

Project Title Code: 1.13	Improving the Quality of Diagnosis of Animal Disease in Vietnam
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Australian Institution	University of Queensland
Vietnam Institution	NAVETCO and the National Institute for Veterinary Research (NIVR)
Project Duration	October 2000 - October 2002

Project Description

Our experience in Vietnam proves that the diagnostic skills of field veterinarians are poor. These skills in some diagnostic laboratories are good; others suffer from inadequate facilities. The objectives are to improve the diagnostic skills of field veterinarians serving regional laboratories by means of a series of interactive workshops using the regional laboratories. In this way, the diagnostic skills at all levels will be improved.

The major result will be better diagnosis of animal disease, especially infectious disease. The major output will be more effective treatment and/or control of such disease, with consequent decrease in the cost of production and an increase in overall production. The enhanced quality of diagnosis will allow better decision-making at all levels, from the Ministry to the villager, regarding disease control.

Inputs will involve key Vietnamese laboratories, especially NAVETCO, in setting up the workshops which will involve Vietnamese scientists, together with veterinary pathologists and microbiologists from Australia.

The structured training is based on a module that once established can be repeated at minimum cost.

Objectives: The major development objective is to improve the diagnostic skills of field veterinarians and those in provincial laboratories in Vietnam. The second objective would be to improve the capacity and skills of the major laboratories to ensure they are able to continue such training.

Outputs and Performance indicators

- ◆ The improved skills of field veterinarians at the workshops will be assessed by questionnaire
- ◆ A survey questionnaire at laboratories and at Provincial Veterinary Centres a) at the time of the workshop, and b) at six monthly intervals thereafter until the end of the

¹ *Mission Report on Diagnostic Laboratory Services in Vietnam. (Strengthening of Veterinary Services in Vietnam. [ALA/96/20] Report prepared by Roger S. Windsor*

project. Such a survey will seek to define changes in the number and quality of reports and submissions to the laboratories.

- ◆ Ongoing interaction with colleagues involved in collecting diagnostic material for the proposed ACIAR project on enteric disease.
- ◆ A major survey of the laboratories not concerned in the project will be surveyed for comparison.

PROJECT COMPLETION REPORT

Executive Summary

This project is now complete, having met its objectives of delivering 7 training workshops in veterinary diagnostic techniques at the 6 regional Veterinary Centres in Vietnam.

The aims of this project were 1): to improve the capacity to diagnose animal diseases in Vietnam, and 2): to enhance the capacity of laboratory staff to continue training themselves and Provincial veterinarians by providing a resource of teaching material in electronic format.

Instructing veterinary staff at the main centres, and encouraging them to train other laboratory and field veterinary workers, was a strategy to maximise effect, and encourage a sustained process of teaching and learning throughout the State-run veterinary service. At the beginning of this project, the capacity to accurately diagnose disease was limited, and there was virtually no access to resources within the system to allow for self-development of skills by the laboratory personnel. Vietnam is in the process of transforming from a largely small-holder farm-base to more intensive husbandry, particularly of their traditional food animals, pigs, ducks and chickens. Timely and accurate disease diagnosis is essential to the operation of intensive animal production, and for small-holder farmers, improved diagnostic accuracy will increase agricultural capacity through more efficient and rational treatment of diseases and more accurately-targeted disease control programmes.

There was a delay of 6 months in beginning the programme, but it was completed within the two year period from commencement, culminating in a final 'advanced' workshop in Ho Chi Minh City, concentrating on diseases nominated by the Vietnam Ministry of Agriculture and Rural Development (MARD) as of high priority. The project was completed within budget, despite the fall in the Australian dollar and a real increase in costs in Vietnam. This was achieved by taking advantage of cheaper airfares, and minimising accommodation costs in Vietnam.

All project personnel carried out their duties well, and the co-operation and participation by the Vietnamese partner institute and the Veterinary Centres was exemplary.

