AGRICULTURAL SCIENCE AND TECHNOLOGY PROJECT

International lesson-learnt specialist

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Prepared by:
Dr Duong Van Xanh

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ABBREVIATIONS AND ACRONYMS

AARD	Agriculture Agency for Research and Development, Indonesia
ADB	Asian Development Bank
ADPs	Agricultural Development Programmes, Nigeria
AEC	Agricultural Extension Contract
AEIC	Agriculture Extension and Information Centre, Indonesia
AIAT	Assessment Institute for Agricultural Technology, Indonesia
APMB	Agricultural Projects Management Board
AST	Agricultural Science and Technology
BAE	Bureau of Agricultural Extension, Indonesia
CPMU	Central Project Management Unit
DMF	Design and Monitoring Framework
DOAE	Department of Agricultural Extension, Thailand
DOF	Department of Finance
DOP	Department of Organization and Personnel
DOSTE	Department of Science, Technology and Environment
EA	Executive Agency
EIRR	Economic Internal Rate of Return
ENPV	Economic Net Present Value
GDP	Gross Domestic Products
ICT	Information and Communications Technology
INIFAP	National Institute of Forestry, Agricultural, and Livestock Research, Mexico
IPMU	Institution Project Management Unit
MARD	Ministry of Agriculture and Rural Development
MPI	Ministry of Planning and Investment
NAERLS	National Agricultural Extension and Research Liaison Service, Nigeria
NCAE	National Center of Agricultural Extension
NPV	Net Present Value
PCR	Project Completion Report
PPMU	Provincial Project Management Unit
RDA	Rural Development Administration, Korea
SEDAGRO	State Secretariat of the Agriculture Development, Department of Agriculture, Mexico
TOR	Terms of Reference
VAAS	Vietnam Academy of Agricultural Sciences

EXECUTIVE SUMMARY

The Agricultural Science and Technology (AST) Project is part of the ADB's Country Strategy and Program for Vietnam. The Project Agreement signed on 14 March 2007 and effective since 13 June 2007. The overall objective of the AST Project is to achieve sustainable and equitable agricultural growth and ultimately contribute to reduction in rural poverty. The AST Project comprises 4 Components: Component 1: Client-oriented agricultural research programs and capacity strengthening; Component 2: Grassroots agricultural extension improvement; Component 3: Rural-based technical and vocational training; and Component 4: Project management. The project has been implemented in 5 provinces (Thanh Hoa, Nghe An, Quang Nam, Ninh Thuan. Dak Nong), in 13 research institutes and in 10 vocational and technical schools of MARD. The total cost of the AST Project is USD 40 million equivalent, including contingencies and taxes/fees, in which the ADB fund is USD 30 million (including USD 1.9 million of banking fee) and the counterpart fund is USD 10 million. MARD is the executive agency (EA) of the AST Project. CPMU is established under the administration of APMB, which belongs to MARD. There are 5 PMUs established in 5 participating provinces, 20 PMUs establised in 10 institutes and in 10 schools of MARD. A Project Steering Committee is established and headed by a Deputy Minister of MARD. Highly impressed by a lot of successes and possitive results during 6 years of implementation of the AST Project, ADB has requested documentation of lessons learned from the AST Project to support the implementation of Decree No.115 and Decree No.02 nationwide, at the same time, to share these lessons with relevant stakeholders and international development communities. Under the agreement of ADB and APMB, the CPMU of the AST Project has concluded a contract with 1 international consultant and 2 national consultants to do this assignment. To get the job done, the international consultant has employed both qualitative and quantitative approaches in the research, in which, the qualitative approach is applied to the survey conducted in 5 provinces, 10 research institutes and 10 schools as well as relevant agencies in Vietnam with the use of short questionnaires, whereas the quantitative approach is applied to the meetings and direct interviews with participating units, at the same time discussed with consultants of GHD/VICA and synthesized research results done by 2 national consultants on lessons learned on research and extension. Accordingly, in combination with international experience on research and extension of some countries, the international consultant has also analysed strenges and weaknesses of the AST Project to draw out its lessons learned to help relevant stakeholders of Vietnam and international communities to be able to apply these leasons in their project implementation as well as in making policies related to strengthening agricultural science and technology and extension in the coming time.

RESULTS

Component 1: Client-Oriented Agricultural Research and Capacity Strengthening

Sub Component 1: Client-Oriented Research Programs: As of 30 April 2013, all 125 research projects (100%) and 70 extended models of research result of research projects have been completed. A total of 6,538 households have participated in the research projects, 52% of which were female-headed households and 38% were ethnic minority households. A total of 6,557 households participated in the replication model, with 45% of ethnic minority households. A total of 20,281 participants were trained on new technologies which were outputs of research models, 53.9% were women and 40.9% were ethnic minorities. The research projects also recommended new 245 production practices and implemented 291 demonstration models. The research outputs include recommendation of a total of new 197 varieties of crop and livestock suitable for particular regions and productivity improvement of the new production practices increased from 10-25% compared to control (current technologies and methods). Households with the adoption of research results have increased their incomes by a range of 14-25% compared to the time before their participation in the research projects

Sub Component 2: Training of Research Staff: 55 candidates have been supported to attend post graduate programs overseas. Of the 55 candidates, 32 Masters Degree candidates, 3 Doctoral Degree candidate and 4 Post-Doctoral candidates have completed their programs and have returned to their respective institutes to apply the new knowledge gained in their studies. The Project has organized 2 study visits to Korea and Malaysia and 3 short-term training courses, in which 2 training courses were in Taiwan and 1 in Nebraska University, USA. In term of local training for researchers organized by CPMU in association with VASS, a total of 54 training courses have been completed with 1,673 participants, of which 47.1% were women.
Sub Component 3: Upgrading of Research and Laboratory Equipment: The Project has provided and upgraded essential research and laboratory equipment of selected MARD agricultural research institutes to fill critical gaps in research due to outdated equipment.

Component 2. Grassroots Agricultural Extension Improvement
Activities are being implemented in 5 provinces of Dak Nong, Nghe An, Ninh Thuan, Quang Nam, and Thanh Hoa. NAEC is responsible for overseeing activities under this component.

Sub Component 1: Pro-poor Provincial Agricultural Extension Services: A total of 45 extension staff from 5 provinces participated in the Training of Trainer (ToT) program. A total of 1,162 training courses were conducted for 28,615 extension staff, including extension service providers. Of the 1,559 extension staff trained at the provincial and district level, 35% were female and 27% were ethnic minorities. A total of 123 training courses have been organized for service providers since 2008 with 2,963 participants of which 34.6% were female. Regarding training provided to extension staff at sub-district levels (commune and village/hamlet), 948 courses were organized for 23,559 sub-district extension workers with 28% female participants. During project period, the Project conducted 22 training courses for 593 provincial extension staff in 5 provinces, in which women participants were 34%. The service provider organized 1365 technical training on extension models for 37,449 farmers of which 61% were female and 30.3% were ethnic minorities. It is noted that training for female extension workers and female staff from service providers account for 35% and 36% respectively. Furthermore, networks of exchange for extension workers (national and international) have been established through in-country and overseas study visits. NAEC has developed a communication plan, using mass media in five provinces to disseminate information on subjects related to sustainable and equitable agriculture development.

Sub Component 2: Promotion of Agricultural Extension Contracts: The sub-component finances on-farm demonstration trials in the provinces through contractual arrangements with regional or national research institutes to strengthen the provincial links between research and extension. In total, the Project implemented 615 extension contracts for which 579 were demonstration models and 36 (5.8%) were research trials. There were 240 service providers who participated in the bidding process in the 5 provinces with164 service providers awarded contracted to implement 625 extension models

Component 3. Rural-Based Technical and Vocational Training.
As of 30 April, 2013, 30 training programs have been completed with 244 approved sets of training materials. Completed training materials have been put into use, meeting demands of schools. A total of 29 local training courses were organized with 760 participants on developing training curricula, credit transfer system, compiling training materials, e-library, management methodologies and science mission implementation, e-office application and general administration, and English training. In addition to local training courses, the Project organized 3 overseas study tours to China, Thailand and Malaysia.. The sub-component has a total of 71 bid packages for 10 schools. All 14 civil works contracts have been completed and fully turned over. 54 out of the 57 equipment packages have been used and the remaining three are under the transferring process. The Project has associated

with Da Nang Food Production College to establish an e-library system (servers are located in the College) to facilitate sharing of knowledge products and information among 10 participating schools.

Component 4: Project Management

The CPMU is the overall project management support, acting as the central contact and coordination point for the Project, and monitoring the progress of all components. There are 5 provincial project management units (PPMU) in 5 provinces and 20 institute project management units (IPMU) comprising 10 research institutes and 10 agricultural colleges & vocational schools implementing various project activities.

