinarians' practices, knowledge and attitudes are of a uniform standard that usually allow for accurate and appropriate clinical and administrative activities of the VS.
	3. The veterinarians' practices, knowledge and attitudes usually allow undertaking all professional/technical activities of the VS (e.g. epidemiological surveillance, early warning, public health, etc.).
	4. The veterinarians' practices, knowledge and attitudes usually allow undertaking specialized activities as may be needed by the VS.
	5. The veterinarians' practices, knowledge and attitudes are subject to regular updating, or international harmonisation, or evaluation.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01.

Findings:

As can be concluded from table 11 on page 33 only 13 official veterinarians deliver services at provincial level (none at district level) while most, if not all veterinary positions at national level are of an administrative or laboratory diagnosis related nature. In addition, around 6 private veterinary surgeries operate across the country, but mainly in the urban centres; all things considered, a small sample size to assess the competencies of the graduate veterinarians in the delivery of veterinary and technical functions.

Given the varying academic backgrounds of the veterinarians performing duties in Lao, mainly graduates from the former Soviet Union States, Thailand, Vietnam, Malaysia and occasionally, Cuba, and the varying eco-climatic and agricultural/livestock features of these countries, it will come as no surprise that the competencies of veterinary staff are variable and skills more or less well adapted to the needs of the country.

The absence of (implementation of) advances in technology and veterinary sciences (refer to C.C. II.12.) leaves little opportunity for self-learning or other means of personal professional development.

The same can be said for the absence of a *continuing professional development* programme (CPD) or *continuing education* (CE) system (refer to C.C. I.3.).

[17] Not all professional positions require an academic degree. Nonetheless, the proportion of academic degrees serves as an indicator of professional quality of the VS.

B. Competencies of veterinary para-professionals	Levels of advancement
	1. The majority of veterinary para-professionals have no formal entry-level training.
	2. The training of veterinary para-professionals is of a very variable standard and allows the development of only limited animal health competencies.
	3. The training of veterinary para-professionals is of a uniform standard that allows the development of only basic animal health competencies.
	4. The training of veterinary para-professionals is of a uniform standard that allows the development of some specialist animal health competencies (e.g. meat inspection).
	5. The training of veterinary para-professionals is of a uniform standard and is subject to regular evaluation and/or updating.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, P06, P07

Findings:

Most of the mid-level professional positions within the veterinary services, especially at province and district level, will be occupied by livestock/fisheries technicians. Despite their relative lack of formal veterinary training, they often end up performing veterinary duties such as meat inspection, inspection of food products at border posts, vaccination and even clinical diagnosis and treatment of farm animals.

A small minority of these veterinary positions are occupied by genuine veterinary technicians, all of which have been trained abroad (the countries mentioned above for veterinary graduate staff, but also in Malaysia, Vietnam, etc…).

Further down the delivery chain of veterinary services and drugs to farmers, Laos has (legally) defined *village veterinary workers,* or VVW, as part of the veterinary services' manpower. In terms of scope of activity and training background, these VVWs may be compared to *community-based animal health workers* elsewhere.

These VVWs have been trained by the thousands over the last decades, usually within the framework of various international aid projects, with training varying from 5 days to 3 months. A lot of training tools and manuals are available today, even very recent ones (FAO, January 2007, on avian influenza, 2009 on pig diseases,…). There is also a recently published and widely distributed handbook for VVWs, produced by the Department of Livestock and Fisheries (2010).

Several of these documents are very well designed and illustrated, but the topics they cover would render them more useful for mid-level personnel, especially given the sometimes dramatic lack of technical skills demonstrated by this category of staff. Furthermore, some of the skills discussed in these manuals are generally regarded as being off-limits for this kind of basic animal health workers (injection of antibiotics), unless closely supervised by qualified veterinary staff.

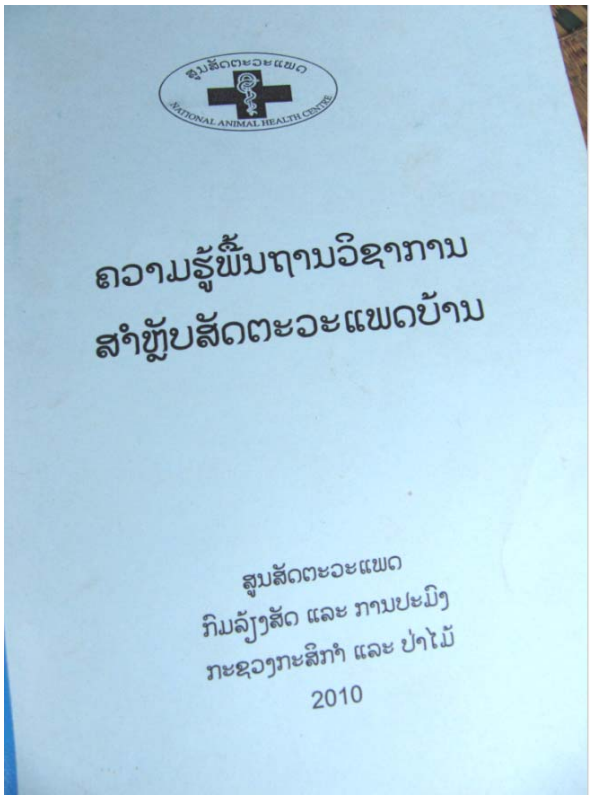
Officially (NAHC Annual report) there are 11,571 VVW which have been trained, 12% of which are women and 61% (or around 7,000) are still active as VVWs today. In reality however, it is believed that of the 8,000 odd VVW's, less than half is still known to the veterinary services today without clear insight on whether those remaining are indeed still active (less than 20% is a reasonable estimate). In any case, their numbers today are not commensurate with the number of villages in Laos (11,400).

Some of the VVWs interviewed benefited from annual upgrade-training which is indicative of the fact that only a few thousand remain active (compared with training data found at national level). Those that remain are generally well educated (literate), stable (more than 20 years in some cases) and seem to make a living for themselves, usually by cumulating several tasks as village veterinary worker, health worker, or extension worker. In several cases, the turn-over of veterinary performances would seem important enough for a graduate veterinarian to get interested (in particular in peri-urban communities). Not all VVWs (if not few) are actually farmers themselves.

In comparison with the situation encountered in 2007, there is slightly more supervision by the veterinary authority; this is very important since these VVWs are entrusted with the vaccination against former A-list diseases such as Newcastle disease, classical swine fever, and sometimes even FMD. The delivery of these vaccines should be carefully controlled, including such former B-list diseases as rabies and HS, which is clearly not the case today. Entrusting these vaccinations to VVW's, outside the framework of a carefully planned and monitored vaccination campaign, could be hazardous.

Picture 06. *Minimal technical equipment of a VVW. Picture © M. Varas (2011).*

In the case of such endemic disease as Newcastle and CSF, there are good reasons to entrust (labour-intensive) vaccination to VVWs, provided they operate within the framework of a planned vaccination campaign, with narrow supervision by public veterinary services which bear full responsibility for the quality of the work and the reporting to their superiors. These 'campaigns' do not exist today, but vaccinations are organised as supplies become available.



Picture 07. *Technical manual for VVW, produced by the NAHC in Vientiane in 2010, a good step forward. Picture © M. Varas (2011)*

In terms of economic sustainability, the incentives provided through the vaccination of around 10 million doses of Newcastle vaccine per year by an estimated number of say 4,000 VVW's are very small, given a remuneration of 10 LAK per poultry vaccinated (10% of the agreed vaccination price of 100 LAK, to be paid by the farmer). Our estimates of 10,000 LAK earned twice a year by vaccinating around 1,000 heads of poultry, are in line with what VVW's have presented as their revenues when interviewed. Vaccinations of cattle and buffalo against HS too are unlikely to generate realistic revenues, as shown by the calculation below. An USD 6.4 monthly net revenue is hardly worth the effort, and one could argue, but this can't be proven, that VVWs generate most of their income by being a village worker for several topics (public health, crops, livestock, etc…) and for several agencies and NGO's and by being given a per-diem or other allowance for their attendance at the numerous training workshops.

Table 12. Simulation, based on interviews conducted with VVW of monthly income derived from large farm animal vaccinations (cattle and buffalo)

	Buffalo	Cattle	Comments
Coverage	177	52	
Vaccination campaign	102	29	Haemorrhagic septicaemia
Campaigns per year	2	2	
Purchase price (LAK/dose)	666	666	
Resale/administration (LAK/dose)	3,000	3,000	
Estimated delivery costs (fuel, syringes) @ 50% (LAK/dose)	333	333	
Benefit (LAK/dose)	2,000	2,000	
Benefit per annum (LAK)	408,000	116,000	
Benefit per month (LAK)	34,000	9,666	
Benefit per month (USD)	5	1.4	

In terms of their legal status, providing a legal basis for these VVWs within the veterinary services is likely to backfire when quality of the veterinary services will be evaluated in view of future trade agreements, in particular the SPS agreement.

I-3. Continuing education (CE)[18] *The capability of the VS to maintain and improve the competence of their personnel in terms of relevant information and understanding; measured in terms of the implementation of a relevant training programme.*	Levels of advancement
	1. The VS have no access to continuing veterinary, professional or technical CE.
	2. The VS have access to CE (internal and/or external programmes) on an irregular basis but it does not take into account needs, or new information or understanding.
	3. The VS have access to CE that is reviewed annually and updated as necessary, but it is implemented only for some categories of the relevant personnel.
	4. The VS have access to CE that is reviewed annually and updated as necessary, and it is implemented for all categories of the relevant personnel.
	5. The VS have up-to-date CE that is implemented for all relevant personnel and is submitted to periodic evaluation of effectiveness.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01

Findings:

The attempts of the veterinary services to improve the technical knowledge and competencies of their personnel, is entirely project-driven and relies therefore on the availability of extra-budgetary allocations. Such training may be internal (workshops) or external (post-graduate scholarships).

These topics, while in-line with project objectives and outputs, do not entirely fit the genuine training needs of the veterinary services today, as perceived by the evaluation team.

Furthermore, they do not take account of the growing number of private veterinary initiatives in the country.

There is no documented evidence of a formal training strategy or needs assessment programme, in which donor-funded efforts could be integrated and/or coordinated. Nor is there a formal division within the DLF, entrusted with continuing education (or human resources development) of staff.

Recommendations:

In the absence of any *Veterinary Statutory Body* in the foreseeable future (refer to C.C. III.5.) the DLF should at least develop (or request) a formal training needs assessment, based on the technical evaluation of a limited number of staff at various levels and in various positions.

A compulsory continuing in-house education programme should be set up, at least for anyone not having an appropriate diploma for the tasks he/she is conducting (which is the vast majority of staff). This programme should focus on priorities such as meat inspection, food safety and inspection, epidemiological surveillance and disease recognition, and veterinary pharmacology.

Further continuing education could be transferred to the Nabong Agriculture Faculty, which could add existing/experienced veterinary technicians to its group of veterinary technician's students, for some its courses *(refer to critical competency n° I.1.B. in this chapter).*

[18] *Continuing education* includes *Continuous Professional Development* (CPD) for veterinary, professional and technical personnel.

I-4. Technical independence *The capability of the VS to carry out their duties with autonomy and free from commercial, financial, hierarchical and political influences that may affect technical decisions in a manner contrary to the provisions of the OIE (and of the WTO SPS Agreement where applicable).*	Levels of advancement
	1. The technical decisions made by the VS are generally not based on scientific considerations.
	2. The technical decisions take into account the scientific evidence, but are routinely modified to conform to non-scientific considerations.
	3. The technical decisions are based on scientific evidence but are subject to review and possible modification based on non-scientific considerations.
	4. The technical decisions are based only on scientific evidence and are not changed to meet non-scientific considerations.
	5. The technical decisions are made and implemented in full accordance with the country's OIE obligations (and with the country's WTO SPS Agreement obligations where applicable).

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, P08

Findings:

The (national and provincial) Departments of Livestock & Fisheries, and by extension, the veterinary services, are still very much involved in both regulatory tasks and production tasks. The national Department is in charge of vaccine production, supply of veterinary drugs and in some cases, running breeding programmes, hatcheries, veterinary surgeries and operating slaughter houses; tasks which are ideally reserved to the private sector in order to avoid conflicts of interest. In the case of the municipal slaughterhouse of Vientiane, this separation of powers is achieved by the fact that the slaughterhouse is administered directly by the Ministry of Industry and Commerce, and managed by a 'private' company (in fact : the state-owned *State Foodstuff Enterprise of Vientiane Capital*). Similar set-ups have been encountered elsewhere.

The lack of chain of command between the national VS (CVO) and veterinary staff in the various sub-sectors (as discussed under chapter II, competency n° II.4) is partially due to the fact that technical decisions can be overruled by both the provincial and district authorities.

The position of Director-General of Livestock and Fisheries is a political position and Directors tend to be changed whenever political change occurs at government level.

The other positions are not regarded as political positions, although they might be influenced by membership of one of the 4 political bodies, represented at the level of each ministry, institution, or corporation : the party, the woman's organisation, the youth organisation and the trade union.

Furthermore, the horizontal approach to technical services, as often implemented through structural adjustment programmes (whereby agricultural services are not specialised, but kept generalised, focusing on cross-cutting issues) is contrary to the vertical approach advocated by the O.I.E.

Finally, the increased involvement of public veterinary staff in remunerated activities is ground for concern. The remuneration level in the public sector, which –since the country entered the global economy- is extremely low when measured against reference currencies (from LAK 400,000 to 900,000 or EUR 35 to 80, for mid-level to graduate-level professional staff; EUR 25 to 50 in 2007). Even when applying purchase power parity to salaries, these remain insufficient to ensure the credibility of the veterinary services provided. As a result, the line of separation between public and private delivery of veterinary drugs (and services) has become very thin indeed. Provincial veterinary services will sell drugs and vaccines, received from the VSU to private pharmacies and might even end up in animal feed shops (as confirmed by farmers and animal feed shop visits).

Public veterinary personnel has increasingly become involved in the remunerated delivery of veterinary services or drugs to farmers. Sometimes, these activities are somewhat regulated by the provincial or district administration which grants the agent a percentage of the revenues (varying between 10% and 50%); in other cases, veterinary technicians run a 100% parallel private operation, next to their public duties.

Picture 08. *A veterinary surgery and pharmacy owned and run by a provincial staff member (PDAF) without formal veterinary qualifications, but with a valid business license. Picture © M. Varas (2011).*

To a certain extent, the same phenomenon applies to the delivery of inspection services, where 10% to 50% of the revenues are not transferred to the national treasury, but withheld to cover office expenses (in the absence of a significant regular budget) or to complete the staff's salary.

Strengths:

Although technical independence may be compromised in various ways, as described on the previous pages, it is believed that in practice, technical decisions are indeed seldom overruled as a result of commercial, financial, hierarchical and political pressure and/or considerations.

The commercial sector today has very little impact on public opinion and hardly influences veterinary policies at the national level.

Government is very supportive of initiatives taken by its veterinary services and will usually endorse tough technical decisions, whatever the consequences.

I-5. Stability of structures and sustainability of policies *The capability of the VS structure and/or leadership to implement and sustain policies over time.*	Levels of advancement
	1. Substantial changes to the organisational structure and/or leadership of the public sector of the VS frequently occur (e.g. annually) resulting in lack of sustainability of policies.
	2. The organisational structure and/or leadership of the public sector of the VS is substantially changed each time there is a change in the political leadership and this has negative effects on sustainability of policies.
	3. Significant changes to the organisational structure and/or leadership of the public sector of the VS occur rarely, but this stability does not have a positive impact on the sustainability of policies.
	4. Some changes occur in the organisational structure and/or leadership of the public sector of the VS following a change in the political leadership, but these have little or no negative effect on sustainability of policies.
	5. The organisational structure and leadership of the public sector of the VS are generally stable. Modifications are based on an evaluation process, with positive effect on the sustainability of policies.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

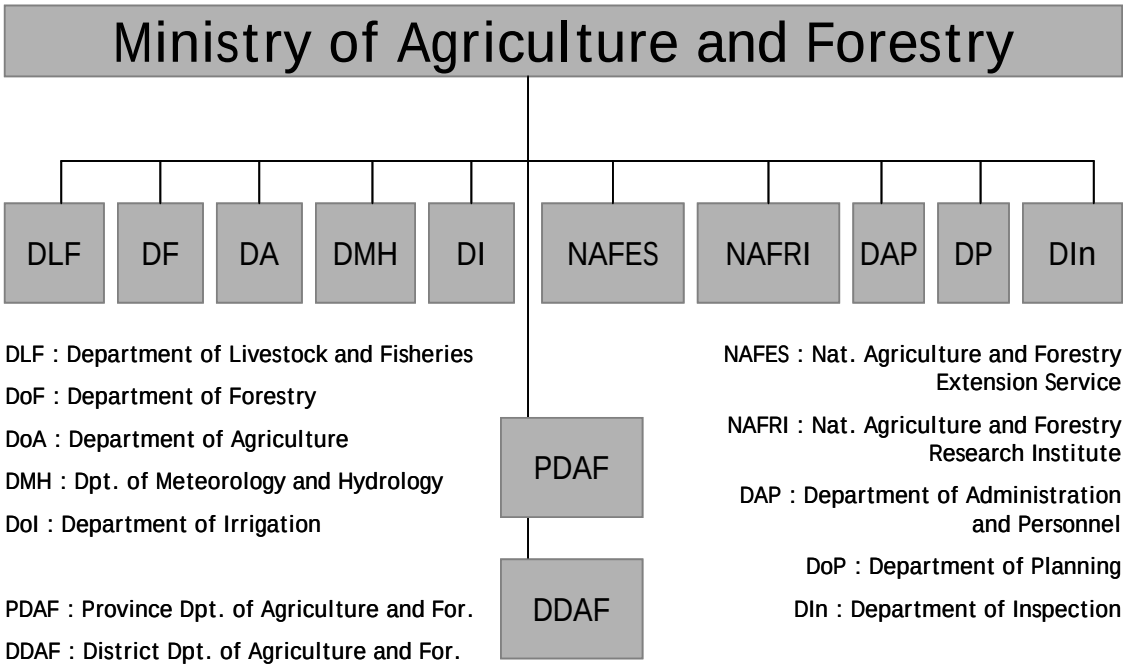
The organisational framework of the veterinary services has not changed much over the past decade.

The previous flowchart (abolished in 2008) was slightly different in the sense that the former Department of Administration and Personnel has been split (Department of Planning and Department of Personnel), that the Department of Meteorology and Hydrology has moved to another Ministry and that the Department of Forestry has been split into a Department of Forestry and a Department of Forestry Inspection. Compare to flow chart in section II. 3. B. on page 19.

The flowchart before that (abolished in 2004) did cover both extension services and research, now entrusted to two national (independent) institutes at the MAF, the NAFES and the NAFRI, covering all aspects of agriculture and forestry (and therefore, as pointed out on several occasions, very little on animal production and health).

In the early nineties, veterinary services were still designated as a Department (rather than as a Division or Centre), next to livestock, fisheries and the other agricultural and forestry related departments.

Therefore, while the structure of the Ministry has remained stable over the past 20 years or so, veterinary services have lost ground at any of the reorganisation processes since then.



Previous flowchart, abolished in 2008. Compare to flow chart in section II. 3. B on page 19.

I-6. Coordination capability of the VS **A. Internal coordination (chain of command)** *The capability of the VS to coordinate its resources and activities (public and private sectors) with a clear chain of command, from the central level (CVO), to the field level of the VS in order to implement all national activities relevant for OIE Codes (i.e. surveillance, disease control and eradication, food safety and early detection and rapid response programs).*	Levels of advancement
	1. There is no formal internal coordination and the chain of command is not clear.
	2. There are internal coordination mechanisms for some activities but the chain of command is not clear.
	3. There are internal coordination mechanisms and a clear and effective chain of command for some activities.
	4. There are internal coordination mechanisms and a clear and effective chain of command at the national level for most activities.
	5. There are internal coordination mechanisms and a clear and effective chain of command for all activities and these are periodically reviewed/audited and updated.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01, P11,*

Findings:

The main constraint to achieving proper coordination and oversee the activities carried out at various (horizontal and vertical) levels, is the lack of chain of command, as defined in the Code. Indeed, ever since the decentralisation process initiated in the mid-1970ies, the head of veterinary services in the country (the Chief Veterinary Officer, in OIE terms) lost part of his/her control over inland services which are henceforth administered by the provincial and district local governments. While it is often argued that this decentralisation is a purely administrative process, not interfering with technical decisions, the results of the evaluation indicate that this is not the case. Province and district authorities take their prerogatives very seriously and will not necessarily endorse technical decisions taken, or instructions given, by the national veterinary services.

This being said, some progress has been noted – in comparison with the situation observed in 2007 – with regard to interactions between the NAHC and the provincial authorities (the interaction between the provincial veterinary services [or rather : the Provincial livestock and fisheries offices] and their district veterinary services [or rather : the District livestock and fisheries offices] was already regarded as rather satisfactory in 2007). Technical guidelines or instructions from e.g. the DLF or the NAHC will still be copied onto provincial letter-head, but will be implemented nonetheless.

The aspects of coordination between national and provincial laboratories will be discussed under C.C. II.1.

Provincial Livestock and Fisheries Offices (PLFO)

A *Provincial Livestock and Fisheries Office* (PLFO) will usually be housed in premises, independent from the *Provincial Department of Agriculture and Forestry*. In theory, it will boast three divisions or sections : a livestock division, a fisheries division and a veterinary division. In some cases, the PLFO will also include a provincial laboratory (Luang Prabang, Luang Namtha, Oudomxai, Champassack) and / or a public veterinary surgery (Vientiane Capital, Champassack). In most cases, the veterinary division will exist as a separate entity, but will seldom be administered by a (graduate) veterinarian. At best, the head of the PLFO will be a veterinarian, working with agricultural technicians. But cases where the head of the PLFO is an aquaculture or zoo-technical expert with no veterinary staff whatsoever working in the veterinary division have also been encountered.

In other cases still (e.g. Vientiane Capital, Champassack), divisions exist on paper, but are not actually occupied. A head of PLFO will then rely on a qualified deputy-head (veterinarian) to organise livestock and animal health activities. The reasons for this lack of staff are not the result of budgetary constraints, but the lack of qualified candidates for the positions, as pointed out by several heads of PLFO, who normally will suggest suitable candidates to the provincial authorities. Recruitment itself nevertheless remains a national prerogative.

While a *Provincial Department of Agriculture and Forestry* will benefit in average from an annual budget of LAK 1 billion (EUR 90,000) the annual budget for a PLFO will average LAK 20 million or EUR 1,800 (varying from LAK 100 million in Vientiane Capital to LAK 10 million in e.g. Savannathek). The budget allocated to the veterinary division is usually hard to come by, but may vary from LAK 3 million (Bokeo) to 50 million p.a. (Boulixamsai). Please refer to C.C. I.8. for more information.

As a rule, the budget is submitted by the PFLO to the Governor, who will arbitrate. It is said that *reserve funds* for urgent actions exist within every province. In comparison with the situation in 2007, the Team has found several examples of emergency funding being made available, including for livestock or animal health related issues, e.g. emergency vaccination of cattle and buffalo against FMD during and after the floods in the north of the country.

Taxes and levies collected by provincial services *ought* to be entirely transferred to the national treasury. In practice however, most provincial authorities authorise (or tolerate) payments of incentives to (inspection) staff, before transferring the rest to the treasury. .

Likewise, a benefit margin will be applied for most drugs and vaccines sold or administered : a rabies vaccine supplied by the VSU at a nominal cost of LAK 15,000 will be administered at a cost of LAK 25,000, the difference being paid to the staff member involved.

In Champassack province for instance, it was established that these services (veterinary clinic, meat inspection, BIPs, sale of drugs and vaccines, and issuing of certificates) contribute up to LAK 30 million to the treasury. It is reasonable to assume that this represents 60 – 80% of the actual revenues, the remainder being withheld for personnel incentives. For more information, please refer to the C.C. on quarantine and border security (II.4.).

In addition, provinces may benefit directly (province or region-based) or indirectly (national) from extra-ordinary budget allocations (usually *in natura*) from donor-funded investment or development projects/programmes. Funds generated by public veterinary surgeries cannot (legally) contribute to the PLFO's budget and is therefore often managed as a revolving fund within that surgery, paying for support staff and maintenance.

Picture 09. *Interview with DDAF officers in Vieng Phoukha district, Luang Namtha province.*

Staff numbers in PLFO will average around 20-35 (Champassack : 57), with around 25% dedicated to veterinary activities as listed by PLFO personnel : border control and quarantine, meat inspection, laboratory diagnosis (where available), epidemio-surveillance, early detection and rapid response, and vaccination. In reality, activities are limited to border control, meat inspection, vaccination and the running of the occasional public surgery and pharmacy. While their job-descriptions are available at national level, none of the provincial staff possess their own copy. At best, they will have their letter of appointment, listing some (but not all) of their duties, as defined in the job-description.

A PLFO will at best possess one or two services vehicles (one of which is usually allocated to the head of the PLFO and therefore not really used for service tasks) and a varying number of none to 10 or more motorcycles (50 – 100 cm^3). One will furthermore find a fridge, a deep freezer, syringes/needles, a autopsy tool kit, sampling materials, cooling boxes and (sometimes) *personal protection equipment* (PPE) against HPAI. One or more computers with printer(s) are available.

Any epidemiological event occurring in the province will be brought to the PLFO's attention verbally (cellphone). Written records of such events will only be established after a team has been sent to the site or when a laboratory diagnosis will have been established. Likewise, weekly records of movement permits issued, slaughter inspections conducted, drugs bought and sold, etc… will be communicated to the PLFO by cell phone and will enable the PLFO to produce weekly reports, which are copied to the DLF on a weekly basis. The Team verified that these reports are indeed compiled rather consistently, but contain little or no sanitary information.

Monthly progress reports are received from the district (DLFO's), processed, summarised and transmitted to the provincial authorities, with copy to the DLF on a monthly, quarterly, half-yearly or yearly basis. These reports will typically list quantitative data on numbers of animals in the province, numbers of animals slaughtered, but without qualitative disease information. At best a report may list carcasses and organs seized at the abattoir.

Meetings with farmers are believed to occur regularly, but mostly by request of farmers or other interest groups (market traders, consumers, etc).

A PLFO will typically cover around 7 - 15 districts (Savannathek : 15, Champassack : 10).

District Livestock and Fisheries Offices (DLFO)

A *District Livestock and Fisheries Office* will be housed in simple offices or cottages, more often than not, within the premises or compound of the *District Department of Agriculture and Forestry*, with which they share logistical means. Electricity and water are available. In some cases, a fixed telephone line will also be available. Most communication –as evidenced during the field mission- is however conducted using personal cell-phones.

In most cases, separate livestock, fisheries and veterinary sections are evidenced by separate offices and staff. In a few cases however, these divisions do not exist or are not apparent when looking at staff's tasks. The same goes for the budgeting. While budgets for DLFO are hard to come by (estimated in between LAK 15 million and LAK 50 million or between EUR 1,300 and 4,500 excluding salaries), budgets allocated to the veterinary services section are still impossible to come by, very often because there is none, as confirmed by several district staff. A lot of district veterinary services rely entirely on donations from the province-level or national veterinary services (equipment), on the goodwill of the *District Department of Agriculture and Forestry* and on the revenues from meat inspections, treatments of animals (including vaccination) and the sale of drugs.

Service-costs[19] applied by district staff and VVWs (in LAK, per unit or animal) in 2007 and 2011

Vaccination ND (over the counter, sold with icepack)	200	200
Vaccination ND (when delivered and administered, decreases with numbers)	1,000	1,000
Vaccination ND (by a VVW, decreases as numbers increase)	500	-
Vaccination CSF (over the counter, sold with icepack)	1,000	-
Vaccination CSF (when delivered and administered, decreases with numbers)	2,000	6,000
Vaccination CSF (by a VVW, decreases as numbers increase)	1,500	5,000
Vaccination HS (over the counter, sold with icepack)	1,500	-
Vaccination HS (when delivered and administered, decreases with numbers)	5,000	8,000
Vaccination HS (by a VVW)	3,000	3,000
Meat inspection (cattle)	6,000	10,000
Meat inspection (hogs)	-	5,000
Meat inspection (cattle, by a VVW)	5,000	-
Meat inspection (hogs, by a VVW)	3,000	-

Most operational expenditures at district level offices, including cell phone credit and petrol for the motorcycles (and personal incentives), will be paid for by these proper revenues, with less than 50% being transferred to the treasury. The flipside is that most district veterinary offices are well-stocked with both therapeutic drugs and prophylactic vaccines and seem to render a useful service to the farmer community.

Equipment (often supplied thanks to projects and aid-interventions) will typically include a small number of (working and not-working) light duty motorcycles[20], a fridge, syringes/needles and cooling boxes. Autopsy tool kits, stethoscopes and sampling materials are generally absent. One also comes across IT equipment, consisting of a desktop PC with printer, scanner and UPS, supplied by donor agencies within the framework of disease control or eradication programmes.

The veterinary section –as perceived by its staff- will have the following duties (in decreasing order of importance) : vaccination, meat inspection and declaration/control of diseases when they are reported by farmers. In some cases, monitoring of rabid dogs (or suspected thereof) is also mentioned. Inspection of live animals (e.g. on markets or at border crossings), nor planified rounds to farmers are mentioned as core activities.

Contrary to the situation encountered in 2007, standard operating procedures and copies of (the new) legislation have been found in various offices, along with technical manuals, e.g. on the management of HPAI outbreaks and animal health in hog-rearing (see picture on the next page).

[19] Several livestock farmers (cattle, pigs, poultry) have admitted to self-vaccination of their animals, usually after they found services provided by district staff to be too expensive or not readily available when needed. Vaccines are usually purchased in animal feed shops.

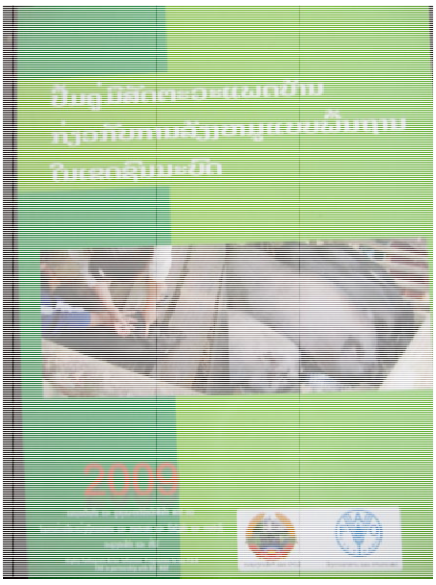
[20] Although several district veterinary officers have been found to use their own motorcycles.

Picture 10. *Visit of the district livestock and fisheries office (DLFO) of Nam-Phao in Boulixamsai province. Picture © M. Varas (2011).*

A DLFO will be staffed with personnel in accordance with the needs of the livestock and fisheries sectors in that district (which is clearly not the case at province level). Therefore, staff numbers may considerable vary from one district to another.

A DLFO will at best have around 8 "veterinary staff", or staff dedicated to animal health issues and will cover between 40 and 70 villages within a radius of 30 to 70 km. In numerous cases however no dedicated veterinary staff has been encountered. DLFO staff (usually with a background in agriculture, graduates from one of the provincial agriculture and forestry schools) will try to cope with all three aspects as best as they can, but arguably with too little technical know-how to be credible.

Monthly reporting to the district authority, with copy to the PLFO, seems to be regular in most districts, and –in contrast with the situation encountered in 2007- using similar formats and presentations (computer-printed). Reports will be signed by the head of the DLFO and counter-signed by the head of the Technical Division and the Director of the *District Department of Agriculture and Forestry.* Most provinces (except for e.g. Champassack provinces) have not imposed reporting formats to 'their' DLFOs.



Picture 11. *Training manual on the rearing of pigs.*

B. External coordination	Levels of advancement
The capability of the VS to coordinate its resources and activities (public and private sectors) at all levels with other relevant authorities as appropriate, in order to implement all national activities relevant for OIE Codes (i.e. surveillance, disease control and eradication, food safety and early detection and rapid response programs). Relevant authorities include other ministries and competent authorities, national agencies and decentralised institutions.	1. There is no external coordination.
	2. There are informal external coordination mechanisms for some activities, but the procedures are not clear and/or external coordination occurs irregularly.
	3. There are formal external coordination mechanisms with clearly described procedures or agreements for some activities and/or sectors.
	4. There are formal external coordination mechanisms with clearly described procedures or agreements at the national level for most activities, and these are uniformly implemented throughout the country.
	5. There are national external coordination mechanisms for all activities and these are periodically reviewed and updated.

Terrestrial Code reference(s): Annexe 1

This Critical Competency was not assessed during the 2007 PVS evaluation.

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E14 - E16, E18, E24, P12

Findings:

The Veterinary authority participates formally in the NEIDCO or *National Emerging Infectious Diseases Coordination Office,* an enlargement of the initial NAHICO or *National Avian and Human Influenza Coordination Office* and hosted by the Ministry of Health (MoH).

Picture 12. *The entrance of the NCDC & NEIDCO offices at the Ministry of Health. Picture © A. Kamakawa (2011)*

Coordination between the two line-ministries dates back to 2004, after the first human case of H_5N_1. At that time the coordination meeting was chaired by the Minister of Health, and the Minister of Agriculture and Forestry was vice-chair. Meanwhile the target has been extended and coordination has been upgraded- the *National committee on Communicable Disease control* (NCDC) is chaired by the Prime Minister, all the Ministers are vice chairs of the committee and the secretariat is in the Prime Ministers Office (PMO).

The committee has been established at both central and provincial levels, and the central committee holds statutory meetings annually and impromptu meetings at the time of emergencies. The focus is on emerging infectious diseases (zoonoses) with emphasis on AHI, rabies, leptospirosis, trichinellosis and anthrax.

Situation reports and coordination are discussed at the statutory meeting. Weekly disease information is exchanged between the *National Centre of Epidemiology and Laboratory* (NCEL) of the MoH, and the NAHC of the MAF.

Disease response, control and investigation are undertaken by relevant parties together with the relevant MAF counterparts, i.e. the *Department of Hygiene and Prevention,* the *Department of Health Care,* the aforementioned NCEL of the MoH and the *Information, education and communication* (IEC) task force (at the Ministry of Information and Culture). They establish a mission team and hold meetings on site at province, district and village level.

Apart from this formal "external coordination", no other formal coordination links were brought to the attention of the Team (customs, police, army, environmental competent authority, fisheries competent authority).

Informal coordination links exist (again) with the Ministry of Health with regard to the authority over the inspection of food stuffs and the related control of some residues (for the latter, refer to C.C. II.10.).

I-7. Physical resources *The access of the VS to relevant physical resources including buildings, transport telecommunications, cold chain, and other relevant equipment (e.g. computers).*	Levels of advancement
	1. The VS have no or unsuitable physical resources at almost all levels, and maintenance of existing infrastructure is poor or non-existent.
	2. The VS have suitable physical resources at national (central) level and at some regional levels, and maintenance and replacement of obsolete items occurs only occasionally.
	3. The VS have suitable physical resources at national, regional and some local levels and maintenance and replacement of obsolete items occurs only occasionally.
	4. The VS have suitable physical resources at all levels and these are regularly maintained.
	5. The VS have suitable physical resources at all levels (national, sub-national and local levels) and these are regularly maintained and updated as more advanced and sophisticated items become available.

Terrestrial Code reference(s): Annexe 1

This Critical Competency was not assessed during the 2007 PVS evaluation.

Evidence *(references of documents or pictures listed in Appendix 6) : E01, P13, P14,…*

Findings:

When reviewing the financial (budgetary) provisions under Critical Competencies I.6 (earlier) and I.8, I.9 and I.10 (below), it will come as no surprise that physical resources depend largely on external and extra-budgetary funding for procurement and maintenance. Furthermore, much of the veterinary services' accommodation (and sometimes logistical means) is in actual fact handled by provincial and district authorities or by other competent authorities which host the veterinary services, e.g. the animal health inspection services at border crossings, hosted by the relevant immigration department.