The workshops consisted of formal presentations; practical sessions in which students undertook supervised post-mortem investigation of diseased animals, and tutorials where problem-solving was practised. Each workshop was evaluated with a questionnaire based on standard course evaluation models, and an informal discussion with trainees at the

completion of the workshop. Trainees rated the course content as highly relevant to their needs, and the methods of instruction to be very conducive to learning.

To sustain the programme after the Australian input ceases, the audiovisual equipment purchased for the project remains with the partner institution, to be used and loaned out for further training programmes, devised and presented by 'graduates' of the CARD workshops. Each of the centres participating in the programme has received Compact Discs containing all the relevant programme presentations, case-studies, a large number of illustrations of diseases and disease processes, and selected laboratory procedures. Where appropriate, the material has been translated into Vietnamese.

1. Project Description

1.1 Background and preparation

The motivation for this project grew from extensive experience with veterinary services in Vietnam dating from early contacts in 1994, and supplemented during two *Australian Centre for International Agricultural Research* (ACIAR) funded projects involving two separate institutes in Ho Chi Minh City and Hanoi, respectively, in which 3 members of the current project (Wilkie, Frost, O'Boyle) took part. The project leader (Wilkie) had also spent two months in North Central Vietnam during 1998 conducting disease surveys of village livestock for a project of the United Nations Drug Control Programme (UNDCP) to improve the socioeconomic status of ethnic minority people in Nghe An Province. Thus from 1994 to 1999, we had regular contact with veterinary colleagues in Vietnam, and visited several of the Regional and Provincial veterinary centres which provide diagnostic services to field veterinarians and farmers. During the course of fieldwork in numerous localities throughout the country, we have worked with veterinarians, paraveterinary workers and farmers, and observed animal husbandry techniques at first hand. There is ready access to veterinary medicines, and a range of vaccines available to farmers, but the quality of veterinary diagnosis and advice is often inadequate, so that there is widespread misuse of pharmaceuticals. Not only is this a significant cost impost on small farmers, but there are human-health risks arising from indiscriminate use of antibiotics. We found there was a distinct lack of specialist training in diagnostic techniques at all laboratories. All centres, both regional and Provincial, have a high level of staffing by graduate veterinarians, and the official policy is to promote in-service training. However, few veterinarians have any specialist training in diagnostic pathology, making it very difficult to provide effective programmes. There is also a severe lack of training resources such as illustrative materials and virtually no access to current literature. The younger graduates in particular, have a reasonable theoretical knowledge, but lack the 'hands-on' training and experience which is necessary to good diagnostic practice.

We perceived this lack of diagnostic ability to be a crucial constraint to further development of animal industries in Vietnam. Strategic policies are impossible to frame without an accurate knowledge of current disease status of livestock. As intensification of animal production gathers pace, disease control will become an increasingly important factor, and in fact is already a problem for intensified pig production. A report on veterinary diagnostic services prepared for a European Community project¹ which was not available until after our project began, identified the same problems in the veterinary

centres, and one of its major recommendations was to promote in-service training of basic diagnostic skills.

The stakeholders in this project were 1: (Vietnam) Ministry for Agriculture and Rural development (MARD) which provided the physical facilities and paid travel and accommodation costs for the participants from Provincial Centres. 2 (Vietnam) NAVETCO and the National Institute for Veterinary Research (NIVR) which also provided training venues, interpreters and transport and 3: (Australia)The University of Queensland, which provided the instructors and allowed use of material prepared for undergraduate and graduate education at the University of Queensland Veterinary School. NAVETCO was nominated as the principal co-operating centre in the application, partly because we have had the most professional contact with that institute, but mainly because they have the staff and infrastructure necessary to support the project. Although nominally a vaccine and pharmaceuticals production facility, it has a large research and development section, is an adjunct teaching facility affiliated with the Veterinary faculty of the Ho Chi Minh City #1 Agriculture University, has staff with excellent English language skills, and has a strong communication network with the veterinary services throughout the country. NIVR (Hanoi) where one of the workshops was conducted, is also an adjunct campus for the Hanoi #1 Agriculture University. It should be mentioned that many individual members of the various centres and institutes also took a very enthusiastic role, and provided help beyond what was expected. Their incentives to improve their diagnostic skills are, a) professional pride (a very significant and important factor in a country which has a long culture of valuing learning and knowledge) and b) the possibility that some at least of the services may soon be charged for, to support laboratory activities instead of being totally funded by MARD (recommended in the Windsor report¹). Vietnamese farmers are no different from farmers anywhere in having a very pragmatic attitude to paying for services only if they deem them useful. Wrong or poor advice will not attract repeat custom.