Disbursement

As of 30 April 2013, the Executive Agency estimated overall disbursement progres of the Project at about 98.7%, in which, Component 1: Client-oriented agricultural research and capacity strengthening completed 98.5%; Component 2: Grassroots agricultural extension improvement 100%; Component 3: Rural-based technical and vocational training 98.2%; and Component 4: project management 98%.

STRENGTHS

First, the Project has completed in accordance with original design, output indicators are clear and quantifiable, disbursement reaches a high level of 104% compared to the initial plan, contributing to increased GDP and export value, and to reduced poverty of Vietnam..

Second, the client-oriented agricultural research with the adoption of competitive bidding mechanism in the Project has 4 clear objectives and has been implemented in accordance with Decision No. 1874/QD-BNN-KHCN dated 20 June 2008 of MARD..

Third, the competitive biddding mechanism applied in the client-oriented agricultural research of the Project has been well introduced with strict regulations on registration objects, implementation principles, selection criteria with regard to research projects, and the bidding process process has been made public and transparent in accordance with Decree No.115/2005/ND-CP dated 5 September 2005 of the Government

Fouth, of all implemented research projects, there were more than 50% of models to be extended, these extended models have been piloted with the modality of not financing to cover costs of materials, fertilizers, seedlings and remuneration for farmers but only funding for scientists (200 million dong per model) to organize technical training and direct the implementation of farmers. These extended model are suitable to applied research, particularly experimental research in the field at district and sub-district levels in the remote and poor areas

Fifth, training programs abroad, study tours overseas combined with local training courses of the AST Project has helped improve capacity of staffs in the agricultural sector in general and units involved in the Project in particular

Sixth, the Project has assigned the Institutes/Schools to act as investors to make the procurement of equipment, construction of classrooms, laboratories and libraries. The close direction of CPMU and the improved capacity of staffs of PMUs on procurement training courses have helped to ensure the purchase of equipment and construction of the institutes/schools in accordance with the Bidding Law of Vietnam and ADB regulations

Seventh, Under the support of the project, the agricultural colleges and vocational training schools have opportunities to update and rebuild the curriculum by the new methods. The improved curriculum has been put into teaching to meet the needs of curriculum of the schools. The Project supported the establishment of an e-library system for colleges and vocational training schools, and servers are located in the Da Nang Food Production College

Eighth, The competitive bidding mechanism applied in extension contracts of the project is a new approach, reflecting advances in agricultural extension activities in Vietnam. The selection of extension models comes from the real needs of farmers and the organization of bidding and signing extension contracts under the Project is open and transperent, contributing to diversification and and improvement of the activeness and accountability of extension service providers. Moreover, the performance of competitive bidding with regard to extension contracts in 5 provinces of the Project helped the submission of comments to MARD and provinces to request the Government of Vietnam to issue Decree 02 / 2010/ND-CP on 8/1/2010.

Nineth, the Project is economically feasible, the common Economic Internal Rate of Return (EIRR) of the project and a number of activities such as research, promotion of signing extension contracts, support to the technical and vocational training schools of the project are high and relatively high.

Tenth, paying attention to gender issues, poor farmers, ethnic minorities, activities in the remote and poor areas are considered priority issues of the Project

Eleventh, the Project has well addressed the relationship between the Project and stakeholders, getting the active participation of units and farmers in the project area.

WEAKNESSES

First, the competitive bidding mechanism applied in the client-oriented agricultural research of the Project still faced some constraints, particularly in financial management.

Second, low level of english proficiency of staffs at the institutes and schools participating in the project caused difficulty in selecting candidates to attend long-term training courses abroad. At the same time, as the original design of the learning time of fellows was short (3 years), most Ph.D candidates had to ask for extension of time.

Third, many staffs of procurement specialist teams at the Institutes and Schools, despite being trained, did not have sufficient experience in bidding, so they faced many difficulties in the initial time.

Fourth, the bidding mechanism of AECs in the Project according to the Law on Procurement is not suitable to the specific characteristics of the agriculture sector, reflected in an extended bidding duration, small scale of bidding package, and inconsistent tax policies in districts of each province.

Fifth, in the initial design, funds are equally allocated to the five participating provinces; however, in initial years of project implementation, there were some delays of some provinces in provision of sufficient counterpart fund, leading to slow implementation of extension activities in these provinces, even transfering part of the fund from provinces with slow progress to other provinces for implementation

Sixth, EIRR of investment in upgrading research equipment and laboratories of institutes was low. This ratio should be recalculated after the institutes have put the equipment into effective use in 2014 or 2015. .

LESSONS LEARNT

Lesson No.1: Through implementation of the ADB-funded PPTA-4194 project, the AST Project has clearly been designed in accordance with the capacity of MARD, participating provinces, research institutes and agricultural colleges and vocational training schools. Components and Sub-Components and activities in each Sub-Component have detailed design and close connection with objectives and outputs of the Project.

Leeson No.2: The strong committment with ADB of the Government of Vietnam through the Executive Agency - MARD and the close and effecient directions of the Project Steering Commuttee directly headed by the Diputy Minister of MARD. The close cooperation between PMUs from central to local levels and agencies involved in the projects, scientists, farmers, especially poor farmers, ethnic minorities in the remote areas is the key factor leading to the sucess of the Project.

Lesson No.3: The detailed assigment of responsibilities to units participating in the Project, especially, departments of MARD in accordance with Decision No. 445 QD/BNN-DANN dated 1 February 2008 on decentralization of implementation of the ADB-funded AST Project has helped stakeholders to actively implement activities of the Project. The decentralization for the hosting agencies in accordance with Decision No.413/QD-BNN-KHCN dated 23/02/2010 on assignment of responsibility for approval, acceptance and settlement of research projects of the AST Project has contributed to increase accountability of the hosting organization, to promote activeness, capacity and resources of units, while reducing pressure on the management of the Department of Science, Technology and Environment (DOSTE), Department of Finance (DOF) and CPMU.

Lesson No.4: Implementation of decentralization policy for institutes and schools to act as investors in charge of equipment procurement and civil work construction at Institutes and schools; and decentralization to provinces of the project to act as investors to implement agricultural extension activities in the province. Although, in the ninitial time of project implementation, there were some problems arised, but this proves to be an entirely correct policy, contributing to speed up and improve the efficiency of implementation of project activities.

Lesson No.5: In the AST Project, the selection criteria for research projects are clear and the recruitment process goes fast and simple, do not cause difficulty to leaders of research projects, creating opportunities for researchers throughout the country, especially young researchers to participate. Among implemented reseach projects, about 50% of models have been extended, and model's results have helped to solve difficulties in production, helping farmers improve their capacity, increase the value of agricultural products and increase incomes, and at the some time helping many scientists in the agricultural sector to use the results to improve their knowledge and education.

Lesson No.6: the selection of candidates for post graduate study abroad of the AST project is done correctly in accordance with the criteria of the Ministry of Education and Training (MOET) and MARD. To avoid risks for candidates in the learning process, it is necessary to thoroughly prepare for the candidates of foreign languages, communication skills, life skills, document collection skills, presentation skills and their ability to integrate into cultural and living environment overseas.

Lesson No.7: further enhance the diversification of the agricultural extension service providers; ensure transparency and fairness in competitive bidding for Agricultural Extension Contracts (AECs); annouce bidding invitation on both Bidding Newspaper and local newspapers.

Lesson No.8: the selection of extension model must come from the grassroots level according to the needs of farmers, in line with the oriented developmen of the local economy and market demand, and match each type of peasant household; During the implementation of extension model, it is neccessary to have the active participation of local governments and to establish, build and train staffs on monitoring and evaluation at all levels

Lesson No.9: Build effective and close links between agricultural research and agricultural extension, and between research - extension and training, technology transfer and market.

Lesson No.10: The compliance with safety, environmental and social policies of GoV and ADB and the understanding, care and support to the poor, ethnic minorities and women are considered matters of priority of the Project.

Lesson No.11: ADB has helped accelerate project implementation, particularly disbursement progress. The relationship between ADB and Vietnam is the partnership based on trust and trust building in development cooperation.

Lesson No.12: in the first year of implementation, the cooperation between consultants and PMUs and stakeholders faced some difficulty. However, with the mobilization of international and local consultants and local experts in 5 provinces with appropriate professional qualifications and meeting the requirements of the Terms of Reference (TOR), these consultants have provided active technical supports to CPMU, PPMU, and IPMUs during project implementation and their efforts have been highly appreciated by stakeholders.

REPORT ON LESSONS LEARNT

AGRICULTURAL SCIENCE AND TECHNOLOGY PROJECT

LOAN NO. 2283-VIE (SF)

I. INTRODUCTION

1.1. Rationale and Justification

Following the Review Mission of the Asian Development Bank (ADB) worked with the Central Project Management Unit of the Agricultural Science and Technology Project (CPMU-AST) in April 2012, ADB has requested documentation of lessons learnt from the AST Project. Accordingly, under the agreement of ADB and APMU, CPMU-AST signed a contract with 1 international consultant and 2 national consultants to document lessons learnt from the AST Project to support the implementation of Decree No.115 and Decree No.02 nationwide, at the same time, to share these lessons with relevant stakeholders and international development communities. During 2 months from May to June 2013, the international consultants has collected documents and data related to the Project, worked with CPMU, a number of provinces, institutes and schools participating in the Project and Departments of MARD, synthesized the research results of 2 national consultants to develop the report on lessons learnt from the AST Project, Loan No.2283-VIE (SF).