Picture 13. *A major part of the fleet at the NAHC in Vientiane is owned or supplied for by donor assistance or technical agencies, i.e. FAO in this case. Picture © A. Kamakawa (2011).*

When assessing the physical resources that are actually under the management of the national veterinary authority, one could conclude that infrastructures, including buildings and premises in general, are adequate, but lack maintenance and upgrading. Air-conditioning is available in almost all offices, there is a clear shortage of office space, but this was not raised as a constraint by any of the staff members during this or previous missions. There seem to be enough office computers, photocopy machines, printers, telephone switchboards and extensions etc…, but a lack of communication through the internet (the only available wireless connection is the one provided through the FAO – USAID avian influenza project).

The national veterinary laboratory of the NAHC is urgently in need of upgrading, but this is scheduled through the completion of the new multi-storey building on the same premises. Details on equipment of this and other laboratories are provided for under C.C. II.1. on page 67.

Vehicles too seem to be available in sufficient numbers and of relatively recent built, but are somehow always linked to a donor-fund or technical assistance agency, which provided for the vehicle, but not necessarily for the engine maintenance fees (or insurance) that come with such grants or gifts.

At provincial and district level, things are quite different. The degree at which office accommodation is dilapidated, sometimes unhygienic and often unsuitable for decent office–management, let alone archiving, the lack of overall office equipment and cold storage facilities shows no fundamental improvement since the 2007 mission (with a few exceptions, such as most of the facilities of Vientiane Capital, i.e. PLFO offices, border inspection posts etc…).

The lack of realistic budgets for maintenance of many of these foreign investments/grants/gifts is apparent and many officials have admitted that most of their budgets are used for fuel only. Which brings us to the rolling material : most provincial and district livestock and fisheries offices are in desperate shortage of means of transport. While one could argue that four-wheel-drive vehicles may not be needed in every instance, the widespread absence of office-motorcycles is seriously hampering the services provided to the farmers. The least one could expect from a PLFO or a DLFO is that it provides suitable two-wheel motorised transport to its (few) animal health staff in order to ensure some degree of coverage of the villages they are responsible for and, hence, some degree of "surveillance", whether epidemiological or otherwise. The following table demonstrates how crucial this issue is, keeping in mind that many animal health assistants perform their duties with their own motorcycle, contributing even more to the ever-expanding twilight zone between public service and private entrepreneurship.

Table 13. Sample of PLFO and DLFO means of transport allocated by prov. (PDAF) or district authorities (DDAF)

		Coverage		L & F	Transport (official)	
Province	**District**	**Number of districts**	**Number of villages**	**Number of staff**	**4-wheel**	**2-wheel**
Vientiane Cap.	Pakgnum		53	8	0	0
Boulixamsai	Khamkheut	6	36	12	0	0
Savannathek	Khaysone Phomvihank		67	12	0	1
Savannathek	-	15		35	2	10+
Oudom Xay	-	7	-	19	0	3
Oudomxai	Namor	-	-	54	0	2
Champassack	-	10		57	0	1
Bokeo	-	5	-	11	0	3
Luang Prabang	-	12	-	24	0	3
Luang Namtha	-	5	-	13	1	4
Luang Namtha	V.Phoukha	-	-	15	0	5

Any improvement in the delivery of veterinary services will have to include to a large extent the improvement of the physical means for these veterinary services. Mechanisms will have to be negotiated and defined for the national veterinary services to allocate these resources to provincial and district veterinary services, which are not under their jurisdiction, but are nevertheless needed to attain compliance with national, regional and international standards. In our view, provincial and district administrations have clearly demonstrated that veterinary services are not their priority and no improvements are to be expected from that side.

Picture 14. *A typical local livestock and fisheries office will possess as desktop computer, printer and a fax-photocopy device, but will often rely on the use of private cell phones for communication. The veterinary unit often shares devices such as a computer with the livestock unit. Picture © A. Kamakawa (2011).*

I-8. Operational Funding *The ability of the VS to access financial resources adequate for their continued operations, independent of political pressure.*	Levels of advancement
	1. Funding for the VS is neither stable nor clearly defined but depends on resources allocated irregularly.
	2. Funding for the VS is clearly defined and regular, but is inadequate for their required base operations (i.e. disease surveillance, early detection and rapid response and veterinary public health).
	3. Funding for the VS is clearly defined and regular, and is adequate for their base operations, but there is no provision for new or expanded operations.
	4. Funding for new or expanded operations is on a case-by-case basis, not always based on risk analysis and/or cost benefit analysis.
	5. Funding for all aspects of VS activities is adequate; all funding is provided under full transparency and allows for full technical independence, based on risk analysis and/or cost benefit analysis.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

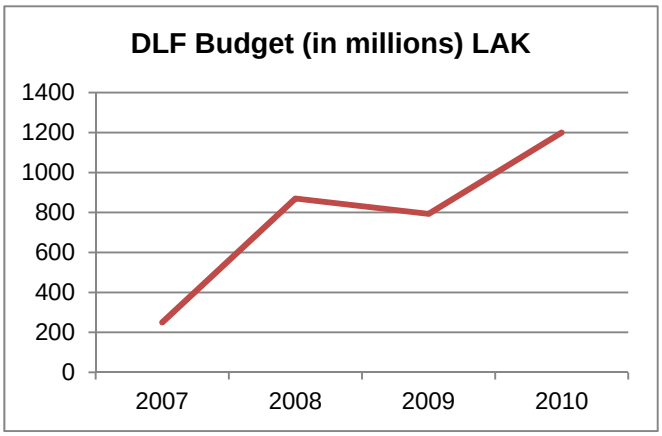
Findings:

As is often the case in decentralised governance systems, where veterinary services are ruled by various administrative and governance levels, establishing the true volume of the (public) veterinary services' budget is near to impossible.

A veterinary sub-service in the country may be administered by budgets provided by the central government, the provincial government and the district. While these funds initially originate from the central government, they are not allocated to the veterinary services as such, but to the national, provincial or local budgets for Agriculture & Forestry, who will then allocate funds to their Livestock & Fisheries Departments as they see fit. Therefore budgets for Livestock & Fisheries, and hence, veterinary services, may substantially vary between provinces and between districts within a province.

Personnel related expenditures (salaries and benefits) are never administered by the line-ministry and are not included in the following budgetary analyses.

As pointed out in the previous section (on physical resources), livestock production and *in extenso*, veterinary services are clearly not regarded as economically important sectors within the portfolio of agriculture and forestry. Hence, livestock services and especially veterinary services, are usually endowed with very small budgets in comparison to crop production (and in particular, rice).



At national level, it can reliably be concluded that the Department of Livestock and Fisheries was granted a running budget of LAK 1,200 million or 1.2 billion (EUR 110,000) for the fiscal year 2010 - 2011, against LAK 250 million (EUR 20,500) in 2007-2008, LAK 870 million in 2008-2009 and LAK 793 million in 2009-2010 (always without salaries). This represents an average annual increase of 69%, while the annual *monetary* inflation[21] of the LAK was slightly negative for the same period (from 12,800 LAK per EUR in 2007 to 11,500 LAK per EUR in 2011).

Graph. A. Increase of the overall DLF budget over the last 4 years. Source : DLF (2011).

The Department, each of the three Divisions and each of the three Centres were allocated a more or

[21] The *price* inflation however was positive, between 4.5 and 6.0 p.a.

less equal part of the budget.

The 2010-2011 budget is constituted as follows :

Table 14. Breakdown of the 2010 – 2011 budget for the DLF

Budgetlines	**LAK**	**Amount**	**EUR**	**[22]Amount**
DLF Administration	LAK	4 million	EUR	500
Fisheries	LAK	196 million	EUR	18,000
Livestock	LAK	600 million	EUR	54,500
Animal health	LAK	400 million	EUR	37,000
Total	**LAK**	**1,200 million**	**EUR**	**110,000**

The budget earmarked for animal health is allocated through 5 budget lines, adding up to LAK 400 million or approximately USD 57,000 or EUR 37,000. In addition, some USD 270,000 donor-funding are provided by Japan, Australia and the FAO Trust Fund.

Table 15. Budgeting of the animal health activities within the DLF for 2010 and for 2011

Designation [23]	**Budget (2009-2010)**	**Budget (2010-2011)**
National Animal Vaccination Project		50.00 million
Laboratory Improvement Project		50.00 million
Animal Disease Outbreak Control and Monitor in Border Project	50.00 million	50.00 million
Establishment of Foot and Mouth Disease Free Zones Project	50.00 million	50.00 million
Sanitation Inspection of Meat, Animal and Fish Products Project	50.00 million	50.00 million
Medicine and Vaccine Production System Improvement Project		50.00 million
Capacity building of veterinary service networking Project	50.00 million	50.00 million
Avian and Human Influenza Control Project	50.00 million	50.00 million
Environmental Animal Health Management Initiative for Enhanced Smallholder Production Project		
Large Ruminant Health Husbandry Development Project		
Animal Diseases Control Among 6 Countries		
Understanding Livestock Movement and the Rick of Spread of Transboundary Animal Disease		
Management of pig associated zoonoses in the Lao PDR		
Total	**LAK 250 million**	**LAK 400 million**

[22] Rounded to the next EUR 500

[23] Both at national and provincial level, budget lines are sometimes labelled in somewhat odd terms, probably in order for these budgets to be considered as counterpart funds in donor aided programmes.

Table 16. National and counterpart funding in 2010-2011 for animal health activities of DLF.

Designation	Overseas development assistance (ODA)	National budget contributions (2010-2011)	Donor agency
National Animal Vaccination Project		50.00 million	
Laboratory Improvement Project		50.00 million	
Animal Disease Outbreak Control and Monitor in Border Project		50.00 million	
Establishment of Foot and Mouth Disease Free Zones Project	6 482	50.00 million	ACIAR
Sanitation Inspection of Meat, Animal and Fish Products Project	43 630	50.00 million	ACIAR
Medicine and Vaccine Production System Improvement Project		50.00 million	
Capacity building of veterinary service networking Project		50.00 million	
Avian and Human Influenza Control Project	136 071	50.00 million	FAO/USA
Environmental Animal Health Management Initiative for Enhanced Smallholder Production Project			FAO/ITA
Large Ruminant Health Husbandry Development Project	43,630		
Animal Diseases Control Among 6 Countries			JICA
Understanding Livestock Movement and the Risk of Spread of Transboundary Animal Disease	30 871		ACIAR
Management of pig associated zoonoses in the Lao PDR	56 489		ACIAR
Total (in LAK)		**LAK 400 million**	
Total (in USD)	**USD 273 587**	**USD 57 000**	
Total (in EUR)	***EUR 192 000***	***EUR 37 000***	
Total (in %)	**83%**	**17%**	

Units such as the *Veterinary Vaccine Production Centre* and the *Veterinary Supply Unit*, complete these budgets by their own revolving funds, based on the sales of their products.

At provincial level, a livestock and fisheries department may be granted anything from LAK 10 to 100 million, without apparent correlation with the importance of the livestock or fisheries sector in that province. The budget for the veterinary division within the PLFO is seldom defined, nor known to those involved, except in Champassack province, where budget allocations are not made to the PLFO, but to each sub-division (VS, Livestock, Fisheries), the sum of which constitutes the operational budget of the PLFO.

When comparing these figures with those of 2007, the situation is definitely less positive than at national level (69% annual increase on average). At best, budgets have doubled since 2007 (26% annual increase), but often not to the benefit of the veterinary (or livestock) services which have seen their budgets sometimes dramatically curtailed, as observed in Champassack province.

Table 17. (a) Sample of PLFO budgets allocated by provincial authorities (PDAF) in 2007

	Budgetary allocation to	
Province	**PLFO**	**VS**
• Vientiane Capital	50,000,000	-
• Boulixamsai	30,000,000	-
• Savannathek	20,000,000	-
• Champassack	195,000,000	35,000,000

Table 17. (b) Sample of PLFO budgets allocated by provincial authorities (PDAF) in 2011

	Budgetary allocation to	
Province	**PLFO**	**VS**
• Vientiane Capital	100,000,000	*unknown*
• Boulixamsai	-	50,000,000
• Savannathek	10,000,000	0
• Champassack	-	6,000,000
• Luang Prabang	10,000,000	*unknown*
• Oudomxai	50,000,000	12,000,000
• Luang Namtha	-	12,000,000
• Bokeo	20,000,000	3,000,000

At district level, a *District Department of Agriculture and Forestry* (DDAF) may be granted up to LAK 50 million or EUR 4,500 (usually around LAK 10 - 20 million LAK or EUR 900 – 1,800).

A *District Livestock and Fisheries Office* (DLFO) may be granted anything from nothing up to LAK 15 million LAK or EUR 1,400 (usually around LAK 3 million or EUR 275).

The budget for the veterinary division within the DLFO is usually insignificant (at most LAK 2 million LAK or EUR 180) or even non-existent.

Usually, the rationale is that inspection services (movement permits, border inspection, meat inspection,…) generate funds and do therefore not require regular budgets.

Table 18. Sample of DDAF and DLFO budgets allocated by district authorities (DDAF) in 2011

Province	**District**	**DDAF**	**DLFO**
• Vientiane Capital	Pakgnum	25,000,000	13,000,000
• Boulixamsai	Khamkheut		15,000,000
• Savannathek	Khaysone Ph.	50,000,000	3,000,000
• Oudomxai	Namor	9,000,000	1,200,000
• Luang Namtha	Phouka	6,000,000	1,500,000

In principle however, none of these departments, units or divisions, whether national or otherwise, may benefit from (portions of) taxes and levies collected from the services they provide (certification, slaughter inspection, …). These funds are entirely to be transferred to the national treasury.

In reality, in most provinces and districts, arrangements exist by which only part of these revenues are transferred to the treasury department. As public veterinary personnel has increasingly become involved in the remunerated delivery of veterinary services or drugs to farmers, provincial or district administrations grant agents a percentage of the revenues (varying between 10% and 50%).

To a certain extent, the same phenomenon applies to the delivery of inspection services, where 10% to 50% of the revenues are not transferred to the national treasury, but withheld to cover office expenses (in the absence of a significant regular budget) or to complete the staff's salary. In some cases, 100% of the fees are pledged to the treasury, but the staff member receives part of the receipts through the payment of overtime, which can represent up to 60% of his basic salary.

Staff remuneration within the public sector is coherent, whatever the administrative level (national, province, district), but is by all standards extremely low (refer to frame below). These figures are in line with the estimated GNI per capita which stood at approximately Euro 28.0 per month in 2005.

Secondary packages include near-to free schooling for children and health services, and in case of mid-level to top-level staff, also free housing and occasionally an official vehicle. As indicated above, overtime (OT) payments are used as a top-up of the salary for certain categories of staff, such as meat inspectors, who work at night.

From the data provided by the various administrative divisions (central, provincial and district), it can be concluded that salary levels are currently as follows :

Veterinarian or similar :	LAK 600,000 to 1,000,000	(EUR 55 to 90)
Veterinary para-professional or similar : H.D. level :	LAK 700,000	(EUR 65)
Veterinary para-professional or similar : M.D. level :	LAK 500,000	(EUR 45)

A side-effect of these salary brackets is that there is little financial incentive to commit oneself to 6 or 7 years of graduate veterinary training (abroad…) to end up earning only slightly more than a Higher-level diploma holder with the same number of years of experience.

In 2007, these figures were as follows :

Veterinarian or similar :	LAK 400,000 to 600,000	(EUR 32 to 50)
Veterinary para-professional or similar :	LAK 300,000	(EUR 25)

Daily subsistence allowances (*per diems*) paid to DLF staff were 102,000 LAK per night within Laos and USD 30 (Euro 23) outside Laos.

When compared to the cost of living in Laos (purchase power), this level of remuneration is unlikely to ensure the credibility of the veterinary services. From discussions held with various senior staff, a monthly salary of USD 300 for a veterinarian and of USD 200 for a veterinary para-professional, would seem appropriate to lead a decent lifestyle, and not to succumb to illicit temptations, especially in the inspection-related sectors.

For staff working under the auspices of international aid funded projects, topping-up of salaries is frequent and may vary from EUR 200 to 400 per month for graduate level staff, i.e. up to 200% of their basic salary.

Recommendations:

A long term vision and planning of financial and human resources, should include a planned withdrawal of public veterinary services from the grass-roots level and a progressive shift from intervention and implementation towards legislative supervision and control. Such a trimmed down public veterinary service should benefit from less, but better qualified and trained human resources, with a thicker pay-slip at the end of the month, completed by performance driven incentives. Governmental budgetary allocations will have to substantially increase, and become commensurate with the economic importance of the livestock and fisheries sector, but more still, with the public veterinary health responsibilities it assumes.

I-9. Emergency funding	Levels of advancement
The capability of the VS to access extraordinary financial resources in order to respond to emergency situations or emerging issues; measured by the ease of which contingency and compensatory funding (i.e. arrangements for compensation of producers in emergency situations) can be made available when required.	1. No contingency and compensatory funding arrangements exist and there is no provision for emergency financial resources.
	2. Contingency and compensatory funding arrangements with limited resources have been established, but these are inadequate for expected emergency situations (including emerging issues).
	3. Contingency and compensatory funding arrangements with limited resources have been established; additional resources for emergencies may be approved but approval is through a political process.
	4. Contingency and compensatory funding arrangements with adequate resources have been established, but in an emergency situation, their operation must be agreed through a non-political process on a case-by-case basis.
	5. Contingency and compensatory funding arrangements with adequate resources have been established and their rules of operation documented and agreed with stakeholders.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

There is now general consensus that contingency funds should not necessarily be tangible and lodged in a bank-account at any time, nor that it should be specifically intended for animal health emergencies. Efficient (recurrent) budgeting and rapid mobilisation protocols to make budgeted funds available in a short lapse of time, are just as useful, and probably better adjusted to government and donor accounting procedures. In general, prior arrangements for contingency funding are made on the basis of agreed, and adopted *emergency preparedness plans* (EPP), which will provide detailed insight into the pathway for declaration and official recognition of a disease outbreak, as well as the material, human and financial needs involved.

Contingency funding in Lao today lacks a legislative foundation and is granted on an arbitrary basis, involving slow administrative procedures or dependency on donor funds, which prevent rapid mobilisation when necessary. The amounts mentioned (LAK 50 million – 100 million) are not anywhere near the needs for emergency interventions but merely bring "relief".

Currently, contingency funds exist for HPAI control only, but are administered by an inter-ministerial committee (NAHICO, now renamed NEIDCO), not by the veterinary authority. Nevertheless evidence has been found that e.g. compensation to poultry farmers was paid out (at 60% of the market value) during the 2007 series of HPAI outbreaks.

Elsewhere, evidence has been found that the national disaster management system (name unknown) has adequately disbursed funds for the relief of the recent flood victims (e.g. LAK 45 million in Boulixamsai province) and LAK 100 million for emergency vaccinations against FMD in Champassack province or against the 2010 PRRS outbreaks in hogs in Vientiane Capital.

While action plans exist in regard of HPAI, FMD and CSF, no emergency preparedness plans exist to date.

Despite our insistence, it was not possible to obtain evidence that animal disease emergencies or disasters are eligible for national disaster relief funds. Indirectly, the emergency measures taken with regards to FMD and PRRS tend to indicate that this indeed the case, which justifies the increase of level of advancement from 1 to 2 : *"Contingency and compensatory funding arrangements with limited resources have been established, but these are inadequate for expected emergency situations (including emerging issues)."*

I-10. Capital investment *The capability of the VS to access funding for basic and additional investments (material and non material) that lead to a sustained improvement in the VS operational infrastructure.*	Levels of advancement
	1. There is no capability to establish, maintain or improve the operational infrastructure of the VS.
	2. The VS occasionally develops proposals and secures funding for the establishment, maintenance or improvement of operational infrastructure but this is normally through extraordinary allocations.
	3. The VS regularly secures funding for maintenance and improvements of operational infrastructure, through allocations from the national budget or from other sources, but there are constraints on the use of these allocations.
	4. The VS routinely secures adequate funding for the necessary maintenance and improvement in operational infrastructure.
	5. The VS systematically secures adequate funding for the necessary improvements in operational infrastructure, including with participation from stakeholders as required.

Terrestrial Code reference(s): Annexe 1

This Critical Competency was assessed as the *"Capability to invest and develop"* during the 2007 PVS.

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

The structure of the annual budget, as shown to the Team, does not seem to present the classic *recurrent* and (capital) *investment* breakdown one would expect. Instead, salaries are paid directly by one Ministry while the technical Ministry is granted "projects", which are deemed to cover the expenses of the Ministry and its technical branches and agencies/centres. The "projects" listed for the 2010 – 2011 budget exercise are :

- National Animal Vaccination Project
- Laboratory Improvement Project
- Animal Disease Outbreak Control and Monitoring at the Border Project
- Establishment of Foot and Mouth Disease Free Zones' Project
- Sanitary Inspection of Meat, Animals and Fish Products Project
- Medicine and Vaccine Production System Improvement Project
- Capacity building of veterinary service networking Project
- Avian and Human Influenza Control Project
- Environmental Animal Health Management Initiative for Enhanced Smallholder Production Project
- Large Ruminant Health Husbandry Development Project
- Animal Diseases Control Amongst 6 Countries
- Understanding Livestock Movement and the Risk of Spread of Transboundary Animal Diseases
- Management of pig associated zoonoses in the Lao PDR

What is clear from the budgetary analysis presented in the previous section on operational funds, is that in a lot of cases these budgetary headings are linked to donor "projects" where the government – budget allocation (usually LAK 50 million) represents the government counterpart contribution to that particular project, e.g. the *"Avian and Hum an Influenza Control Project"*, co-funded by USAID and implemented by FAO and the DLF.

Other budget lines clearly indicate that these funds are earmarked for the operation of centres, e.g. the *"Medicine and Vaccine Production System Improvement Project"* is basically the annual budget for the operation of the *Veterinary Vaccine Production Centre* (VVPC).

Whatever the source of the funding, or the topic listed, none of these budget lines seem to indicate to capital investments, except maybe for the *"Laboratory Improvement Project "* which could be linked to the building of a new laboratory facility of the DLF premises. While the actual cost of building this new facility is not included in this year's annual budget, it is understood that the LAK 50 million earmarked by Government are to be used for the relocation of all laboratory section and their equipment to the new facility later this year. Whether a mere EUR 4,500 are going to be sufficient to achieve this is doubtful and may require additional extra-budgetary support.

The only capital investment project which is clearly listed as such appears in the annual budget of the Vientiane Capital (province) and is earmarked for the building of a new quarantine facility at the Friendship Bridge border – crossing with Thailand. This is a 5-year investment project, of which the first phase (the office…) has already been concluded.

I-11. Management of resources and operations *The capability of the VS to document and manage their resources and operations in order to analyse, plan and improve both efficiency and effectiveness.*	Levels of advancement
	1. The VS have some records or documented procedures, but these do not provide for adequate management of resources and operations.
	2. The VS routinely use records and/or documented procedures in the management of resources and some operations, but these do not provide for adequate management, analysis, control or planning.
	3. The VS have comprehensive records, documentation and management systems and they regularly use records and documented procedures in the management of resources and operations, providing for the control of effectiveness and the conduct of analysis and planning.
	4. The VS have adequate management skills, including the capacity to analyse and improve efficiency and effectiveness.
	5. The VS have fully effective management systems, which are regularly audited and permit a proactive continuous improvement of efficiency and effectiveness.

Terrestrial Code reference(s): Annexe 1

This Critical Competency was not assessed during the 2007 PVS evaluation.

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

While it has been possible to obtain the necessary documented references to most issues required by the Team, it also became clear that information is scattered across a large number of units and centres, which makes the access to information cumbersome. The two main management poles are the three divisions under the DLF (the regulatory division, the planning division and the administrative division) on the one hand and the administration and information unit under the NAHC (Centre) on the other hand. "Management" is mainly shared across these 4 offices/officers, but there are others.

In spite of the lack of any advanced document management system or commonly-used financial and budgetary management software (the likes of SAP or Oracle), the relatively high number of staff in these management offices manages to produce a body of information which is properly archived, available upon request, often translated, but is allegedly not (systematically) used in the decision-making processes of the Directors of the DLF or the NAHC, nor in the analysis, control or planning of activities.

In addition, both the human resources management and the management of provincial and district 'veterinary' offices are institutionally disconnected from the DLF.

III.2 Fundamental component II: Technical authority and capability

This component of the evaluation concerns the authority and capability of the VS to develop and apply sanitary measures and science-based procedures supporting those measures. It comprises fourteen critical competencies

Critical competencies:

Section II-1	**Veterinary laboratory diagnosis**
Section II-2	**Laboratory quality assurance**
Section II-3	**Risk analysis**
Section II-4	**Quarantine and border security**
Section II-5	**Epidemiological surveillance**
	A. Passive Epidemiological surveillance
	B. Active Epidemiological surveillance
Section II-6	**Early detection and emergency response**
Section II-7	**Disease prevention, control and eradication**
Section II-8	**Food safety**
	A. Ante and post mortem inspection at abattoirs and associated premises
	B. Inspection of collection, processing and distribution of products of animal origin
Section II-9	**Veterinary medicines and biologicals**
Section II-10	**Residue testing**
Section II-11	**Emerging issues**
Section II-12	**Technical innovation**
Section II-13	**Identification and traceability**
	A. Animal identification and movement control
	B. Identification and traceability of products of animal origin
Section II-14	**Animal welfare**

Terrestrial Code References:
Chapter 2.1. on Import risk analysis.
Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Veterinary legislation / General Organisation / Procedures and standards.
Point 1 of Article 3.2.4. on Evaluation criteria for quality systems.
Point 3 of Article 3.2.6. on Evaluation criteria for material resources: Technical.
Points 1 and 2 of Article 3.2.7. on Legislation and functional capabilities: Animal health, animal welfare and veterinary public health / Export/import inspection.
Points 1-3 of Article 3.2.8. on Animal health controls: Animal health status / Animal health control / National animal disease reporting systems.
Points 1-5 of Article 3.2.9. on Veterinary public health controls: Food hygiene / Zoonoses / Chemical residue testing programmes / Veterinary medicines/ Integration between animal health controls and veterinary public health.
Sub-point f) of Point 4 of Article 3.2.10. on Veterinary Services administration: Formal linkages with sources of independent scientific expertise.
Points 2 and 5-7 of Article 3.2.14. on National information on human resources / Laboratory services / Veterinary legislation, regulations and functional capabilities / Animal health and veterinary public health controls.
Chapter 4.1. on General principles on identification and traceability of live animals.
Chapter 4.2. on Design and implementation of identification systems to achieve animal traceability.

Chapter 6.2. on Control of biological hazards of animal health and public health importance through ante- and post-mortem meat inspection.
Chapters 6.6. to 6.10. on Antimicrobial resistance.
Chapter 7.1. Introduction to the recommendations for animal welfare.
Chapter 7.2. Transport of animals by sea.
Chapter 7.3. Transport of animals by land.
Chapter 7.4. Transport of animals by air.
Chapter 7.5. Slaughter of animals.
Chapter 7.6. Killing of animals for disease control purposes.

The National Animal Health Centre (NAHC)
Department of Livestock & Fisheries (DLF)
Ministry of Agriculture & Forestry (MAF)

The DLF has been designed and consolidated as a fusion of the former department of animal health, the department of animal production and the department of fisheries. The research and extension activities which were also part of the department have been transferred to independent (pluri-disciplinary, and in theory, self-supporting) units: National Agriculture & Forestry Research Institute (NAFRI) and National Agriculture & Forestry Extension Services (NAFES), respectively. NAHC, one of the three centres of DLF, is managed by a Director. Thirty-three (33) staffs were working for the NAHC in 2010.

The units of the NAHC are:

- the diagnostic laboratory unit;
- the veterinary supply unit;
- the meat inspection unit;
- the epidemiology and disease control unit;
- the administration and information unit.

II-1. Veterinary laboratory diagnosis *The authority and capability of the VS to identify and record pathogenic agents, including those relevant for public health that can adversely affect animals and animal products.*	Levels of advancement
	1. Disease diagnosis is almost always conducted by clinical means only, with laboratory diagnostic capability being generally unavailable.
	2. For major zoonoses and diseases of national economic importance, the VS have access to and use a laboratory to obtain a correct diagnosis.
	3. For other zoonoses and diseases present in the country, the VS have access to and use a laboratory to obtain a correct diagnosis.
	4. For diseases of zoonotic or economic importance not present in the country, but known to exist in the region and/ or that could enter the country, the VS have access to and use a laboratory to obtain a correct diagnosis.
	5. In the case of new and emerging diseases in the region or world, the VS have access to and use a network of national or international reference laboratories (e.g. an OIE Reference Laboratory) to obtain a correct diagnosis.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09, P15-P26, H04, M12

Findings:

The veterinary services have the full authority over diagnosis of pathologies in animals and animal products, as well as animal feed, but not over derived (processed) products; the latter is handled by the Ministry of Health and in particular the *Food and Drug Department* (FDD).

Central Diagnostic Laboratory

National laboratory facilities are present only in Vientiane, under the auspices of the NAHC of the DLF. The diagnostic laboratory unit (the *Central Animal Disease Diagnostic Laboratory*) covers five divisions:

- Parasitology
- Bacteriology
- Virology (avian influenza and other emerging diseases)
- Rabies
- Serology (FMD, CSF and PRRS)

and possesses a sample registration unit, an autopsy/necropsy ward and an incinerator.

Diagnostic capacity is established for about half of Lao's notifiable diseases, especially those present in the country and/or of national economic interest, provided there is a steady supply of diagnostic kits (table 20).

In most lab divisions, *standard operating procedures* (SOP) are available (compared to the last PVS mission). Laboratories are equipped with computers but testing applications and results are still communicated by hard copies. No electronic lab data-management system is in place. The usual (and probably well-grounded) explanation for this (and other cases) is that software is generally English-only and incompatible with Sanskrit spelling, required for official reporting.

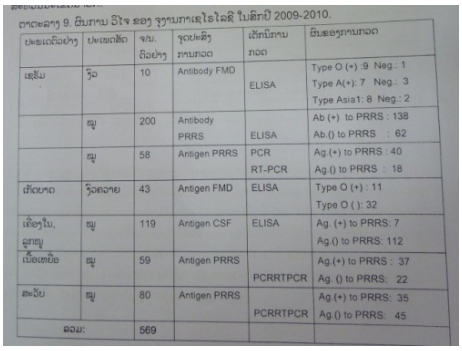
Table 19. Staff profiles of the NAHC in 2007 & 2010

	Total staff	
Academic level	**2007**	**2010**
Ph.D.	1	2
M.Sc.	3	8
B.Sc.	10	6
H.D.	5	9
Technical and admin.	9	8
Total	**28**	**33**

Staff numbers for the NAHC include also the veterinary supply unit and the other divisions, such as the epidemiology unit and the meat inspection unit. Therefore, the number of qualified (scientific) staff working on disease diagnosis must be regarded as very low (probably around 12 permanent staff, of which only 2 veterinarians (M.Sc or Ph.D. levels).

Table 20. List of notifiable diseases *in Lao PDR* [24]

Notifiable diseases		Diagnostic capacity
1.	Foot-and-mouth disease	✓ [25]
2.	Vesicular stomatitis	
3.	Swine vesicular disease	
4.	Rinderpest	
5.	Contagious bovine pleuro-pneumonia	
6.	Peste des petits ruminants	
7.	Sheep pox and goat pox	
8.	Classical swine fever	✓ [26]
9.	Avian influenza	✓
10.	Newcastle disease	✓
11.	Anthrax	✓
12.	Rabies	✓
13.	Haemorrhagic septicaemia	✓
14.	Lumpy skin disease	
15.	Rift valley fever	
16.	Bluetongue	
17.	African horse sickness	
18.	African swine fever	
19.	Porcine reproductive and respiratory disease [27]	✓



	วัว	10	Antibody FMD	ELISA	Type O (+) :9 Neg.: 1 Type A(+): 7 Neg.: 3 Type Asia1: 8 Neg.: 2
	หมู	200	Antibody PRRS	ELISA	Ab (+) to PRRS : 138 Ab.() to PRRS : 62
	หมู	58	Antigen PRRS	PCR RT-PCR	Ag.(+) to PRRS : 40 Ag.() to PRRS : 18
	วัวควาย	43	Antigen FMD	ELISA	Type O (+) : 11 Type O ( ): 32
	หมู	119	Antigen CSF	ELISA	Ag. (+) to PRRS: 7 Ag.() to PRRS: 112
	หมู	59	Antigen PRRS	PCRRTPCR	Ag.(+) to PRRS : 37 Ag. () to PRRS: 22
	หมู	80	Antigen PRRS	PCRRTPCR	Ag.(+) to PRRS: 35 Ag.() to PRRS: 45
		569			

Picture 15. *(Left) Diagnostic laboratory (Serology / FMD, CSF & PRRS),*
Picture 16. *(Middle) Test results - Source: NAHC annual report (2009/2010)*
Picture 17. *(Right) AI laboratory with BSL2 indication. All pictures © A. Kamakawa (2011).*

Financial resources from the country's regular budget are extremely limited, adding up to around LAK 400 million per year (EUR 37,000), for the whole of the NAHC (though increased 1.6 times from the previous LAK 250 million per year, as observed in 2007).

[24] **Notifiable disease** is stipulated in Article 40:Compulsory notification of diseases, *Law on livestock production and veterinary matters* (Feb 2009 in effect) and in *Decree of animal epidemic disease control*

[25] With support from ACIAR implemented program and the regional AusAID funded '*Southeast Asia Foot-and-Mouth Disease Campaign'* (SEA-FMD) of OIE.

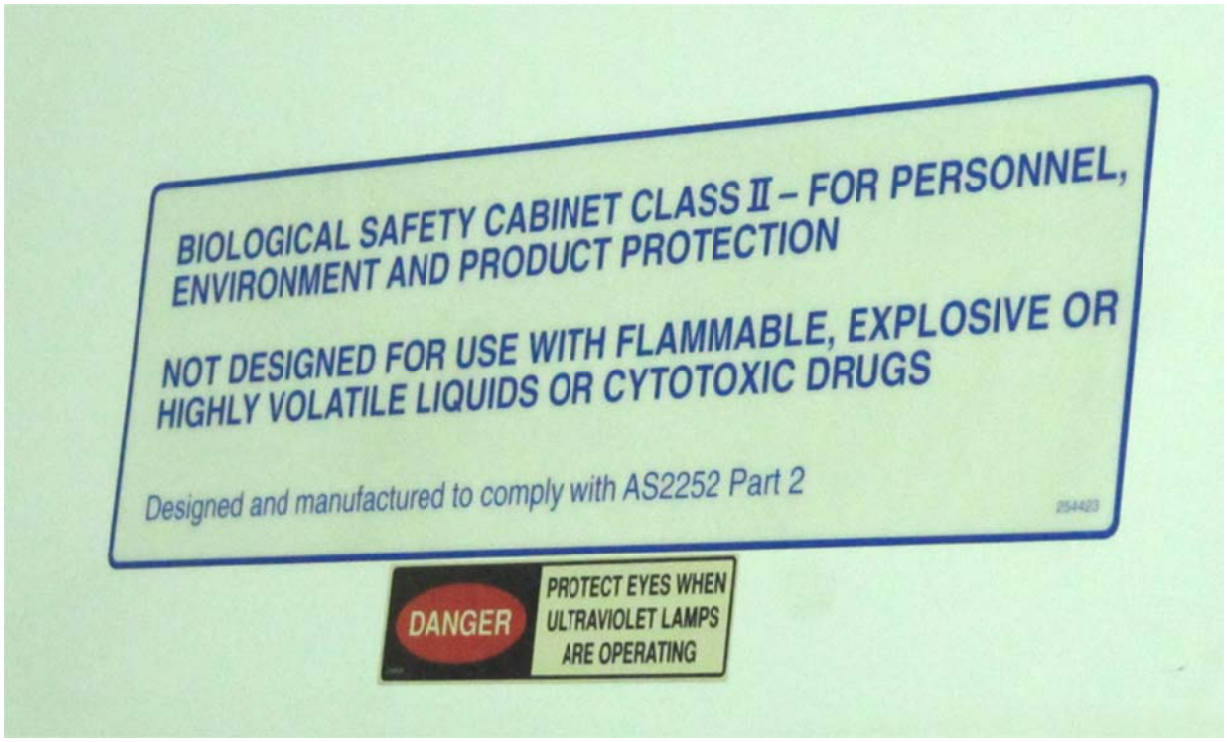
[26] With support from ACIAR implemented programme

[27] PRRS is claimed to have been recently been designated as a notifiable disease by sub-decree (communication. of Dr Sounthone, Director, veterinary legislation division), but no evidence of this was provided to the Team.