The beneficiaries of accurate diagnosis and advice are the farmers themselves, from both timely and accurate diagnosis, and also longer-term, in the framing of better strategic policies for disease control and prevention. Both are likely to have significant cost benefits in the short and long-term.

This project was conceived as a pilot programme to initiate training in diagnostic pathology in the six Regional Centres. However, we expect that the problem-solving approach to learning plus the teaching aids and materials provided will facilitate continued learning by course participants, as well as the ability to instruct staff in the provincial and district centres.

1.2 Context and rationale

The six Regional Veterinary Centres in Vietnam provide a range of services to the next tier of veterinary services (Provincial Centres) as well as direct services to farmers. There are 61 provinces in the country, giving an average of 10 provinces per Centre, but there is wide variation in the number of provinces (and populations) administered by individual centres. The Regional Centres are responsible for execution of central government policies and initiatives, regulation of livestock movements, training of veterinarians and para-veterinary workers, vaccination campaigns, and animal breeding

and nutrition issues, as well as animal health. Statistics and advice from the Centres to central government help set agendas and priorities for livestock management policies. They are funded by the Ministry of Agriculture and Rural Development, though some have a certain amount of independent discretionary income derived from selling veterinary medicines and additives. Services to farmers are not charged for at present. Equipment levels are variable - ranging from very basic to adequate for primary bacteriology, but only one laboratory (Hanoi) has the equipment necessary for histopathology – one of the fundamentals for accurate diagnosis. The Centres are responsible for collecting and collating information on the prevalence and occurrence of veterinary diseases in their regions, but are clearly hampered in their efforts at accomplishing the task by lack of fundamental knowledge of basic necropsy technique and bacteriology procedures.

1.3 Project objectives and scope at design

The objective of the project was initiation of a basic training programme in gross and bacteriologic diagnosis at each of the Regional Veterinary Centres. It meets the criteria of the CARD programme for capacity-building by initiating training in an area where there is an existing deficiency, and which has the capacity to be self-sustaining and beneficial to Vietnam in both the short and the long term. The immediate target audience for the workshops was the staff at the centres, plus veterinarians from the Provincial centres. Staff of the Regional Centres were considered to be the most important elements of the strategy, because they have a good core of young and enthusiastic veterinarians, many of whom have fairly good English language skills, making transfer of skills quicker and easier. In general, the facilities, though under-utilised at present, are of an adequate standard to undertake primary diagnostic procedures. Participants in these early workshops were seen as the nucleus of trainers to maintain training programmes within their regions, and ideally, receive further, more advanced training, or at least be capable of more efficient self-learning in the future. For the training workshops, we elected to concentrate on interpretation of gross pathology and primary bacteriology. These are low-cost, skill-based techniques which underpin all further diagnostic tests. They require minimal equipment and consumables, but can provide very accurate and useful information on epidemic diseases and herd/flock health status. We feel the project fits well with the CARD objective in that it is designed for self-maintenance, once the Australian component is removed. This aspect was addressed by the nature of the teaching programmes, and by provision of audiovisual equipment plus a library of teaching material in compact disc format.

The aims of this project fits with AusAID country strategy of poverty alleviation for rural peoples because small farmers in Vietnam are still heavily dependant on cattle and buffalo as draught animals, in addition to their traditional meat sources (chickens, ducks and pigs). Accurate diagnosis of livestock diseases is vital for timely and cost-effective prevention and treatment programmes. The Vietnamese Ministry of Agriculture and Rural development have repeatedly nominated animal health as one of their priority areas.