1.2. Objective

(i) Conduct quantitative and qualitative studies to identify the strengths and weaknesses of the competitive mechanisms applied for research projects and extension contracts financed by AST; (ii) Conduct review of impacts of different interventions for vocational schools and colleges as well as research institutes under AST to extract lessons learnt for future interventions; (iii) Propose the lessons learnt for implementation decree 115 and Decree 02; and (iv) Document success stories in the project as knowledge products and as multi-media materials to promote pro-poor research and extension in Viet Nam; (v) Coordinate with local consultants for lessons learnt and local extension consulting about lessons learnt in writing report

1.3. Project overview

Project : The Agricultural Science and Technology (AST) Project is part of the ADB's Country Strategy and Program (2002-2004) for Vietnam. The Project has been approved by the Government of Vietnam and ADB within the framework of Project Preparation for Technical Assistance (PPTA 4194-VIE. The project has been implemented in: (i) thirteen (13) research institutes; (ii) in five (5) provinces in central region of Vietnam, including Thanh Hoa, Nghe An, Quang Nam, Dak Nong; and (iii) in ten (10) colleges and vocational and technical schools of MARD. (List of institutes and schools is presented in Appendix 1)

Objective: The overall objective of the AST Project is to achieve sustainable and equitable agricultural growth and ultimately contribute to reduction in rural poverty. The specific objective of the Project are to strengthen the national agriculture science and technology (AST) system in Viet Nam, thereby contributing to the sustainable and equitable growth of the agriculture sector and ultimately to reduce rural poverty: (i) capacity improvement for 13 agricultural research institutes in the field of national priorities and associated with regional development; (ii) capacity and grassroots extension improvement for 5 provinces in the central region; and (iii) capacity improvement for 10 agricultural colleges and technical and vocational training schools of MARD.

Project Components: the Project comprises of 4 Component: (a) Component 1: Client-Oriented Agricultural Research and Capacity Strengthening, including the following activities: (i) Client-Oriented Research Programs; (ii) Training of Research Staff, involving postgraduate and postdoctoral study programs abroad, short-term local training courses to improve capacity for researcher; (iii) Upgrading of Research and Laboratory Equipment for 13 research institutes; (b) Component 2. Grassroots Agricultural Extension Improvement, including: development of extension plans at all levels, (ii) organize Training of Trainers (ToT) courses and training programs for capacity building of provincial/district extension staffs, grassroots extension staffs and extension service providers; (iii) sign contracts to build extension models, (iv) capacity improvement (through procurement of equipment) for the extension units in 5 project provinces; (v) investigate indigenous knowledge; and (vi) organize extension information and communication programs in 5 provinces and nationwide; (c) Component 3. Rural-Based Technical and Vocational Training, including: (i) improvement of quality of compilation of textbooks and curricular for 10 schools; (ii) improving technical knowledge, teaching, and managerial skills of teachers and administrators; and (iii) upgrading library and laboratory equipment and materials, teaching and laboratory facilities, and office equipment for school administration; (d) Component 4: Project Management, including: (i) establishment of CPMU, PPMUs in 5 provinces, IMPUs in 10 institutes and 10 schools; (ii) recruitment of consultants; (iii) organization of implementation of project activities in CPMU, PPMUs and IPMUs; (iv) monitoring and evaluation of project activities; and (v) auditing and financial settlement; and (vi) preparation of quarterly and annual reports to submitted to ministries concerned and ADB

Project Cost: In accordance with the Loan Agreement, the total cost of the Project is USD 40 million equivalent, including contingencies and taxes/fees, in which the foreign exchange cost is USD 17.65 million (equivalent to 41.2% of total project cost), local currency cost (including tax) is USD 22.35 million (58.8% of total project cost). The ADB fund is USD 30 million (including USD 1.9 million of banking fee), accounting for 75% of total project cost, and the counterpart fund is USD 10 million, accounting for 25% of total project cost.

Implementation arrangement : MARD is the executive agency (EA) taking overall responsibility of the Project and approving project investment report. The CPMU is established under the administration of APMB of MARD in charge of organization of project activities and minitoring of implementation of activities and ensuring the effective collaboration between Departments of MARD in provision of techical guidelines and financial management of the Project. There are 5 PMUs established in 5 participating provinces in charge of overall management of project activities relating to the grassroot extension components in these provinces. MARD also estabilised 20 PMUs estabilised in 10 institutes (3 additional institutes do not have PMU) and in 10 schools. A Project Steering Committee is established and headed by a Deputy Minister of MARD. The composition of the Project Steering Committee includes representatives of relevant Departments of MARD, MOET, MOF, MPI, MOST, SBV. Provincial People's Commitees of 5 project provinces have also established Provincial Project Steering Committee in each province. The Project Steering Committee is in charge of promoting the progress of the project, coordination between the ministries and the provinces in the provision of general guidance on policies related to project implementation.

II. METHODOLOGY

2.1. Methodology

The Consultant will make use of both quantitative and qualitative approaches in the study process. The quantitative approach will involve a survey of 5 provinces and 13 research's Institutes and Vietnam's agencies using a simple above questionnaire. The qualitative approach will involve: (I)

provinces and institutes visits (ii) interviews with key informants at the provinces, Institutes and Vietnam's agencies; (iii) discussions with consultants teams of GHD/VICA of the study a Programmatic Approach Issues; and (iv) Findings from the different approaches will be need to in come up with conclusions and recommendations.. As provided in the TOR, the review will cover 5 provinces, 13 research institutes, 10 vocational and technical schools of MARD and related agencies, the Consultant through CPMU will send questions and visit for discussion with provinces, Institutes and Schools that were presented in Annex 2, 3, 4, 5, 6 The main activities include: (i) Review the implementation of research projects, extension contracts, and interventions for vocational schools, colleges, and research institutes under AST to identify the strengths and weaknesses of the project's competitive mechanisms in line with the Decree 115 and Decree 02; (ii) Review implementation arrangements from PPMU down to poor commune, particularly on participatory process on poverty identification and service deliveries and make recommendation for improvement for implementation of Decree 02; (iii) Compare the project's competitive mechanisms with the other current mechanisms applied by MARD and propose the lesson-learn for nationwide application; (iv) Utilize data in the Project monitoring system and collect additional quantitative data of representative size to derive the findings; (v) Conduct gender analysis to evaluate gender impacts of project activities and recommend strategy to improve gender mainstreaming in future interventions in Viet Nam; (vi) Evaluate compliance to ADB social and environmental safeguard in project activities, extract lessons and make recommendation for future project interventions; (vii) Document the good example and experiences of project's activities and impacts as documents and as multi-media materials for wider promotion of AST and for utilization for the PCR; (viii) Propose the future activities and investments to enhance the research and vocational training capacity of MARD's research institutes and colleges/vocational schools.

2.2. Questionnaire

The International Consultant prepared the questionnaires and got approval of CPMU. The questionnaires were sent to PMUs of 5 provinces, 13 institutes and 10 colleges and vocational training schools, Departments of Organization and Personnel, DOSTE, NCAE at the official letter No.1137/DANN-KHCN dated 16/05/2013 on "collection of information for development of lessons learnt of the AST project" (see Appendix 3). These units sent feedback information for the international consultant to analyze in the report.

2.3. Meeting and interview some units involved in the Project

The international consultant came to work directly with PMUs of Thanh Hoa, Nghe An, Plant Protection Research Institute (PPRI), Forest Science Institute of Vietnam (FSIV), Soils and Fertilizers Research Institute (SFRI), Institute of Agricultural Science for Southern Vietnam (IAS), Southern Fruit Research Institute (SOFRI), Food Management Vocational School (Hai Phong), The North Viet Nam College of Agriculture and Rural Development (Ha Tay), Da Nang Food Production College, Water Resource Vocational School II (Quang Nam), Southern Vocational High School of Agriculture and Rural Development (Tien Giang), Departments of MARD such as DOP, DOSTE, and NCAE. The list of units to meet, date and contents of meetings were sent to relevant units as stipulated in the official letter No.1136/DANN-KHCN dated 16/05/2013 on "announcement of working agenda of international consultant for documentation of lessons learnt of the AST Project" (see Appendix 4). The international consultant also discussed with consultants of VICA and local consultants on lessons learnt in research and extension. The results of meeting and interviewing relevant units have helped the international consultant to collect a lot of data and information relating to actual operations of units involved in the Project to analyze and synthesize lessons learnt of the Project. (see Appendix 5 for list

of people met and interviewed). CPMU-AST organized a workshop for the international consultant to present the draft report with participants as representatives of DOP, DOSTE, and NCAE and some institutes, colleges and vocational training schools. (see Appendix 6 for the list of participants of the workshop on presentation of lessons learnt).