Most of the laboratory's financial means come from international aid agencies and donor-funded technical assistance projects[28].

The AusAID-funded avian influenza laboratory unit has a BSL 2 lab.

Currently the serology lab (where most of the FMD, CSF and PRRS work is conducted, also mainly AusAID funded), can be regarded as a mere P_1 (BSL 1) level. A new biosafety cabinet is expected to be installed in the new laboratory shortly. The bacteriology lab, where anthrax suspected samples are analysed, has been equipped with a biosafety cabinet (MSC 12 class II).



Picture 18. *Biological safety cabinet class II installed at the bacteriology lab in Vientiane. Picture © M. Varas (2011)*

Rabies diagnosis is conducted in a separate lab using the usual immuno-fluorescence techniques. This lab is regarded as the national reference lab for rabies, in which more than 50 (animal) cases per year are diagnosed as positives (65/112 or 58% between 10.2009 and 09.2010). The laboratory has a biosafety cabinet (PSM 1200 NF, Fisher scientific) and the staff is vaccinated through the government fund.

Some parasitological and/or bacteriological inspections are conducted for fresh meat and faecal samples, and formalin detection for dried fish products. Customer driven diagnosis is occasionally conducted for export commodities, such as bacterial culture of buffalo/cattle hides for anthrax and salmonella detection.

An animal feed analysis lab is also available, but this lab has not been visited; it is our understanding that the lab is designed to conduct feed quality analyses (bromatology) sampled in feed-mills nationwide, but lacks the capability to conduct diagnosis of food-borne pathogens and toxins.

[28] Examples are : the EC-funded *Lao – EU Livestock Project*, the AusAID funded *SEA-FMD* project by OIE, the Asian Development Bank funded project on *control of TADs in the Greater Mekong Sub-region* by FAO, and the AusAID funded *Lao – Australia Animal Health Research Project* (LAAHRP) by ACIAR. The NZAID, JICA and USAID also provide(d) support.

Table 21. Activity profile of the national laboratory.

Number of analyses conducted :	Per year	Average per month
Lab-analyses (in units) :		
Bacteriology (internal organs)	267	
Parasitology (faecal samples)	49	
Tissue analyses (e.g. FMD)	122	
Rabies	112	
HPAI (sera)	6,309	
HPAI (swabs)	9,851	
Whole blood analyses	93	
Necropsy (general)	65	
TOTAL	**16,868**	**1,406**

The construction of the new laboratory facility on the same premises, already initiated during the previous PVS mission in 2007, is still not completed. The new facility is expected to boast a BSL-3 laboratory, which is part of the activities foreseen under the *National Avian Influenza Control and Pandemic Preparedness Plan 2006-2010* (strategy 1 Development of AI free management system) and the *National Emerging Infectious Disease Coordination Office* (NEIDCO, inter-ministerial secretariat office led by the MoH) is one of its main stakeholders. The construction is now expected to be finalised by end of the year under the best case scenario.

Pictures 19 - 20. *Laboratory infrastructure under construction at the NAHC in Vientiane, in 2007 (left) and present (right). Pictures © P. Bastiaensen (2007, 2011).*

Provincial diagnostic laboratories

There are four provincial laboratories covering the 17 provinces, three in the north and one in the south (Champassack). The laboratories are administered by the provincial authority, which also pays the salaries.

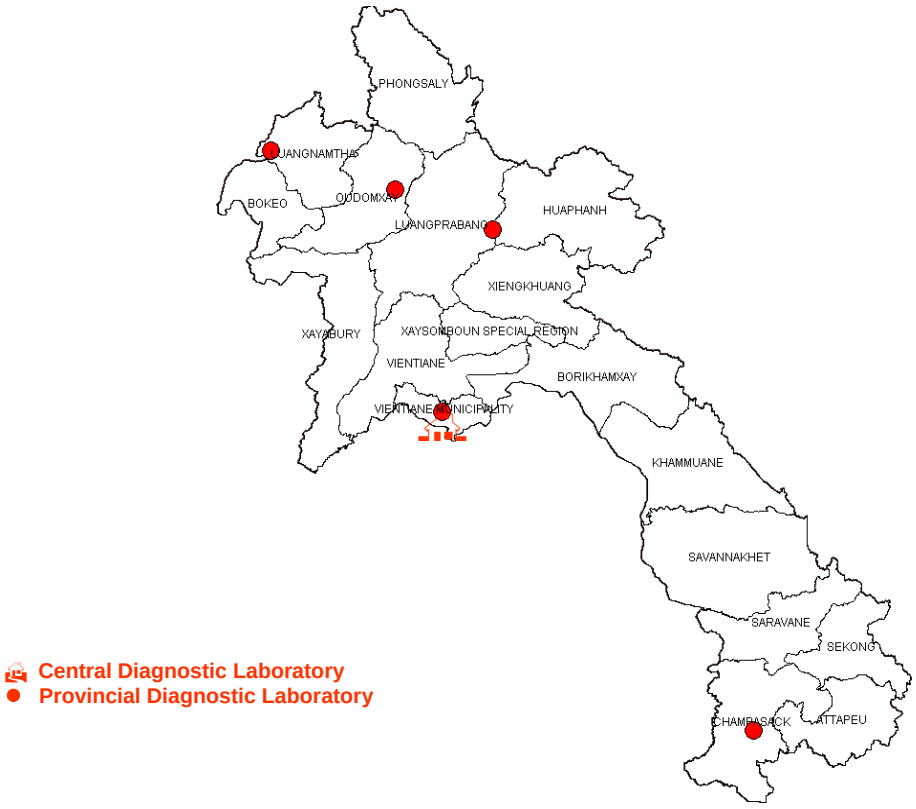
Pictures 21 - 23. *From left to right : rapid (pen-side) tests for avian influenza type A, the entrance to the Champassack provincial vet. laboratory and surgery/pharmacy (animal health services centre) and SOPs for FMD ELISA in the same laboratory. Pictures © M.Varas (2011)*

The annual budget for provincial veterinary services is about LAK 12 million (EUR 1,100), based on an estimated portion within the total budget of the Provincial Livestock & Fisheries Office (PLFO) in three Northern provinces. Such amount can easily be absorbed by transportation needs only, leaving virtually no budget for laboratory activities, let alone maintenance. The estimated budget for the Champassack provincial veterinary services in the south of the country is LAK 6 million, leaving the care for the fully refurbished and well-equipped provincial laboratory to external funding (emergency funding for FMD, IFAD project support and AI related support provided by World Bank and USAID). Detailed analysis of worksheets (of 11 full-time staff…) and inspection of reagents in the latter laboratory indicated that the turnover of services, and therefore reagents, is extremely low, leading to situations where (expensive) ELISA reagents (such as FMD antigens) expired at a time when there were suspected outbreaks of FMD in the province. The provincial laboratory's role was therefore limited to the conditioning and forwarding of samples to the national laboratory services.

Diagnostic performances are limited to certain occasional tests such as egg-count for gastro-intestinal parasites and rapid diagnostic tests for AI and CSF provided for by foreign projects.

Picture 24. *Bottled ice for sample / vaccine transport. Picture © A. Kamakawa (2011)*

Laboratory equipment[29] is merely maintained as it is, and the infrastructure is not bio-safe enough for carrying out bacterial or viral testing.



Map 10. Location of national and regional (provincial) veterinary laboratory facilities. Source : DLF

[29] Fridge, deep-freezer, cool-boxes, transport media, incubation oven, microscopes, centrifuge, vortex, micropipettes etc.

Picture 25 - 26. *Regional laboratory staff : motivated but frustrated because under-exploited. Pictures © M. Varas and A. Kamakawa (2011).*

Research and educational laboratory research facilities

None of the agricultural and forestry colleges visited, nor the Faculty of Agriculture of the National University of Laos (in Nabong) possess animal health specific training facilities, laboratories or surgeries.

The public agricultural research facilities (under the NAFRI: *National Agriculture & Forestry Re search Institute* denominator) are focused on cash crops, aquaculture and (agro) forestry, not on animal health research. No private or otherwise (international) veterinary research facilities exist in Laos.

The *Law on livestock production and veterina ry matters* (2008) explicitly defines scientific study and research on the development of livestock production as part of their activity (article 8 &11, chapter II), but not under veterinary matters (article 34, chapter III). If research into animal diseases is conducted, it is done at the NAHC or at the *Veterinary Vaccine Production Centre* of the DLF, in close consultation and collaboration with the PLFOs & DLFOs, which contributes to the quality control of their activities in disease prevention and control, movement control of animal and its product, and slaughterhouse and meat inspection.

Strengths:

- Operation supported by Australian and US funded projects, the national diagnostic laboratory stands out as a small, but well managed service, which can cope with the diagnosis of most endemic diseases, whether of a parasitic, bacterial or viral nature.

- Funded by the recent EU projects, the national laboratory and some provincial laboratories have increased their level of equipment, such as microscopes, water purification systems and biosafety cabinets.

Weaknesses:

- The operation on the national and provincial diagnostic laboratory is heavily dependent on external technical and financial assistance, which lasts for the project lifetime. High performance equipments such as a sequencer in the national lab and an ELISA system in provincial lab are not utilised, seeking another donor for reagents and rehabilitation.

- Lack of (i) qualified laboratory technicians; (ii) functioning disease reporting system (no incentives for village veterinary workers (VVWs)) which generates samples; and (iii) own means (no budget to afford reagents and maintain equipments).

Recommendations:

- Establishment of a computerised laboratory data-management system (e.g. start from simple excel format), prepared in Laotian, which enables the NAHC to feed its epidemio-surveillance database to be internally shared and revised, and also to return information to the initiators of the reports and samples at field level. Facilitate PLFO and possibly DLFO to establish internet access so that electric data can be exchanged.

- As for the provincial labs in the north, prioritize one laboratory to function as a regional core of expertise. Allocate qualified human resources, separate budget, even small, for running the lab, and make sure that the BSL complies with the probable biohazard risk of samples and the protocols in use, and at least maintain BSL1.

II-2. Laboratory quality assurance *The quality of laboratories (that conduct diagnostic testing or analysis for chemical residues, antimicrobial residues, toxins, or tests for, biological efficacy, etc.) as measured by the use of formal QA systems and participation in relevant proficiency testing programmes.*	Levels of advancement
	1. No laboratories used by the public sector VS are using formal QA systems.
	2. Some laboratories used by the public sector VS are using formal QA systems.
	3. All laboratories used by the public sector VS are using formal QA systems.
	4. All the laboratories used by the public sector VS and most or all private laboratories are using formal QA systems.
	5. All the laboratories used by the public sector VS and most or all private laboratories are using formal QA programmes that meet OIE, ISO 17025, or equivalent QA standard guidelines.

Terrestrial Code reference(s): Annexe 1

This Critical Competency was not assessed during the 2007 PVS evaluation.

Evidence: *(references of documents or pictures listed in Appendix 6) :* E01, E09

Findings:

Neither the central diagnostic laboratory nor the veterinary vaccine production centre are certified (ISO or otherwise) and considered as a reference laboratory for any of the OIE listed diseases, whereas technical support and a proficiency testing programme, twice a year, is provided by CSIRO's *Australian Animal Health Labo ratory*, in Geelong, especially for laboratory diagnosis of HPAI, CSF and PRRS. Staff at the central laboratory are admittedly struggling to pass these tests.

Pesticide residue testing of processed (heated) animal products can be handled by the chemical laboratory of the *Food and Drug Department* (FDD) of the MoH, which the team was not able to visit due to time constraint.

No antimicrobial residue, toxin, metal nor hormones can be tested in any of the above laboratories.

Strengths:

- Proficiency testing opportunities provided by the donor project.

Weaknesses:

- Lack of internal and domestic quality control system

Recommendations:

- Continue participation to the current proficiency testing programme and seek for opportunities for other units to participate.
- Establish internal audit system and regularly review the SOPs.

II-3. Risk analysis *The authority and capability of the VS to base its risk management decisions on a scientific assessment of the risks.*	Levels of advancement
	1. Risk management decisions are not usually supported by scientific risk assessment.
	2. The VS compile and maintain data but do not have the capability to systematically assess risks. Some risk management decisions are based on scientific risk assessment.
	3. The VS can systematically compile and maintain relevant data and carry out risk assessment. Scientific principles and evidence, including risk assessment, generally provide the basis for risk management decisions.
	4. The VS systematically conduct risk assessments in compliance with relevant OIE standards, and base their risk management decisions on the outcomes of these risk assessments.
	5. The VS are consistent in basing sanitary decisions on risk analysis, and in communicating their procedures and outcomes internationally, meeting all their OIE obligations (including WTO SPS Agreement obligations where applicable).

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09

Findings:

Currently, no in-house scientific knowledge, nor professional competency on any of the risk associated management decision tools is available. Risk analysis is conducted for FMD (and CSF) only, within the framework of donor-funded projects and is guided by regional (trade) interests, rather than national interests.

Weaknesses:

- There is very little awareness of the risk based decision making approach.
- There is no documentation of decision-making in the development of import health conditions.

Recommendations:

There is a need for employees to understand the application of risk analysis in the international context and from a practical point of view.

II-4. Quarantine and border security *The authority and capability of the VS to prevent the entry and spread of diseases and other hazards of animals and animal products.*	Levels of advancement
	1. The VS cannot apply any type of quarantine or border security procedures for animals or animal products with their neighbouring countries or trading partners.
	2. The VS can establish and apply quarantine and border security procedures; however, these are generally based neither on international standards nor on a risk analysis.
	3. The VS can establish and apply quarantine and border security procedures based on international standards, but the procedures do not systematically address illegal activities relating to the import of animals and animal products.
	4. The VS can establish and apply quarantine and border security procedures which systematically address legal pathways and illegal activities.
	5. The VS work with their neighbouring countries and trading partners to establish, apply and audit quarantine and border security procedures which systematically address all risks identified.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09, P27 – P32, H04

Findings:

The (major) international *border posts* visited possess both public health and animal health quarantine and inspection services and personnel. As far as veterinary personnel is concerned, both provincial and district officers are present. In Luang Namtha, Bokeo, Nam Phao and Veunh Kham, the border posts were managed by the province.

For border check points with Vietnam, China, Myanmar and Cambodia, staff is sent to these remote locations for three months to a full year [three months cycle in Boten] and operate 7 days a week, during the opening hours of the border itself. During weekends, in urban centres, officers are on telephone standby, rather than physically present at the border inspection post. Commercial shipments are said to be authorised (by customs) during weekdays only.

Pictures 27 - 28. *Disinfection of passenger cars entering the country at Friendship Bridge I (Thailand). Pictures © M. Varas (2011)*

Quarantine stations [30] as such are only present in Savannakhet (Thailand) and Veunh Kham (Cambodia), but none of these seem to have been used for a while. All border inspection posts currently also conduct disinfection of vehicles upon entry into the country, allegedly to control avian influenza (from Vietnam), PRRS (from Thailand), or as a result of MoUs with China. These disinfection stations are mostly automated and manned 24/7 by one or two contracted officers. However in the northern border points, a significant part of the inspectors' manpower is spent for manual disinfection of vehicles with hand sprayers and is available during office hours only. The disinfection cost is covered through the recovery of 30% of the disinfection fees that are collected from the drivers of the lorries, busses and passenger cars. 70% of these revenues are pledged to the treasury of the relevant provincial administration.

A contract-worker will earn around LAK 400,000 per month. Provincial inspectors (permanent/civil servants) will earn around LAK 700,000 – 900,000 per month for a higher diploma level and between LAK 500,000 – 700,000 per month for a medium level diploma holder.

In principle, officers inspect live animals, on foot or in trucks, and products of animal origin. These are reportedly: *fresh meat*[31], *milk*[32] and *milk products*[33], eggs, hides and skin. Products such as *meat products*[34], powder milk, pasteurised and UHT milk, other dairy products, honey and both veterinary and human medicines are inspected by public health officers (MoH). The inspection process is set off by the customs officers[35] who will call upon either or both services when inspecting containers and trucks crossing the border. Control of passenger cars for small quantities of these *commodities*[36] does not seem to be considered a priority. There are no documented thresholds to consider a shipment commercial or for-personal-consumption. Some border posts apply a threshold fiscal value of more than LAK 150,000 to require a zoo-sanitary certificate and related documents, and some apply products for personal consumption, less than 1 metric tonne, as exempted.

The control of commercial shipments of animals and animal products is mostly administrative (documentary inspection) without further physical inspection (organoleptic), nor sampling for laboratory testing for conformity. The latter notion is unheard of in most border posts visited.

The levy for inspection varies by type and size of commodities, while it is anywhere between LAK 25,000 and 100,000 per shipment. It is either received directly by the treasury of the provincial administration (PLFO) or –less common- by the border inspection officer. In the former case, incentives flow back to the inspectors through per-diems or over-time payments (representing up to 50% of the basic salary). In the latter case, around 30% is kept by the inspector as a personal incentive, and the rest is transferred to the treasury.

Except for the international border post with Thailand in Vientiane (*Friendship Bridge I*), inspectors are mid-level technical personnel, trained either at the national Agricultural Faculty (for PLFO personnel) or one of the regional agricultural college (for PLFO and DLFO personnel). No dedicated training on inspection and quarantine exist; staff being sent to border posts for the first time receive a 3 day training by the epidemiology unit of the NAHC in Vientiane.

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[30] **Quarantine station** means a facility under the control of the Veterinary Authority where animals are maintained in isolation with no direct or indirect contact with other animals, to prevent the transmission of specified pathogen(s) while the animals are undergoing observation for a specified length of time and, if appropriate, testing and treatment.

[31] **Fresh meat** means meat that has not been subjected to any treatment irreversibly modifying its organoleptic and physicochemical characteristics. This includes frozen meat, chilled meat, minced meat and mechanically recovered meat.

[32] **Milk** means the normal mammary secretion of milking animals obtained from one or more milkings without either addition to it or extraction from it.

[33] **Milk product** means the product obtained by any processing of milk.

[34] **Meat products** means meat that has been subjected to a treatment irreversibly modifying its organoleptic and physicochemical characteristics.

[35] A needs assessment survey conducted by an NZAID-funded project noted that phytosanitary inspectors do not have the legal authority to search or seize goods and must depend on custom officials to refer the items to them.

[36] **Commodity** means animals, products of animal origin intended for human consumption, for animal feeding, for pharmaceutical or surgical use or for agricultural or industrial use, semen, embryos/ova, biological products and pathological material.

The technical know-how of these inspectors appears to be low and focussed on the administrative procedures involved, without a sound understanding of the epidemiological and health principles which govern these procedures. No *standard operating procedures* have been encountered (except –again- at the international border post with Thailand in Vientiane).

Picture 29. *Nam-Phao border post with Vietnam in the east of Lao. Picture © M. Varas (2011)*

In practice, and given the geographic position of Laos within the sub-region, most commercial animal (based) commodities brought into the country are actually in transit, usually between Vietnam and Thailand or China and Thailand. Furthermore, since the abolishment of inland veterinary checkpoints between provinces, customs checkpoints are expected to ensure that commodities in transit do indeed exit the country[37].

Whether for import or transit, traders wishing to ship animals or animal products are required to obtain a veterinary import or transit permit from the PLFO responsible for the border post where these commodities will enter the country. Officially, the request has to be made at least 15 days prior to the expected date of import. The authorisation is signed and sealed by the provincial Director of Agriculture and Forestry. Only after this transport-authorisation is delivered, may the shipment attempt to enter the country, provided a certificate of origin and a zoo-sanitary certificate from the exporting country are presented. Border post veterinary officials will then authorise further transport into the country, using a check-point specific stamp which commits the PLFO. In case of transit, another stamp is placed on the (veterinary) transport authorisation at the point of exit.

Picture 30. *Joint plant & animal quarantine office at the Friendship Bridge border crossing with Thailand. Picture © M. Varas (2011)*

All veterinary border-check point personnel fill out a register stating the usual data regarding the shipment, and produce weekly summary-reports for the district (for DLFO personnel) and the province (for PLFO personnel). The provincial animal health officer will then compile a monthly report for the DLF, which is filed by the epidemiology unit of the NAHC.

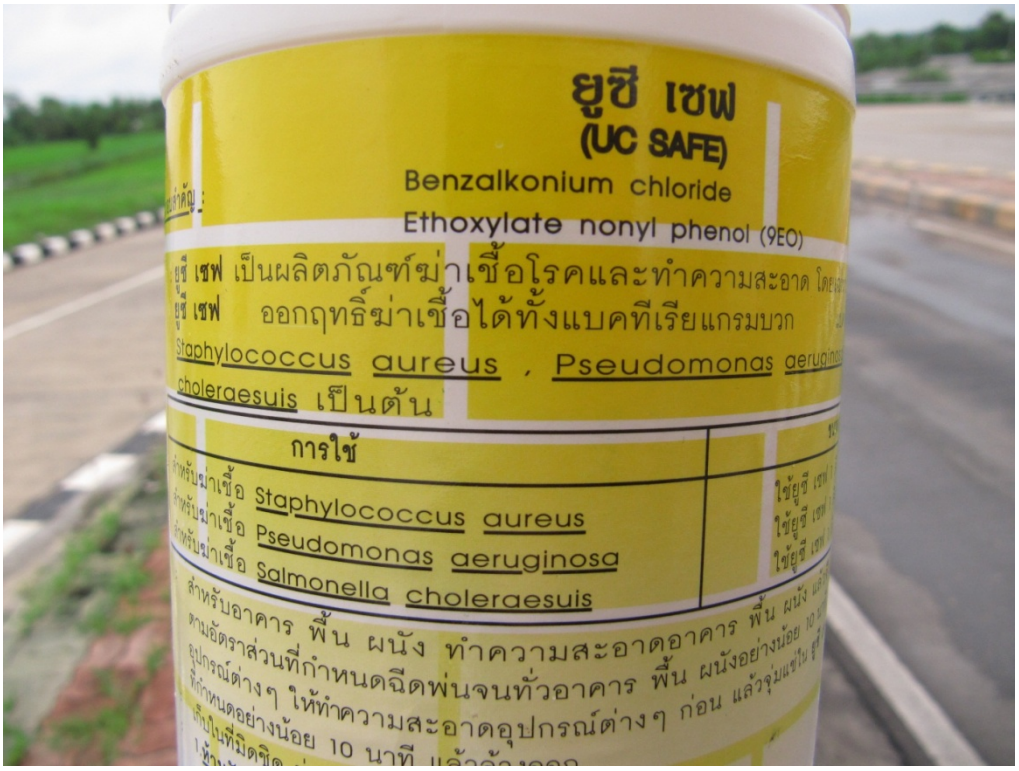
Strengths:

- Though lacking in veterinarians, the staff qualification has been gradually improving, thanks to the government support in continuing education for higher diploma.
- Checkpoint office is managed together and in a team with plant quarantine officers, logistically convenient for efficient control of the transport check, especially in a small entity.
- Close communication with bordering quarantine services (observed in Chinese border).

[37] For this purpose, containers are sealed by customs upon entrance in the country.

Weaknesses:

- In the border provinces, significant manpower is supplied for checkpoints, where majority of the work is rather administrative and logistic transit control (e.g. laboratory only filled with disinfectants), leaving one or two officers allocated within the border.
- The checkpoint officers have no own means to scientifically verify their measures taken for disease control and health check.
- There is no official statistics on imports, exports and transits by quarantine checkpoints made available. No national strategy encountered for where to locate the animal quarantine station / enclosure.

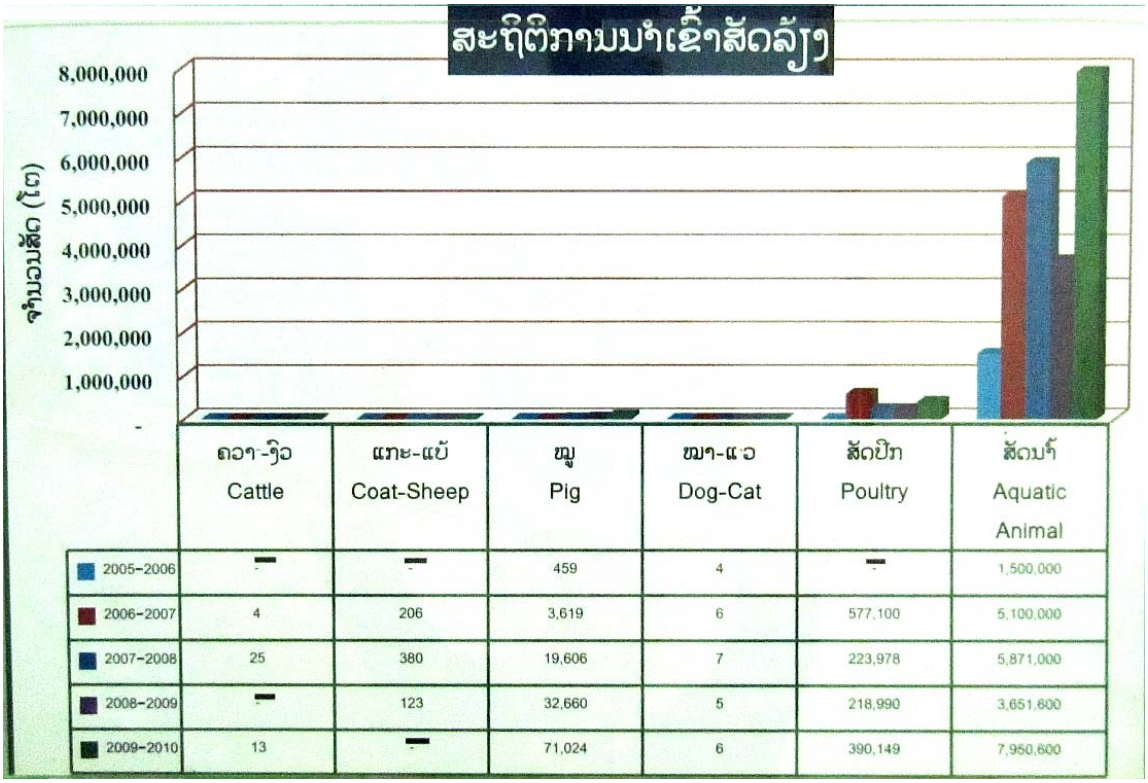


Picture 31. *Sometimes, vehicles are disinfected with anti-bacterial disinfectants, which are unlikely to produce much effect against HPAI, nor PRRS. Picture © M. Varas (2011)*

Recommendations:

- Border control measures and manpower allocation needs to be based on risk analysis and efficiency. For transit control more efforts may be needed for strict containment and consistency check, whether all the sealed containers have transited out or not. Reduce logistics from provincial officers, such as spraying disinfectant to all the vehicles (usually the measures are taken only when and for those with high risk. If still needed, provide disinfectant pits.), and let them utilise their stand-by time for more sensible inspection.
- Provide internet access to the checkpoints to facilitate document based communication with other related offices.
- Provide a simple laboratory for sampling, storage and disinfection (including equipment for autopsy, fridge, freezer, chemicals and steriliser.), and possibly for primary clinical inspection (eg. a microscope and staining kits. Some underutilised equipment could be accommodated from other labs).
- Keep communication and collaborate with the public health authority at checkpoints.

- Organise a central/annual meeting of the quarantine officers to communicate on illegal cases, update and standardise their control measures. If the animal quarantine station with a lab is to be established in Vientiane capital, this should play a central role of expertise on quarantine measures in the country.
- Having in mind informal movements and document based one-shot clinical border check, emphasis (for the VSs) should be placed also for domestic measures such as monitoring disease situation and securing food safety within the border. The provincial officers need to spend more time in the strategic planning and management, and giving legal as well as technical advices for the district officers.



	ຄວາ-ງົວ Cattle	ແກະ-ແບ້ Coat-Sheep	ໝູ Pig	ໝາ-ແ:ວ Dog-Cat	ສັດປີກ Poultry	ສັດນ້ຳ Aquatic Animal
2005-2006	-	-	459	4	-	1,500,000
2006-2007	4	206	3,619	6	577,100	5,100,000
2007-2008	25	380	19,606	7	223,978	5,871,000
2008-2009	-	123	32,660	5	218,990	3,651,600
2009-2010	13	-	71,024	6	390,149	7,950,600

Picture 32. *This kind of information (from the Friendship Bridge border inspection post in Vientiane) leaves little doubt on whether terrestrial or aquatic animals are the main imported commodity. Picture © M. Varas (2011)*

II-5. Epidemiological surveillance *The authority and capability of the VS to determine, verify and report on the sanitary status of the animal populations under their mandate.* **A. Passive epidemiological surveillance**	**Levels of advancement**
	1. The VS have no passive surveillance programme.
	2. The VS conduct passive surveillance for some relevant diseases and have the capacity to produce national reports on some diseases.
	3. The VS conduct passive surveillance in compliance with OIE standards for some relevant diseases at the national level through appropriate networks in the field, whereby samples from suspect cases are collected and sent for laboratory diagnosis with evidence of correct results obtained. The VS have a basic national disease reporting system.
	4. The VS conduct passive surveillance and report at the national level in compliance with OIE standards for most relevant diseases. Appropriate field networks are established for the collection of samples and submission for laboratory diagnosis of suspect cases with evidence of correct results obtained. Stakeholders are aware of and comply with their obligation to report the suspicion and occurrence of notifiable diseases to the VS.
	5. The VS regularly report to stakeholders and the international community (where applicable) on the findings of passive surveillance programmes.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09, E17

Findings:

Passive surveillance systems generate information at field level (*Village Veterinary Worker* and private veterinarians) and direct it as fast as possible to the decision-makers level, while taking the essential conservatory measures agreed upon in advance.

No evidence of any administrative reporting process or standard operational procedures to be followed in case of an exceptional event or in case of suspicion, were encountered during the mission, not at VVW level, nor at private veterinarian's level. This confirms the findings of 2007. In 2006, the Planning and Cooperation Division (PCD) of the Department issued a set of reporting forms pertaining to animal production and health (and a training manual) which is still very focused on obtaining production data, rather than animal health data from the PLFOs. Forms which might result in exploitable zoo-sanitary data are the main (weekly) questionnaire which includes data on diseases, vaccination, training and extension, as well as the form on animal mortality in farms and the form on import of animals and animal products. Unfortunately, no evidence of the use of these forms has been encountered while visiting the provinces, nor were they encountered at the epidemiology unit. These forms are reportedly being processed by the PCD though.

In response to HPAI outbreaks, the Government of Lao PDR prepared an *Integrated National Avian Influenza Control and Pandemic Preparedness Plan* through the *National Avian and Human Influenza Coordination Office* (NAHICO) covering the period 2006-2010. NAHICO, under the Ministry of Health, today provides a hotline for AI surveillance and will probably be enlarged to cover emerging diseases (Source: FAO-ECTAD).

Strengths:

- There is a list of notifiable diseases in the law (Article 40), although it is not up to date as it refers to the OIE's former List A,
- Veterinary services' staff are aware of contagious animal diseases of concern in the sub-region through international relationships and programmes.
- A hotline is accessible to everyone

Recommendations:

A strategy regarding passive surveillance programme should be developed as part of a broader animal health strategy. The fact that outbreaks are recognised and reported proves that there is a sound basis to move forward towards the establishment of a passive or general surveillance system. The delays in the design and implementation of such a surveillance system may even prove to be an advantage as the veterinary services could benefit from new technological developments in electronic reporting, cell phone technology and seamless integration into electronic databases.

II-5. Epidemiological surveillance *The authority and capability of the VS to determine, verify and report on the sanitary status of the animal populations under their mandate.* **B. Active epidemiological surveillance**	**Levels of advancement**
	1. The VS have no active surveillance programme.
	2. The VS conduct active surveillance for some relevant diseases (of economic and zoonotic importance) but apply it only in a part of susceptible populations and/or do not update it regularly.
	3. The VS conduct active surveillance in compliance with scientific principles and OIE standards for some relevant diseases and apply it to all susceptible populations but do not update it regularly.
	4. The VS conduct active surveillance in compliance with scientific principles and OIE standards for some relevant diseases, apply it to all susceptible populations, update it regularly and report the results systematically.
	5. The VS conduct active surveillance for most or all relevant diseases and apply it to all susceptible populations. The surveillance programmes are evaluated and meet the country's OIE obligations.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09, E22, E23

Findings:

Only one *active or spe cific or targete d* surveillance system in place : against avian influenza. It is implemented within the framework of FAO's *'Immediate Assistan ce to Strengthe n Em ergency Preparedness of Hi ghly Pathogenic A vian Influen za in Lao s'* project and funded by the *United States Agency for Internatio nal De velopment* (USAID) since 2005. The project is centred on training, harmonization of SOPs and strengthening of communication.

Strengths:

Staff working in the existing programmes have benefited from specific training

Weaknesses:

Active surveillance programme(s) depend on external funding

II-6. Early detection and emergency response *The authority and capability of the VS to detect and respond rapidly to a sanitary emergency (such as a significant disease outbreak or food safety emergency).*	Levels of advancement
	1. The VS have no field network or established procedure to determine whether a sanitary emergency exists or the authority to declare such an emergency and respond appropriately.
	2. The VS have a field network and an established procedure to determine whether or not a sanitary emergency exists, but lack the necessary legal and financial support to respond appropriately.
	3. The VS have the legal framework and financial support to respond rapidly to sanitary emergencies, but the response is not coordinated through a chain of command.
	4. The VS have an established procedure to make timely decisions on whether or not a sanitary emergency exists. The VS have the legal framework and financial support to respond rapidly to sanitary emergencies through a chain of command. They have national contingency plans for some exotic diseases.
	5. The VS have national contingency plans for all diseases of concern through coordinated actions with all stakeholders through a chain of command.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09

Findings:

Early detection and emergency response capability rely on two supporting systems:

a) epidemiological surveillance
b) emergency preparedness planning and contingency funding.

These two critical competencies are discussed in Chapter I, n°7 and Chapter II (this chapter), n° 4. The outcome of this PVS evaluation is that none of these critical competencies have reached a sufficient level, for them to become conducive for early detection and emergency response capability. Its implementation is hampered by the consequences of decentralisation of powers and otherwise lack legislative foundation, standard operation procedures, reporting formats, emergency preparedness plans and adequate funding.

List of notifiable diseases in Lao PDR

1. Foot-and-mouth disease
2. Vesicular stomatitis
3. Swine vesicular disease
4. Rinderpest
5. Contagious bovine pleuro-pneumonia
6. *Peste des petits ruminants*
7. Sheep pox and goat pox
8. Classical swine fever
9. Avian influenza
10. Newcastle disease
11. Anthrax
12. Rabies
13. Haemorrhagic septicaemia
14. Lumpy skin disease
15. Rift valley fever
16. Bluetongue
17. African horse sickness
18. African swine fever

There is no doubt that the SEA-FMD active surveillance has contributed to earlier detection of FMD cases than before, despite the absence of a surveillance network, and that there is increased awareness of CSF-like diseases, especially in highland or upland Laos, where symptoms were not recognised by farmers of being indicative of CSF.

While it is often argued that the bird flu situation is a successful example of early detection and emergency response, there is no evidence to proof that the index cases were indeed identified at a very early stage (and by whom). The current epizootic features of the disease (NAI would seem to be endemic in ducks in 5 out of the 8 provinces covered by the FAO/USAID project), would rather indicate that HPAI was detected too late to be able to contain it to one province.

Weaknesses:

- There is no formal network for early detection.
- The VS do not have procedures for early warning.
- The list of notifiable diseases is not up to date according to OIE's listed diseases.

Recommendations:

Any proposal to enhance this competency will be conditioned by the establishment of the two other competencies mentioned above :

a) epidemiological surveillance
b) emergency preparedness planning and contingency funding

These issues will most certainly be addressed within the framework of the negotiations on the SPS agreement, for which Laos is expected to benefit from considerable World Bank support.