1.4 Implementation arrangements

The project consisted of a series of training workshops, coordinated by the project leader (University of Qld.) with in-country arrangements (setting dates and venues, liaising with MARD staff) made by the co-operating institute in Vietnam (NAVETCO). The UQ staff planned and developed the curriculum, advised by NAVETCO staff. Suggestions from Veterinary Centre staff and trainees were incorporated in subsequent workshops. NAVETCO staff organised the material for “wet” labs, procured animals and abattoir soecimens, prepared culture media, co-ordinated nomination of participants with MARD and the Regional Centres, and ensured that venues were suitably equipped. NAVETCO also supplied competent translators, and technical help during preparation and delivery of each workshop.

2. Appropriateness of Project Design and Objectives

2.1 Appropriateness of Objectives

Objective No (1, 2, 3, etc)	Objective description	Appropriateness Rating
1	Develop curriculum	5
2	Prepare lectures/tutorials/practicals	5
3	Arrange for case-material to be available at time of workshop	4
4	Deliver workshops	4
5	Post-workshop assessment and adjustment of curriculum/presentations for future workshops	4

2.2 Appropriateness of Design

Description of design feature	Appropriateness Rating
Workshop structure based on a combination of didactic method and participatory problem-solving exercises. Each trainee completed set tasks based on knowledge acquired during workshop.	5
Workshops held at centres using local case material as much as possible	4
Formal instruction used well-prepared visual material combined with printed notes	4
Teaching a sequential, problem-solving approach to diagnosis	5
Small group tutorials and case-studies	5
Emphasis on ‘hands-on’ participation by all participants	5

5- Best Practice; 4- Fully Satisfactory; 3- Satisfactory overall; 2- Marginally Satisfactory; 1- Weak

3. Implementation Performance

3.1 Project Components and Outputs

In Australia:

- 1) Purchase and commissioning of portable audiovisual equipment, and some consumables.
- 2) Development of a curriculum which would cover basic principles using local diseases and conditions as examples (these were added to during the life of the project). Translation of a set of working notes into Vietnamese.

In Vietnam:

- 3) Delivery of workshops, which consisted of approximately one week's preparation of laboratories and case material, followed by a one- week instruction/practical session.
- 4) Assessment of workshop. This consisted of an anonymous formal questionnaire based on a typical teaching evaluation model, which was given out on the penultimate evening of the course, plus an informal discussion with participants at the conclusion of formal classes. There was also a good deal of informal interaction with participants, particularly those with better English, as the week progressed.
- 5) Post-workshop evaluation by Australian and Vietnamese instructors (based on the questionnaire responses, suggestions from trainees) and refinements for subsequent workshops.

Component No.	Component Description	Outputs	Performance Indicators	Performance Rating
1	Equipment selection and purchase			4
2	Curriculum development	“Powerpoint” presentations, laboratory exercises designed	Critical assessment by Vietnamese colleagues	4
3	Workshop delivery	Workshop completion	Questionnaire, informal feedback	4
4	Assessment	Completed questionnaires	Class acceptance of content and teaching methods	5
5	Refinement	Modifications to material	Consensus on modifications	4

5: Exceeding time and quality targets, 4: Achieving time and quality targets and on budget; 3: Moderate progress towards targets, some issues about quality, budgets or

costs but these are being adequately addressed; 2: Some progress towards targets, but slippage in schedule and cost overruns; & 1: Significant problems in achieving targets, quality outputs unlikely to be achieved and substantial cost increases affecting overall budget.

Approved changes during implementation were:

- 1) Decision to minimise paper-based material and use a portable data-projector and laptop computer combination for formal instruction and case-study presentations. Coupled with a high-quality digital camera, this allowed us to easily and quickly incorporate new material during the workshop and refine presentations between workshops. Using local examples of the principles being explained gave relevance and immediacy which has a very positive effect on attention and retention.
- 2) An increase in the allocation for the Vietnamese institute, to cover the cost of consumables, animals (purchase, housing, feeding) collection of specimens from farms and local abattoirs, plus transport of project personnel and equipment when necessary. The budgetary allocation for this area was quite small and proved to be inadequate due to a combination of under-budgeting in the first place, exacerbated by fall in the Australian dollar. Under-budgeting was caused in part by underestimation of consumables and animal numbers required (demand for places was high, and class numbers were regularly 5% more than specified) and also by higher than expected animal costs. The larger class sizes did not seriously impact on the quality of the experience for the participants, but did put extra strain on the Vietnamese staff acting as interpreters.