III. OVERVIEW OF LITERATURE AND EXPERIENCE IN SOME COUNTRIES RELEVANT TO THE AST PROJECT

3.1. Research-extension linkages

This part presented overview of different patterns of research-extension linkages in some countries such as Indonesia, Japan, Korea, Mexico, Nigeria, Tanzania and Thailand.

Indonesia

The Agency for Agricultural Research and Development (AARD) administers the 16 national research centers/ institutes in Indonesia on behalf of the national Ministry of Agriculture. There are no independent research centers operating at provincial level. The Bureau of Agricultural Extension (BAE) under the Ministry of Agriculture controls the agricultural extension service. The BAE supervises extension services at all levels through regional offices and works in collaboration with the heads of districts and villages. As part of the BAE, the Agricultural Extension and Information Centre (AEIC) operate at district level. At the sub-district level is the Agricultural Extension Centre (AEC); 10–20 field extension workers are attached to each AEC.

The Rural Socioeconomic Research Centre of AARD is responsible for monitoring all on-farm experiments in the regions and provinces. The Assessment Institute conducts these on-farm experiments for Agricultural Technology (AIAT) at provincial level, and by the Agricultural Technology Assessment Place (a substation of AIAT) at village level. Adaptive research staff of AIAT work with subject-matter specialists to develop technology packages, which are, then passed on to the extension centers. AIAT thus exists as a linkage interface between research and extension organizations in Indonesia.

The AECs, subject-matter specialists and researchers all serve as sources of research needs, but only national researchers make final decisions in selecting research problems and themes. The AECs receive innovation packages from research centers through the subject- matter specialists deployed to AIAT. Although there has recently been more interaction between national research staff, extension and farmers at the provincial level, this heightened interaction has not led to final decisions on linkage activities being controlled at the provincial and district levels: the management of agricultural research–extension linkages in Indonesia depends mainly on AARD-supervised institutes and is still largely a top-down approach.

Japan

Japan's 13 national research institutes have networks with 255 prefectural research institutes and experiment stations through six national agricultural experiment stations. Since the national government does not directly offer extension services, agricultural research–extension linkage in Japan operates at the prefecture (state) level. It is a bottom-up management system in which decisions on linkage activities are taken at prefecture level without the direct involvement of national officers. Research–extension linkage involves the use of subject-matter specialists, technical committees, joint study meetings, and staff exchanges between prefectural research and extension organizations. District extension centers from farmers, agro-cooperative societies, schools, and

town/village administrative offices compulsorily source farmers' problems and needs. Local needs identified by extension are supplemented with those identified by researchers and subject-matter specialists. In general, a committee comprised of researchers, administrators, subject-matter specialists, extension workers, farmers' representatives and knowledgeable persons finalizes decisions on the selection of farmers' problems/needs as annual research themes at prefectural level. Although national officers are not directly involved in this process, they make input by putting forward unresolved research themes that have been referred to them and by highlighting policy directives on research themes from the National Ministry of Agriculture, Forestry and Fisheries.

Mexico

The seven main agricultural research institutes and eight regional experimental stations in Mexico fall under the authority of the Federal Secretariat of Ranch, Agriculture & Rural Development. The university-based National Agriculture, Livestock and Forestry Research Institute (INIFAP) are the key organization in the promotion of research–extension linkages at national level. INIFAP forms one of the seven main institutes and has offices in each state for networking with local extension workers. Under the National Alliance Program, INIFAP distributes publications on on-farm technology testing, including validation and demonstration trials.

At state level, each of the 32 states has an agricultural experimental station under the State Secretariat of the Agriculture Department (SEDAGRO). SEDAGRO's Directorate of Rural Development (DDR) has extension offices and farmers' support centers in state zones, municipalities and villages. It is the DDR that employs subject-matter specialists and extension workers. The state-level research–extension linkage is promoted through meetings between researchers from state experimental stations and DDR and through joint activities between DDR, state researchers, INIFAP and networks of farmers' foundations.

Nigeria

All the agricultural, the federal government owns forestry and fisheries research institutes in Nigeria; the states have no research institutes. Each of the 36 states is divided into extension zones, blocks and cells. The extension workers and subject-matter specialists of the state Agricultural Development Program (ADPs) depend on the national research system for most technologies. Nigeria is divided into five ecological regions. Five regional coordinating research institutes (operating under the National Agricultural Research Project) oversee the research needs and coordinate farming systems research activities in each ecological region.

Research–extension linkages are promoted at regional level through regional research–extension committees and quarterly technology review meetings involving subject-matter specialists. In addition, the National Agricultural Extension and Research Liaison Service (NAERLS) operate through the program of each national research institute and through NAERLS regional offices. The Federal Agricultural Coordinating Unit works with collaborating institutions (research institutes, universities, and ADPs) in coordinating linkage activities. Although provision is made for farm input traders to participate in Nigeria's research–extension-farmer-input supply linkage system, their level of participation has been very weak.

The identification of annual research needs is done through a joint problem diagnostic survey in each state by staff of national research institutes, universities and state ADPs. There is lesser involvement of village extension agents and block extension supervisors in collating farmers' needs for the formulation of research themes and plans. Although state ADP officers and national researchers

participate in discussing the research problems at regional level, national officers assume power in finalizing decisions on research themes (without farmers' representation). Most decisions on the direction of linkage activities are taken from above (at national level), and research and extension organizations in Nigeria are unequal in status. For these reasons, Nigeria is best categorized as form D of the theoretical framework

Korea

Agricultural research and extension in South Korea are integrated under a huge national institution called the Rural Development Administration (RDA) with headquarters in Seoul. The RDA, which is an organ of the Ministry of Agriculture and Forestry, has jurisdiction over nine Provincial RDA (PRDA), nine research institutes, four regional experiment stations, 32 location- specific commodity experimental sites, 154 city/county extension offices, and 1,380 farmers' consulting offices. To ensure the harmonization of agricultural extension program between national and local levels, the funding of extension services comes from national, provincial, and city/county governments.

In South Korea, linkages between research and extension are made easier by virtue of the fact that the same institution administers both. Linkages are also promoted through joint evaluation committees and on-farm adaptive experimental activities. Farmers' problems are identified through data collected by researchers, and researchers, subject-matter specialists and other officers jointly take final decisions regarding research themes. The results of research are screened and subjected to economic analysis by research evaluation committees. Subject-matter specialists from the extension management bureau of RDA participate in research planning and evaluation activities. Similarly, researchers participate in extension program and have opportunities to review the applicability of their research findings.

Both the research management bureau and the extension management bureau have equal status inside the RDA/PRDA. Research–extension linkages are administered at national level, and decisions from the top are passed down to lower levels of the administration

Tanzania

In Tanzania, research and extension are in different divisions in the Ministry of Agriculture and linkage mechanisms are not clearly spelt out. The three national research institutes fall under the authority of the Division of Research and Training and have substations in the 47 provinces. The Farming Systems Research–Extension Program – also under the Division of Research and Training – is in zonal directors and implemented at provincial level through Liaison Offices. Extension falls under the authority of the Division of Agriculture and Livestock Extension Services. Agriculture and Livestock development officers are stationed at regional level, with agricultural extension officers and subject-matter specialists based in the provincial headquarters. District-level extension officers and village-level farm advisers use the training and visit extension technique. Although the official link between researchers and extension is weak (e.g. researchers and subject- matter specialists meet once a year), extension officers and subject-matter specialists unofficially inform researchers about farmers' problems. Subject-matter specialists are also informally involved in on-farm trials. Farmers and outsiders are mobilized to participate in research–extension linkage program particularly in rice production.

Currently, the Tanzanian research–extension system is classified as linkage form D due to the unequal status between research and extension organizations, and the concentration of power at national headquarters. For Tanzania to enhance the linkage between research and extension, it will

have to improve the quality of its extension staff through training, undertake institutional reorganization to empower the provinces, increase funding for linkage activities and provide better means of transportation for district/village-level officers.

Thailand

The agricultural research system in Thailand is not yet integrated under a single authority at the national level. Under Thailand's Ministry of Agriculture and Cooperatives, there are departments of agriculture, agricultural extension, livestock, irrigation, forestry, fisheries, land development and others. Each of these departments has research institutes, which are administered separately. The provincial governments have no independent research stations.

The Department of Agricultural Extension (DOAE) is linked to regional extension offices, and these are connected to the provincial agricultural extension offices. There are also district and sub-district extension offices. The extension services aim to raise farmers' income/ quality of life by focusing on the promotion of improved crop and livestock technology, crop protection and input/credit support. The subject-matter specialists are based in the provinces. Provincial extension offices formally receive research results by requesting research reports or when DOAE arranges a seminar, conference or group training; staff can also informally obtain results from the mass media on a personal interest basis.