II-7. Disease prevention, control and eradication *The authority and capability of the VS to actively perform actions to prevent, control or eradicate OIE listed diseases and/or to demonstrate that the country or a zone are free of relevant diseases.*	Levels of advancement
	1. The VS have no authority or capability to prevent, control or eradicate animal diseases.
	2. The VS implement prevention, control and eradication programmes for some diseases and/or in some areas with little or no scientific evaluation of their efficacy and efficiency.
	3. The VS implement prevention, control and eradication programmes for some diseases and/or in some areas with scientific evaluation of their efficacy and efficiency.
	4. The VS implement prevention, control and eradication programmes for all relevant diseases but with scientific evaluation of their efficacy and efficiency of some programmes.
	5. The VS implement prevention, control and eradication programmes for all relevant diseases with scientific evaluation of their efficacy and efficiency consistent with relevant OIE international standards.

Terrestrial Code reference(s): Annexe 1

This Critical Competency was not assessed during the 2007 PVS evaluation.

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09, P33, P34, M13- M21

Findings:

Based on the observations and documented evidence, there is little doubt that the veterinary services have a certain capacity to prevent, but certainly to control a limited number of diseases. Whether the actions that are developed fit into a wider approach to long-term disease control or even eradication remains doubtful, except for the emblematic FMD programme (SEACFMD, refer to appendix 10) and the eradication of HPAI, to which must now also be added the 2010 outbreak of *Porcine Reproductive and Respiratory Syndrome* (PRRS), also reported from the People's Republic of China and Vietnam (now declared endemic), Mongolia (declared resolved) and Myanmar (ongoing).

Reports, annual reports in particular, seem to indicate that outbreaks are occasionally picked-up, though there is of course no way of knowing which percentage of outbreaks goes unnoticed or unreported.

Table 22. Summary of disease information provided in the 2010 annual report of the NAHC.

Diseases	Provinces affected	Species affected	At risk	Diseased	Dead	Destroyed	Positive
HS	2	Cattle/Buffalo		838	410		
FMD	6	Ruminants		12,445	175		
H5N1	1	Poultry	1,004	44	44	960	
CSF	1	Pigs			144		
Anthrax	1	Cattle/Buffalo			7		
PPRS	1	Pigs	13,143	3,668	3,110		
Rabies	3	Dogs			108		63

Source : NAHC (2010)

A major step forward (since 2007) is the availability of map-based disease information, provided by the joint Italian – FAO *"Environmental Animal Health Management Initiative"* which should make life easier for any epidemiologist and, higher up, decision maker. Refer to maps 11 - 19 on the following pages.

Compiled provincial reports (based on DLFO and PLFO/PDAF, and compiled by the DLF) also provide insight in vaccination as a means to control diseases, though the diseases against which vaccination is undertaken are not (always) explicitly mentioned.

According to these official statistics vaccination coverage (nationwide, extrapolated) would appear to be the highest for pigs (42%) and the lowest for poultry (12%).

Table 23. Official vaccination statistics for the year 2010

Zone	Species	Official coverage	Against disease(s)	Official census data (.000)	Officially vaccinated (.000)
Northern	Buffalo	41%	HS	308	126
	Cattle	32%	HS	336	107
	Pigs	72%	CSF	1,348	970
	Poultry	19%	ND+	8,344	1,585
Central	Buffalo	27%	HS	545	147
	Cattle	24%	HS	834	200
	Pigs	19%	CSF	664	126
	Poultry	14%	ND+	7,527	1,053
Southern	Buffalo	29%	HS	332	96
	Cattle	33%	HS	304	100
	Pigs	10%	CSF	740	74
	Poultry	4%	ND+	8,208	328
Extrapolated data :					
National	Buffalo	31%	HS	1,185	369
	Cattle	28%	HS	1,474	407
	Pigs	42%	CSF	2,752	1,170
	Poultry	12%	ND+	24,079	2,948

Source (except where extrapolated) : DLF (2010)

When compared to the official production figures of the *Veterinary Vac cines Pr oduction C entre* (VVPC), vaccination numbers sometimes exceed the production of the vaccines, indicating that either (a) old stocks from previous year(s) have been used, (b) national production is complemented by (unrecorded) imports from neighbouring countries or (c) that vaccination figures are unreliable.

Table 24. Official vaccination production statistics for the year 2010

Species	Against disease(s)	Vaccines produced (.000)	Officially vaccinated (.000)
Buffalo	HS	780	369
Cattle	HS		407
Pigs	CSF	250	1,170
Poultry	ND	2,700	2,948

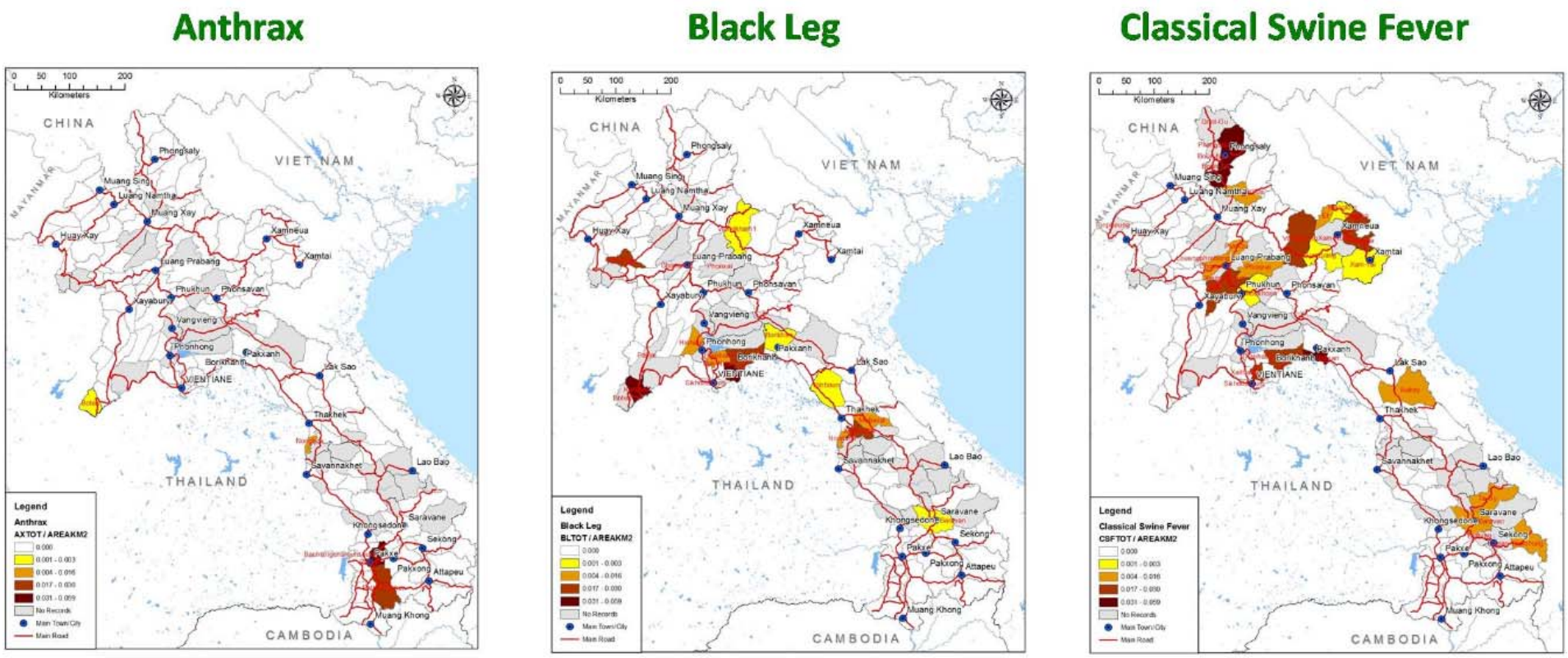
Source : VVPC (2010)

These statistics are again different from the vaccine administration statistics provided for in the NAHC annual report 2010, leading to a better match between production and administration for pigs.

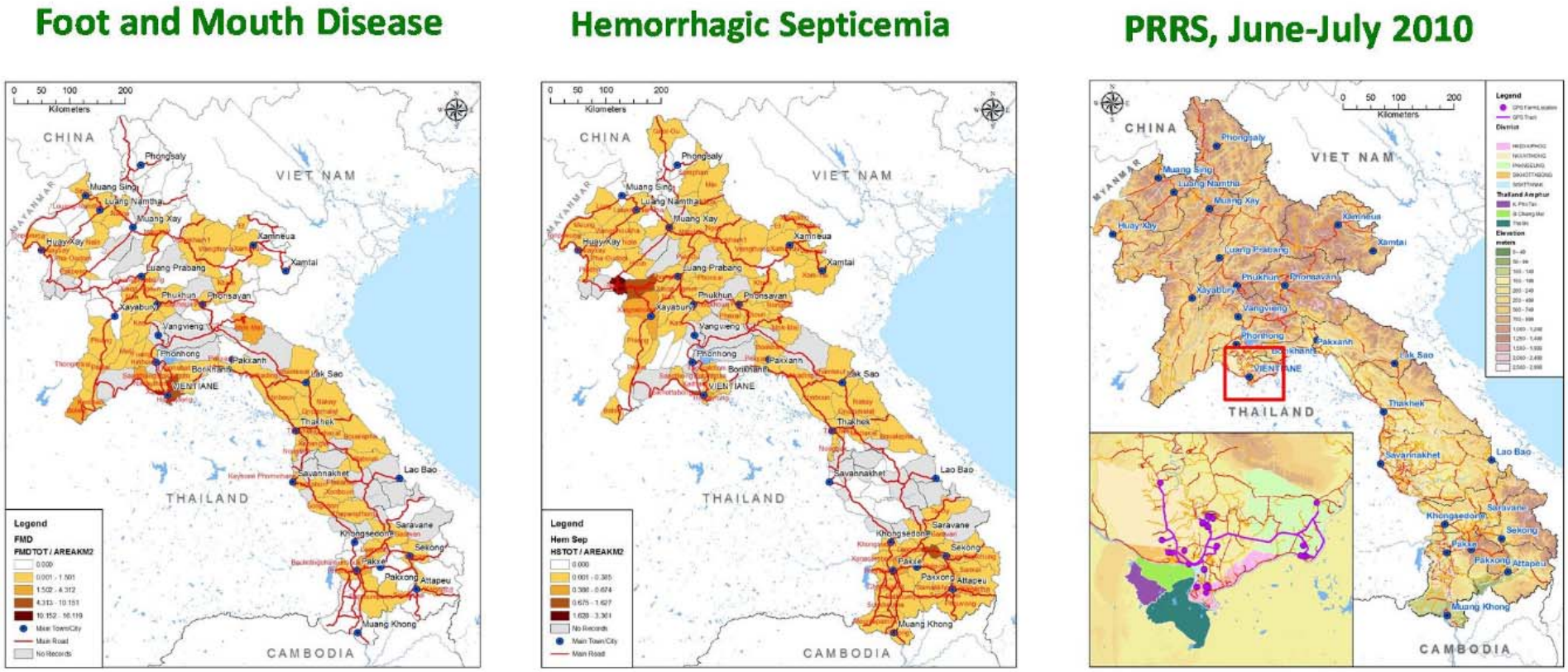
Table 25. Official vaccination statistics for the year 2010

Species	Against disease(s)	*Vaccines produced (.000)*	Officially vaccinated (.000)
Buffalo	HS	*780*	248
Cattle	HS		350
Pigs	CSF	*250*	437
Poultry	ND	*2,700*	3,312

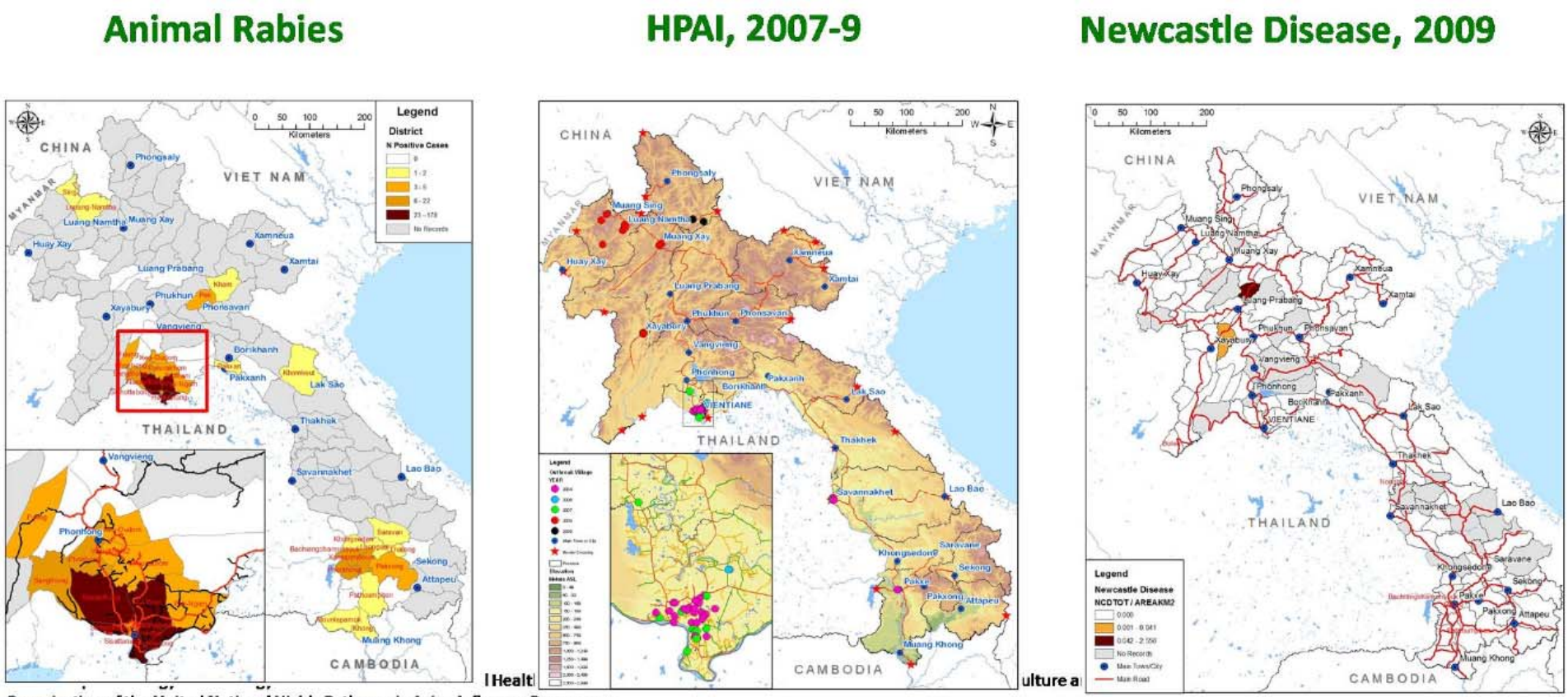
Source : NAHC (2010)



Maps 11 – 13. Distribution and intensity of outbreaks of anthrax, blackleg and classical swine fever between 2000 – 2010.
Source : Environmental Animal Health Management Initiative (FAO – Italy) NAHC (2011)



Maps 14 – 16. Distribution and intensity of outbreaks of FMD and HS between 2000 – 2010 and of PRRS between June and July 2010 (first outbreaks).
Source : Environmental Animal Health Management Initiative (FAO – Italy) NAHC (2011)



Organisation of the United Nations' Highly Pathogenic Avian Influenza Programme.

Disclaimer: Data compiled and map prepared by the Environmental Animal Health Management Initiative in Lao PDR, implemented by the Ministry of Agriculture and Forestry, Department of Livestock and Fisheries and the Food and Agriculture Organisation of the United Nations, funded by the Italian Government. No legal endorsement is implied for the boundaries indicated and no legal liability is accepted for interpretation of any of the information presented.

Maps 17 – 19. Distribution and intensity of outbreaks of (animal) rabies between 2000 – 2010, HPAI between 2007 and 2009 and Newcastle disease in 2009.
Source : Environmental Animal Health Management Initiative (FAO – Italy) NAHC (2011)

The vaccination issue

In NAHC's 2006 annual report, vaccination figures were as follows :

Cattle (bovines and buffaloes) :	238,673	[38]19.7%	(supposedly HS)
Pigs :	195,201	8.3%	(supposedly CSF)
Poultry :	1,973,447	8.6%	(supposedly Newcastle)

In NAHC's 2010 annual report, vaccination figures are as follows :

Cattle (bovines and buffaloes) :	598,467	[39]21.4%	(supposedly HS)
Pigs :	437,204	15.9%	(supposedly CSF)
Poultry :	3,311,594	12.3%	(supposedly Newcastle)

The V(V)PC currently produces around 6 million poultry vaccines (down 40% in comparison to 2007), 250,000 CSF vaccines (down 70%) and 780,000 HS vaccines (down 30%). The discrepancy between production data and vaccination data, is likely the result of the fact that vaccination data are based on reporting from DLFO and PLFO only, while arguably most of the delivery of vaccines is organised by private operators (including the farmers themselves). Actual vaccination coverage might therefore be substantially higher.

Then again, stating that 12% of poultry is vaccinated (against ND) is probably an overstatement, since an important part of the vaccines are probably used in the semi-industrial sector, where vaccination follows an intensified production cycle (weeks, months).

Pictures 33 - 34. *Veterinary drugs available to farmers from a* District Livestock and Fisheries Office *(DLFO). Picture © M. Varas*

Recommendations:

The VS should develop a strategy to deal with endemic diseases in order to identify which disease the country wish to declare freedom from and to identify which diseases to prevent the introduction.

[38] As a percentage of the population.
[39] As a percentage of the population.

II-8. Food safety **A. Ante and post mortem Inspection at abattoirs and associated premises (e.g. meat boning / cutting establishments and rendering plants).** *The authority and capability of the VS to implement and manage the inspection of animals destined for slaughter at abattoirs and associated premises, including for assuring meat hygiene and for the collection of information relevant to livestock diseases and zoonoses. This competency also covers coordination with other authorities where there is shared responsibility for the functions.*	Levels of advancement
	1. Ante- and post mortem inspection and collection of disease information (and coordination, as required) are generally not undertaken in conformity with international standards.
	2. Ante- and post mortem inspection and collection of disease information (and coordination, as required) are undertaken in conformity with international standards only at export premises.
	3. Ante- and post mortem inspection and collection of disease information (and coordination, as required) are undertaken in conformity with international standards for export premises and for major abattoirs producing meat for distribution throughout the national market.
	4. Ante- and post mortem inspection and collection of disease information (and coordination, as required) are undertaken in conformity with international standards for export premises and for all abattoirs producing meat for distribution in the national and local markets.
	5. Ante- and post mortem inspection and collection of disease information (and coordination, as required) are undertaken in conformity with international standards at all premises (including family and on farm slaughtering) and are subject to periodic audit of effectiveness.

Terrestrial Code reference(s): Annexe 1

This Critical Competency was not assessed during the 2007 PVS evaluation.

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09 – E13, P35 – P38

Findings:

The team visited the national (municipal) slaughter-house of Vientiane, *Done Dou Modern Slaughterhouse,* and several provincial and district slaughter facilities, conducting interviews with inspection personnel and owners or managers of the premises.

Apart from the conditions under which slaughter of animals is conducted (see pictures below) and which is not likely to be sufficient to foresee any exports of meat products anytime soon, the performance of the veterinary meat inspection itself is also sub-optimal. It is in principle entrusted to provincial, district veterinary personnel and VVWs at village level.

The (national) meat inspection unit of the NAHC seems to play no role at all in this process, as it lacks the judicial prerogatives and manpower to be efficient. No data exist on the number of slaughter facilities, the number of (legal) slaughters, the (estimated) number of illicit slaughters, nor is there documented evidence of attempts to enforce the law in this area.

At the Vientiane Municipal abattoir, *Done Dou Modern Slaug hterhouse,* manpower (2), in spite of appropriate qualifications, is insufficient to even attempt complying with a thorough, individual inspection of live animals, carcasses and organs.

Animals may be offloaded and immediately slaughtered, the carcasses and organs separated without tracking system, and leaving the abattoir with the necessary papers, but without having been seen, let alone inspected, by the veterinary services. If undertaken, inspection is merely documentary, focused on the delivery and compliance of travel documents and health certificates, issued by the district of origin.

Upon completion of dressing and inspection, a marketing (sales) certificate is delivered (or not), enabling the trader or butcher to sell his produce on the market or to/in butcheries.

Picture 35. *Pigs at the national (Vientiane municipal) abattoir are gutted, dressed on a concrete floor. Picture © M. Varas (2011)*

While it is reasonable to assume that every individual animal slaughtered in a village has indeed been seen before slaughtered and inspected after slaughtered, the level of technical know-how of the VVWs involved is unlikely to be sufficient to avoid major health hazards when they would occur.

Even at district level, the qualifications and operational means of inspection staff are to be regarded as utterly insufficient, despite their motivation and ethics. Supervision of these numerous slaughter-facilities by provincial and national authorities is lacking. At best, districts will have a good knowledge of slaughter facilities within their jurisdiction. E.g. in Bokeo province, slaughter is allegedly conducted in around 55 sites.

At provincial level, evidence shows that inspection is administrative, concise and incomplete, both in terms of ante-mortem and post-mortem inspection. Again, the absence of appropriate professional training accounts for the fact that inspection personnel lack the scientific background needed to understand why certain inspection protocols are essential, usually a strong motivating factor to perform adequately.

Rules and regulations in force today (but not the new legislation) [40] stipulate that animals should rest for anything between 6 hours (for pigs) to 12 hours (for cattle, including buffaloes) before slaughter. This is very often not applied, as observed during visits.

[40] Ministerial Decree (Prime Minister's Office) 085/PMO (1993) : *Decree on livestock management in Lao P.D.R.*

Ministerial Decree (Agriculture and Forestry) 004/MAF (1997) : *Regulation on livestock management in Lao P.D.R.*

Ministerial Decree (Agriculture and Forestry) 005/MAF (1997) : *Instruction on regulation of livestock management in Lao P.D.R.*

Ministerial Decree (Agriculture and Forestry) 313/MAF (2000) : *Technical standards on livestock management in Lao P.D.R.*, strengthened by Departmental regulation DLF/0036.

When interviewed, *cysticercosis* is usually recognized as an important disease to look for, then perhaps followed by FMD, but the list ends there.

The ability to seize and destroy carcasses and parts thereof (including organs) is variable. In some cases, 'seizure' means that no marketing certificate is delivered for the meat and/or organs; whether this is sufficient for a trader not to market the goods on the market (or to process it into soups for restaurants, as mentioned by some) is doubtful. Most, if not all, abattoirs lack facilities to destroy infected animals, or parts of slaughtered animals for that matter. The Vientiane municipal abattoir makes use of the NAHC incinerator.

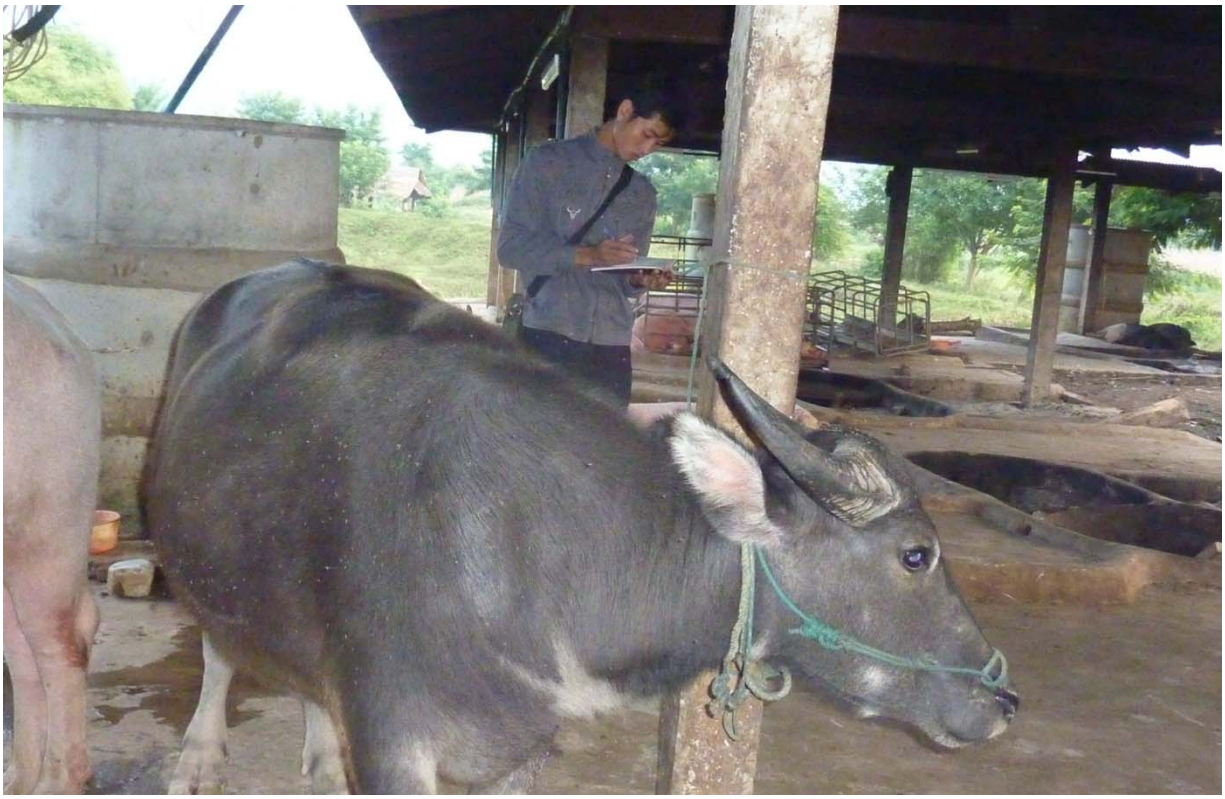
Picture 36. *Stunning and slaughter practices in provincial and district level abattoirs are not in line with OIE standards in this regard. Picture © M. Varas (2011).*

The stamping system foreseen is these regulations has not been applied, making it hard to distinguish inspected from non-inspected meat.

Although the regulations prohibit animal owners to approach carcasses or organs during the slaughter process, visits of several abattoirs has shown this is not applied. To the contrary, in a lot of abattoirs and slaughter slabs, the owners are the only ones slaughtering, gutting, dressing and deboning the animals.

Formal legislation on meat inspection and hygiene is still missing as the new *Law on Live stock Production and Veterinary Matters* does not seem to cover meat inspection and hygiene. A much older decree (by-law) on the *veterinary inspection of live animals and products entering the Lao P.D.R. with the product itself*, only deals with the import and transit of animals and animal products (meat, milk, eggs, skins, blood, etc) but *not* with inland slaughter / meat hygiene, *nor* with processed products such as honey, butter, sausages, to name but a few. The latter would appear to remain entrusted to the Ministry of Health.

Picture 37. *Scavenging dogs, but no vultures… Picture © M. Varas (2011)*



Picture 38. *Several meat insepctors (DLFO staff) take their job of ante- and post-mortem inspection very seriously, despite the dismal working conditions, and should be commended. Picture © A. Kamakawa (2011)*

Recommendations:

- Preparation and updates of SOPs at commercial slaughterhouses both for routine work (e.g. humane transport and unload of the animals, personal protective equipment (PPE) for slaughter-persons) and for emergency cases (e.g. Quarantine of FMD like cases, instead of rejection and verbal instruction to the owner/middleman for isolation; disinfection of contact vehicles and persons; Response to anthrax and tuberculosis like cases).

  (Refer to the recommendation in II-13 B on page 109)

- Enforce the minimal requirements of the commercial slaughterhouse facility or otherwise standardize by guidelines.
- On-site supervision and regular audit by the provincial veterinary officers.
- Regulate the drug use for animals before slaughter

B. Inspection of collection, processing and distribution of products of animal origin *The authority and capability of the VS to implement, manage and coordinate food safety measures on processing and distribution of products of animals, including programmes for the prevention of specific foodborne zoonoses and general food safety programmes. This competency also covers coordination with other authorities where there is shared responsibility for the functions.*	Levels of advancement
	1. Implementation, management, and coordination (as appropriate) are generally not undertaken in conformity with international standards.
	2. Implementation, management and coordination (as appropriate) are generally undertaken in conformity with international standards only for export purpose.
	3. Implementation, management and coordination (as appropriate) are generally undertaken in conformity with international standards only for export purpose and for products that are distributed throughout the national market.
	4. Implementation, management and coordination (as appropriate) are generally undertaken in conformity with international standards for export purpose and for products that are distributed throughout the national and local markets.
	5. Implementation, management and coordination (as appropriate) are undertaken in full conformity with international standards for products at all levels of distribution (including on farm-processing and farm gate sale).

[Note: This critical competency primarily refers to inspection of processed animal products and raw products other than meat (e.g. milk, honey etc.). It may in some countries be undertaken by an agency other than the VS.]

Terrestrial Code reference(s): Annexe 1

This Critical Competency was not assessed during the 2007 PVS evaluation.

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09, H01, H02

Findings:

Very little evidence could be found of any activities or initiatives undertaken under the veterinary authority with regard to the food safety of animal products, as OIE understands it, i.e. the primary animal products, apart from red meat, discussed previously. These include milk, honey, eggs, white meats, fish, crustaceans, molluscs, feathers, hides and skins, etc… The latter three products of course do not have a bearing on food safety.

Processed animal products or products of animal origin, such as butter, yoghurt, cream, fishcakes, egg-based preparations, etc are clearly under the public health authority (Ministry of Health) and there seems to be a tacit consensus that things better stay that way until the DLF (Ministry of Agriculture) builds capacity to cover the remaining part of this value chain, up to the consumer (the stable to the table approach).

The veterinary services' department involvement in food safety, as far as we could judge, is limited to the following :

- testing for formaldehyde fraud in dried shrimp
- testing of (red and white) meat samples collected at slaughterhouses and markets for *E.coli, Salmonella* spp. and total coliforms.

Milk used to be tested thanks to Japanese support when there was a (allegedly government) dairy farm. This dairy farm was closed and test are no longer performed, meanwhile also for lack of equipment and human capacity.

Milk quality testing is performed at the *Food an d Drug L aboratory* of the MoH. The NAHC has a coordination mechanism with this laboratory and is represented in the working team for food safety constituted by seven ministries.

The chemical analysis section of the afore-mentioned Food & Drug Laboratory can test for pesticides (organochlorides, organophosphates and organocarbonates), but doesn't test for metals, antibiotics or hormones. Please also refer to C.C. II.10.

Weaknesses:

- There is no antimicrobial residue testing in animals and animal products.

Recommendations:

- Any premise processing meat products and selling meat/meat products, prepared foods, including 'cottage' industries, should be licensed and should undergo regular inspection (including sampling for microbiology and chemical analysis)

II-9. Veterinary medicines and biologicals *The authority and capability of the VS to regulate veterinary medicines and biologicals, i.e the authorisation, registration, import, production, labelling, distribution, sale and use of these products.*	**Levels of advancement**
	1. The VS cannot regulate veterinary medicines and biologicals.
	2. The VS has some capability to exercise administrative control over veterinary medicines and biologicals.
	3. The VS exercise effective administrative control and implement quality standards for most aspects of the regulation of veterinary medicines and biologicals.
	4. The VS exercise comprehensive and effective regulatory control of veterinary medicines and biologicals.
	5. In addition to complete regulatory control, the VS systematically monitor for adverse reactions (pharmacovigilance) and take appropriate corrective steps. The control systems are subjected to periodic audit of effectiveness.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09, E19, P39, P40

Findings:

The findings of the 2007 PVS mission were as follows : *"The gradual liberalisation of the economy, initiated by the government in the 90-ies, has led to the development of private veterinary services. This process however has not been very well guided by the various authorities involved, leading to a remarkable multiplication of private initiatives which are increasingly growing beyond the control of the public veterinary services, especially given the absence of a legislative framework and regulations.*

This leads to a situation where by the delivery of private veterinary services is in majority found in the informal sector.

Genuine (formal) private veterinary surgeries (an estimated 4 for the whole country, all based in Vientiane) operate without formal licensing, given the absence of a legal framework on the (private, or public) delivery of veterinary services to the public (veterinary practice). They do possess an authorisation delivered by the respondent PLFO.

Formal public veterinary surgeries exist in most major urban areas (Vientiane, Pakxe, Luang Prabang, etc…). They are administered by a public servant (veterinarian) and provide clinical and pharmacy services to an urban clientele. In doing so, they are in direct competition with private services providers (where these exist). Except for the salary of the public servant leading the surgery, all other costs are self-supported (rent of premises, purchase of drugs, maintenance and payment of auxiliary personnel).

The state-owned Veterinary Supply Unit (NAHC, see text box below) has lost most of its market-position to private importers of veterinary drugs (believed to control 60% of the market today) which are licensed (at national level) only by the Ministry of Trade and Industry, but without clear involvement of the Ministry of Agriculture and Forestry.

Furthermore, imports of veterinary drugs and biologicals are authorised by the Ministry of Health (quality and conformity) or the Ministry of Commerce and Industry (import and trade licensing), not the Ministry of Agriculture and Forestry, although the 2000 ministerial decree provides a legal basis for it to authorise imports of veterinary drugs and biologicals.

Attempts are made at provincial level to gain control over the establishment of veterinary drug sales points, but genuine control and law enforcement of existing sales points is not done.

Further down the delivery chain, private pharmacies (both for human and animal services) have taken over the retail of drugs from the few remaining public provincial veterinary surgeries. They are licensed to sell by the provincial authority (PLFO).

In several cases, they are owned by government veterinary personnel.

Indeed, the line of separation between public and private delivery of veterinary drugs (and services) has become blurred. Provincial veterinary services will sell drugs and vaccines, received from the VSU to private pharmacies and might even end up in animal feed shops (as confirmed by farmers and animal feed shop visits).

The latter are licensed to sell agricultural inputs, but not explicitly drugs and biologicals. There is no licensing procedure which involves the veterinary authority.

Most of these animal feed shops (reportedly less than 50 country-wide) have limited stocks of commonly used medicines, often stocked under inadequate conditions (light, heat) and lack qualified personnel to advice clients .

Vaccines and drugs are purchased from public services (VSU and PLFO) or directly imported from abroad (Thailand and China, mostly).

Public veterinary personnel has increasingly become involved in the remunerated delivery of veterinary services or drugs to farmers. Sometimes, these activities are somewhat regulated by the provincial or district administration which grants the agent a percentage of the revenues (varying between 10% and 50%); in other cases, veterinary technicians run a 100% parallel private operation, next to their public duties.

At village level, VVWs are entrusted with the vaccination against former A-list diseases such as Newcastle disease, classical swine fever, and FMD. They usually also administer veterinary drugs and other formulations such as antibiotics, external and internal anti-parasitics, iron-complexes (for piglets) etc."

The comments on the findings of the 2007 PVS mission were as follows : *"Although some of the practices encountered in Laos with respect to the delivery of medicinal and biological products, are generally regarded as unethical, in Laos they are neither prohibited, nor formally authorised, in part because of the lack of legislation and regulations in this particular area. There are however serious concerns with respect to public health, since the administration of veterinary drugs is currently impossible to monitor, leading to possible development of anti-parasitic and antibiotic resistance (because of improper dosage) and/or contamination of foodstuffs (milk, meat, eggs) with residues from these medicines. The current anarchy in this sector is also leading to a situation where there will be no more room for the future establishment of quality private veterinary services; the delivery and administration of veterinary drugs (including health accreditation for public vaccination campaigns) is very often paramount for private veterinary surgeries to be sustainable in impoverished rural communities."*

The Veterinary Supply Unit of the NAHC is an institution one would expect to be administered outside the official livestock or veterinary services (in particular by the private sector).

The unit annually imports a set of essential drugs and vaccines, based on a list which hasn't changed much over the past years. The list includes vaccines bought from the national *Veterinary Vaccine Production Centre* (*discussed on the next page*) and the usual antibiotics, external and internal anti-parasitic drugs, and hormones. Moreover, the unit also markets extension materials and tool kits for VVWs.

Veterinary drugs and biologicals are not subsidised, but are sold at market cost + 10% margin. Drugs and vaccines are stored on the NAHC premises in a cold storage room or warehouse, whichever is appropriate. Annual turnover is approximately Euro 45,000. Seed money has been provided through donor-funding.