3.2 Project Outcomes

Project effectiveness may be assessed by a number of criteria. Long-term effectiveness will be manifested as a general improvement in the quality of services provided by the Veterinary Centres to their client base. This can only be established by a future review such as the E.C. report cited previously.

Short-term effectiveness appears to be high, based on factors such as participant feedback, and followup contact by participants seeking further material and assistance with developing their own training programmes. We have received numerous requests to hold workshops at other centres.

Many participants wrote in the comments section of the post-workshop surveys that they found the training highly relevant to their own work, and were keen to receive more training as soon as possible. One of our key objectives was to motivate the professional staff; to show how application of sound methodology could produce useful results, and to stress that their professional duties are not simply application of pre-acquired knowledge, but opportunities for further learning. Judging by the enthusiastic responses from participants, we were successful in achieving these goals in the short-term. Future performance will depend on how much followup occurs. There are strong indications that at least some Centre staff are prepared to take up the challenge, and they would be greatly helped by some further guidance. The workshops are very limited in scope and time, and cannot cover more than a small part of the knowledge-base required of a

competent diagnostician. We suggest that a very cost-effective approach would be to have a small number of selected staff sent to veterinary schools in Australia or other countries with well-developed veterinary facilities for training in Certificate or Master's programmes. As the Windsor Report (previously cited) also notes, there is an abundance of graduate staff at the centres, most of whom have a very positive attitude to professional development, who would form an ideal nucleus of future trainers.

3.3 Sectoral Impact

While not directly aimed at minority communities or specific disadvantaged groups, the project should bring benefits to these sectors. The vast majority of Vietnam's animals are owned by smallholder farmers, and they can least afford inaccurate diagnosis and poor veterinary advice. For example, in one minority community (UNDCP) project, certain vaccination programmes were suggested by local and Provincial veterinarians. These were not based on adequate objective information and were unlikely to result in any productivity improvements. Meanwhile, village pigs were dying of a serious, but preventable disease. More accurate and reliable information would lead to better planning and delivery of veterinary services to all sectors.

Gender issues are probably not relevant to this particular project. However, it is worth remarking that there was a very high proportion of women veterinarians in all groups – at least 25% overall. We encountered several women veterinarians in senior positions.

3.4 Costs and Financing

The project has been completed under budget. Although costs for some items were greater than expected, these were more than offset by savings in some other areas.

As partly addressed in section 3.1 item 2), there were underestimates of costs for the Vietnamese institutions, due to recent increases in livestock prices, plus larger than anticipated participant numbers. This was aggravated by the sharp fall in the Australian dollar during the early phase of implementation. Although the increased allocation required was a large increase in that particular item, the actual dollar amount was still quite small.

We made very significant savings in the travel and subsistence items of the budget. This was achieved by choosing favourable travel times and taking advantage of off-peak fares, but the main savings were made in subsistence costs. A combination of country experience (having locals organise accommodation), and increased competition between hotels, especially in the major cities kept costs at less than the 'going rate' of a few years ago.

3.5 Monitoring of project

The nature of the project precludes any long-term monitoring arrangements. We used a standard form of assessment of teaching methodology and course content, but chose not to use any form of formal student assessment (examinations), as these tend to be counter-productive in short, intensive programmes. Our teaching philosophy emphasised methodology over fact-acquisition, since our audience already has a reasonable level of factual knowledge, which can be enhanced by self-instruction.