It was found that only researchers identify farmers' needs and take decisions on research themes. Apart from meetings between researchers and subject-matter specialists twice a year, there is no other evidence of routine linkage mechanisms between research and extension. There is no joint evaluation of on-farm trials, no farmers' participation, no joint decision-making, and no staff exchanges. Since there is no systematized research–extension linkage, Thailand can be classified as form E of the theoretical framework.

In sum: The strong research–extension linkage in Japan can partly be attributed to the exchange of staff between agricultural research and extension organizations, enabling personnel to work for a specified time in each other's establishment. In Indonesia, Nigeria and Korea the research–extension system is such that decision-making power is concentrated at the top, in the hands of national research officers.. In Tanzania and Thailand, bold institutional reforms will be required to improve the linkages between agricultural research and extension. In Mexico, the gap in status between extension and research needs to be narrowed for greater linkage between the two systems

3.2. Reducing the scope of state financing

In Chile, for example, research budgets and salaries at the universities and INIA (the national agricultural research system) were cut in the early 1970s in a deliberate attempt to encourage greater private sector research activity. In Africa, financial pressures are forcing a number of national research systems to rationalize their activities through staff retrenchments and 'downsizing', with the state withdrawing from lower priority program and closing some research stations, as for example in Senegal and Tanzania. In India, for example, the public sector is progressively withdrawing from the provision of extension services for high value cash crops, such as seed potatoes in Himachal Pradesh and grapes in Andhra Pradesh and Karnataka. In the highlands of Ecuador, for example, some public-sector extension agents sharecrop with farmers, providing inputs and technical advice in exchange for a 50% share in the profits.

3.3. Competitive bidding for research and extension contracts

Competitive bidding for research and extension contracts, often associated with ARFs and foundations, has the potential to make R&E service delivery more efficient. The Chilean case

represents an interesting example in which the delivery of extension services is entirely contracted out to private agencies. It has aroused considerable interest and spawned a number of similar approaches in Latin America. Surveys suggest that farmers are pleased with the program and see benefits deriving from it. However, opportunities for farmers to influence the extension program are limited, and the quality of service may have deteriorated. Moreover, there is no reliable evidence that the program has increased the impact of extension, or that it is any more cost efficient in terms of unit costs of delivering technical assistance.

IV. RESULTS OF THE PROJECT

4.1. Results achieved by Components

a) Component 1: Client-Oriented Agricultural Research and Capacity Strengthening

Sub Component 1: Client-Oriented Research Programs

Reseach Project on growing cover crops to restore degraded areas of Phu Quy fruit tree research center (VAAS)

- As of 30 April 2013, all 125 research projects (100%) and 70 extended models of research result of research projects have been completed. The Research Project Review Council of MARD reviewed and evaluated all the projects. Thirty of 120 research projects (24.4%) were evaluated as excellent (91-100 points); 90 (73.2%) were evaluated as good (76-90 points) and only 5 research projects (4%) were considered satisfactory (65-75 points). Forty percent of research projects were headed by female researchers. It is noted that all research projects headed by female researchers received excellent and good score. Out of 79 projects applicable for extension to farmers, 70 projects were selected for farmer-managed on-farm trials for further extension. The 70 projects include 10 research projects on livestock, 4 on forestry, 2 on environment , 1 on fishery, 2 on integrated livestock and crop. The remaining were on fruit trees, organic fertilizers, silkworms and pest management. All 70 projects were assessed excellent and good, in which 17 model was excellent (24%) and 53 models with good (76%).

Reseach Project on growing Radix Ophiopogi Tree for erosion prevention and soil

- As of 30 April 2013, 6,538 households have participated in the research projects, 52% of which were female-headed households and 38% were ethnic minority households. A total of 22,659 farmers and 1,216 extension staff have participated in training courses conducted as part of the research projects. Forty-eight percent of the participants in training were women farmers. Of the 125 research projects, about 38% address environmental issues, safe food production and climate change mitigation and adaptation, focusing on topics including: soil erosion control, land reclamation, agro-chemical management, biodiversity conservation, organic farming and VietGAP.

Safety duck breeding model in Quang Phuc, Quang Xuong, Thanh Hoa

- The research outputs include recommendation of a total of new 197 varieties of crop and livestock. Productivity improved between 10%-15% compared to control (current varieties of crop and livestock). The research projects also recommended new 245 production practices and implemented 291 demonstration models. Productivity improvement of the new production practices increased from 10-

25% compared to control (current technologies and methods). Estimates of improvements in net profits range from 10%-25%, with some increased by 50%-70% compared to control.

- Data on impacts of the adoption of research results on household income are available for 95 research projects. Household income increased by 21-25% for 50 projects (60%), by 15-20% for 22 projects, and by 10-14% for 21 projects (22%).

High Yield Guinea Grass Growing Model

- The scale of livestock production covers an area of 1,271ha, with 384 cattle. Other product outputs include 100 tons of organic fertilizers and improved preservation method for 1 million poultry eggs. A total of 6,557 households participated in the replication model, with 45% of ethnic minority households. A total of 20,281 participants were trained on new technologies which were outputs of research models, 53.9% were women and 40.9% were ethnic minorities.

Sub-component 2: Training of Research Staff

Long-term overseas Training

- The objective of the Project was to support 55 candidates for attending post graduate programs overseas (04 Post-doctoral, 16 doctoral, 35 master). Savings due to lower tuition fees than expected were used to support the students began training in 2011. Of the 55 candidates, 32 Masters Degree candidates, 3 Doctoral Degree candidate and 4 Post-Doctoral candidates have completed their programs and have returned to their respective institutes to apply the new knowledge gained in their studies.

Short-term overseas training

- The Project organized additional activities under the sub-component: (i) one study visit to Korea on research management and agricultural extension with 11 participants from research institutes, (ii) 2 short-term training courses on organic cultivation and climate change in Taiwan in 2011 with 60 participants from research institutes and Departments under MARD, of which 20 participants were women (33%), and (iii) 1 short-term training course in Nebraska University, USA on climate change in 2012 with 10 participants.
- In addition, 29 staffs from 10 research institutes, 10 schools, MARD, APMB, CPMU participated in the study-tour in Malaysia on agricultural technology transformation in March 2013, of which 07 staffs were women (24.17%).

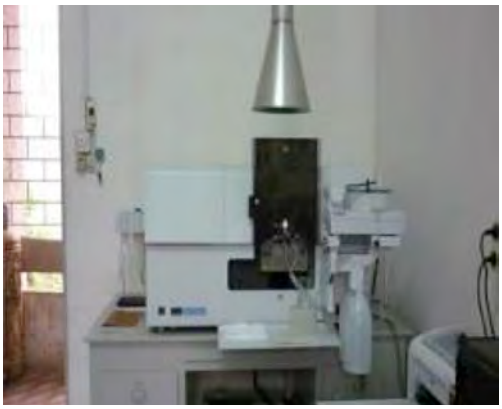
Local Training for Researchers

- All activities were completed in April 2013. The component organized a total of 54 training courses by Vietnam Academy of Agricultural Sciences (VAAS) with 1,673 participants, of which 47.1% were women. Overall assessment of the training courses by participants has been high with the majority indicating that course content met their needs (median assessment was 95%) and that they would be able to apply what they had learnt in their work place (median assessment was 82%).

- Of the 54 courses, post evaluation was conducted on 40 short-term training courses conducted from 2008 to 2010. Post-course assessments were sought from trainees and their managers or supervisors six months or more after attending the training course. The majority of trainees' were able to apply the skills learnt during training. With the exception of the macro-economic modeling course all trainees considered that their work attitude had improved since the training. Almost 80% of the trainees indicated that they had shared their knowledge and skills from the training with an average of 6 other work colleagues.
- In March and April 2013, CPMU in cooperation with VAAS, conducted 4 training classes on "Strengthening experimental building skills, evaluation on the results of researches" and "Potential measures to reduce greenhouse gas emissions in agricultural production" for 145 participants, of which 47.5% were women.

Sub-Component 3: Upgrading of Research and Laboratory Equipment

- The Project is providing and upgrading essential research and laboratory equipment of selected MARD agricultural research institutes to fill critical gaps in research due to outdated equipment.
- The Project has a total of 52 packages for research and laboratory equipment. A checklist for environmental safeguard for safe disposal of toxic waste from equipment has been developed by the Project. The consultant completed the environmental impact assessment report based on comments from institutes/schools and CPMU, submitted to ADB in May 2012.
- CPMU conducted a study on laboratory equipment use and found that aware on environmental impacts of chemicals from laboratory was high and all the institute have generally complied with environmental and safe use/disposal regulations. The Mission requests that report of evaluation of effective use of equipment, including maintenance, be monitored by the research institute beyond the Project period and report to ADB in 2014 during the Project Completion Review Mission.