Its influence has diminished, ever since the change in economic policy at the beginning of the nineties. Whereas it used to be the sole provider of veterinary drugs and biologicals twenty years ago, it now estimates its market share to be one-third at most ; the rest of the market being serviced by private importers of all sorts.

Simultaneously however, the unit has now also become a player in the private sector, because both private veterinary surgeries and pharmacies, as well as animal feed shops, purchase directly from the VSU. In earlier days, its clients were limited to the various government veterinary offices at national, provincial and district level (public surgeries mainly). In doing so, the unit has moved from being part of the solution, to being part of the problem in terms of the wild growth of private resellers in the country.

The Veterinary Vaccine Production Center is –again- an institution one would expect to be administered outside the official livestock or veterinary services (e.g. by a national laboratory, be it public para-statal or private). The Centre was built in 1979 with help from the FAO (and is located in Ban Chansavang, Sikottabong district, 15 km from Vientiane). It entered production in 1980 with a wide array of vaccines, as one of the main tools with which the Government expected to get on top of the main animal diseases, affecting the nation's livestock. Initially free of charge, later heavily subsidised and gradually based on full cost-recovery, the vaccination campaigns knew some successes in terms of anthrax (*Bacillus anthracis*) and blackleg (*Clostridium chauvoei*) but lost momentum as farmers did not adhere to the principle of cost-recovery, despite the very low prices. Although the FAO financed a follow-up project aimed specifically at farmers' awareness, production levels shifted from target-driven to demand-driven. Between 1999 and 2004, the Centre benefited from considerable technical and financial (Euro 566,000) support from the Lao – EU Livestock project.

Today, only 10 different types of vaccines are produced and production targets are set entirely in respect of expected sales, not in terms of vaccination coverage needed to actually fully control and eradicate a disease. The production-figures for HS vaccines for instance, are contrasted by the need to attain a vaccination blanket of 80% of the cattle/buffalo population by vaccinating twice a year (the bovine population is estimated at some 2.8 million heads). The VVPC currently (2010 figures) produces around 4.5 million doses of vaccines (against 12 million doses in 2007), most of which are poultry vaccines (approximately 3.5 million), completed by some 240,000 pig-vaccines (CSF only, at LAK 700 for 10 doses) and 740,000 cattle vaccines (HS, 730,000 doses at LAK 600 per 15 doses, and blackleg, 6,400 doses).

(Live) poultry vaccines produced are :

- *Newcastle M-strain*	(4,000 LAK / 100 doses)
- *Newcastle F-strain*	(4,000 LAK / 100 doses)
- *Newcastle I_2-strain*	(3,000 LAK / 50 doses)
- *Infectious bronchitis*	(5,000 LAK / 100 doses)
- *Fowl pox*	(4,000 LAK / 100 doses)
- *Duck plague*	(4,000 LAK / 50 doses)

The production of live rabies vaccine has been discontinued, in favour of inactivated (imported) vaccines. The same applies for oil-based HS vaccines (discontinued since 2009).

The annual budget (50 million LAK in 2007, same in 2010, refer to I.8.) is completed by the sales revenues and enables to Centre to cover production and maintenance costs, but does not allow for investments, which would indeed appear to be needed.

While the Centre seems to apply rigorous production procedures (cell-culture and egg-inoculation), uses sufficient and qualified staff and utilises old, but reliable, working equipment, there is reason for concern regarding the use of non-SPF poultry and lab-animals (rabbits and mice mostly) in inadequate housing, especially given the presence of HPAI in the vicinity of the Centre (within Vientiane Capital). No bio-security measures with regard to the introduction of the H5N1 virus have been observed.

VVPC management is aware of OIE and ASEAN quality-control standards, but cannot meet these requirements in the foreseeable future. Internal quality-checks are conducted by the Quality-Control Unit, but it remains unclear how often this is done and whether the results are reliable. There is no quality control over vaccines (nor drugs) at retail level, although a human pharmacology laboratory is believed to have the capacity to do so.

Comments:

Related to all the above, the 2011 PVS mission came unfortunately to exactly the same findings and conclusions, if not worse, as the approval of new legislation has not been able to address this problem, but rather exacerbated it, by allowing basically every citizen to open and run a veterinary pharmacy. Please refer to C.C. IV.I. on page 125.

Visits of veterinary surgeries, pharmacies and feed-shops led to the same observations as in 2007.

The (surprising) absence of scavenger birds (vultures) in all slaughter facilities visited along with the abundance of (stray) dogs on those premises, leads us to suspect that the unbridled use of veterinary drugs may have led to widespread use of diclofenac in cattle and should be further investigated.

Recommendations:

Legislation, regulation, control and law enforcement are the key words in trying to re-establish order in a currently chaotic, but not (yet) irreversible liberalisation process. Unfortunately, new legislation, as pointed out in C.C. IV.1. rather contributes to the problems related to production, storage, sale, delivery and administration of veterinary drugs and vaccines and provides a blanket framework for a range of private and public operators (producers, importers, wholesalers, and retailers) without any reference to appropriate or suitable technical qualifications. Whether these shortcomings can be overcome by ministerial decrees, as is often argued by DLF and NAHC staff, remains doubtful. In drafting such by-laws in the future, guidance must be sought along OIE guidelines, in particular in terms of strict separation of public and private veterinary services and the avoidance of conflicts of interest, as well as the future role of the Veterinary Statutory Body.

For the foreseeable future, the *Veterinary Vaccine Production Center* and the *Veterinary Supply Unit* will continue to play a role in providing (poor) farmers, in remote areas, with essential animal health tools, though the economic foundation of the VVPC has become very thin, production figures today hardly justifying the fixed costs of maintaining the Centre and its staff complement.

Pictures 39 - 40. The fermentation room and front gate of the *Veterinary Vaccine Production Center.*
Pictures © M. Varas (2011)

II-10. Residue testing *The capability of the VS to undertake residue testing programmes for veterinary medicines (e.g. antimicrobials and hormones), chemicals, pesticides, radionuclides, metals, etc.*	Levels of advancement
	1. No residue testing programme for animal products exists in the country.
	2. Some residue testing programme is performed but only for selected animal products for export.
	3. A comprehensive residue testing programme is performed for all animal products for export and some for domestic use.
	4. A comprehensive residue testing programme is performed for all animal products for export and/or internal consumption.
	5. The residue testing programme is subject to routine quality assurance and regular evaluation.

Terrestrial Code reference(s): Annexe 1

This Critical Competency was not assessed during the 2007 PVS evaluation.

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09

Findings:

There is no residue testing programme for animal products within the veterinary services (DLF).

The *Food a nd Dru g De partment* (FDD) of the MoH, which has the authority over the safety of processed (heated) animal products, possesses a chemical laboratory. Residue testing can be performed for pesticides, i.e. organochlorides, organophosphates and organocarbonates, but not for (heavy) metals, antibiotics or hormones. Please also refer to critical competency II.8.B (food safety) on page 97.

Weaknesses:

Amidst an easy-going attitude towards the use of antibiotics and without any factual control over the use of veterinary medicines, animal feed and supplements, there is no doubt a substantial risk of residue-induced manifestations through the consumption of animal products. At the same time, one could argue that numerous human toxi-infections caused by poor hygiene in the production and handling of animal products may have been avoided by this same unbridled use of antibiotics.

No radical suppression of the use of antibiotics should be undertaken unless accompanied by stringent and considerable improvements in meat hygiene and hygiene of handling of other animal products. Stricter control and a more judicious (i.e. higher professional level) use of antimicrobials is required

Recommendations:

Promotion of decent use of veterinary medicines, prescribed by veterinarians or veterinary paraprofessionals (which, clearly, do not include the current qualification of registered drug/feed shop or VVWs for that matter), with clear directions for farmers including sales/slaughter withdrawal periods.

Create awareness amongst farmers on hazardous products and practices and enforce a stricter control over drug use.

Since equipments and running costs for residue testing are expensive, demarcation and collaboration amongst other bio-chemical or physical laboratories would be useful.

II-11. Emerging issues *The authority and capability of the VS to identify in advance, and take appropriate action in response to likely emerging issues under their mandate relating to the sanitary status of the country, public health, the environment, or trade in animals and animal products.*	Levels of advancement
	1. The VS do not have procedures to identify in advance likely emerging issues.
	2. The VS monitor and review developments at national and international levels relating to emerging issues.
	3. The VS assess the risks, costs and/or opportunities of the identified emerging issues, including preparation of appropriate national preparedness plans. The VS have some collaboration with stakeholders and other agencies (e.g. human health, wildlife and environment) and with stakeholders on emerging issues.
	4. The VS implement, in coordination with stakeholders, prevention or control actions due to an adverse emerging issue, or beneficial actions from a positive emerging issue. The VS have well-developed formal collaboration with stakeholders and other agencies (e.g. human health, wildlife and environment) and with stakeholders on emerging issues.
	5. The VS coordinate actions with neighbouring countries and trading partners to respond to emerging issues, including audits of each other's ability to detect and address emerging issues in their early stages.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09

Findings:

There is no evidence of activities within the veterinary services that are directed towards anticipating developments in terms of emerging diseases. There are no legislative provisions, no staff dedicated to this task, no specific budgeting and no documented outcomes. There is no recollection of subscriptions to ProMED or other electronic newsletters dedicated to the monitoring of emerging diseases.

Several recent newspaper-clippings (electronically) produced by the state-controlled national press agency KPL[41] highlight the fact that the DLF (i.e. not necessarily the veterinary administration) ventures into new avenues from time to time and could be considered as contemplating emerging issues of an environmental nature (endangered dolphins in the Mekong) or of a political and economic integration nature (animal transport and border crossings in the context of future ASEAN dispositions) with some foresight.

[41] http://mouthtosource.org/rivers/mekong/2010/ and http://www.kpl.net.la/francias/News%20record/2011/Octobre/04.10.2011/fdn1.htm

II-12. Technical innovation[42] *The capability of the VS to keep up-to-date with the latest scientific advances and to comply with the standards of the OIE (and Codex Alimentarius Commission where applicable).*	Levels of advancement
	1. The VS have only informal access to technical innovations, through personal contacts and external sources.
	2. The VS maintain a database of technical innovations and international standards, through subscriptions to scientific journals and electronic media.
	3. The VS have a specific programme to actively identify relevant technical innovations and international standards.
	4. The VS incorporate technical innovations and international standards into selected policies and procedures, in collaboration with stakeholders.
	5. The VS systematically implement relevant technical innovations and international standards.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09

Findings:

There is no evidence of activities within the veterinary services that are directed towards adopting technical innovations developed elsewhere. There is no staff dedicated to this task, no specific budgeting and no documented outcomes.

While all DLF and NAHC staff today have access to broadband internet (but thanks to the FAO ECTAD project funded by USAID), there is only one single institutional e-mail address for both institutions (AHR0301@laopdr.com).

Subscriptions to scientific journals have not been encountered. Issues of magazines such as *Pig International* date back to the late nineties.

Overall, knowledge of OIE and Codex Alimentarius standards is low. Little use is made of the internet – portals of organisations such as OIE, FAO, etc. There is no recollection of subscriptions to ProMED or other electronic newsletters.

Recommendations :

While it may not stand out as a priority when compared to some other critical competencies discussed above, at least the access to low-cost electronic media and information should be enhanced by entrusting key personnel with regular research and updating of information (for the CVO), and dedicated e-mail addresses for persons and/or services should be added to the existing LAN-based internet system.

[42] Technical innovation includes new disease control methods, new types of vaccines and diagnostic tests, food safety technologies, and connections to electronic networks on disease information and food emergencies.

II-13. Identification and traceability A Animal identification and movement control *The authority and capability of the VS, normally in coordination with stakeholders, to identify animals under their mandate and trace their history, location and distribution for the purpose of animal disease control, food safety, or trade or any other legal requirements under the VS/OIE mandate.*	Levels of advancement
	1. The VS do not have the authority or the capability to identify animals or control their movements.
	2. The VS can identify some animals and control some movements, using traditional methods and/or actions designed and implemented to deal with a specific problem (e.g. to prevent robbery).
	3. The VS implement procedures for animal identification and movement control for specific animal sub populations as required for disease control, in accordance with relevant international standards.
	4. The VS implement all relevant animal identification and movement control procedures, in accordance with relevant international standards.
	5. The VS carry out periodic audits of the effectiveness of their identification and movement control systems.

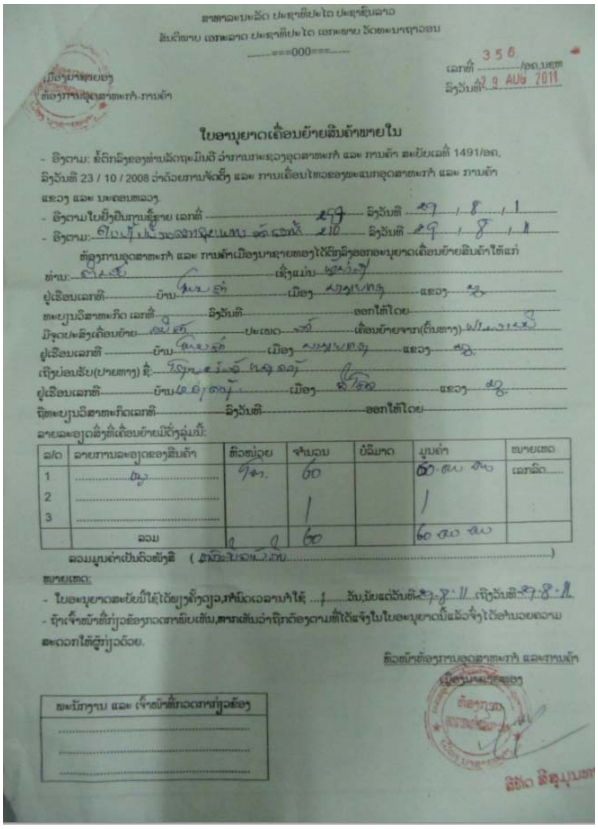
Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09, P41 – P43

Findings:

According to the law, large animals are registered and village authorities have the responsibility to update records including death, birth and movement. There is no generalised and permanent identification system.

The scrutiny of animal movement permits (see example on the right), health certificates and a series of related certificates at slaughter is stipulated in the decree. Certificates, including the probable origin, were visible in the slaughterhouse in Vientiane capital and theoretically animals, as part of a lot, are traceable here, where it is most needed. In rural areas it should be noted that district inspectors are often unaware that they are supposed to check movement permits and certificates before proceeding to slaughter-inspection and that, except for a few severe criminal cases, fines for violation of the law are applied based on the value of the damage, so penalties for movement control generally end up in mere warnings.



Picture 41. *Example of a movement permit as encountered at a slaughterhouse for the slaughter of a lot of 60 animals, allowing for some minimal degree of traceability to the place of origin. Picture © A. Kamakawa.*

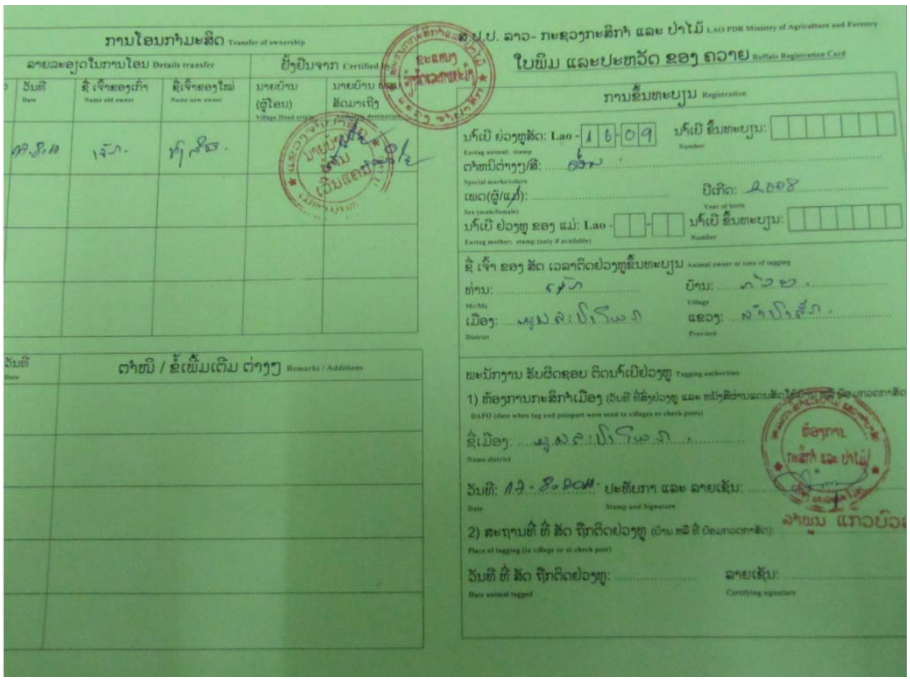
Strengths:

There is a legislative framework for animal registration and movement control. Article 13 of the 2008 Act on Livestock Production and Veterinary Matters states *"…that large dom estic anim als such a s elephants, h orses, cattle, buffaloe s a nd othe r spe cies, as deemed nece ssary and i ncluding fa rm animals, older than one year should be registered…"*

A registration system for cattle and buffalo was introduced a few years ago, on a voluntary basis, in an attempt to set up an identification and traceability system, though no actual identification system was ever implemented. The programme was not very successful and is said to have been abandoned. Nevertheless, it would seem worthwhile to pursue this initiative, at least for the bovine population, if only in view of meeting OIE standards in the future. An example of such registration form is presented below.

Weaknesses:

There is no objective or permanent animal identification system/marks required for registration in place. Dogs are not included in the list of animals for registration. The nationwide implementation of animal identification and movement control system seems to be a challenge.



Pictures 42 – 43. *Sample of a cattle registration form as introduced a few years ago.*

B. Identification and traceability of products of animal origin *The authority and capability of the VS, normally in coordination with stakeholders, to identify and trace products of animal origin for the purpose of food safety, animal health or trade.*	Levels of advancement
	1. The VS do not have the authority or the capability to identify or trace products of animal origin.
	2. The VS can identify and trace some products of animal origin to deal with a specific problem (e.g. products originating from farms affected by a disease outbreak).
	3. The VS have implemented procedures to identify and trace some products of animal origin for food safety, animal health and trade purposes, in accordance with relevant international standards.
	4. The VS have implemented national programmes enabling them the identification and tracing of all products of animal origin, in accordance with relevant international standards.
	5. The VS periodically audit the effectiveness of their identification and traceability procedures.

Terrestrial Code reference(s): Annexe 1

This Critical Competency was not assessed during the 2007 PVS evaluation.

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09

Findings:

A public-sector driven system for traceability only exists up to a certain (slaughterhouse) level. Processed animal products are supervised by another authority (FDD, MoH).

Strengths:

Under local condition, products of animal origin may be traceable by traditional methods (based on slaughterhouse-middleman-market retailer relationships).

Weaknesses:

The DLF is a member of the inter-ministerial working team for food safety convened by the FDD, which meets twice a year and in emergency situations, and participates in training and survey programmes. Unfortunately, it was not clear which DLF staff liaises with the team and participation of the DLF so far seems to have been passive and irregular.

Recommendations:

- Clarify which DLF focal points are in charge of (processed) animal products and products of animal origin and establish constant communication lines with the MoH.

- Conduct a simulation exercise surrounding the emergency control of a notifiable disease with significant impact (such as anthrax or FMD), for which a suspicion is generated at a slaughterhouse, and exercise with the stakeholders including middleman/traders, market retailers and farm of origin, to review the simulation and understand what kind of precautions and actions are required in the routine.

II-14. Animal welfare *The authority and capability of the VS to implement the animal welfare standards of the OIE as published in the Terrestrial Code.*	Levels of advancement
	1. The OIE standards are generally not implemented.
	2. Some of the OIE standards are implemented, e.g. primarily for the export sector.
	3. All of the OIE standards are implemented but this is primarily for the export sector.
	4. All of the OIE standards are implemented, for the export and the domestic sector.
	5. The OIE standards are implemented and implementation is periodically subject to independent external evaluation.

Terrestrial Code reference(s): Annexe 1

This Critical Competency was not assessed during the 2007 PVS evaluation.

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E09, P44, P45

Findings:

There is only one NGO working on animal protection in Laos, *Elephant Asia*, which supports the reconversion of domesticated elephants currently exploited in the logging industry, to more sustainable and humane practices. It was formed in 2002 and is linked with different NGOs such as the *Royal Society for the Prevention of Cruelty to Animals* (RSPCA) and receives support from the French *Ministère des Affaires Etrangères et Européennes*. It is hosted free of charge by the DLF.

OIE standards on animal welfare currently cover the following topics (as per May 2011) :

- The transport of animals by land
- The transport of animals by sea
- The transport of animals by air
- The slaughter of animals for human consumption
- The killing of animals for disease control purposes
- The control of stray dog populations
- The welfare of farmed fish during transport
- Welfare aspects of stunning and killing of farmed fish for human consumption
- Use of animals for research and education

The *Law on Livestock Production and Veterinary Matters* (2008) contains a definition[43] for "animal welfare" although no article makes specific recommendations on this matter.

A serious issue was raised regarding the trade of fattening dogs. A Thai investigative reporting team showed candid camera footage of how syndicates were applying an *outgrower* system for (often stolen) fattening dogs to poor 'farmers' and the way they were later collected, handled and slaughtered on national prime time television Thai TV, leading to a public outcry and condemnation of the overall trade and consumption of dog meat, which is likely to spill over to Lao at some point as the country is a major transit route for the supply of fattening dogs produced in Vietnam to Thailand. The consumption of dogs in Lao PDR Itself is said to be extremely limited and not "industrialized" as in Vietnam and Thailand. http://video.google.co.uk/videoplay?docid=2638396717361016950# .

At village "animal feed" shop level, several drugs were encountered, intended to enhance the performance of fighting cocks; another classic target of animal welfare groups, though not covered by the OIE standards.

At the local slaughterhouses, inhumane treatment was observed for the pigs upon unloading, without use of any slopes, pigs were just pulled and fell down from the high rear deck; and obviously pregnant pigs were marketed for slaughter.

Lao was not represented at the Cairo OIE Global Conference on Animal Welfare in 2008, but a focal point on animal welfare has meanwhile been designated (Dr. Chintana Chanthavisouk, refer to the table 26 of III-3 on page 115).

[43] *"Animal welfare refers to the appropriate use of animal labour, responsibility for animal health care, provision of adequate feed and water, prevention of abuse, etc."*

Strengths:

Although one recognises that there are no provisions at all to ensure animal welfare as described in OIE standards, there are three points that are worth mentioning:

- Recommendations to include animal welfare in the law exits as part of FAO's Recommendations for Secondary Legislation, which is taken as a basis to improve the National Legislation.
- The *Decree on Slaughtering an d Meet Hygiene* mentions that animals should be unconscious before slaughter so it does not suffer a painful death.
- Animal welfare is part of the core curriculum of veterinary students at Nabong University.

Weaknesses:

- Lack of inclusion of basic and specific Animal Welfare standards in the law.
- There is no strategic vision regarding Animal Welfare.

Picture 44. *Village "feed" shop, well stocked with all one needs to enhance performance of fighting cocks. Picture © M. Varas (2011)*

Picture 45. *No comment. Picture © A. Kamakawa (2011)*

Recommendations:

Awareness creation of the farmers, traders and slaughterhouses by practical guidelines, education of the district officers on humane treatment for animals to be slaughtered.

III.3 Fundamental component III: Interaction with stakeholders

This component of the evaluation concerns the capability of the VS to collaborate with and involve stakeholders in the implementation of programmes and activities. It comprises six critical competencies

Critical competencies:

Section III-1	**Communications**
Section III-2	**Consultation with stakeholders**
Section III-3	**Official representation**
Section III-4	**Accreditation / Authorisation / Delegation**
Section III-5	**Veterinary Statutory Body (VSB)**
	A. VSB authority
	B. VSB capacity
Section III-6	**Participation of producers and stakeholders in joint programmes**

Terrestrial Code References:
Points 6, 7, 9 and 13 of Article 3.1.2. on Fundamental principles of quality: Veterinary legislation / General organisation / Procedures and standards / Communication.
Point 9 of Article 3.2.1. on General considerations.
Points 2 and 7 of Article 3.2.3. on Evaluation criteria for the organisational structure of the VS.
Sub-point b) of Point 2 of Article 3.2.6. on Administrative resources: Communications.
Article 3.2.11. on Participation on OIE activities.
Article 3.2.12. on Evaluation of the veterinary statutory body.
Points 4, 7 and Sub-point g) of Point 9 of Article 3.2.14. on Administration details / Animal health and veterinary public health controls / Sources of independent scientific expertise.

III-1. Communication	Levels of advancement
The capability of the VS to keep stakeholders informed, in a transparent, effective and timely manner, of VS activities and programmes, and of developments in animal health and food safety.	1. The VS have no mechanism in place to inform stakeholders of VS activities and programmes.
	2. The VS have informal communication mechanisms.
	3. The VS maintain an official contact point for communications but it is not always up-to-date in providing information.
	4. The VS contact point for communications provides up-to-date information, accessible via the internet and other appropriate channels, on activities and programmes.
	5. The VS have a well developed communication plan, and actively and regularly circulate information to stakeholders.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E20, P46, P47

Findings:

There is basically no difference between the situation encountered in 2007 and 2011. At the time, the findings were the following and they still stand today : *"… there is evidence of veterinary communication efforts, but not of a veterinary communication policy. This is partially due to the fact that veterinary extension services have been entrusted to the National Agriculture and Forestry Extension Services (NAFES) which is an independent institution (not a department) within the Ministry of Agriculture and Forestry.*

Communication, information and extension are therefore not part of the mandate of the veterinary services, whether represented by the DLF or the NAHC.

Therefore, no qualified personnel is available within the veterinary services, nor is there documented evidence of a communication strategy, identifying target groups, methodologies and tools and priority messages to get across.

When present, DLF or NAHC-borne communication programmes towards stakeholders and the general public are therefore very often improvised, irregular and linked to opportunities or events as they occur, and are in general project-related.

Projects such as the ADB-funded project on TADs, the Lao – EU livestock project, SEA-FMD etc, will typically dedicate resources to communication and extension as a means to achieve expected project outputs.

The poster materials examined by the evaluation team on FMD, CSF, HS, and anthrax are usually very well designed, but their distribution will not exceed the level of a district veterinary office. No such posters have been encountered at village-level.

The recent epidemic of HPAI has been an opportunity to extend communication to farmers and consumers, by means of written messages, but also elaborate radio and TV broadcasts, which indeed reach most citizens, even in the most remote villages, as confirmed by this mission…."

Picture 46. *Part of a poster on FMD prevention, funded by the European Commission. Picture © M. Varas (2011).*

Comments :

The revision of the definitions and the indicators used in the 201 PVS version nevertheless enable an increase in level of advancement from 1 to 2, i.e. *"that the VS have inf ormal com munication mechanisms…."*, in essence because the few communication activities are now better documented than they were in 2007 and the requirements for qualified and dedicated staff has been dropped in the 2010 version of the PVS. Regarding the latter aspect, an OIE focal point has been appointed (recently) with the DLF's *Information Systems* unit, but it is not clear what particular competencies or roles this person is tasked with within the DLF or the NAHC. Google searches learn however that this person has participated in numerous seminars dealing with communication in the context of animal health (veterinary services, avian influenza, …).

Table. 26. List of OIE Focal points (and Delegate)

OIE Delegate :	Dr. Khambounheuang Bounkhouang
OIE Focal points :	
- Veterinary products:	Dr. Sithong Phiphakhavong
- Wildlife:	Dr. Bounlom Douangngeun
- Animal Welfare	Dr. Chintana Chanthavisouk
- Animal diseases notification:	Dr. Phouth Inthavong
- Aquatic Animals:	Dr. Thongphoun Theungphachan
- Animal Production Food Safety:	Dr. Khamphouth Vongxay
- Communication:	*Mrs. Onekham Insomvilay*

Source : OIE Scientific and Technical Department (2011)

Please also refer to some institutional communication examples under the C.C. II.11. (emerging issues), provided by the Lao News Agency KPL.

Unless the veterinary services regain formal control of animal health communication, or manage to effectively integrate animal health messages into the extension messages that are dispatched by the NAFES, no improvement in communication is to be expected and in-house extension efforts will remain the prerogative of projects, such as the one illustrated in picture 47 below :

Picture 47. *Live pou ltry mar ket in Oudo mxay province, un der the monit oring progr amme of the USAID / F AO p roject. Picture © A. Kamakawa (2011)*

Strengths:

- The VS are aware and willing to communicate with stakeholders.
- The VS have access to media (TV, radio, newspaper) either free or paid.
- The VS have appointed an OIE focal point for communication.

III-2. Consultation with stakeholders *The capability of the VS to consult effectively with stakeholders on VS activities and programmes, and on developments in animal health and food safety.*	Levels of advancement
	1. The VS have no mechanisms for consultation with stakeholders.
	2. The VS maintain informal channels of consultation with stakeholders.
	3. The VS maintain a formal consultation mechanism with stakeholders.
	4. The VS regularly hold workshops and meetings with stakeholders.
	5. The VS actively consult with and solicit feedback from stakeholders regarding proposed and current activities and programmes, developments in animal health and food safety, interventions at the OIE (*Codex Alimentarius Com mission* and WTO SPS Committee where applicable), and ways to improve their activities.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, H06

Findings:

Consultations with stakeholders, in particular at province and district level, undoubtedly occur, but are not structured within an action plan, nor are they documented. In Vientiane Capital province e.g., annual and impromptu meetings are held between the PLFO and representatives of farmers. Again, no records are kept of these meetings, nor is there a follow-up by the PLFO of recommendations made or of stakeholders' satisfaction (feedback).

The only documented meetings with stakeholders the Team came across were conducted in the framework of the *"Northern Region Sustainab le Live lihood through Live stock Development"* project, but these go beyond the mere scope of animal health and are intended to provide inputs and feedback (including the use of PRA) of stakeholders on project deliverables.

Weaknesses:

The mission has not been able to meet with the two main producers-organisations : the national pig association and the national poultry association. Therefore, the views of these stakeholders as to their appreciation of consultations held by the veterinary services are unknown.

Recommendations:

The mission recommends that existing (provincial and district) informal consultations with stakeholders be formalised and institutionalised, leading to a documented body of information, which could guide future (national) institutional consultations with (present and future) stakeholders' organisations, not only from the (semi-industrial, urban) farmers, but also from rural smallholders, importers and suppliers of animal feed and veterinary drugs, the private veterinary profession and the Veterinary Statutory Body.

III-3. Official representation	Levels of advancement
The capability of the VS to regularly and actively participate in, coordinate and provide follow up on relevant meetings of regional and international organisations including the OIE (and Codex Alimentarius Commission *and WTO SPS Committee where applicable).*	1. The VS do not participate in or follow up on relevant meetings of regional or international organisations.
	2. The VS sporadically participate in relevant meetings and/or make a limited contribution.
	3. The VS actively participate44 in the majority of relevant meetings.
	4. The VS consult with stakeholders and take into consideration their opinions in providing papers and making interventions in relevant meetings.
	5. The VS consult with stakeholders to ensure that strategic issues are identified, to provide leadership and to ensure coordination among national delegations as part of their participation in relevant meetings.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

Lao PDR is member of the OIE and participates in the meetings of the OIE Regional Commission and other regional initiatives. It was present at the 2007 Queenstown and the 2009 Shanghai Conferences of the Regional Commission. It also plays a pivotal role in the SEACFMD programme, based in Bangkok (refer to appendix 10).

It was not represented at the OIE General Sessions between 2004 and 2006, due to budgetary constraints, but it was represented at the Sessions in 2007, 2008, 2009 and 2011.

There is no evidence of (pro-)active involvement in outcomes of these meetings, nor of formal follow-up of the recommendations emanating from these meetings. It is worth mentioning though that the Director of the DLF, Dr. Khambounheuang Bounkhouang was elected Chairman of the SEAFDEC Council in April 2010. The *Southeast Asian Fisherie s De velopment Center* (SEAFDEC) is an intergovernmental organization established in December 1967 for the purpose of promoting sustainable fisheries development in the region.

All 7 appointed focal points sporadically participate in thematic activities and training courses organised by the OIE.

[44] *Active participation* refers to preparation in advance of, and contributing during the meetings in question, including exploring common solutions and generating proposals and compromises for possible adoption.

III-4. Accreditation / authorisation / delegation *The authority and capability of the public sector of the VS to accredit / authorise / delegate the private sector (e.g. private veterinarians and laboratories), to carry out official tasks on its behalf.*	Levels of advancement
	1. The public sector of the VS has neither the authority nor the capability to accredit / authorise / delegate the private sector to carry out official tasks.
	2. The public sector of the VS has the authority and capability to accredit / authorise / delegate to the private sector, but there are no current accreditation / authorisation / delegation activities.
	3. The public sector of the VS develops accreditation / authorisation / delegation programmes for certain tasks, but these are not routinely reviewed.
	4. The public sector of the VS develops and implements accreditation / authorisation / delegation programmes, and these are routinely reviewed.
	5. The public sector of the VS carries out audits of its accreditation / authorisation / delegation programmes, in order to maintain the trust of their trading partners and stakeholders.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01, P48, P49, …*

Findings:

The conclusions from the 2007 PVS evaluation still stand : *"…There is no legislation or regulations which define this kind of public-private interaction, nor is it formally or informally applied in Laos today. In the current context of lack of legislation, lack of (both private and public) graduate veterinarians, and –in part- lack of compulsory vaccination campaigns, delegation of certain sanitary activities to private veterinarians is not a priority at this time.*

In the future however it could become a feasible option to resolve some of the constraints the government services experience in the delivery of veterinary services at grass-roots level. To enable this, legislation will have to be prepared, in line with OIE guidelines in order to safeguard the quality of the services delivered and maintain trust of trading partners.

In our view, the establishment of a Veterinary Statutory Body would appear to be an essential intermediate step for the implementation of sanitary accreditation…."

The lack of legislation highlighted in 2007 is claimed to be resolved with the promulgation of the new *Law on Livestock Production and Veterinary Matters*. As pointed out in the relevant C.Cs. on legislation and veterinary statutory bodies (IV.1. and III.5.), the new legislation is painfully inadequate in addressing this and other pending issues with regard to veterinary authorities and delegation thereof. In any case, the current numbers of veterinary graduates operating in Lao today (refer to C.C. I.1.A.) whether in public or private service, is inadequate to consider this kind of delegation in the foreseeable future.

Pictures 48 - 49. *One of the very few and very urban private veterinary surgeries in Lao, hardly likely to be interested by the prospects of accreditation for implementing compulsory government activities. Pictures © M. Varas (2011)*

III-5. Veterinary Statutory Body (VSB) **A. VSB authority** *The VSB is an autonomous authority responsible for the regulation of the veterinarians and veterinary para-professionals. Its role is defined in the Terrestrial Code.*	**Levels of advancement**
	1. There is no legislation establishing a VSB.
	2. The VSB regulates veterinarians only within certain sectors of the veterinary profession and/or do not systematically apply disciplinary measures.
	3. The VSB regulates veterinarians in all relevant sectors of the veterinary profession and apply disciplinary measures.
	4. The VSB regulates functions and competencies of veterinarians in all relevant sectors and veterinary para-professionals according to needs.
	5. The VSB regulates and apply disciplinary measures to veterinarians and veterinary para-professionals in all sectors throughout the country.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

As already stated in 2007, *"there currently is no legislation establishing a* Veterinary Statutory Body." This in spite of having adopted new legislation in 2008, published in (English version in) 2010, which was aimed at addressing all outstanding issues, raised during the 2007 PVS evaluation, or so it was claimed... Details on the comments of the Team on this new legislation are found under C.C. IV.1. on page 122. Suffice to state that the new Act does not prescribe the establishment of a veterinary statutory body. Under article 83 it prescribes the establishment of a veterinary association, which is *"…a voluntary established organisation of veterinarians under the agreement of the Livestock and Veterinary Management Authority. The association is established for the benefit of veterinary entrepreneurs, the association, and society. The implementation and functions of the veterinary association are prescribed by specific laws..."*

While the Team has the impression was that there was an intent to prescribe a VSB in the Act, but got side-lined while drafting it (one doesn't need a veterinary act to establish a veterinary association, this is a private interest matter), none of the statements in article 83 are reconcilable with the definition of a VSB as OIE understands and promotes it. At best one would hope that the future veterinary association could eventually lead to an actual VSB provided that legislation is reviewed in accordance.