What we would hope to see in the near future, is a home-grown, in-service training programme in the Veterinary Centres. During the course of the workshops, we repeatedly stressed that participants were expected to be future trainers. As previously mentioned, there are signs that at least some of the ‘graduates’ of the workshops are taking up the challenge and organising or participating in ongoing training.

3.6 Technical Assistance, Training and Capacity Building

This project has the potential to contribute very significantly to future agricultural capacity in Vietnam. Sound management of animal industries can only come from a sound knowledge of the constraints, which in most cases comes down to a combination of nutrition and disease. Diseases are frequently caused by, or conditioned by, nutritional deficiencies as well as infectious agents, so that accurate and reliable diagnostic services are a key element in successful animal husbandry. This is especially so when intensive farming practices are employed, and Vietnam is moving into intensification of poultry and pig production at a rapid rate. MARD officials have recognised that animal diseases are a high priority area, so that this project has been a very timely exercise in capacity-building.

Throughout the life of the project, all members have performed extremely well. The 4 Australian members are all experienced teachers at undergraduate and graduate level, 3 of the 4 had extensive prior experience in Vietnam, and all have well-developed cultural awareness which allowed comfortable classroom interactions. The Vietnamese partner institute (NAVETCO) was particularly helpful and efficient in carrying out their part of the project. In particular, the Director, Dr Nguyen Tien Trung, was unfailingly helpful and enthusiastic, and always provided help in the form of staff time and transport, often at short notice. Most of the Australian team have had a long association with NAVETCO during the course of several ACIAR-funded projects, and have built strong professional ties as well as personal friendships, with colleagues at NAVETCO. I would like to commend the role of Dr. Tran Xuan Hanh, Director of Bacteriology, for his energetic help in organising the practical material for the workshops, and an impressive effort in simultaneous translation. Dr Hanh was our principal collaborator for this project. His participation enhanced the whole experience through skilful translation, and a personality which contributed greatly to the comfort and rapport between students and instructors. Since the entire project consisted of training programmes, analysis of these is addressed in the relevant sections of this report.

3.7 Management of Constraints, Issues, Risks and Change

Surprisingly few difficulties were encountered during the project. At some of the smaller centres, the post-mortem room facilities were not entirely satisfactory due to siting, and difficulty of cleaning/disinfecting, but all directors went out of their way to provide as good facilities as their buildings and means would allow.

A potential constraint that was recognised during planning of the workshops, was the acquisition of suitable teaching material at the time of the workshop. The nature of diagnostic work is that it is unpredictable in terms of what will appear on any given day, and there are no refrigeration facilities suitable for maintaining bulky material. This is why a decision was taken to use some laboratory-created diseases as core teaching

material. In the event, there was usually a supply of genuine case-material, which is always valuable, as it has such obvious relevance for participants.

It would be naïve to suggest that every member of every Veterinary Centre was comfortable with a group of foreign ‘experts’ advocating changes to established routines. We agreed in advance to make every effort to respect institutional customs and individuals; being acutely aware that our hosts would not react directly to culturally insensitive behaviour, but would find it offensive nevertheless. That we were successful in this respect may be judged by the fact that all of the Centres have requested further workshops, as soon as possible.

Two problems which I experienced as project leader were, slow response to requests for project changes, and difficulties with financial management from UQ financial services. The latter problem is not related to ITC or AusAID, but needs to be addressed in future projects as it is happening with at least one other CARD project, to my knowledge. I refer to the difficulty getting timely (and accurate!) acquittals. There were unaccountably long delays between commitment of funds and data entry, which made it appear that a large proportion of the first allocation of funds was unspent. As a result, there was a delay in payment of our second tranche, which in turn has delayed transfer of funds to Vietnam. I am grateful for the patience and help of ITC staff in this regard.

Finally, there have been two most unfortunate incidents with project equipment. Our LCD projector was stolen from a locked room at NAVETCO in January, and in September 2002, the Project laptop was stolen from my office at UQ. In neither case have local police been able to recover the items. University insurance covered some of the loss, but there is a high excess fee on such items. This is the first time we have experienced theft of any project equipment, and is a warning to be more diligent in future!