Equipment with gas nozzle of SFRI

Products of Da Nang Food Production College done by students in practical sessions with the use of project-funded equipment

b) Component 2: Grassroots Agricultural Extension Improvement

The Project is improving farmers' access to participatory and pro-poor extension services and is strengthening linkages between agricultural research and extension services. Activities are being

implemented in Dak Nong, Nghe An, Ninh Thuan, Quang Nam, and Thanh Hoa provinces. NAEC continues to oversee activities under this component..

Sub-Component 2.1: Pro-poor Provincial Agricultural Extension Services

- A total of forty-five extension staff from five provinces participated in the Training of Trainer (TOT) program. Only 4 of the TOT members are female, equivalent to 9%. A total of 1,162 training courses were conducted for 28,615 extension staff, including extension service providers. Of the 1,559 extension staff trained at the sub-district level, 35% were female and 27% were ethnic minorities. One hundred and twenty three training courses have been organized for service providers since 2008 with 2,963 participants of which 34.6% were female. Since 2008, 948 courses were organized for 23,559 provincial and district extension workers with 28% female participants. During project period, the Project conducted 22 training courses for 593 provincial extension staff in five provinces for which women participants were 34%. The service provider organized 1365 technical training on extension models for 37.449 farmers of which 61% were female and 30.3% were ethnic minorities. It is noted that training for female extension workers and female staff from service providers account for 35% and 26% respectively..

Thai Women at Thai Son 2 village, Mon Son Commune, Con Cuong, Nghe An participated in training

Training course for agricultural extension providers in Nghe An province

- Networks of exchange for extension workers (national and international) have been established through in-country and overseas study visits. The Project supported the following study visits to: Thailand (December 2008); Taiwan (April 2011) and 18 in-country visits were organized by 5 provinces-Thanh Hoa (4), Ninh Thuan (3), Quang Nam (4), Nghe An (6) and Dak Nong (1) for staff of the PPMU, extension centers and extension service agencies totalling 219 people. Training on extension M&E was organized for all project provinces in Thanh Hoa in July, 2011 with a total of 20 project/extension staff (25% female). In addition, provinces organized training courses on M&E for monitoring officer at district and communal level and service providers in each province from 2 to 6 training courses.
- NAEC developed a communication plan, using mass media in five provinces to disseminate information on subjects related to sustainable and equitable agriculture development. As of April 2013, 6 programs for extension information have been shown on VTV7 and VOV. A total of 20 programs were developed and broadcasted on radio and TV stations. Ten agriculture technical DVDs have been shown on VOVTV and VTC16. NAEC is now producing programs to broadcast nationwide and has also produced 25 extension DVD using the equipment.

Sub-Component 2.2: Promotion of Agricultural Extension Contracts

- The sub-component finances on-farm demonstration trials in the provinces through contractual arrangements with regional or national research institutes to strengthen the provincial links between research and extension.
- All extension contracts in five provinces were completed by December 2012. In total, the Project implemented 615 extension contracts for which 579 were demonstration models and 36 (5.8%) were research trials. These included: 231 demonstration models and 7 research trials in Thanh Hoa; 131 demonstrations models and 10 research trials in Nghe An; 90 demonstration models and 7 research trials in Quang Nam; 81 demonstration models and 9 research trials in Ninh Thuan; and 46 demonstration models and 3 research trials in Dak Nong. The contents of demonstration models include 388 livestock models (63%), 176 crop production models (28%), with 9% of remaining models covered activities including fisheries and mechanization of farming systems.
- The evaluation conducted by the Project revealed that of the 625 extension contracts, 421 were 'good', 177 models (28.3%) were 'moderately good', and only 8 contracts in Dak Nong and Ninh Thuan (1.3%) on livestock were 'un-satisfactory' due to disease break out and adverse weather. Five hundred and two contracts (93.1%) led to 6-25% higher productivity compared to control group.

Demonstration models of hybrid corn F1 production in My Son, Ninh Son, Ninh Thuan

- The National Value Chain Development Specialist conducted training courses on survey methods and data analysis to staff of five PPMUs and guided them to conduct of surveys of indigenous knowledge and possible marketable products from their respective provinces. The results showed that of the 97 varieties of native plant found in the investigation process, 28 indigenous plant varieties have potential to be developed as marketable products. Similarly, of 29 native animal varieties investigated, 18 varieties of native animals have potential to be developed as high-value products. The Mission noted the good results of the study.
- As of 30 April 2013, 240 service providers participated in the bidding process in the 5 provinces with164 service providers awarded contracted to implement 625 extension models. Since 2010, increased number of non-government service providers participated in the bidding process, raising competitiveness and quality of extension services in the project areas. An assessment of extension service providers found that level of competition varied among the five provinces, with one PPMU (Quang Nam) awarded contracts to five types of organization (three government organizations and Quang Nam

Havest of hybrid maize LVN152 (CN09 3) in Autumn Season, Thuy Son, Ngoc Lac, Thanh Hoa

Farmer's Union) while contracts in other provinces spread among six to nine different types of organizations. However, participation of private sector firms were relatively limited.

- Preliminary impact evaluation of the Project showed an EIRR of 72% for extension systems which is extremely high and the Project Team is to be congratulated. An in-depth evaluation to extract lessons from the Project for national and international communities is being conducted to document (i) how participatory process was effectively used in identifying poor households to participate in the project, (ii) how demand from poor-households were derived and translated into bidding documents, (iii) how public expenditure utilization has been improved by adopting bidding systems for extension contracts, (iv) financial implications from extension contracts for participating schools and research institutes, and (v) opportunities and constraints to further improve pro-poor, gender responsive extension systems, including the use of ICT..
- The Project's performance on gender mainstreaming and gender-responsive training program could have been improved. The number of female extension workers was limited, particularly at the grassroots level. The quality of extension materials produced by the Project could have been more pro-poor, using more simple languages and with more illustrations.

c) Component 3. Rural-Based Technical and Vocational Training

- The capacity of ten rural-based technical and vocational training schools is being strengthened by (i) improving technical knowledge, teaching, and managerial skills of teachers and administrators and curricula; and (ii) upgrading library and laboratory equipment and materials, teaching and laboratory facilities, and office equipment for school administration. DOP continues to oversee activities under this component.
- The activities under this subcomponent are near completion. As of 30 April, 2013, 30 training programs have been completed with 244 approved sets of training materials. Completed training materials have been put into use, meeting demands of schools.
- Training courses conducted under this sub-component include:
  - (i) Ten courses on "Developing Training Curricula" for 271 participants (39% women participants)
  - (ii) Six courses on credit transfer system for 195 participants (23% women)
  - (iii) Six courses on compiling training materials for 189 participants (40.2% women)
  - (iv) Three e-library training courses were conducted for library management staff (including 78 participants of which consisted of 58 women (74.3%)).
  - (v) Three training courses on Management methodologies and science mission implementation, technical technology transfer for 98 participants in which 42 are female (42.8%).
  - (vi) One course for E-office application and general administration for 50 participants in which 38 are female (76%).
  - (vii) English training courses were organized at each of the 10 project schools for school leaders and teachers (15-20 participants in each school).
- In addition to domestic training, three overseas study tours were organized to visit People Republic of China in 2008 and to Thailand in 2012, Malaysia in 2013. To date, female participation in training courses under the project has been more than 41.7%.
- The sub-component has a total of 71 packages for 10 schools (including 14 for small-scale civil works for the construction and renovation of classrooms, libraries, and laboratories and 57 for laboratory equipment). All 14 civil works contracts have been completed and fully

turned over. Fifty-four out of the 57 equipment packages have been used and the remaining three are under the transferring process..

- The Project supported the establishment of an e-library system to facilitate sharing of knowledge products and information among 10 schools, in association with the Center for Information and Statistics under MARD. In April 2013, CPMU and Da Nang Food Production College organized 3 hands-on training courses for 9 colleges and agricultural vocational schools. After training, all library staff successfully used the e-library equipment.
- Training consultants of the project and CPMU staff had field trips to assess training programs which were developed in some school. Report was completed and sent to ADB in January 2013.

d) Component 4: Project Management

The CPMU is the overall project management support, acting as the central contact and coordination point for the Project, and monitoring the progress of all components. There are five, provincial project management units (PPMU) in five provinces and 20 institute project management units (IPMU) comprising ten research institutes and ten agricultural colleges & vocational schools implementing the various project activities.