B. VSB capacity *The capacity of the Veterinary Statutory Body (VSB) to implement its functions and objectives in conformity with the OIE standards.*	**Levels of advancement**
	1. The VSB has no capacity to implement its functions and objectives.
	2. The VSB has the functional capacity to implement its main objectives.
	3. The VSB is an independent representative organisation with the functional capacity to implement all of its objectives.
	4. The VSB has a transparent process of decision making and conforms with OIE standards.
	5. The financial and institutional management of the VSB are submitted to external auditing.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

Irrelevant in view of the absence of a VSB

III-6. Participation of producers and other stakeholders in joint programmes *The capability of the VS and stakeholders to formulate and implement joint programmes in regard to animal health and food safety.*	Levels of advancement
	1. Producers and other stakeholders only comply and do not actively participate in programmes.
	2. Producers and other stakeholders are informed of programmes and assist the VS to deliver the programme in the field.
	3. Producers and other stakeholders are trained to participate in programmes and advise of needed improvements, and participate in early detection of diseases.
	4. Representatives of producers and other stakeholders negotiate with the VS on the organisation and delivery of programmes.
	5. Producers and other stakeholders are formally organised to participate in developing programmes in close collaboration with the VS.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

This critical competency requires three things : a strong veterinary service, a strong industry and strong consumer-groups. Where interests meet, joint programmes emerge, usually co-funded or entirely funded by the interested private sector to come to terms with a specific problem, e.g. brucellosis in dairy milk. Besides from the fact that the veterinary services in Lao P.D.R are probably not in a position yet where they can entertain these kinds of requests for joint programmes from their stakeholders, the stakeholders themselves, in particular the producers, are insufficiently organised, federated and powerful to have the broad financial and popular support needed to enact such programmes. At best, one could say that some industries (the pork industry) applies a certain degree of self-regulation or restraint, but this is still far from self-imposed HACCP regulations, let alone joint programmes with the relevant government authorities.

Recommendations:

- Bullet point 1
- Bullet point 2

III.4 Fundamental component IV : Access to markets

This component of the evaluation concerns the authority and capability of the VS to provide support in order to access, expand and retain regional and international markets for animals and animal products. It comprises nine critical competencies.

Critical competencies:

Section IV-1	**Preparation of legislation and regulations**
Section IV-2	**Implementation of legislation and regulations and stakeholder compliance**
Section IV-3	**International harmonisation**
Section IV-4	**International certification**
Section IV-5	**Equivalence and other types of sanitary agreements**
Section IV-6	**Transparency**
Section IV-7	**Zoning**
Section IV-8	**Compartmentalisation**

Terrestrial Code References:
Points 6, 7 and 9 of Article 3.1.2. on Fundamental principles of quality: Veterinary legislation / General organisation / Procedures and standards.
Points 1 and 2 of Article 3.2.7. on Legislation and functional capabilities: Animal health, animal welfare and veterinary public health / Export/import inspection.
Points 1 and 3 of Article 3.2.8. on Animal health controls: Animal health status / National animal disease reporting systems.
Sub-point g) of Point 4 of Article 3.2.10. on Veterinary Services administration: Trade performance history.
Article 3.2.11. on Participation in OIE activities.
Points 6 and 10 of Article 3.2.14. on Veterinary legislation, regulations and functional capabilities / Membership of the OIE.
Chapter 4.3. on Zoning and compartmentalisation.
Chapter 4.4. on Application of compartmentalisation.
Chapter 5.1. on General obligations related to certification.
Chapter 5.2. on Certification procedures.
Chapter 5.3. on OIE procedures relevant to the Agreement on the Application of Sanitary and Phytosanitary Measures of the World Trade Organization.
Chapters 5.10. to 5.12. on Model international veterinary certificates.

IV-1. Preparation of legislation and regulations *The authority and capability of the VS to actively participate in the preparation of national legislation and regulations in domains that are under their mandate, in order to warranty its quality with respect to principles of legal drafting and legal issues (internal quality) and its accessibility, acceptability, and technical, social and economical applicability (external quality).*	Levels of advancement
	1. The VS have neither the authority nor the capability to participate in the preparation of national legislation and regulations, which result in legislation that is lacking or is out-dated or of poor quality in most fields of VS activity.
	2. The VS have the authority and the capability to participate in the preparation of national legislation and regulations and can largely ensure their internal quality, but the legislation and regulations are often lacking in external quality.
	3. The VS have the authority and the capability to participate in the preparation of national legislation and regulations, with adequate internal and external quality in some fields of activity, but lack formal methodology to develop adequate national legislation and regulations regularly in all domains.
	4. The VS have the authority and the capability to participate in the preparation of national legislation and regulations, with a relevant formal methodology to ensure adequate internal and external quality, involving stakeholder participation in most fields of activity.
	5. The VS regularly evaluate and update their legislation and regulations to maintain relevance to evolving national and international contexts.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E25, P50, H03, M22

Findings:

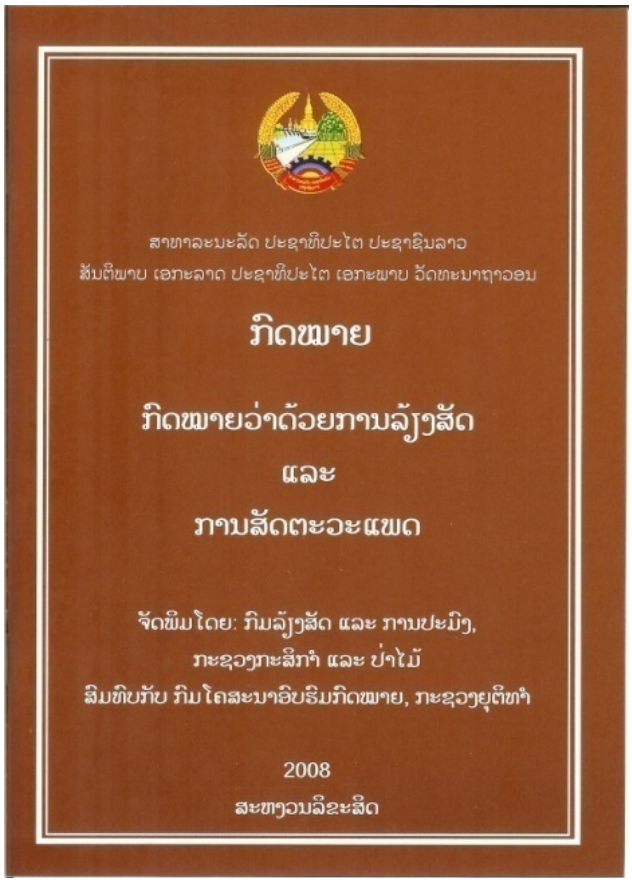
In approving a new Act on *Livestock Production and Veterinary Matters,* the Parliament has endorsed what was arguably the vision of the DLF on matters arising from these two subjects (animal health and animal production). In doing so, the veterinary authority has demonstrated that *"…it has the authority and the capability to participate in the preparation of national legislation and regulations and can largely ensure their internal quality, but the legislation and regulations are often lacking in external quality…."*, hence an improvement from level 1 to level 2. But this is where it ends, because the statement under level 2 *"largely ensuring the internal quality"* is probably already far-stretched, let alone the external quality of the Law that the Team has had the opportunity to scrutinise in – it must be said - its English translation, and therefore probably not entirely void of mistakes and misinterpretations.

Internal quality is defined by such factors as the respect of the legislative pyramid (or hierarchy) and the separation of powers, the normative purpose of the text, the overall guiding rules and conventions of legal drafting.

While we cannot judge on the national conventions regarding drafting of legal text, compared to generally accepted, international conventions, the text scores poorly in that it reads as a policy statement, rather than an enforceable piece of law. Stakeholders, animal species and other general terms are poorly defined and not in line with international nomenclature, i.e. with OIE and SPS nomenclature. Bees are not covered as animal species, nor is honey as an animal product. (Often short-lived) government strategies for livestock development, rural development, breed improvement or the establishment of producers or veterinary associations have no place in this type of Act. The wording in general (though this may be a result of the translation) seems inadequate, not precise enough and open to interpretation.

External quality means that legislation should be *"appropriate, acceptable, applicable and sustainable"*. Hence, legislation is often approved after a long and tedious process of consultations with other government entities, external and private sector stakeholders, and requires extensive impact assessments covering the expected positive and negative effects of law enforcement, the different costs, their origins and coverage and the organisational consequences [45]

None of these factors or processes seem to have been respected in the drafting and subsequent approval of this Act, which is very unfortunate as this is a basic framework act which has to be declined into tenths of decrees and other types of applications which in turn will define animal health policies in years to come. If the framework Act is poor, all that follows will be inadequate, however well drafted, or however laudable the intentions. One of the main problems of this new Act is the definition of the various professional categories : articles 56, 57, 58 and 59 define the conditions for the establishment of *"veterinary businesses", "animal treatment centres", "production units for vaccines and medicines"* and *"sales outlets for veterinary vaccines, medicines and equipment"* respectively. Keeping in mind that *"veterinarian"* is defined as *"an animal doctor who has been educated at an educational institution and who have a specialized veterinary certificate",* none of the above articles mentions the fact that a holder of any of these four types of businesses should be (or be administered) by a *"veterinarian",* irrespective of how inadequate and open to interpretation his/her definition is. The definition of a veterinarian in the two OIE Codes means *"a person registered or licensed by the relevant veterinary statutory body of a country to practice veterinary medicine/science in that country."* In the absence of a VSB (C.C. III.5.) this piece of legislation opens a very dangerous door…



Picture 50. *Cover of the Act on Livestock Production and Veterinary Matters, approved in 2008.*

Other aspects of this legislation such as veterinary representation, veterinary products, animal welfare, slaughter etc… will be (further) discussed under the relevant C.C's.

[45] Dr. Martial Petitclerc *Introduction à la législation vétérinaire : principes généraux* (introduction to veterinary legislation : general principles) Gaborone, Botswana, October 2011 (power-point presentation).

IV-2. Implementation of legislation and regulations and stakeholder compliance *The authority and capability of the VS to ensure that stakeholders are in compliance with legislation and regulations under the VS mandate.*	Levels of advancement
	1. The VS have no or very limited programmes or activities to ensure stakeholder compliance with relevant legislation and regulations.
	2. The VS implement a programme or activities comprising inspection and verification of compliance with legislation and regulations and recording instances of non-compliance, but generally cannot or do not take further action in most relevant fields of activity.
	3. Veterinary legislation is generally implemented. As required, the VS have a power to take legal action / initiate prosecution in instances of non-compliance in most relevant fields of activity.
	4. Veterinary legislation is implemented in all domains of veterinary competence and the VS work with stakeholders to minimise instances of non-compliance.
	5. The compliance programme is regularly subjected to audit by the VS or external agencies.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Comment:

While the level of advancement for this critical competency remains unchanged at level 1, it needs to be pointed out that the definitions of the competency and the various levels of advance have changed since the 2007 PVS mission. The critical competency in 2007 (2006 version of the PVS) was called *"Stakeholder compliance with legislation and regulations"* and the definition was : *"The authority and capability of the VS to ensure that stakeholders are in compliance with animal health and food safety regulations under the VS mandate.",* whereas today it is *"Implementation of legislation and regulations and stakeholder compliance".* The implementation aspect was previously embedded in the previous critical competency on *"Preparation of legislation and regulations, and implementation of regulations".* The current definition therefore puts more emphasis on the role of the VS to enact and enforce legislation, rather than the mere compliance with legislation by stakeholders.

Findings:

Whichever of the two definitions is applied, the conclusions of 2007 still stand today, except for the fact that meanwhile legislation has been adopted, but - in our view- not yet fully implemented : *"…Stakeholder compliance with regulations (…) is by all standards very poor, which is odd in a country which is usually regarded as enforcing strict law and order. At the institutional level, there are no written guidelines, dedicated staff, no formal programme, nor tangible memorandum of understanding with e.g. customs and excise or police, to collaborate in the field of enforcement of regulations, especially in regard to cross-border trafficking. Records and registers in abattoirs and border check points seldom show important law enforcement decisions, such as seizures of animals, carcasses, or otherwise commodities. Stakeholders, such as animal traders, importers and exporters would appear to be scared away by bureaucracy and costly inspection and negotiating fees, and conduct their trade outside the established official channels, leading to loss of inspection opportunities and loss of revenue for the veterinary services.*

Specific aspects of law enforcement such as veterinary representation, veterinary products, animal welfare, slaughter etc… will be discussed under the relevant C.C's.

IV-3. International harmonisation *The authority and capability of the VS to be active in the international harmonisation of regulations and sanitary measures and to ensure that the national legislation and regulations under their mandate take account of relevant international standards, as appropriate.*	Levels of advancement
	1. National legislation, regulations and sanitary measures under the mandate of the VS do not take account of international standards.
	2. The VS are aware of gaps, inconsistencies or non-conformities in national legislation, regulations and sanitary measures as compared to international standards, but do not have the capability or authority to rectify the problems.
	3. The VS monitor the establishment of new and revised international standards, and periodically review national legislation, regulations and sanitary measures with the aim of harmonising them, as appropriate, with international standards, but do not actively comment on the draft standards of relevant intergovernmental organisations.
	4. The VS are active in reviewing and commenting on the draft standards of relevant intergovernmental organisations.
	5. The VS actively and regularly participate at the international level in the formulation, negotiation and adoption of international standards[46], and use the standards to harmonise national legislation, regulations and sanitary measures.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

This critical competency has increased from level 1 in 2007 to level 2 today as it is felt that for the time being, i.e. as long as the country is not a member of the WTO (accession talks are underway), veterinary services are indeed rather well *"….aware of gap s, in consistencies or non-conformities in national leg islation, regulations and sanitary m easures as co mpared to international standards, but do not have the ca pability or a uthority to rectify the pr oblems."*

The evidence encountered by the Team, through documentary reviews and especially interviews, underbuilds this.

Strengths:

Rather good awareness and understanding of OIE and CODEX international standards

Weaknesses:

Rather poor understanding and compliance with WTO – SPS rules and regulations

Recommendations:

Compliance with international standards should be filled using the OIE Guidelines on Veterinary Legislation as references

[46] A country could be active in international standard setting without actively pursuing national changes. The capacity to implement changes nationally is an important element of this competency.

IV-4. International certification[47] *The authority and capability of the VS to certify animals, animal products, services and processes under their mandate, in accordance with the national legislation and regulations, and international standards.*	Levels of advancement
	1. The VS have neither the authority nor the capability to certify animals, animal products, services or processes.
	2. The VS have the authority to certify certain animals, animal products, services and processes, but are not always in compliance with the national legislation and regulations and international standards.
	3. The VS develop and carry out certification programmes for certain animals, animal products, services and processes under their mandate in compliance with international standards.
	4. The VS develop and carry out all relevant certification programmes for any animals, animal products, services and processes under their mandate in compliance with international standards.
	5. The VS carry out audits of their certification programmes, in order to maintain national and international confidence in their system.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

Discussions with veterinary services' staff have evolved around what exactly is understood by certification and for which products. It is understood that new legislation, under art. 53, provides the mandate for *"meat inspectors"* to certify (for hygiene) *"meat and animal products for distribution or con sumption"* (does this include milk or eggs as well?). Unfortunately, little of this was encountered during the field visit, least of all in terms of meat inspection and certification. As pointed out in critical competency II 8 A, meat is inspected, but not stamped; hence accompanying documentation (health certificates) have little or no value (this is a matter of traceability as well, critical competency II 13 B)

For the regional markets, the DLF does certify cattle and buffalo skins and hides. This certification is based primarily on certifying freedom from anthrax and *salmonella* (sic), based on bacterial culture at the NAHC livestock quality control unit. Please also refer to C.Cs pertaining to food safety (II 8 B)

[47] Certification procedures should be based on relevant OIE and *Codex Alimentarius* standards.

IV-5. Equivalence and other types of sanitary agreements *The authority and capability of the VS to negotiate, implement and maintain equivalence and other types of sanitary agreements with trading partners.*	Levels of advancement
	1. The VS have neither the authority nor the capability to negotiate or approve equivalence or other types of sanitary agreements with other countries.
	2. The VS have the authority to negotiate and approve equivalence and other types of sanitary agreements with trading partners, but no such agreements have been implemented.
	3. The VS have implemented equivalence and other types of sanitary agreements with trading partners on selected animals, animal products and processes.
	4. The VS actively pursue the development, implementation and maintenance of equivalence and other types of sanitary agreements with trading partners on all matters relevant to animals, animal products and processes under their mandate.
	5. The VS actively work with stakeholders and take account of developments in international standards, in pursuing equivalence and other types of sanitary agreements with trading partners.

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

Given the fact that Lao is a net importer of animals and animal products, that most animal products imported are not covered under the veterinary authority's mandate and that most international certificates from trading partners, whether issued for the purpose of import or transit, are based on standardized OIE templates, no equivalency agreements have been negotiated and approved to date, although the veterinary authority has the authority to do so.

Article 76. of the *Law on Livestock Production and Veterinary Matters* further states under *"international conflict resolution"* that *"resolution of conflicts on livestock and veterinary practices that are international in nature shall be based on the contracts and treaties to which Lao P.D.R. is a party and related international organisations".* At the same time, it needs to be pointed out that the country is not yet a Member of the World Trade Organisation, i.e. not bound by the SPS Agreement.

IV-6. Transparency	Levels of advancement
The authority and capability of the VS to notify the OIE of their sanitary status and other relevant matters (and to notify the WTO SPS Committee where applicable), in accordance with established procedures.	1. The VS do not notify.
	2. The VS occasionally notify.
	3. The VS notify in compliance with the procedures established by these organisations.
	4. The VS regularly inform stakeholders of changes in their regulations and decisions on the control of relevant diseases and of the country's sanitary status, and of changes in the regulations and sanitary status of other countries.
	5. The VS, in cooperation with their stakeholders, carry out audits of their transparency procedures.

Terrestrial Code reference(s): Annexe 1

***Evidence** : (references of documents or pictures listed in Appendix 6) : E01, P51, P52, P53*

Findings:

The country reports regularly to OIE (emergency notification), and has greatly improved its compliance with standard reporting. Half-year and annual reports have been submitted reliably (but maybe not timely) except for the 2008 annual report. The last report submitted is the 2010 annual report (as per November 17th on the OIE website). Unfortunately it doesn't provide information on human zoonoses, vaccine production, or vaccine use.

The following table (based on WAHID-data from March 2007, *updated*) presents data on the performance of the Lao PDR as reported in the year 2007, in terms of immediate notification and one or more follow-up reports for an exceptional disease event to the OIE. The evaluation is made in terms of :

- Event - Report: The average number of days between the start of the disease event and the date of the immediate notification,
- Event - Submit: The average number of days between the start of the event and the date that the report is actually submitted to OIE (and therefore becomes available to other members),
- Total: The total number of immediate notification and follow-up reports submitted.
- Follow-up Report: The average number of days between follow-up reports (target is 7). This is only shown where at least one follow up report has been submitted

Table 27. Performance of Lao PDR in terms notification to the OIE (source : WAHID, 2007).

Event - Report	Event - Submit	Total events		Follow-up reports
Days	Days	I.N.	F.U.R	Days
16	16	2	4	201

The following table (based on WAHID-data from October 2011) updates the previous data on the performance of the Lao PDR as reported in the year 2010, in terms of immediate notification and one or more follow-up reports for an exceptional disease event to the OIE,

Table 28. Performance of Lao PDR in terms notification to the OIE (source : WAHID, 2010).

Event - Report	Event - Submit	Total events		Follow-up reports
Days	Days	I.N.	F.U.R	Days
18	18	2	2	60

The immediate notifications (I.N.) reported to the OIE since the first PVS evaluation are listed here :

Table. 29. Immediate notifications submitted to WAHIS since 2007

Disease	Mo. Year	Type of notification
HPAI	Feb. 2007	Re-occurence
FMD	Dec. 2007	Increased disease occurence
HPAI	Feb. 2008	Re-occurence
HPAI	Sep. 2008	Re-occurence
Anthrax	Oct. 2008	Re-occurence
FMD	Nov. 2008	Re-occurence
HPAI	Feb 2009	Re-occurence
HPAI	May 2010	Re-occurence
PRRS	July 2010	First occurence

Compared to major neighbouring countries Malaysia, Myanmar, Thailand and Vietnam, the submission of immediate notifications seems to be in line with what can be expected for FMD and HPAI, as illustrated by the time series analysis conducted under WAHID (see next two pages).

Data-management and processing

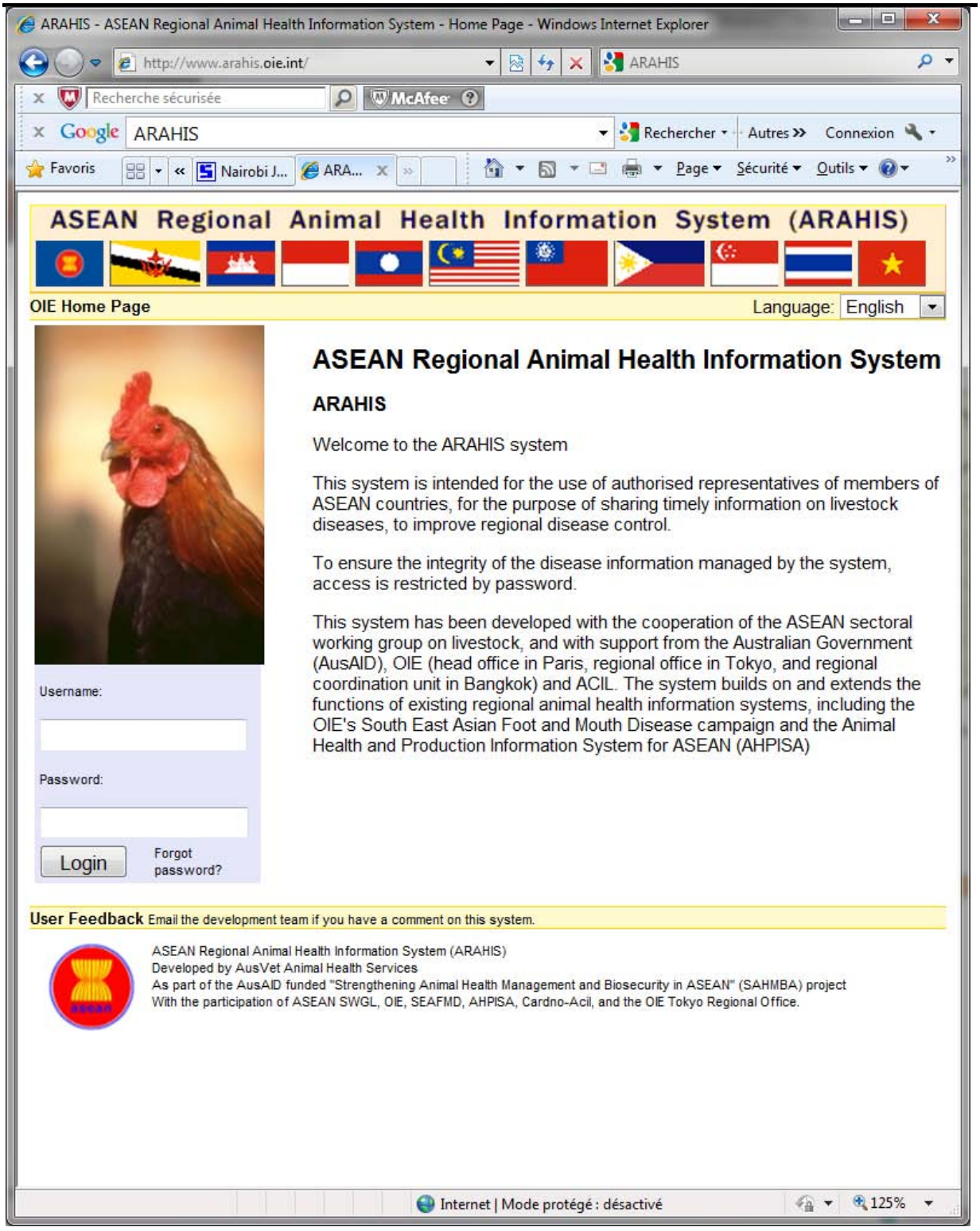
Since the important link with clinical data provided by a passive surveillance system in the field is lacking, laboratory-based information is mainly circumstantial and not integrated into a wider disease management approach, which should also include centralised (computerised) data management to meet national, regional and international reporting requirements. No such system exists today, the MS-Dos based LAO-BASE[48] (EPI-Info) being outdated, no other national reporting system exists, not even the FAO-developed TAD-Info system which the NAHC claimed it was going to adopt in 2007. Which is a pity as most reporting is generated electronically (on PC), but then faxed to the various head offices where information is re-digitised for the purposes of provincial or national reporting.

The (northern Laos) *Village Livestock Information System* (VLIS), promoted by the Lao EU Livestock Project (1998-2004), seems to have had little use in terms of animal health information, as it was not brought to the attention of the evaluation mission Team and several district level officials had no recollection of this system.

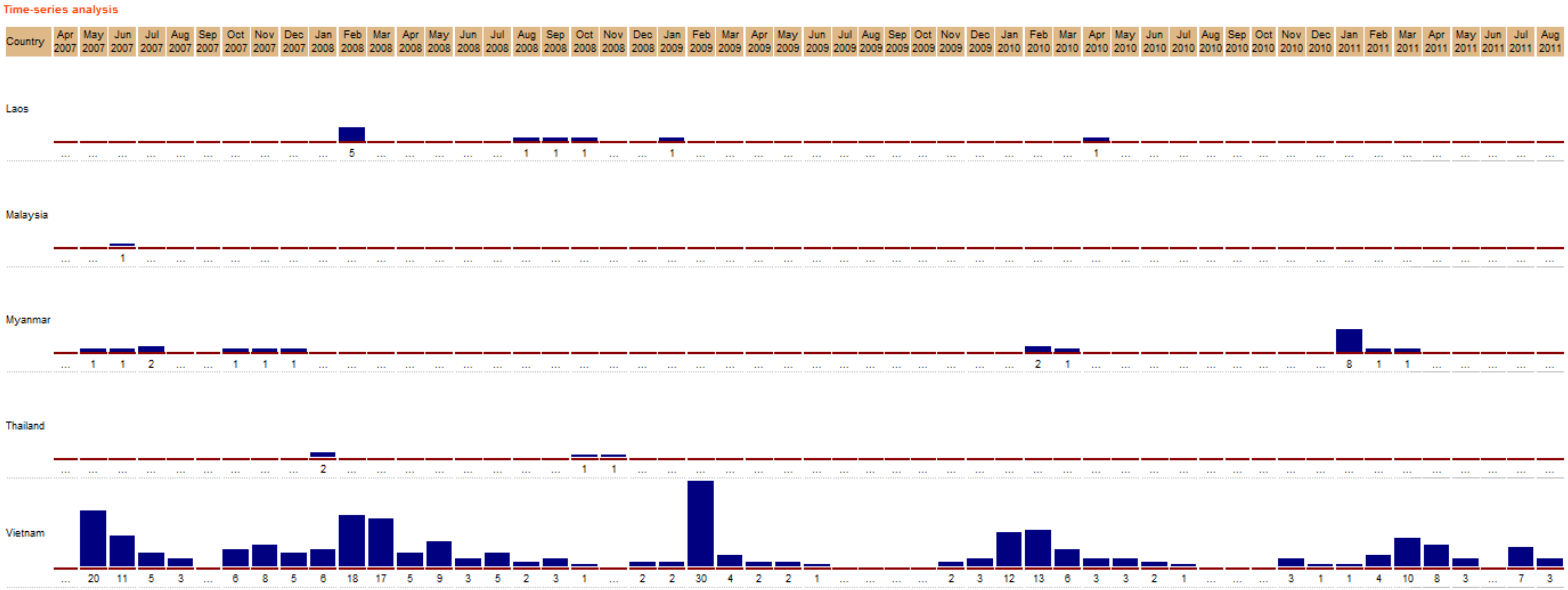
At regional level however, progress has been made and the *ASEAN Regional Animal Health Information System* (ARAHIS), a WAHIS – regional core application[49], is now operational.

[48] E. Sargent et al. 1999 *Modelling an animal health information system : the LAO BASE project,* in Pramod Sharma and Chris Baldock, *Understanding animal disease in Southeast Asia*. ACIAR monography n° 58, Canberra, Australia.

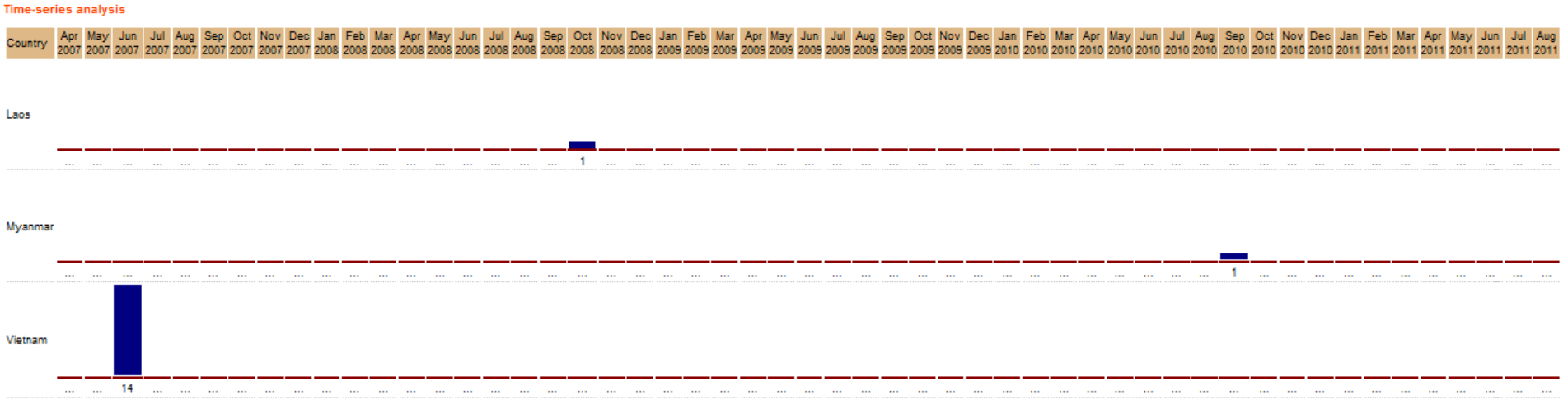
[49] Since 2004, the OIE has developed the WAHIS Regional Core strategy, to help OIE Members meet their regional requirements and their obligations to notify diseases to the OIE, while avoiding duplication.



Picture 51. *Screen capture of the ARAHIS Login page on www.arahis.oie.int*



Picture 52. *Time series analysis for HPAI since April 2007. Source : WAHID (oie) 2011*



Picture 53. *Time series analysis for FMD since April 2007. Source : WAHID (oie) 2011*

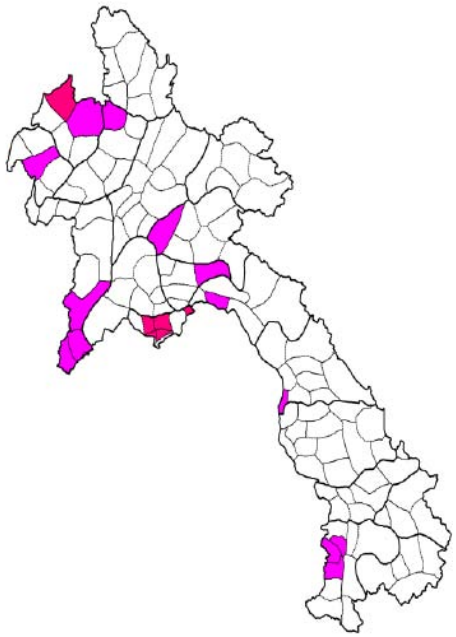
IV-7. Zoning *The authority and capability of the VS to establish and maintain disease free zones, as necessary and in accordance with the criteria established by the OIE (and by the WTO SPS Agreement where applicable).*	Levels of advancement
	1. The VS cannot establish disease free zones.
	2. As necessary, the VS can identify animal sub-populations with distinct health status suitable for zoning.
	3. The VS have implemented biosecurity measures that enable it to establish and maintain disease free zones for selected animals and animal products, as necessary.
	4. The VS collaborate with their stakeholders to define responsibilities and execute actions that enable it to establish and maintain disease free zones for selected animals and animal products, as necessary.
	5. The VS can demonstrate the scientific basis for any disease free zones and can gain recognition by trading partners that they meet the criteria established by the OIE (and by the WTO SPS Agreement where applicable).

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) :* E01, E21, M23

Findings:

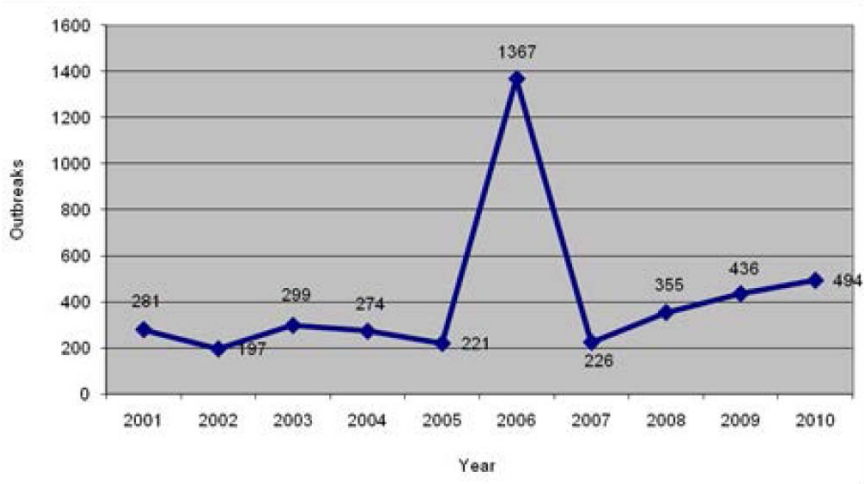
A zoning plan for FMD is outlined within the framework of the SEA(C)FMD project and is fitting with similar zoning schemes in neighbouring countries. Two major zones are foreseen, one in the Upper Mekong region and one in the Lower Mekong region. As part of the Upper Mekong region, Laos is trying to establish a disease free area covering 5 northern provinces (Phongsaly, Houaphan, Luang Prabang, Oudomxai & Xaignabouli) surrounded by buffer and surveillance zones (provinces), which should safeguard the disease-free zone from the infection zone in the south of the country.



Sanitary measures (i.e. surveillance and ring-vaccination) pertaining to zoning have unfortunately never been fully implemented. The map on the left presents the FMD outbreaks between 2007 and 2009 and illustrates the fact that FMD outbreaks occur throughout the country, within and outside "free" zones. Furthermore, there is no underlying legal framework (zoning is not included in the new 2008 Act), no dedicated FMD unit, nor dedicated FMD database. Diagnostic capacity for FMD and related diseases is present and supported by a regional reference lab (recognized by the SEA-FMD programme) in Bangkok, Thailand.

Map.20. FMD outbreaks per district between 2007 and 2009. Source : R. Abila, SEAC-FMD, at the 17Th meeting of the OIE Sub-Commission for FMD in South-East Asia and China, Bali, Indonesia, March 2011.

At the 17Th meeting of the OIE Sub-Commission for FMD in South-East Asia and China, held in Bali, Indonesia, in March 2011 it was announced that the zoning strategy would be revised in view "of new epidemiological changes", i.e. the apparent re-emergence, since 2007, of FMD on mainland south-east Asia, as illustrated in the following graph:



Graph B. Source : R. Abila, SEAC-FMD, at the 17Th meeting of the OIE Sub-Commission for FMD in South-East Asia and China, Bali, Indonesia, March 2011.

Similar zoning schemes and *cordons sanitaires* have been established momentarily for HPAI control purposes. Their implementation however is not guided by appropriate zoning principles, nor does it seem to define disease-free and disease-affected areas. De-contamination posts along highways are present when leaving / entering Vientiane capital province and at major international border posts (only).