3.8 Project Management

The performance of all team members from U.Q. was totally satisfactory with timely preparation of material and availability for workshops at requested times. Their performance during the workshops was exemplary – often working late into the night to prepare material for the next day. Each member contributed to his or her capacity, with excellent harmony. Altogether, a good team effort (5).

The Vietnamese partner (NAVETCO) also performed extremely well, providing more than stipulated in the contract in terms of staff allocated to help, and providing facilities and equipment. The input of certain individuals was outstanding. Because of problems with financial administration from UQ, NAVETCO twice carried the in-country costs for long periods before transfer of their allocation was achieved. (5)

5: Best Practice; 4: Fully Satisfactory; 3: Satisfactory Overall; 2: Marginally Satisfactory; 1: Weak.

4. Performance and Outcomes

4.1 Assessment of Performance Against Objectives and Design

The project has been carried out successfully in that all workshops were delivered within the specified time (allowing for the 6 month delay in starting). At all workshops, the participation by trainees was enthusiastic, with better than expected level of completion

of set tasks, and high involvement in discussion and problem-solving exercises. Our immediate post-workshop assessments indicated the material presented was found to be relevant and clearly presented.

Ultimate outcomes will take several years to be fully realised and will depend on trainees taking on the challenge of maintaining the process. Factors which will slow the process include lack of resources at the Veterinary Centres for everyday consumables, lack of sufficient interest at middle-management level, and shortage of texts and audiovisual aids.

Factors which will accelerate positive outcomes are junior staff enthusiasm, encouragement by Centre managers as well as acceptance by senior personnel that training should have a high priority as part of disease prevention and control strategies, and more help from outside expertise in the form of more in-country training (preferably for longer periods, up to 4-6 weeks, for example).

4.2 Sustainability

There are no inherent reasons why this project should not have high sustainability. It is not a costly process to sustain, and the return on investment is very high. Conversely, the potential costs of not improving diagnostic capabilities are very great indeed. Once certain conditions are met, such as a core of competent professionals, a modicum of equipment, and some textbooks, inputs become largely in-kind costs. If one thing is certain, it is that there is an abundance of staff at all of the Veterinary centres, and there seems to be a very definite enthusiasm to acquire knowledge. This series of workshops was the first of its type to be given throughout the country and is really only a beginning. Our colleagues in Vietnam will need more help in curriculum development and training in more advanced techniques for some time yet, if the full benefits of this programme are to be realised.

To some extent, some of the responsibility for training should rest with the Agricultural Universities, which are desperately short of funding and staff. However, specialist training is necessarily a post-graduate exercise, so that the responsibility for training in diagnostic pathology is always going to be largely that of the diagnostic services.

With some further input of funds and expertise from donor countries, I would rate the sustainability as likely to be fully satisfactory (4) but with no further input, it will more likely be marginal (2).

5: Best Practice; 4: Fully Satisfactory; 3: Satisfactory Overall; 2: Marginally Satisfactory; 1: Weak.

4.3 Development Impact

Should the principles taught during the workshops be applied thoroughly, the likely impact on more accurate diagnosis of animal disease will be quite high. We would expect at least, a marked improvement in accuracy and consistency of diagnoses and a consequent improvement in the rationality of treatments prescribed. If the principles and practices taught in the workshops are fully applied, the potential developmental impact is very high. Not only will animal production increase, but there should be a significant reduction in the indiscriminate use of medications, with a potential direct human-health

benefit as well. Current losses due to preventable diseases are not fully known, and there are conflicting estimates available from various sources. However, all are sufficiently high that any reduction will make a significant difference to productivity.

5. Conclusions

5.1. Overall assessment

Project Achievements

All objectives were achieved as expected. This was due to a combination of good cooperation and effort by all team members (Australian and Vietnamese), and setting of realistic, achievable goals. All of the team members are highly experienced teachers, as well as being experienced specialists in their respective diagnostic areas. In devising the programme, and setting objectives, we were able to draw on a large amount of in-country experience, and a very good professional relationship with highly motivated Vietnamese colleagues forged over 6 years of regular contacts. The input by our Vietnamese colleagues was, of course, crucial to successful design and delivery. A very important ingredient was also the quality and enthusiasm of the “students”.