Assessment of major results of the survey of some indicators in 5 provinces, 13 research institutes and 10 colleges and vocational training schools are presented in the following table:

Categories	Very good	Good	Average	Bad	Total
Evaluation of performance of PMU	21.43	78.57	0	0	100.00
Evaluation of quality of local training courses	28.57	64.29	7.14	0	100.00
Evaluation of quality of building of curricula of the schools	44.44	55.56	0	0	100.00
Evaluation of gender-related analysis activities	28.57	50.00	21.43	0	100.00
Evaluation of social and environmental safeguard activities	28.57	50.00	21.43	0	100.00
Evaluation of efficiency of use of equipment and civil works	21.43	71.43	7.14	0	100.00

4.2. Disbursement

As of 04/30/2013, the disbursement of the Project was 104% compared with the original plan; in spite of the initial difficulties in the first 1.5 years of the project, but the project has recovered and improved gradually. Owing to the fluctuations in exchange rate, the loan amount increased from USD 30 million to approximately USD 31.099 million. This allowed the expansion of the scope of the project activities, enabling to achieve more project outputs than the original goal, particularly in the activity of support to research and equipment. Disbursement of each component is as follows: Component 1: Client-oriented agricultural research and capacity strengthening completed 98.5%; Component 2: Grassroots agricultural extension improvement 100%; Component 3: Rural-based technical and vocational training 98.2%; and Component 4: project management 98%.

4.3. Consulting Services

Consulting Firm Inputs

- The consultants mobilized on 11 September 2008. The original contract originally provided for a total of 125 person-months (pm) comprising of 29 pm for international and 96 pm for national. Amendments have been made during the course of the implementation. Of the 177.8 pm of consulting services inputs, 171.9 pm (24.57 international and 147.3 national) have been utilized as of 30 April 2013, equivalent to 97%. About 5.9 pm were left unutilized. All consultants have completed their inputs.
- Regular discussions between CPMU and the consultants have been held to update each other on key project issues and outcomes. The relationship between the consultants and the CPMU has strengthened over the course of the Project with a high level of cooperation for all Project activities. Relations between the consultants and MARD partner departments and agencies are satisfactory

Individual Consultants

- The Project engaged 7 individual consultants (extension specialists for the 5 provinces, a training consultant, and a CPMU coordinator). Five consultants have completed their inputs and two withdrew from the Project due to personal reasons. To date, 183 person-months, out of a total of 204 pm, have been delivered.
- In addition, The CPMU engaged 1 international and 2 national consultants to document lessons learned from the Project with the intention of sharing these with various stakeholders and the international development community. Completion and payment to these consultants will be done before the loan closing date

V. STRENGTHS AND WEAKNESSES IN THE IMPLEMENTED PROJECT

5.1. Strengths

First, the Project has completed in accordance with original design, output indicators are clear and quantifiable, disbursement reaches a high level of 104% compared to the initial plan, contributing to increased GDP and export value, and to reduced poverty of Vietnam.. The project has achieved all outputs with impressive performance, particularly, the Project has attained all impact indicators right before the end of the Project. The disbursement is high (104% compared to the initial plan. Impacts of the Project are presented in the Design and Monitoring Framework (DMF) are to reach sustainable and equitable agricultural growth, whereas the first impact indicator is that the project expects to contribute to increase the total annual added value of the agriculture sector by about 3.0-3.2 and increase the sector's export value of about 12.3-14.3% in the period from 2006-2010. The evaluation shows that the total current added value of the agricultural sector has increased by 3.8% and export value increased by 14.8% per year in the proposed period, estimated poverty fall below 45% compared to 2003, the assessment showed that poverty rate reduced by 15.9% in 2011.

Second: the client-oriented agricultural research with the adoption of competitive bidding mechanism in the Project has 4 clear objectives and has been implemented in accordance with Decision No. 1874/QD-BNN-KHCN dated 20 June 2008 of MARD promulgating regulations on implementation organization of the Sub Component "Client-Oriented Agricultural Research" within the ADB-funded

AST Project: The selection and funding for client-oriented agricultural research projects aims to improve production efficiency and trading of agricultural, forestry, and fisheries products of clients with special attention given to those living in mountainous and remote areas, clients are poor farmers, cooperatives and other economic sectors operating in the field of production of agricultural products and rural development. The agricultural research program has four specific contents (i) study the creation or application of technical advances for clients to develop production towards increasing income and protecting the environment, (ii) study the creation or application of advanced techniques for improving the competitiveness of agricultural products to serve production of goods for clients, (iii) study the development of models of production organization, household linkages or collective economic organizations to practice good agricultural production processes associated with markets, and (iv) Research on development of information system to clients. The organization of implementation of the research program is in accordance with Regulations of organization of implementation of Client-oriented agricultural research Sub Component of the ADB-funded AST Project issued in Decision No. 1874/QD-BNN-KHCN dated 20 June 2008 of MARD.

Third: the competitive biddding mechanism applied in the client-oriented agricultural research of the Project has been well introduced with strict regulations on registration objects, implementation principles, selection criteria with regard to research projects, and the bidding process has been made public and transparent in accordance with Decree No.115/2005/ND-CP dated 5 September 2005 of the Government providing for the autonomy and self - management mechanism applicable to public scientific and technological organizations. The competitive biddding mechanism applied in the client-oriented agricultural research of the Project has strict and detailed regulations, including: (i) regulation on eligible registration of research project (research hosting institution and project leader) is consistent with the mandate of the public organizations of scientific research and technological development established in Article 5 and Article 6 of Decree 115, (ii) regulations allowing the Project to mobilize the participation of many organizations and individuals outside the public sector that have sufficient capacity and conditions to participate in the program; (iii) Regulation on implementation principles of the program creates an opportunity for organizations and individuals performing research and science and technology transfer duties at the grassroots levels to work closely with the local extension agencies, this regulation is also consistent with the purpose of implementing the mechanism of autonomy and self-responsibility (Article 2) of Decree 115. The competitive mechanism applied in the client-oriented agricultural research program of the Project has developed criteria for selecting research projects topics, including: (i) Evaluation criteria for preliminary registration, and (ii) Evaluation criteria for presentation of detailed research projects issued together with Decision No. 2660/QD-BNN-KHCN dated 29/8/2008. These criteria are clear and concise (not mention to capacity of project leader), and suitable for young science staffs - those who are undertaking the implementation of research and technology transfer to farmers. The first time the research projects conducted in the AST Project pay attention to outputs not only in term of technical and economic indicators but also social and environmental indicators.

Fourth, of all implemented research projects, there were more than 50% of models to be extended, these extended models have been piloted with the modality of not financing to cover costs of materials, fertilizers, seedlings and remuneration for farmers but only funding for scientists (200 million dong per model) to organize technical training and direct the implementation of farmers. These extended model are suitable to applied research, particularly experimental research in the field at district and sub-district levels in the remote and poor areas. The project was successful in expanding the linkages between research and extension, and also achieved results in support of the poor and contributed to the equitable growth for Vietnam. The use of explicit criteria for selecting research

projects and open invitation of research proposals have been made effective, allowing researchers across the country, especially young researchers can participate. Extended models have been piloted with the modality of not financing to cover costs of materials, fertilizers, seedlings and remuneration for farmers but only funding for scientists (200 million dong per model) to organize technical training and direct the implementation of farmers. This model of research management has been applied and institutionalized by MARD and other Ministries and Agencies in Vietnam. This reflects a demand, however, it is noted that this model of selection and implementation of reseach may be suitable to applied research, particularly experimental research in the field at district and sub-district levels in the remote and poor areas.

Fifth, training programs abroad, study tours overseas combined with local training courses of the AST Project has helped improve capacity of staffs in the agricultural sector in general and units involved in the Project in particular. MARD has assigned DOP to be responsible for organizing training programs abroad. The Selection Committee of MARD has selected research staffs with sufficient experience and professional skills in the training field to perform this operation. The selection of candidates for study abroad in the AST Project was implemented in accordance with the regulations of the MOET and MARD. There were a total of 55 candidates participating in the post graduate program abroad, of which 20% are women (requirement in the Agreement is minimum 10%). Of the 55 candidates, 32 Masters Degree candidates, 3 Doctoral Degree candidate and 4 Post-Doctoral candidates have completed their programs and have returned to their respective institutes to apply the new knowledge gained in their studies. Combined with the study tours abroad and with 54 training courses in the country with 1,673 participants, the AST Project has contributed to enhancing the human resource of scientific staffs for the agriculture sector in general and units involved in the Project in particular.