Recommendations:

Ongoing zoning efforts should be continued and strengthened beyond the mere administrative delineation of areas, implementing genuine surveillance, registration and decontamination to enforce the separation between zones.

IV-8. Compartmentalisation *The authority and capability of the VS to establish and maintain disease free compartments as necessary and in accordance with the criteria established by the OIE (and by the WTO SPS Agreement where applicable)*	Levels of advancement
	1. The VS cannot establish disease free compartments.
	2. As necessary, the VS can identify animal sub-populations with a distinct health status suitable for compartmentalisation.
	3. The VS have implemented biosecurity measures that enable it to establish and maintain disease free compartments for selected animals and animal products, as necessary.
	4. The VS collaborate with their stakeholders to define responsibilities and execute actions that enable it to establish and maintain disease free compartments for selected animals and animal products, as necessary.
	5. The VS can demonstrate the scientific basis for any disease free compartments and can gain recognition by other countries that they meet the criteria established by the OIE (and by the WTO SPS Agreement where applicable).

Terrestrial Code reference(s): Annexe 1

Evidence *(references of documents or pictures listed in Appendix 6) : E01,*

Findings:

The structure and characteristics of the livestock sector in Laos are insufficiently developed to (economically) justify attempts for recognition of compartmentalisation, also given today's production-levels which are insufficient for domestic demand. No compartmentalisation strategy or framework is available and compartmentalisation is not foreseen in the new legislation.

PART IV: CONCLUSIONS

The outcomes of this mission were discussed with all department and unit heads during a closing meeting on Thursday, the 8th of September 2011. The participating staff, all government officials (no private sector or civil society representatives) were thoroughly informed of the changes brought about to the PVS tool since 2007 and were then informed of the assessment of the various critical competencies by the team members. Often clarification was sought or proposed levels of advancement debated.

The conclusions of this mission are not all that positive when compared to the situation 4 years ago, in 2007, when the first PVS mission was conducted (with the same team leader). While the country has benefited from considerable economic growth, second only to that of its neighbour, the Peoples Republic of China, increased government revenues have not benefited the veterinary services much (yet), while other non-material constraints already observed in 2007 remain a concern.

Out of the 31 critical competencies assessed in 2007 under the four headers of *human and financial re sources, te chnical aut hority and capabilit y, interaction with stakeholders* and *market access*, very few show improvement, or at least to the extent that they justify an increase in the level of advancement, e.g. from 2 to 3. These are the staffing of veterinary para-professionals (proposed level : 2), emergency funding (2), quarantine and border security (2), animal identification and movement control (2), communication (2), international harmonisation (2), equivalence and other types of sanitary agreements (2), transparency (3) and preparation of legislation and regulations (2). The latter improvement is due to the approval of new legislation as such. The content of the new legislation is subject to debate (refer to the relevant C.C. IV.1.).

Out of the 15 newly added critical competencies (5th edition, version 2010 of the PVS tool, with a total of 46 C.C.) most were assessed as being at level one, but some were deemed higher. For level of advancement 2 this refers to physical resources (in particular at central level), the management of resources and operations, disease prevention, control and eradication (with the recent PRRS foremost in mind) and residue testing (though not conducted under the veterinary authority as such). For level of advancement 3 this refers to external coordination (with the Ministry of Health mostly).

The main conclusions are :

- The human resources shortages remain problem n° 1, but are being addressed
- The new weak legal framework can only be circumvented by strong regulations
- The epidemio-surveillance system (if any) remains weak
- There is a better chain of command towards district level veterinary services
- The meat inspection services are still under-performing and there are serious concerns regarding residues
- The retail of veterinary drugs and vaccines remains unregulated and there are (again) serious concerns regarding residues
- In drafting legislation, an opportunity was missed to erect a Veterinary Council
- The laboratory services have improved at national and provincial levels, but concerns regarding sustainability remain as most of these improvements are donor-driven/funded.

The upcoming PVS gap-analysis exercise will offer an opportunity to set the record straight for some of these observed shortcomings, by quantifying the required investments needed and setting realistic targets for the next 5 years. Given the average level of advancement (between 1 and 2) there is much room for improvement, some of which can materialise by physical, human and financial incentives, some of which may not, i.e. constraints related to legislation, supply of qualified veterinarians, and challenges related to regional integration (ASEAN), without neglecting the political empowerment of the veterinary services, today largely overshadowed by the attention granted to crop production in general, and rice production in particular. Therefore, any material investment into the veterinary services will have to be accompanied by non-material investments, i.e. a mind-set change. Furthermore, only a broad and regional-minded investment programme is likely to be successful where more narrowly oriented (geographically, or disease-oriented) projects and programmes in the past have failed in devising and consolidating sustainable change.

PART V: APPENDICES

- Appendix 1: Terrestrial Code references for critical competencies
- Appendix 2 : Glossary of terms
- Appendix 3 : List of persons met or interviewed
- Appendix 4 : Timetable of the mission and sites/ facilities visited
- Appendix 5 : Air travel itinerary
- Appendix 6 : List of documents used in the PVS evaluation
- Appendix 7 : Organisation of the OIE PVS evaluation of the VS of Lao
- Appendix 8 : Official livestock statistics (per province and region)
- Appendix 9 : The Mekong River Commission
- Appendix 10 : The South-East Asia (and China) FMD Programme

Appendix 1: Terrestrial Code references for critical competencies

Critical Competencies	Terrestrial Code references
I.1.A **I.1.B** **I.2.A** **I.2.B**	➢ Points 1-5 of Article 3.1.2. Fundamental principles of quality: Professional judgement / Independence / Impartiality / Integrity / Objectivity. ➢ Points 7 and 14 of Article 3.1.2. Fundamental principles of quality: General organisation / Human and financial resources. ➢ Article 3.2.5. Evaluation criteria for human resources. ➢ Article 3.2.12. Evaluation of the veterinary statutory body. ➢ Points 1-2 and 5 of Article 3.2.14. Organisation and structure of Veterinary Services / National information on human resources / Laboratory services.
I.3	➢ Points 1, 7 and 14 of Article 3.1.2. Fundamental principles of quality: Professional judgement / General organisation / Human and financial resources. ➢ Article 3.2.5. Evaluation criteria for human resources. ➢ Sub-point d) of Point 4 of Article 3.2.10. Veterinary Services administration: In-service training and development programme for staff. ➢ Point 9 of Article 3.2.14. Performance assessment and audit programmes.
I.4	➢ Point 2 of Article 3.1.2. Fundamental principles of quality: Independence.
I.5	➢ Point 1 of Article 3.2.3. Evaluation criteria for the organisational structure of the Veterinary Services. ➢ Point 9 of Article 3.2.14. Performance assessment and audit programmes.
I.6.A **I.6.B**	➢ Points 6, 7 and 9 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / General organisation / Procedures and standards. ➢ Article 3.2.2. Scope. ➢ Points 1 and 2 of Article 3.2.3. Evaluation criteria for the organisational structure of the Veterinary Services. ➢ Point 4 of Article 3.2.10 Performance assessment and audit programmes.
I.7	➢ Point 2 of Article 3.2.4. Evaluation criteria for quality system: "Where the Veterinary Services undergoing evaluation… than on the resource and infrastructural components of the services". ➢ Points 2 and 3 of Article 3.2.6. Evaluation criteria for material resources: Administrative / Technical. ➢ Point 3 of Article 3.2.10. Performance assessment and audit programmes: Compliance. ➢ Point 4 of- Article 3.2.14. Administration details.
I.8 **I.9** **I.10**	➢ Points 6 and 14 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / Human and financial resources. ➢ Point 1 of Article 3.2.6. Evaluation criteria for material resources: Financial. ➢ Point 3 of Article 3.2.14. Financial management information.
I.11	➢ Points 7, 11, 14 of Article 3.1.2. Fundamental principles of quality: General organisation / Documentation / Human and financial resources. ➢ Point 4 of Article 3.2.1. General considerations. ➢ Point 1 of Article 3.2.2. Scope. ➢ Article 3.2.6. Evaluation criteria for material resources. ➢ Article 3.2.10. Performance assessment and audit programmes.

II.1	➢ Point 9 of Article 3.1.2. Fundamental principles of quality: Procedures and standards. ➢ Point 3 of Article 3.2.6. Evaluation criteria for material resources: Technical. ➢ Point 5 of Article 3.2.14. Laboratory services.
II.2	➢ Point 9 of Article 3.1.2. Fundamental principles of quality: Procedures and standards. ➢ Point 1 of Article 3.2.4. Evaluation criteria for quality systems. ➢ Point 3 of Article 3.2.6. Evaluation criteria for material resources: Technical. ➢ Point 5 of Article 3.2.14. Laboratory services.
II.3	➢ Chapter 2.1. Import risk analysis
II.4	➢ Points 6 and 9 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / Procedures and standards. ➢ Point 2 of Article 3.2.7. Legislation and functional capabilities: Export/import inspection. ➢ Points 6 and 7 of Article 3.2.14. Veterinary legislation, regulations and functional capabilities / Animal health and veterinary public health controls.
II.5.A **II.5.B**	➢ Points 6, 7 and 9 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / General organisation / Procedures and standards. ➢ Points 1-3 of Article 3.2.8. Animal health controls: Animal health status / Animal health control / National animal disease reporting systems. ➢ Sub-points a) i), ii) and iii) of Point 7 of Article 3.2.14. Animal health: Description of and sample reference data from any national animal disease reporting system controlled and operated or coordinated by the Veterinary Services / Description of and sample reference data from other national animal disease reporting systems controlled and operated by other organisations which make data and results available to Veterinary Services / Description and relevant data of current official control programmes including:… or eradication programmes for specific diseases
II.6 **II.7**	➢ Points 6, 7 and 9 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / General organisation / Procedures and standards. ➢ Points 1-3 of Article 3.2.8. Animal health controls: Animal health status/Animal health control/National animal disease reporting systems. ➢ Sub-point a) of Point 7 of Article 3.2.14. Animal health and veterinary public health controls: Animal health.
II.8.A **II.8.B**	➢ Points 6, 7 and 9 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / General organisation / Procedures and standards. ➢ Points 1-5 of Article 3.2.9. Veterinary public health controls: Food hygiene / Zoonoses / Chemical residue testing programmes / Veterinary medicines/ Integration between animal health controls and veterinary public health. ➢ Points 2, 6 and 7 of Article 3.2.14. National information on human resources / Veterinary legislation, regulations and functional capabilities / Animal health and veterinary public health controls. ➢ Chapter 6.2. Control of biological hazards of animal health and public health importance through ante- and post-mortem meat inspection.
II.9	➢ Points 6 and 9 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / Procedures and standards. ➢ Points 3 and 4 of Article 3.2.9. Veterinary public health controls: Chemical residue testing programmes / Veterinary medicines. ➢ Sub-point a) ii) of Point 6 of Article 3.2.14. Animal health and veterinary public health: Assessment of ability of Veterinary Services to enforce legislation. ➢ Chapters 6.6. to 6.10. Antimicrobial resistance.

II.10	➢ Points 3 and 4 of Article 3.2.9. Veterinary public health controls: Chemical residue testing programmes / Veterinary medicines. ➢ Sub-points b) iii) and iv) of Point 7 of Article 3.2.14. Veterinary public health: Chemical residue testing programmes / Veterinary medicines. ➢ Chapters 6.6. to 6.10. Antimicrobial resistance.
II.11	➢ Points 7 and 9 of Article 3.1.2. Fundamental principles of quality: General organisation / Procedures and standards. ➢ Point 1 of Article 3.2.7. Legislation and functional capabilities: Animal health, animal welfare and veterinary public health.
II.12	➢ Points 7 and 9 of Article 3.1.2. Fundamental principles of quality: General organisation / Procedures and standards. ➢ Point 3 of Article 3.2.8. Animal health controls: National animal disease reporting systems. ➢ Sub-point f) of Point 4 of Article 3.2.10. Veterinary Services administration: Formal linkages with sources of independent scientific expertise. ➢ Points 6 and 7 of Article 3.2.14. Veterinary legislation, regulations and functional capabilities / Animal health and veterinary public health controls.
II.13.A **II.13.B**	➢ Point 6 of Article 3.1.2. on Fundamental principles of quality: Vet. legislation. ➢ Chapter 4.1. General principles on identification and traceability of live animals. ➢ Chapter 4.2. Design and implementation of identification systems to achieve animal traceability.
II.14	➢ Chapter 7.1. Introduction to the recommendations for animal welfare ➢ Chapter 7.2. Transport of animals by sea ➢ Chapter 7.3. Transport of animals by land ➢ Chapter 7.4. Transport of animals by air ➢ Chapter 7.5. Slaughter of animals ➢ Chapter 7.6. Killing of animals for disease control purposes
III.1	➢ Point 13 of Article 3.1.2. Fundamental principles of quality: Communication. ➢ Sub-point b) of Point 2 of Article 3.2.6. on Administrative resources: Communications. ➢ Point 4 of Article 3.2.14. Administration details.
III.2	➢ Point 13 of Article 3.1.2. Fundamental principles of quality: Communication. ➢ Point 2 of Article 3.2.3. Evaluation criteria for the organisational structure of the Veterinary Services. ➢ Point 4 and Sub-point g) of Point 9 of Article 3.2.14. Administration details and on Sources of independent scientific expertise.
III.3	➢ Article 3.2.11. Participation in OIE activities. ➢ Point 4 of Article 3.2.14. on Administration details.
III.4	➢ Points 6, 7 and 9 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / General organisation / Procedures and standards. ➢ Point 7 of Article 3.2.3. Evaluation criteria for the organisational structure of the Veterinary Services.
III.5.A **III.5.B**	➢ Point 6 of Article 3.1.2. on Fundamental principles of quality: Vet. legislation ➢ Point 9 of Article 3.2.1. General considerations. ➢ Article 3.2.12. Evaluation of the veterinary statutory body.
III.6	➢ Points 6 and 13 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / Communication. ➢ Points 2 and 7 of Article 3.2.3. Evaluation criteria for the organisational structure of the Veterinary Services. ➢ Point 7 of Article 3.2.14. Animal health and veterinary public health controls.

IV.1	➢ Points 6, 7 and 9 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / General organisation / Procedures and standards. ➢ Points 1 and 2 of Article 3.2.7. Legislation and functional capabilities: Animal health, animal welfare and veterinary public health / Export/import inspection. ➢ Point 6 of Article 3.2.14. Vet. legislation, regulations, functional capabilities
IV.2	➢ Points 6, 7 and 9 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / General organisation / Procedures and standards. ➢ Points 1 and 2 of Article 3.2.7. Legislation and functional capabilities: Animal health, animal welfare and veterinary public health / Export/import inspection. ➢ Point 6 of Article 3.2.14. Vet. legislation, regulations, functional capabilities.
IV.3	➢ Point 6 of Article 3.1.2. on Fundamental principles of quality: Vet. legislation ➢ Article 3.2.11. Participation in OIE activities. ➢ Points 6 and 10 of Article 3.2.14. Veterinary legislation, regulations and functional capabilities / Membership of the OIE.
IV.4	➢ Points 6, 7 and 9 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / General organisation / Procedures and standards. ➢ Point 2 of Article 3.2.7. Legislation and functional capabilities: Export/import inspection. ➢ Sub-point b) of Point 6 of Article 3.2.14. Veterinary legislation, regulations and functional capabilities: Export/import inspection. ➢ Chapter 5.2. Certification procedures. ➢ Chapters 5.10. to 5.12. Model international veterinary certificates.
IV.5	➢ Points 6 and 7 of Article 3.1.2. Fundamental principles of quality: Veterinary legislation / General organisation. ➢ Sub-point g) of Point 4 of Article 3.2.10. Veterinary Services administration: Trade performance history. ➢ Chapter 5.3. OIE procedures relevant to the Agreement on the Application of Sanitary and Phytosanitary Measures of the World Trade Organization.
IV.6	➢ Point 6 of Article 3.1.2. on Fundamental principles of quality: Vet. legislation. ➢ Points 1 and 3 of Article 3.2.8. Animal health controls: Animal health status / National animal disease reporting systems. ➢ Chapter 5.1. General obligations related to certification.
IV.7	➢ Point 6 of Article 3.1.2. on Fundamental principles of quality: Vet.legislation. ➢ Chapter 4.3. Zoning and compartmentalisation.
IV.8	➢ Point 6 of Article 3.1.2. on Fundamental principles of quality: Vet.legislation. ➢ Chapter 4.3. Zoning and compartmentalisation. ➢ Chapter 4.4. Application of compartmentalisation.

Appendix 2: Glossary of terms

Terms defined in the Terrestrial Code that are used in this publication are reprinted here for ease of reference.

Border post

means any airport, or any port, railway station or road check-point open to international trade of commodities, where import veterinary inspections can be performed.

Compartment

means an animal subpopulation contained in one or more establishments under a common biosecurity management system with a distinct health status with respect to a specific disease or specific diseases for which required surveillance, control and biosecurity measures have been applied for the purposes of international trade.

Competent Authority

means the Veterinary Authority or other Governmental Authority of a Member, having the responsibility and competence for ensuring or supervising the implementation of animal health and welfare measures, international veterinary certification and other standards and recommendations in the Terrestrial Code and the Aquatic Animal Health Code in the whole territory.

Emerging disease

means a new infection resulting from the evolution or change of an existing pathogenic agent, a known infection spreading to a new geographic area or population, or a previously unrecognized pathogenic agent or disease diagnosed for the first time and which has a significant impact on animal or public health.

Equivalence of sanitary measures

means the state wherein the sanitary measure(s) proposed by the exporting country as an alternative to those of the importing country, achieve(s) the same level of protection.

International veterinary certificate

means a certificate, issued in conformity with the provisions of Chapter 5.2., describing the animal health and/or public health requirements which are fulfilled by the exported commodities.

Laboratory

means a properly equipped institution staffed by technically competent personnel under the control of a specialist in veterinary diagnostic methods, who is responsible for the validity of the results. The Veterinary Authority approves and monitors such laboratories with regard to the diagnostic tests required for international trade.

Notifiable disease

means a disease listed by the Veterinary Authority, and that, as soon as detected or suspected, must be brought to the attention of this Authority, in accordance with national regulations.

Official control programme

means a programme which is approved, and managed or supervised by the Veterinary Authority of a country for the purpose of controlling a vector, pathogen or disease by specific measures applied throughout that country, or within a zone or compartment of that country.

Official Veterinarian

means a veterinarian authorised by the Veterinary Authority of the country to perform certain designated official tasks associated with animal health and/or public health and inspections of commodities and, when appropriate, to certify in conformity with the provisions of Chapters 5.1. and 5.2. of the Terrestrial Code.

Official veterinary control

means the operations whereby the Veterinary Services, knowing the location of the animals and after taking appropriate actions to identify their owner or responsible keeper, are able to apply appropriate animal health measures, as required. This does not exclude other responsibilities of the Veterinary Services e.g. food safety.

Risk analysis

means the process composed of hazard identification, risk assessment, risk management and risk communication.

Sanitary measure

means a measure, such as those described in various Chapters of the Terrestrial Code, destined to protect animal or human health or life within the territory of the OIE Member from risks arising from the entry, establishment and/or spread of a hazard.

Surveillance

means the systematic ongoing collection, collation, and analysis of information related to animal health and the timely dissemination of information to those who need to know so that action can be taken.

Terrestrial Code

means the OIE Terrestrial Animal Health Code.

Veterinarian

means a person registered or licensed by the relevant veterinary statutory body of a country to practice veterinary medicine/science in that country.

Veterinary Authority

means the Governmental Authority of an OIE Member, comprising veterinarians, other professionals and para-professionals, having the responsibility and competence for ensuring or supervising the implementation of animal health and welfare measures, international veterinary certification and other standards and recommendations in the Terrestrial Code in the whole territory.

Veterinary para-professional

means a person who, for the purposes of the Terrestrial Code, is authorised by the veterinary statutory body to carry out certain designated tasks (dependent upon the category of veterinary para-professional) in a territory, and delegated to them under the responsibility and direction of a veterinarian. The tasks for each category of veterinary para-professional should be defined by the veterinary statutory body depending on qualifications and training, and according to need.

Veterinary Services

means the governmental and non-governmental organisations that implement animal health and welfare measures and other standards and recommendations in the Terrestrial and Aquatic Codes in the territory. The Veterinary Services are under the overall control and direction of the Veterinary Authority. Private sector organisations, veterinarians, veterinary paraprofessionals or aquatic animal health professionals are normally accredited or approved by the Veterinary Authority to deliver the delegated functions.

Veterinary statutory body

means an autonomous authority regulating veterinarians and veterinary para-professionals.

Appendix 3. List of persons met or interviewed

Name	Position	Section, unit, enterprise or office	Division or DDAF/PDAF office	Department or district	Ministry, institution or province
Dr Kham'heuang Bounkhouang	Director-General	-	Directorate-General	Department of Livestock and Fisheries	MoAF
Mr. Sounthone	Director	-	Livest & Vet. Regulatory Div.		MoAF
Mr Sisouphanh	Director	-	Livestock Management Centre		MoAF
Mr Signa	Deputy Director	-	National Animal Health Centre		MoAF
Dr Bounmy Yaymountry	Head	Administration and information unit	National Animal Health Centre		MoAF
Dr Settha Sinthassak	Deputy Head	Epidemiology unit / EAHMI (FAO)	National Animal Health Centre		MoAF
Mr.Phouvong	Vice Chief	Laboratory unit	National Animal Health Centre		MoAF
Mrs Phengthet	Chief	Laboratory unit	National Animal Health Centre		MoAF
Dr. Phouth Inthavong	Head	Epidemiology unit	National Animal Health Centre		MoAF
Ms Thongphoun Theungphachanh	Head	Livestock product quality control unit	National Animal Health Centre		MoAF
Mr. Phanthavong Vongsamphanh	Deputy Director	-	Planning Division (PD)		MoAF
Mr Sengpheth Somsanith	Director	-	Vet. Vaccine Production Centre		MoAF
Dr Watthana	Officer	Laboratory unit	National Animal Health Centre		MoAF
Prof. Khamphoui Phonexay	Director			Northern Agric.& For.College	MoAF
Prof. Outhai Soukkey	Deputy Director				MoAF
Prof. Somphanh Pasouvang	Vice Dean		Veterinary graduate courses	Nabong Agriculture Faculty	MoE
Mr Sithixay Kaylatn	Lecturer		Veterinary graduate courses		MoE
Mr Sisavath Phommariehan	Lecturer		Veterinary graduate courses		MoE
Mr Chantha Chanda	Lecturer		Veterinary graduate courses		MoE
Dr Si Somsak	Head	Chemical section	Food and Drug Laboratory	Dep of Food & Drugs (FDD)	MoH
Dr Sibounhom Archkhawongs	Director		Disease Prevention	Dep of Hygiene & Prevention	MoH
Dr Moua Yang	Head	Implementation unit	PD/Northern Region Sustain. Livelihoods through Livestock Development Project		MoAF in L. Prabang
Dr Syseng Khounsy	Nat. Project Director				MoAF in L. Prabang
Mr Philaphone Khammy	Deputy	Provincial Livestock Fisheries Office	Provin Dep of Agric. and For.	Huay Xay	Prov : Bokeo
Mr Philaphone Khammy	Owner		Animal medicine & pet shop	Huay Xay district	Prov : Bokeo
Mr Sisouphon Keola	Officer		District Dep of Agric. and For.	Huay Xay district	Prov : Bokeo
Mr Bounpone Phommalath	Head Veterinary Unit	Provincial Livestock Fisheries Office	Provin Dep of Agric. and For.		Prov : Bokeo

Mr Cher Santisouk	Head	-	District Dep of Agric. and For.	Vieng Phoukha district	Prov : L. Namtha
Mr Khamphaeng Phanavan	Head	Provincial Livestock Fisheries Office	Provin Dep of Agric. and For.		Prov : L. Namtha
Dr (Ms) Bountom Khounsy	Head Veterinary Unit	Provincial Livestock Fisheries Office			Prov : L. Prabang
Ms Chansamom	Deputy	Provincial Livestock Fisheries Office			Prov : L. Prabang
Mr Bunchanh Chanhdamany	Acting Director	Provincial Livestock Fisheries Office			Prov : Oudom Xay
Mr Souvan Xaipaseurt	Deputy	-	District Dep of Agric. and For.	Namor district	Prov : Oudom Xay
Mr Kemma	VVW	-	Huay On village	Namor district	Prov : Oudom Xay
Mr Onkeo	Owner	-	No.1 (private) slaughterhouse	Xay district	Prov : Oudom Xay
Mr Xaysavanh Ouneoutha	Head	-	District Dep of Agric. and For.	Khaysone Phoùvihanh district	Prov : Savannathek
Mr Bounyang Souphanhamat	Head	-	District Dep of Agric. and For.	Pagnum district	Prov : Vientiane Cap.
Dr (Ms) Phassaly Phissamay	Head	Provincial Livestock and Fisheries Office	Provin Dep of Agric. and For.		Prov : Vientiane Cap.
Dr Tri Satya Putri Naipospos	Coordinator	USAID-funded HPAI Project	ECTAD	FAO	United Nations
Mr Khan Phay Mysay	Head	District Livestock Fisheries Office	District Dep of Agric. and For.	Pagnum district	Prov : Vientiane Cap.
Mr Phonkeo	Deputy-Head	District Livestock Fisheries Office	District Dep of Agric. and For.	Pagnum district	Prov : Vientiane Cap.

Appendix 4: Timetable of the mission and sites/ facilities visited

The mission took place from August 29th, 2011 until September 8th, 2011 and was preceded by an exchange of letters and information, as required by the PVS methodology. The mission was conducted in the capital Vientiane and completed by 5 days of field visits in two separate teams (north and south-wards).

Table 1. Tentative on-site mission programme, as submitted prior to the mission.

Day	Month	Date	Activity	Length (hours)
Sunday	August	28	Arrival of the team members in Vientiane	
Monday	August	29	Courtesy visit to the Hon. Minister / Secretary of State and /or other senior staff. Opening meeting with the staff at veterinary staff headquarters and representatives of all relevant sectors within the vet. Services Meeting at headquarters (the CVO and staff) with regard to the documents sent before the evaluation, needs for additional information, selection of sites to visit, and the logistics of the evaluation (arrangements for inland travel etc…)	1 2 3
Tuesday	August	30	Desktop - review of the existing critical competencies, already assessed in March 2007	6
Wednesday	August	31	Visits of national infrastructures in Vientiane (laboratories, abattoir, VSB, private veterinary surgeries, etc…)	6
Thursday	Sept.	01	Field visits / regional and local facilities	6
Friday	Sept.	02	Field visits / regional and local facilities	6
Saturday	Sept.	03	Field visits / regional and local facilities	6
Sunday	Sept.	04	Field visits / regional and local facilities	6
Monday	Sept.	05	Field visits / regional and local facilities	6
Tuesday	Sept.	06	Drafting of the assessors' summary of preliminary findings	6
Wednesday	Sept.	07	Closing meeting : presentation and discussion of the summary of preliminary findings	3
Thursday	Sept.	08	Departure of the team members from Vientiane	

Table 2. On-site mission programme, as conducted during the mission.

Day	Month	Date	Activities
Sunday	August	28	Arrival of the team members in Vientiane (Wattay Int'l)
Monday	August	29	Opening meeting with the Director-general of the DLF (OIE Delegate and CVO), the Deputy-director and the facilitator/coordinator of the mission (the Head of the Epidemiology Unit) at the DLF headquarters in Vientiane. Meeting (with the facilitator) with regard to the documents sent before the evaluation, needs for additional information, selection of sites to visit, and the logistics of the evaluation (arrangements for inland travel etc…) (DLF headquarters in Vientiane). Meeting with the head of the Provincial Department of Livestock and Fisheries (PLFO) for Vientiane Capital. Meeting with the head and the personnel of the veterinary inspection (PLFO) at the border inspection post with Thailand (Friendship bridge I, Vientiane). Visit of a private veterinary surgery and pharmacy in Vientiane.
Tuesday	August	30	Visit of the Vientiane public municipal abattoir "Done Dou Modern Slaughterhouse" (night time). Meeting with the DLF heads of departments to present the PVS tool and discuss likely progress along the critical indicators assessed in 2007 Visit of the *National Animal Health Centre* (NAHC), including the national veterinary laboratory facilities and interviews with staff. Visit of the Veterinary Supplies Unit, including storage rooms.
Wednesday	August	31	Meeting with FAO-ECTAD officer and coordinator of the HPAI project (USAID-funded) Visit of the *Veterinary Vaccine Production Centre* (15 km from Vientiane) and interviews with Director and staff (Sikottabong) Visit of the Nabong agricultural school/faculty and meeting with Dean and staff (Nabong, 50 km from Vientiane) Visit of the Vientiane Capital Province public veterinary surgery and pharmacy and interview with staff (Vientiane)

Team 1 : south-bound

Day	Month	Date	Activities
Thursday	September	1	Travel from Vientiane to Lak Xao and Namphao international border check point (Vietnamese border) : visit of the premises of the District Veterinary Office and the border check point; interviews with provincial and district livestock officers and border control personnel.
Friday	September	2	Meeting with the District Veterinary Officer. Travel from Lak Xao to Savannathek Meeting with the PLFO, the DLFO and the district veterinary officers Visit of the Vientiane international border post with Thailand (Friendship Bridge II) and interviews with inspection personnel Visit of the Savannathek private abattoir and interviews with management and district inspection staff.
Saturday	September	3	Travel from Savannathek to Lao Bao. Visit of the Border post + office (Daen Savanh). Interview with inspection personnel Travel from Lao Bao to Xepôn (Sepone) Stop-over at the District Veterinary Office. Visit of a mid-size poultry farm (layers). Interview with the farmer. Visit of a private veterinary pharmacy in Savannakhet. Travel to Pakse
Sunday	September	4	Report writing
Monday	September	5	Visit of the provincial laboratory (Pakxe) Meeting at the Provincial Livestock & Fisheries Office in Pakxe Visit of the Pakxe central market. Travel to Phakxan
Tuesday morning	September	6	Travel from Phakxan to Vientiane

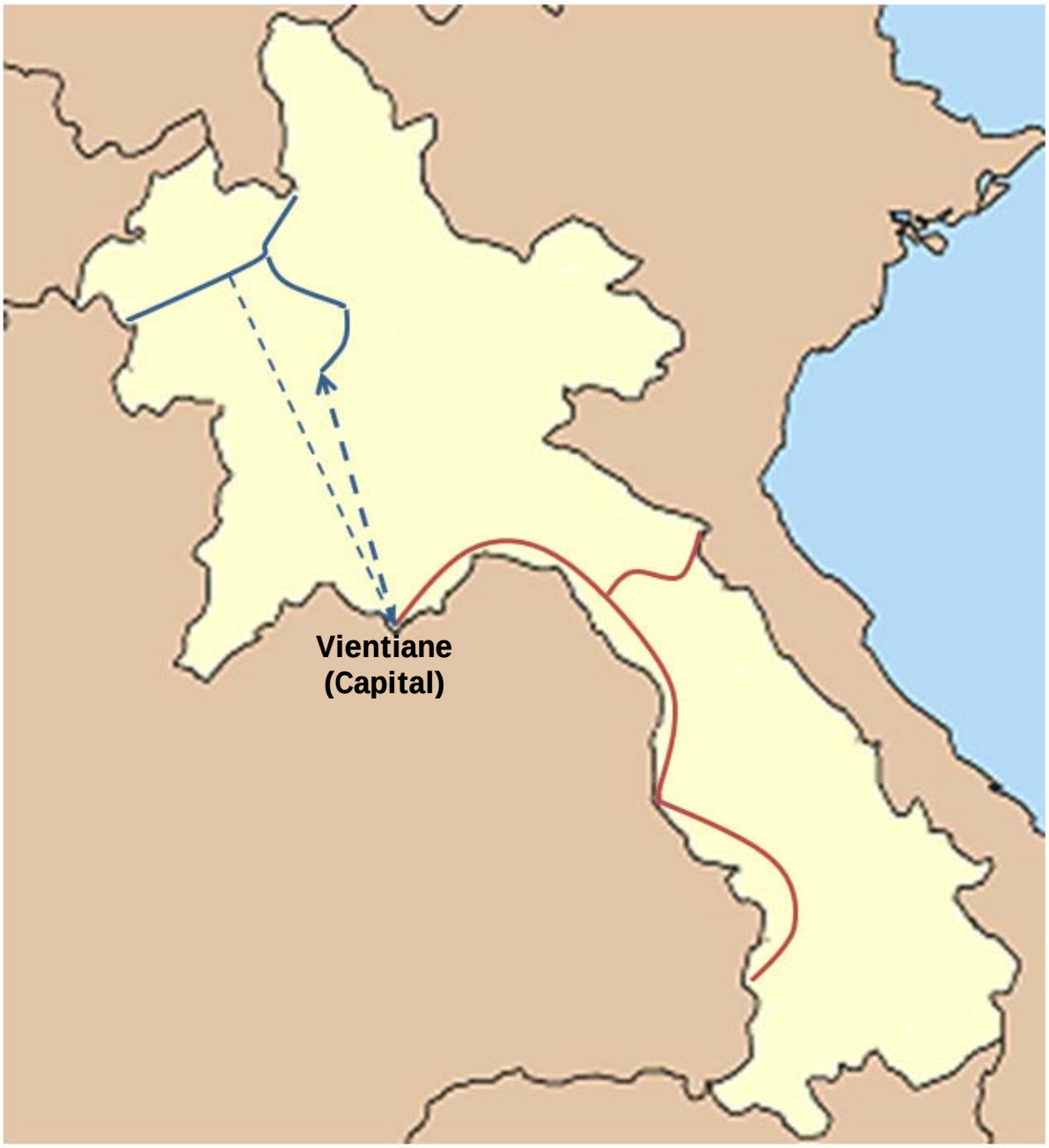
Team 2 : north-bound

Day	Month	Date	Activities
Thursday	September	1	Travel (flight) from Vientiane – to Luang Prabang Meeting with the PLFO veterinary officer in Luang Prabang and visit of the laboratpry Visit of the Northern Region Sustainable Livelihood through Livestock Development Project. Planning of the field visit. Introduction to the project's role in capacity building of the young staff.
Friday	September	2	Meeting with the Vice-deputy Dean of the Northern Agriculture and Forestry College in Luang Prabang Travel from Luang Prabang to Oudom Xay (Oudomxai) Meeting at the Provincial Livestock and Fisheries office in Oudom Xay
Saturday	September	3	Travel towards Luang Namtha Visit of a private slaughterhouse on the road to Luang Namtha (Xay district) Oudom Xay province, and intreveiw with owner Interview with a VVW and a District Livestock and Fisheries officer in Namor district (Oudom Xay province) Meeting with Provincial Livestock and Fisheries officers at the Boten international border post with China (Luang Namtha province) and interviews with inspection personnel
Sunday	September	4	Visit of a animal medicine and pet shop in Huay Xay district, Bokeo province Meeting with the Provincial Livestock and Fisheries veterinary officer in Huay Xay, Bokeo province. Visit of the Huay Xay international border post with Thailand (Bokeo province) Visit of a private slaughterhouse in Huay Xay district) Bokeo province and interview with DLFO inspector.
Monday	September	5	Travel towards Luang Namtha Meeting with the officers of the District Department of Agriculture and Forestry in Vieng Phoukha district, Luang Namtha province. Visit of the Provincial Laboratory in Luang Namtha. Return flight from Luang Namtha to Vientiane
Tuesday morning	September	6	Meeting with NEIDCO (MoH) Meeting with the DLF Planning Division

Joint.

Tuesday afternoon	September	6	Further data collection at the NAHC. Meeting with the DLF Planning Division Meeting with the DLF Regulatory Division Meeting with the NAHC head of the livestock propduct quality control unit. Telephone meeting with the officer-in-charge of the chemical analysis section of the Food and Drug Laboratory (MoH) Team meeting and report writing
Wednesday	September	7	Further data collection at the NAHC. Team meeting and report writing
Thursday	September	8	Official debriefing with presentation of preliminary results and discussion with staff and stakeholders. Departure of Dr Patrick Bastiaensen Departure of Dr Akemi Kamakawa
Friday	September	9	Departure of Dr Mariela Varas

Overview of field-visits conducted by the two teams (approximate itinerary).