Appropriateness of design

This project was designed to address a need perceived by the Vietnamese institutions themselves. The actual course content was suggested by Vietnamese colleagues, and the instructional methodologies employed were decided by the instructors based on many years of teaching experience and adjusted to better suit cultural norms. The instructional model used was a combination of didactic teaching, supplemented with a more interactive tutorial style as participants gained confidence. As much as possible, we tried to adjust the training to suit the particular localities and participants. For example, some groups had better comprehension of spoken English. The easier communication allowed a little more material to be covered, but in all cases, the basic course was adequately covered. The enthusiasm and diligence with which participants joined in the practical sessions was particularly gratifying, as the central objective of each course was to build competence and confidence in the methodical application of techniques. The course evaluations taken after each workshop indicate that the students found the level of material covered was appropriate, and relevant. We feel this was an important achievement, which vindicated the workshop design.

Issues for consideration in any future/ongoing related projects

A continuing problem, which is not unique to this situation, is that Ministries and Institutes are reluctant to disclose what other aid projects are underway or projected, even though these may be replications. A related issue is the tendency for some donors to make gifts of expensive machines, but not follow through with training, or make arrangements for the continued supply of expensive consumables. Training is not the most expensive form of aid, yet it yields high dividends in technical advancement and goodwill if it is well-targeted and delivered. To capitalise on the considerable progress made by this project, a more comprehensive programme combining training with provision of some essential equipment would greatly enhance the effectiveness, and quality of Vietnam’s diagnostic capacity. For example, there is only one centre (Hanoi) which has any equipment for producing sections for histopathology at present, and the

veterinarians there are struggling to teach themselves histopathology. This is a fundamental diagnostic tool, necessary to make and confirm diagnoses but the skills required for interpretation of tissue sections are much easier to acquire if there are experienced teachers able to sit with a few students at multi-head microscopes.

There is an urgent need for further training in diagnostics in the Vietnam veterinary services. Some of this must come from within the country, particularly recognition of the need by senior managers, and encouragement to initiate local programmes to improve skills at all levels of the veterinary services. But with the paucity of skilled personnel, there will be a continued reliance on help with training in what are considered routine methods in our diagnostic services. In particular, histopathology and immunodiagnostics need addressing.

Taking the last round of training to the next level would require a very modest outlay for some basic equipment, plus intensive coaching of a small nucleus of potential teachers. The benefits of having competent diagnostic services will have a very big impact on the viability and productivity of livestock industries for both smallholder farmers and the more intensive systems which are developing. We suggest that this type of assistance is truly capacity-building.

5.2. Lessons Learned

After 7 years of association with multiple projects in Vietnam, this project has not brought any surprises, but lessons learnt along the way have been reinforced.

On the technical side, the Veterinary centres have most of the necessary basic equipment to enable a good basic level of diagnostic services, and a high level of staffing by enthusiastic young veterinary graduates, but generally lack realistic budgets for necessary consumables. This is an aspect that needs to be addressed internally, and there have been some suggestions as to how this might be achieved in an EU-commissioned analysis of diagnostic services (cited in previous reports).

In general, this CARD project has been very successful. It has certainly achieved its objectives well within budget. Training in specialty fields is a strategically important issue at this stage of Vietnam's development, and has the potential for a very high rate of return for modest expenditure. The key issue will be how self-sustaining the program will be without external input. Early signs are that there is continuance, and the more help that can be given in this area, the more the momentum will increase.

Practical lessons

We found it advantageous to have our Vietnamese colleagues book accommodation, as it resulted in substantial discounts. The recent changes in world travel preferences has seen a substantial increase in tourism to Vietnam, with consequent increase in prices. On two trips we rented private houses close to the relevant institutes at a considerable cost saving over hotels. This has only become possible in the last couple of years because the political and social situation now allows foreigners to move about much more freely.