Red line (-------) itinerary team 1 (Bastiaensen / Varas)

Blue line (-----) itinerary team 2 (Kamakawa) [solid line : by road ; arrow : by air]

Appendix 5: Air travel itinerary

Assessor	Date	From	To	Flight n°	Departure	Arrival
Varas	24	Paris	Vientiane	VN 0534	14:00	06:35 +1
Bastiaensen	27	Gaborone	Vientiane	SA 1762	0740	12:55 +1
Kamakawa	28	Tokyo	Vientiane	TG 643	12:00	21:00
Kamakawa	1	Vientiane	Luang Prabang	QV 101	11:50	12:30
Kamakawa	5	Luang Namtha	Vientiane	QV 602	14:00	15:00
Bastiaensen	8	Vientiane	Gaborone	TG 571	13:50	10:30 +1
Kamakawa	8	Vientiane	Tokyo	TG 575	21:45	08:10 +1
Varas	9	Vientiane	Paris	VN 0840	18h45	07:00 +1

Appendix 6: List of documents used in the PVS evaluation

E = Electronic version H = Hard copy version P= Digital picture M = Map

Ref	Title	Author / Date / ISBN / Web	Related critical competence
	PRE-MISSION DOCUMENTS		
E01	PVS report LAO P.D.R. 2007	Bastiaensen *et al.* (OIE) 2007	All
E02	Demographics and geographical area of Lao PDR according to province.	City Populations www.citypopulation.de	Introduction
E03	World Food Programme food security atlas	WFP foodsecurityatlas.org	Introduction
E04	World Development Indicators database	December 2010 (World Bank, 2011)	Introduction
E05	Human population	July 2011 (World Bank, 2011)	Introduction
	MISSION DOCUMENTS		
P00	Visit of the Provincial Livestock and Fisheries Office (PLFO) in Vientiane Capital in 2007	P. Intavong (2007)	General organisation of the veterinary services
P01	Visit of the Provincial Livestock and Fisheries Office (PLFO) in Vientiane Capital in 2011	P. Intavong (2011)	
P03	The entrance to the Nabong Agricultural Faculty.	M. Varas (2011)	I.1.A
P04	Discussions held with academic staff from the Nabong Faculty.	A. Kamakawa (2011)	
P05	List of academic personnel entrusted with the B.Sc.Vet course at the Nabong Agricultural Faculty.	M. Varas (2011)	
P06	Minimal technical equipment of a VVW.	M. Varas (2011)	I.2.B
P07	Technical manual for VVW, produced by the NAHC in Vientiane in 2010, a good step forward.	M. Varas (2011)	
P08	A veterinary surgery and pharmacy owned and run by a provincial staff member (PDAF) without formal veterinary qualifications, but with a valid business license.	M. Varas (2011)	I.4
P11	Training manual on the rearing of pigs.	DLF (2011)	I.6.A
P12	The entrance of the NCDC & NEIDCO offices at the Ministry of Health.	A. Kamakawa (2011)	I.6.B
P13	A major part of the fleet at the NAHC in Vientiane is owned or supplied for by donor assistance or technical agencies, i.e. FAO in this case.	A. Kamakawa (2011)	I.7.
P14	A typical district livestock and fisheries office will possess as desktop computer, printer and a fax-photocopy device, but will often rely on the use of private cell phones for communication.	A. Kamakawa (2011)	

P15	Diagnostic laboratory (Serology / FMD, CSF & PRRS),	A. Kamakawa (2011)	II.1.
P16	Test results	Source: NAHC annual report (2009/2010)	
P17	AI laboratory with BSL2 indication	A. Kamakawa (2011)	
P18	Biological safety cabinet class II installed at the bacteriology lab in Vientiane.	M. Varas (2011)	
P19	Laboratory infrastructure under construction at the NAHC in Vientiane.	P. Bastiaensen (2007)	
P20	Laboratory infrastructure under construction at the NAHC in Vientiane.	P. Bastiaensen (2011)	
P21	Rapid (pen-side) tests for avian influenza type A,	M. Varas (2011)	
P22	The entrance to the Champassack provincial vet. laboratory and surgery/pharmacy (animal health services centre)	M. Varas (2011)	
P23	SOPs for FMD ELISA in the same laboratory.	M. Varas (2011)	
P24	Bottled ice for sample / vaccine transport.	A. Kamakawa (2011)	
P25	Regional laboratory staff : motivated but frustrated because under-exploited.	M. Varas (2011)	
P26	Regional laboratory staff : motivated but frustrated because under-exploited.	A. Kamakawa (2011)	
P27	Disinfection of passenger cars entering the country at Friendship Bridge I (Thailand).	M. Varas (2011)	II.4.
P28	Disinfection of passenger cars entering the country at Friendship Bridge I (Thailand).	M. Varas (2011)	
P29	Nam-Phao border post with Vietnam in the east of Lao.	M. Varas (2011)	
P30	Joint plant & animal quarantine office at the Friendship Bridge border crossing with Thailand.	M. Varas (2011)	
P31	Sometimes, vehicles are disinfected with anti-bacterial disinfectants, which are unlikely to produce much effect against HPAI, nor PRRS.	M. Varas (2011)	
P32	This kind of information (from the Friendship Bridge border inspection post in Vientiane) leaves little doubt on whether terrestrial or aquatic animals are the main imported commodity.	M. Varas (2011)	
P33	Veterinary drugs available to farmers from a District Livestock and Fisheries Office (DLFO).	M. Varas (2011)	II.7
P34	Veterinary drugs available to farmers from a District Livestock and Fisheries Office (DLFO).	M. Varas (2011)	

P35	Pigs at the national (Vientiane municipal) abattoir are gutted, dressed on a concrete floor.	M. Varas (2011)	II.8.A.
P36	Stunning and slaughter practices in provincial and district level abattoirs are not in line with OIE standards in this regard.	M. Varas (2011)	
P37	Scavenging dogs, but no vultures…	M. Varas (2011)	
P38	Picture 38. Several meat insepctors (DLFO staff) take their job of ante- and post-mortem inspection very seriously, despite the dismal working conditions, and should be commended.	A. Kamakawa (2011)	
P39	Pictures 39 - 40. The fermentation room of the Veterinary Vaccine Production Centre.	M. Varas (2011)	II.9.
P40	The front gate of the Veterinary Vaccine Production Centre	M. Varas (2011)	
P41	Example of a movement permit as encountered at a slaughterhouse for the slaughter of a lot of 60 animals, allowing for some minimal degree of traceability to the place of origin.	A. Kamakawa (2011)	II.13.A.
P42	Sample of a cattle registration form as introduced a few years ago.	M. Varas (2011)	
P43	Sample of a cattle registration form as introduced a few years ago.	M. Varas (2011)	
P44	Village "feed" shop, well stocked with all one needs to enhance performance of fighting cocks.)	M. Varas (2011)	II.14.
P45	Hogs tied on a motorbike.	A. Kamakawa (2011)	
P46	Part of a poster on FMD prevention, funded by the European Commission.	M. Varas (2011)	III.1.
P47	Live poultry market in Oudomxay province, under the monitoring programme of the USAID / FAO project	A. Kamakawa (2011)	
P48	One of the very few and very urban private veterinary surgeries in Lao, hardly likely to be interested by the prospects of accreditation for implementing compulsory government activities.	M. Varas (2011)	III.4.
P49	One of the very few and very urban private veterinary surgeries in Lao, hardly likely to be interested by the prospects of accreditation for implementing compulsory government activities.	M. Varas (2011)	
P50	Cover of the Act on Livestock Production and Veterinary Matters, approved in 2008.	DLF, 2010 (English)	IV.1
P51	Screen capture of the ARAHIS Login page on www.arahis.oie.int	ARAHIS (OIE) 2011 www.arahis.oie.int	IV.6.
P52	Time series analysis for HPAI since April 2007.	WAHID (OIE) 2011	
P53	Time series analysis for FMD since April 2007.	WAHID (OIE) 2011	
H01	Brochure Veterinary Vaccine Production Centre	VVPC, 2010	II.9
H02	Production and sales statistics VVPC	VVPC, 2011	II.9
H03	Law on livestock production and veterinary	DLF, 2010 (English	IV.1

	matters (2008)	translation)	
H04	Brochure Northern Agriculture and Forestry College (NAFC)	NAFC (date unknown)	I.1.B, II.1. , II.4.
H05	Course content of the B.Sc.Vet course at the Nabong Faculty of Agriculture (NFA)	NFA, 2011	I.1.A.
H06	*"Northern re gion su stainable livelih ood throug h livestock d evelopment"* project quarterly report April – June 2011	DLF, 2011	III.2.
M01	Administrative divisions of Lao PDR	Wikipedia, 2011	Introduction
M02	Percentage of poor households per administrative division (district)	NSC, 2003	
M03	Farming system zones	FAO (date unknown)	
M04	Density map of water-buffalo/carabao	EAHMI, FAO, 2011	
M05	Density map of cattle	EAHMI, FAO, 2011	
M06	Density map of pigs	EAHMI, FAO, 2011	
M07	Density map of poultry	EAHMI, FAO, 2011	
M08	Previous and current coverage of the SEACFMD control programme, including China, Brunei and Singapore.	SEACFMD, 2010	
M09	Zoning strategy for FMD control in south-east Asia	SEACFMD, 2009	
M10	Political map of Lao P.D.R	Maps of the world, 2008-2009	
M11	Climatic zones in Lao P.D.R	FAO (date unknown)	
M12	Location of national and regional (provincial) veterinary laboratory facilities.	DLF, 2010	II.1.
M13	Distribution and intensity of outbreaks of anthrax between 2000 – 2010.	EAHMI, FAO, 2011	II.7.
M14	Distribution and intensity of outbreaks of blackleg between 2000 – 2010.	EAHMI, FAO, 2011	
M15	Distribution and intensity of outbreaks of CSF between 2000 – 2010.	EAHMI, FAO, 2011	
M16	Distribution and intensity of outbreaks of FMD between 2000 – 2010	EAHMI, FAO, 2011	
M17	Distribution and intensity of outbreaks of HS between 2000 – 2010	EAHMI, FAO, 2011	
M18	Distribution and intensity of outbreaks of PRRS between June - July 2010 (first outbreaks).	EAHMI, FAO, 2011	
M19	Distribution and intensity of outbreaks of (animal) rabies between 2000 – 2010	EAHMI, FAO, 2011	
M20	Distribution and intensity of outbreaks of HPAI between 2007 and 2009	EAHMI, FAO, 2011	
M21	Distribution and intensity of outbreaks of Newcastle disease in 2009.	EAHMI, FAO, 2011	
M22	Legislative systems of the world.	Wikipedia, 2011	IV.1.

M23	FMD outbreaks per district between 2007 and 2009.	R. Abila, SEAC-FMD, at the 17th meeting of the OIE Sub-Commission for FMD in South-East Asia and China, Bali, Indonesia, March 2011.	IV.7.
M24	Map of Lao People's Democratic Rep.	Hard Copy : **H07**	Introduction
E06	Economic parameters Lao P.D.R.	CIA World Factbook, July 2011	
E07	UNDP – Laos Environment & Energy.	United Nations Development Programme www.undp.org	
E08	Animal production and census statistics	FAOSTAT - FAO Statistics Division 2011 www.fao.org	
E09	OIE/AusAID Project on Strengthening Veterinary Services to Combat Avian Influenza and other Priority Diseases in Southeast Asia :: INDEPENDENT PROGRESS REPORT. Tristan Jubb, Livestock Health Systems Australia, and Susan Dawson, International Health Development.	AidWorks Initiative Number INH027. 31 October 2009 www.ausaid.gov.au	Introduction and fundamental component II.
E10	Decree on livestock management in Lao P.D.R.	Ministerial Decree (Prime Minister's Office) 085/PMO (1993)	II.8.A.
E11	Regulation on livestock management in Lao P.D.R.	Ministerial Decree (Agriculture and Forestry) 004/MAF (1997)	
E12	Instruction on regulation of livestock management in Lao P.D.R.	Ministerial Decree (Agriculture and Forestry) 005/MAF (1997)	
E13	Technical standards on livestock management in Lao P.D.R.	Ministerial Decree (Agriculture and Forestry) 313/MAF (2000)	
E14	Establishment of National committee on communicable disease control (NDCD)	Ordinance No 377, Dec 2005	I.6.B.
E15	Establishment of (NDCD) secretariat	Ordinance No. 113, May 2006	
E16	Establishment of *National Emerging Infectious Disease Coordination Office* (NEIDCO) – on TORs, administrative procurement, finance, monitoring & evaluation)	Ordinance No 163, June 2007	

E17	Training Workshops for USAID avian influenza commodities : Afghanistan, Laos, Vietnam by Dr. John Bowman, DAI Dr. Andrea Miles, DAI Dr. David Love, DAI Dr. Jarra Jagne, DAI Ms. Alexandra Hiniker, DAI Mr. Daniel Shaul, DAI, and Mr. Harm Kiezebrink, DAI (2007)	Prepared by DAI for USAID under RAISE Task Order 14, "*Assistance fo r T rade Capacity Buil ding i n Relation to the Application of Sanitary and Phyto sanitary (SPS) Measures* ", (Subcontract #4105-99S-006), under, USAID/DAI Prime Contract # PCE-I-00-99-00002-00, "*Rural & Agricultural Inco mes with a Sustaina ble Environment* (RAISE)" http://www.usaid.gov	II.5.B.
E18	National Avian Influenza Control and Pandemic Preparedness Plan, 2006-2010, Fourth joint implementation review	June 16-30, 2010 (English)	I.6.B.
E19	Vaccine business development in the Lao PDR	David Kennedy, Director, AusVet Animal Health Services Pty Ltd (2008) ISBN 978 1 921434 27 3 http://www.aciar.gov.au	II.9
E20	Summary of Proceedings of an International Workshop on Geographical Information System Applications in Animal Production and Health	http://www.aphca.org	III.1.
E21	SEAFMD 2020 Road map	SEAFMD (September 2007) http://www.seafmd-rcu.oie.int/ ISBN 978-974-8371-63-4	Introduction, IV.7.
E22	FAO ECTAD : Country brief Lao P.D.R.	Tata Naispospos, ECTAD Lao PDR, FAO, 13 June 2011	II.5.B.
E23	FAO ECTAD : Dr Joanna M^{c} KENZIE, Veterinary epidemiologist, *"ACTIVE S URVEILLANCE FOR HPAI"* end-of-assignment report, Vientiane, 3 May – 6 June 2011	ECTAD Lao PDR, FAO, 6 June 2011	II.5.B.
E24	ADPC : Kittiphong Phonsapan, GIS researcher, *"EPIDEMICS HAZARD ASSESSMENT "*, Capacity building on risk assessment and application in development planning, February 2011, ADPC	Kittiphong Phonsapan, Vientiane, Lao PDR, February 2011 (power-point presentation)	I.6.B.
	POST-MISSION DOCUMENTS		
E25	Introduction à la législation vétérinaire : principes généraux *(introduction to veterinary le gislation : general principles)*	Martial Petitclerc, Gaborone, Botswana, October 2011 (power-point presentation)	IV.1.
E26	Lao PDR Economic Monitor (update) n° 62524	World Bank, May 2011	Introduction
H07	(colour) map of Laos 1 : 1,650,000	GT-rider	Introduction

Appendix 7: Organisation of the OIE PVS evaluation of the VS of Lao

Assessors Team:

- Team leader: Patrick Bastiaensen
- Technical expert 1 : Akemi Kamakawa
- Technical expert 1 : Mariela Varas

References and Guidelines:

- Terrestrial Animal Health Code (especially Chapters 3.1. and 3.2.)
- OIE PVS Tool for the Evaluation of Performance of VS
  - → Human, financial and physical resources,
  - → Technical capability and authority,
  - → Interaction with stakeholders,
  - → Access to markets.

Dates: August 29 – September 8, 2011

Language of the audit and reports: English

Subject of the evaluation: VS as defined in the Terrestrial Animal Health Code

- ~~Inclusive /~~ Not Inclusive of aquatic animals
- ~~Inclusive /~~ Not inclusive of other institutions / ministries responsible for activities of VS

Activities to be analysed: All activities related to animal and veterinary public health:

- Field activities:
  - → animal health (epidemiological surveillance, early detection, disease control, etc)
  - → quarantine (all country borders),
  - → veterinary public health (food safety, veterinary medicines and biological, residues, etc)
  - → control and inspection,
  - → others
- Data and communication
- Diagnostic laboratories
- Research
- Initial and continuous training
- Organisation and finance
- Other to be determined…

Persons to be present: see ~~provisional~~ Appendix 3

Sites to be visited: see ~~provisional~~ Appendix 4

Procedures:

- Consultation of data and documents
- Field trips
- Interviews and meetings with VS staff and stakeholders,
- Analysis of practical processes

Provision of assistance by the evaluated country

- Completion of missing data as possible
- Translation of relevant document if required
- Administrative authorisation to visit designated sites
- Logistical support if possible

Reports:

- a fact sheet or powerpoint will be presented at the closing session
- a report will be sent to the OIE for peer-review no later than one month after the mission
- the current levels of advancement with strengths, weaknesses and references for each critical competence will be described,
- general recommendations may be made in agreement with the VS.

Confidentiality and publishing of results

The results of the evaluation are confidential between the country and the OIE and may only be published with the written agreement of the evaluated country.

Appendix 8 : Official livestock statistics (per province and region)

No.	Province	Buffalo				
		Year : 2006	2007	2008	2009	2010
I	*North Region*	294 340	297 027	297 809	310 871	308 435
#	Phongsaly	35 900	36 335	36 901	38 687	39 811
#	Luangnamtha	22 400	23 354	23 012	21 816	21 696
#	Oudomxay	35 300	37 288	36 006	38 600	40 706
#	Bokeo	21 100	23 151	23 643	27 618	28 447
#	Luangprabang	54 740	57 810	57 810	59 970	57 416
#	Huaphanh	66 300	66 464	67 001	68 930	66 201
#	Xayabury	58 600	52 625	53 436	55 250	54 158
II	*Central Region*	528 998	533 132	546 363	543 605	545 483
#	Vientiane Capital	17 100	16 327	17 694	18 500	18 831
#	Xiengkhouang	44 500	45 504	53 123	50 816	50 426
#	Vientiane	68 900	69 340	71 651	70 588	69 204
#	Borikhamxay	43 498	43 932	44 218	44 985	45 090
#	Khammuane	71 300	73 523	74 921	73 375	75 557
#	Savannakhet	283 700	284 506	284 756	285 341	286 375
III	*South Region*	287 500	292 699	310 284	323 069	331 662
#	Saravan	95 700	98 566	112 042	121 387	126 050
#	Sekong	28 400	28 392	28 447	29 707	30 401
#	Champasack	117 200	119 186	122 542	124 486	127 013
#	Attapeu	46 200	46 555	47 253	47 489	48 198
	Total	1 110 838	1 122 858	1 154 456	1 177 545	1 185 580

No.	Province	Cattle				
		2006	2007	2008	2009	2010
I	*North Region*	296 035	303 531	312 087	322 075	336 047
#	Phongsaly	36 834	37 664	38 088	39 971	40 480
#	Luangnamtha	24 600	25 666	26 700	27 354	28 175
#	Oudomxay	31 900	34 145	36 399	37 560	40 880
#	Bokeo	29 000	29 813	30 700	32 561	34 750
#	Luangprabang	54 139	55 445	57 100	59 082	61 400
#	Huaphanh	52 500	52 610	53 600	55 450	57 532
#	Xayabury	67 062	68 188	69 500	70 097	72 830
II	*Central Region*	760 134	780 342	801 457	811 436	834 076
#	Vientiane Capital	72 700	77 278	82 573	82 643	87 715
#	Xiengkhouang	68 000	70 726	73 200	75 358	80 706
#	Vientiane	113 700	122 234	132 998	133 086	141 850
#	Borikhamxay	53 034	54 359	55 206	56 034	57 222
#	Khammuane	63 500	65 155	66 469	68 646	70 740
#	Savannakhet	389 200	390 590	391 011	395 669	395 843
III	*South Region*	244 000	269 140	284 182	292 188	304 073
#	Saravan	91 700	112 378	120 100	123 222	126 915
#	Sekong	22 900	23 425	24 972	26 736	28 039
#	Champasack	116 600	119 830	124 522	127 511	131 104
#	Attapeu	12 800	13 507	14 588	14 719	18 015
	Total	1 300 169	1 353 013	1 397 726	1 425 699	1 474 196
		-	-	-	-	

No.	Province	Pigs				
		2006	2007	2008	2009	2010
I	*North Region*	889 036	990 743	1 107 553	1 298 983	1 347 913
#	Phongsaly	163 700	169 487	176 260	191 540	189 447
#	Luangnamtha	62 815	65 758	69 700	78 200	79 750
#	Oudomxay	102 000	103 400	105 000	138 300	139 885
#	Bokeo	45 600	50 397	55 430	89 854	75 350
#	Luangprabang	144 407	162 480	178 720	199 394	220 215
#	Huaphanh	255 400	301 000	356 543	416 250	439 327
#	Xayabury	115 114	138 221	165 900	185 445	203 939
II	*Central Region*	563 403	583 038	600 791	854 379	664 338
#	Vientiane Capital	48 000	51 511	55 100	98 798	66 997
#	Xiengkhouang	73 500	75 783	78 500	95 118	85 311
#	Vientiane	90 400	94 000	97 000	175 240	103 320
#	Borikhamxay	55 203	57 687	59 725	74 516	64 168
#	Khammuane	59 800	60 534	61 812	99 810	75 665
#	Savannakhet	236 500	243 523	248 654	310 897	268 877
III	*South Region*	582 698	612 427	650 214	793 926	740 259
#	Saravan	311 800	327 624	347 280	396 653	389 000
#	Sekong	118 698	123 355	128 972	159 597	139 879
#	Champasack	129 800	137 427	147 614	182 934	180 587
#	Attapeu	22 400	24 021	26 348	54 742	30 793
	Total	2 035 137	2 186 208	2 358 558	2 947 288	2 752 510
		-	-	-	-	

No.	Province	Goat/sheep				
		2006	2007	2008	2009	2010
I	*North Region*	89 844	101 181	115 860	152 684	157 849
#	Phongsaly	3 681	4 100	4 500	7 392	4 912
#	Luangnamtha	5 913	6 231	6 520	9 274	18 948
#	Oudomxay	15 600	18 000	19 489	21 742	20 927
#	Bokeo	5 110	5 705	6 440	9 788	10 426
#	Luangprabang	36 700	41 100	46 300	62 827	63 338
#	Huaphanh	16 200	19 000	25 081	31 154	27 337
#	Xayabury	6 640	7 045	7 530	10 507	11 961
II	*Central Region*	95 168	104 593	112 756	154 518	142 142
#	Vientiane Capital	15 200	15 479	17 806	20 660	18 553
#	Xiengkhouang	6 500	7 069	8 000	13 811	14 520
#	Vientiane	11 500	12 694	14 190	20 311	15 540
#	Borikhamxay	7 868	9 441	10 086	15 523	15 671
#	Khammuane	11 000	12 500	14 044	24 213	26 893
#	Savannakhet	43 100	47 410	48 630	60 000	50 965
III	*South Region*	31 595	36 828	40 250	60 248	66 770
#	Saravan	16 200	20 000	21 536	30 796	38 654
#	Sekong	7 300	8 030	8 800	13 609	13 584
#	Champasack	5 495	6 016	6 854	10 293	10 829
#	Attapeu	2 600	2 782	3 060	5 550	3 703
	Total	216 607	242 602	268 866	367 450	366 707

No.	Province	Poultry				
		2006	2007	2008	2009	2010
I	*North Region*	6 849 236	6 936 435	7 145 073	7 796 793	8 343 845
#	Phongsaly	540 000	532 000	553 820	582 107	627 864
#	Luangnamtha	335 500	324 253	358 521	375 637	382 447
#	Oudomxay	765 200	833 744	831 721	851 650	900 334
#	Bokeo	429 935	432 597	458 550	488 171	507 678
#	Luangprabang	1 288 411	1 274 162	1 300 000	1 548 468	1 768 554
#	Huaphanh	1 824 290	1 758 332	1 780 000	1 838 600	1 930 510
#	Xayabury	1 665 900	1 781 347	1 862 461	2 112 160	2 226 458
II	*Central Region*	6 779 021	6 554 826	6 735 814	7 075 515	7 527 432
#	Vientiane Capital	950 000	808 128	852 115	1 005 440	1 152 078
#	Xiengkhouang	967 900	900 000	920 340	930 472	958 221
#	Vientiane	1 583 580	1 557 073	1 603 668	1 665 432	1 732 939
#	Borikhamxay	676 000	654 054	664 600	679 553	707 280
#	Khammuane	567 141	628 545	674 984	677 333	690 850
#	Savannakhet	2 034 400	2 007 026	2 020 107	2 117 285	2 286 064
III	*South Region*	6 798 995	6 961 685	7 332 839	7 648 724	8 207 706
#	Saravan	2 365 590	2 378 000	2 446 329	2 638 182	2 785 206
#	Sekong	498 505	553 409	611 610	663 897	709 706
#	Champasack	3 569 900	3 655 578	3 874 900	3 907 648	4 226 370
#	Attapeu	365 000	374 698	400 000	438 997	486 424
	Total	20 427 252	20 452 946	21 213 726	22 521 032	24 078 983

Appendix 9. The Mekong River Commission

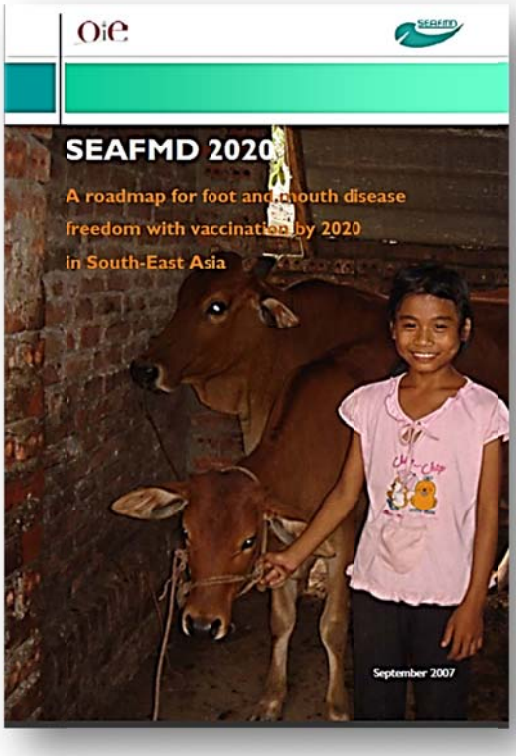
The Mekong River Commission (MRC) was formed on 5 April 1995 by an agreement between the governments of Cambodia, Lao PDR, Thailand and Viet Nam. The four countries signed The Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin and agreed on joint management of their shared water resources and development of the economic potential of the river.

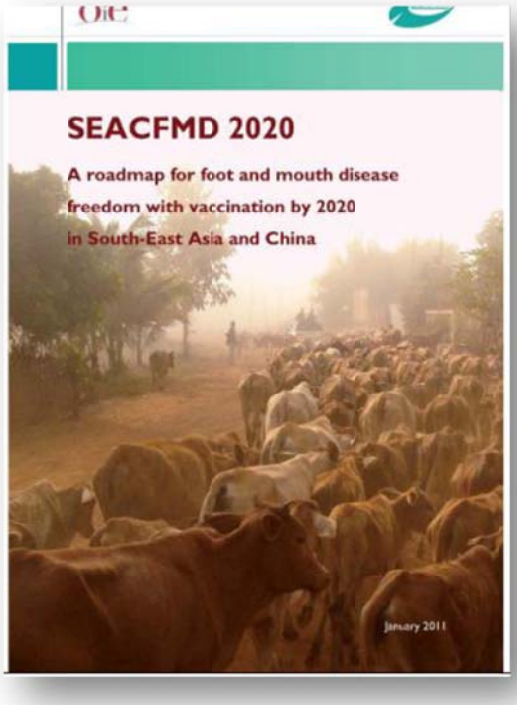
The MRC has been built on a foundation of nearly 50 years of knowledge and experience in the region starting from 1957 when it began life as the UN-founded Mekong Committee.

In 1996 China and Myanmar became Dialogue Partners of the MRC and the countries now work together within a cooperation framework.

The MRC is an international, country-driven river basin organisation that provides the institutional framework to promote regional cooperation in order to implement the 1995 Agreement. The MRC serves its member states by supporting decisions and promoting action on sustainable development and poverty alleviation as a contribution to the UN Millennium Development Goals.

Appendix 10. The South-East Asia (and China) FMD Programme





The *South-East Asia Foot and Mouth Disease Campaign* 2020 (SEA-FMD 2020) document provides a long-term strategic framework and a roadmap to provide guidance in achieving *foot and mouth disease* (FMD) freedom with vaccination in South-East Asia by 2020. This roadmap is based on the significant progress of the SEA-FMD campaign since it was launched in 1997.

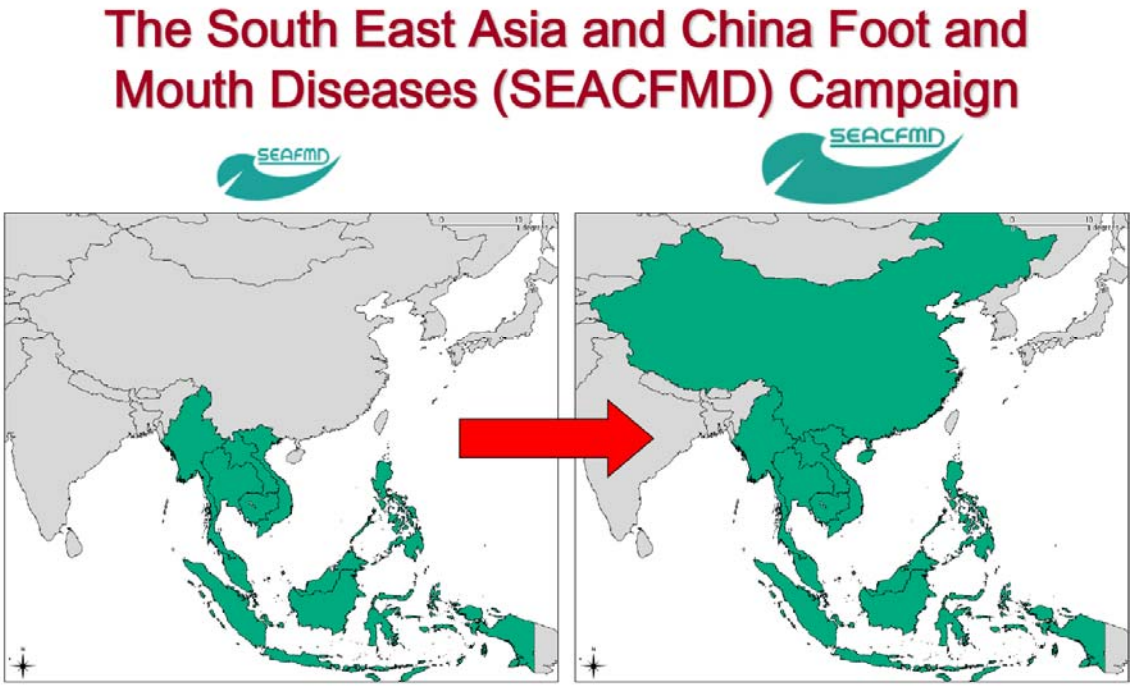
Up until 2010, SEA-FMD operated in eight countries of the *Association of South-East Asian Nations* (ASEAN), namely: Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand and Vietnam. When the campaign commenced, only Indonesia was recognised by the *World Organisation for Animal Health* (OIE) as FMD-free. By December 2005, FMD-free zones recognised by the OIE expanded to include Sabah and Sarawak in Malaysia and the Philippine islands of Mindanao, Visayas, Palawan and Masbate. Since May 2011, the Philippines have gained recognition of three (additional) separate zones that cover the whole Island of Luzon as designated by the Delegate of the Philippines in a document addressed to the Director General in December 2009 and November 2010;

The basic concept is that FMD can be prevented and managed at the sub-regional level if there are sound veterinary services and professional coordination of animal health activities between countries. Member countries are responsible for their own disease management systems but coordination and support is provided by the modestly funded *Regional Coordination Unit* (RCU) in Bangkok. The campaign against FMD, a serious transboundary disease, will lead to control of outbreaks, minimise the debilitating impacts of the disease on communities, national and sub-national economies, improve skills in countries which can be utilised to deal with other major diseases and contribute to poverty alleviation.

Phase 3, commenced in 2006, seeks to extend programmes in place and to assist neighbouring countries in the management of FMD, such as Bangladesh, the People's Republic of China and India. Phase 3 works more closely and in harmony with related programmes managed by organisations, such as the *Australian Agency for International Development* (AusAID), *Food and Agriculture Organization* (FAO), *Asian Development Bank* (ADB), *European Union* (EU) and the *Australian Centre for International Agricultural Research* (ACIAR), for example the AusAID/OIE Capacity Building Project and the FAO/ADB *Greater Mekong sub-region* (GMS) transboundary animal diseases (TADS) project.

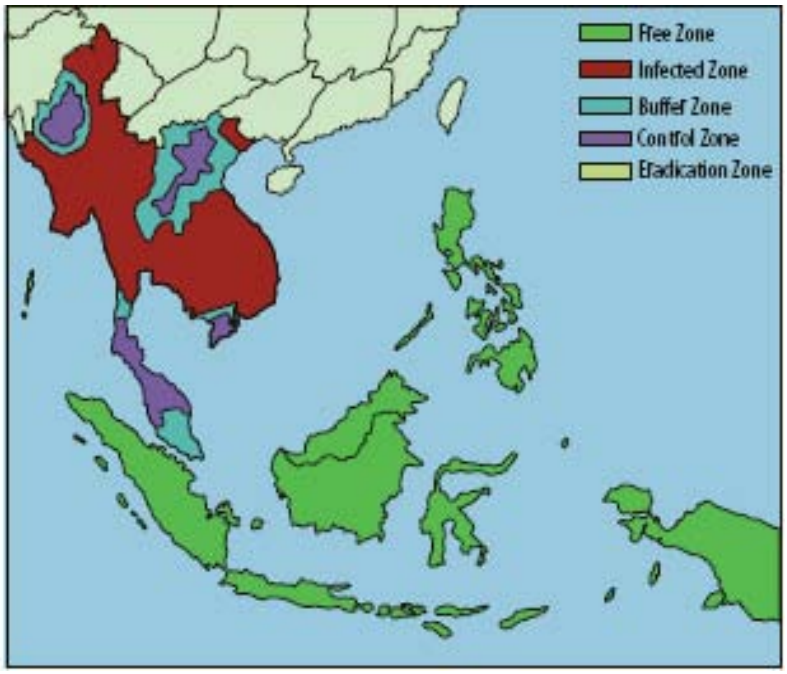
This will maximise effectiveness, improve capacity building and lead to significant animal health improvements for all major transboundary diseases in the region. These activities will promote public and animal health and economic development.

In May 2010, the OIE World Assembly endorsed the enlargement of the SEA-FMD to SEAC-FMD, i.e. with the participation of China, Brunei and Singapore.



Previous and current coverage of the SEACFMD control programme, including China, Brunei and Singapore.

Key to the control of FMD is the introduction of progressive zoning approaches. Under this system, areas are identified and agreed as candidates for FMD management. Specific zonal strategies, definitions and rules are documented and countries work together under RCU guidance to manage and eradicate FMD. New zones are progressively identified and managed. If successful, this approach should lead to FMD freedom by 2020.



Zoning strategy for FMD control in South-East Asia.

The enhanced veterinary capacity and general animal health management capability that the SEA-FMD will continue to develop has broad-based benefits for general animal health services in the region that extend beyond FMD. These capacities and capabilities seek to enhance the foundation for all animal health control strategies and services in the region.

In short, improved veterinary services will support economic development and protect human health in a sustainable manner. In this regard, it should again be emphasised that the SEA-FMD approach is a relevant model for prevention and control of other serious diseases, such as *highly pathogenic avian influenza* (HPAI) and *classical swine fever* (CSF) (hog cholera), which spread between countries and regions with devastating socio-economic effects.