Sixth, the Project has assigned the Institutes/Schools to act as investors to make the procurement of equipment, construction of classrooms, laboratories and libraries. The close direction of CPMU and the improved capacity of staffs of PMUs on procurement training courses have helped to ensure the purchase of equipment and construction of the institutes/schools in accordance with the Bidding Law of Vietnam and ADB regulations. The Project has assigned institutes/schools to establish grassroot scientific committees in order to do the following: (i) review and adjustment of equipment porfolio according to actual needs of institutes/schools; (ii) development of investment projects to submitt to MARD for consideration and approval; (iii) development of procurement plans with regad to bidding packages; (iv) development of technical properities of equipment needed to purchase to prepare for procurement organization; and (v) organization of procurement according to approved plan. During the process of procurement of equipment for institues/schools, the CPMU has not only provided close direction with regard to procurement activities of institutes/schools in accordance with regulations of Vietnam and ADB but also organized trainning courses to improve professional knowledge and skills and implementation capacity for relevant staffs of IPMUs on bidding procedures following the Law on Procuremet of Vietnam and ADB's regulations. During this process, institutes and schools have organized many visits to agencies and enterprises to build requirements on configuration, specifications of the equipment as well as the requirements of management software. Institutes and schools have appointed staffs and teachers with relevant expertise associated with equipment of each bidding package to attend training courses on procurement and established functional units to receive and use each type of equipment. Accordingly, most of equipment funded by the Project have a good quality, meeting the needs of requested units and environmental standards of Vietnam. Machinery and equipment put into use for research proved to be effective with the utilization capacity of 60-70%, some devices achieved the utilization capacity of 90-95%, thereby contributing to improve capacity of research and technological development of the units. Particularly, in addition to perform research tasks for the units, some devices in some institutes and schools also has the ability to perform a

number of services according to market requirements. One of the reasons for rapid implementation of purchase of equipment of institutes and schools is that the Project has asked ADB to apply direct payment by transferring funds directly into the secondary accounts of institutes and schools to facilitate payments to contractors.

Seventh: Under the support of the project, the agricultural colleges and vocational training schools have opportunities to update and rebuild the curriculum by the new methods. The improved curriculum has been put into teaching to meet the needs of curriculum of the schools. The Project supported the establishment of an e-library system to facilitate sharing of knowledge products and information among 10 schools, and servers are located in the Da Nang Food Production College. The schools have conducted surveys of the needs of the society, organized workshops to get comments for training curriculum drafts, appraisal review, revision and has completed the building of training programs. Regarding the compilation of curriculum, the project has organized a workshop to determine what kinds of curriculum needed compilation and assigned each school to be responsible for compiling each type of textbook according to their professional ability. On this basis, each school has organized training courses on writing training curriculum, through which to get agreement on forms, formats and general provisions in the training curriculum. The compilation of curriculum outline and contents also takes into account of critical comments provided by the qualified persons with high level of professional knowledge and skills in school and those outside the schools who are the representatives of businesses, manufacturers , managers and relevant trainers of some colleges and intermediate vocational schools and universities. The improved curriculum has been completed, published and put into use to meet the needs of the schools. The Project supported the establishment of an e-library system to facilitate sharing of knowledge products and information among 10 schools, and servers are located in the Da Nang Food Production College, creating the basis for lecturers and students in schools get access to not only data and information of their schools but also of other schools and institutions.

Eighth: The competitive bidding mechanism applied in extension contracts of the project is a new approach, reflecting advances in agricultural extension activities in Vietnam. The selection of extension models comes from the real needs of farmers and the organization of bidding and signing extension contracts under the Project is open and transparent, contributing to diversification and improvement of the activeness and accountability of extension service providers. This mechanism facilitates and opens opportunities for extension service providers to approach farmers. This mechanism applies the bidding process in accordance with the steps of the procurement process set forth in the Law on Procurement No. 61/2005/QH11, Decrees of the Government and ADB rules on procurement. The Project has organized workshops at communes / villages to determine extension priorities and select extension models derived from the practical needs of farmers, especially poor farmers, ethnic minorities and women, and in accordance with local economic development orientation, thereby avoiding the imposition of top-down approach as seen in a number of other previous projects. The bidding process of extension models under the project has ensured openness and transparency through announcement of bidding invitation in the bidding newspaper or local newspaper. Bidding results are not only informed to successful bidders but also informed to localities for them to make favorable conditions implementation of activities of contractors as well as to organize monitoring of activities of the contractors. The competitive bidding mechanism also helps to diversify and expand the number and composition of extension service providers not only in the public extension system but also including research institutes, universities, unions, social organizations, SOEs and private enterprises. The equality of competitive bidding has helped to improve the autonomy and responsibility of the extension service providers, encouraged the state extension system to be more dynamic and more efficient in their operations, and contributed to speed up the

transfer of extension models down to the villages and communes in the remote and poor areas. Moreover, the performance of competitive bidding with regard to extension contracts in 5 provinces of the Project helped the submission of comments to MARD and provinces to request the Government of Vietnam to issue Decree 02 / 2010/ND-CP on 8/1/2010. Under the guidance of National Center of Agricultural Extension (NCAE), CPMU and 5 provinces have conducted competitive bidding with regard to extension contracts. Although the implementation was just a pilot in nature but the results are of great significance both in theoretical and practical aspects, helping NCAE and 5 provinces to have valuable comments to MARD and provinces to submit to the Government for issuance of Decree No. 02/2010/ND-CP dated 8/1/2010, especially reflecting in contribution in Article 12: "Policies fostering vocational training and communication", Article 14:" Polices for model development and replication, and Article 17 "Policies for selection of extension projects "

Nineth, the Project is economically feasible, the common EIRR of the project and a number of activities such as research, promotion of signing extension contracts, support to the technical and vocational training schools of the project are high and relatively high. Economic Analysis with regard to the components/major activities of the project shows that:(i) the project is economically viable with EIRR of 20% and ENPV of the entire project is about 266 billion dong. This rate is relatively high for a project with many different activities like the AST Project. The sensitivity analysis is done for different degrees in changes of the costs and benefits of the project, as well as the lag of benefits have all confirmed the feasibility of the project in terms of economic aspect; (ii) EIRR for the research projects ranged from 50% (based on 8 years of the project life cycle) to 52% (based on 10 years of the project life cycle) and the economic net present value (ENPV) ranged from 29.4 billion dong to 36.0 billion dong. However, when considering each separate result, the EIRR shows large fluctuations, reflecting the fact that some reseach projects are very effective, many are efficiently acceptable, and some are not effective as expected; (iii) the average value of EIRR for promotion of signing extension contracts is 68%. Similar to the research aspect, the economic viability of extension models also differ significantly between models compared to expectations; (iv) EIRR for activity of support to the technical and vocational training schools is estimated at 41 % and ENPV is 354.4 billion dong based on information of investment costs provided by the schools. When using the financial data of the project for calculation, EIRR dropped to 36% and ENPV reduced to 336.2 billion dong. The result of this calculation shows that investment in schools is effective in economic terms, (v) EIRR of training activities abroad ranges from 2.3% to 2.7% and the corresponding ENPV ranged from -37.6 billion dong to -36.7 billion dong. The cause of this low ratio is due to the calculation based on the low wages of the staff after they got degree and returned to work in Vietnam in accordance with general provisions of the Government of Vietnam, not taking into account of the efficiency of training in economic terms. In consideration of this situation, evaluation consultants have applied alternative estimates, which is based on the international level difference of about USD 20,000 per year, producing the value of EIRR of 12.6% and the corresponding value of ENPV of 3.8 billion dong, just above the threshold of economic viability.

Tenth: Paying attention to gender issues, poor farmers, ethnic minorities, activities in the remote and poor areas are considered priority issues of the Project. For the implementation of research projects and extended models, there were 6,538 farmers engaging in research projects, 52% of which are female-headed households and 38% are ethnic minorities. There were 6557 households participating in extended models, in which ethnic minorities accounted for 45.8%. The number of farmers attending training and seminars of models was 20,281 people, in which women accounted for 53.9% and ethnic minorities accounted for 40.9%. In particular, at the Institute of Plant Protection, 83% of project leaders were female, and research projects were evaluated to have good and excellent performance. For the study tours and short-term training courses abroad, the rate of female participation is from

24.17% to 33%; in-country training courses for research staff organised by CPMU in associaton with VAAS with 54 training courses with 1,673 participants, of which 47.1% were women. In extension activities, of 1559 trained extension staff at district and provincial levels, 35% were female and 27% were thnic minorities. A total of 123 training courses were organized for extension service providers with 2963 participants respectively, in which women accounted for 34.6%. Regarding training provided to extension staff at sub-district levels (commune and village/hamlet), 948 courses were organized for 23,559 sub-district extension workers with 28% female participants. Through extension models, the service providers organized 1365 technical training on extension models for 37,449 farmers of which 61% were female and 30.3% were ethnic minorities. It is noted that training for female extension workers and female staff from service providers account for 35% and 26% respectively. With respect to training courses in the colleges and vocational schools, the percentage of female participants was 23 -74.3%. In particular, the training course in application of e-office and synthesis archives, had 50 participants, including 38 women (76%).

Eleventh: the Project has well addressed the relationship between the Project and stakeholders, getting the active participation of units and farmers in the project area. The Project got attention and close guidance from MARD, ADB, the project steering committee, close collaboration and enthusiastic support from relevant ministries and agencies such as MPI, MOF, SBV, and Departments of MARD such as Organization and Personnel Department, Science, Technology and Environment Department, Finance Department, Construction Management Department, NCAE with CPMU. Especially, some departments of MARD are in charge of provision of technical guidelines such as: (i) DOSTE to lead the implementation of the component of client-oriented agricultural research; NCAE to lead the implementation of the component of grassroots extension improvement; and (iii) DOP to lead the implementation of the component of training of research staff and rural-based vocational training. The Project has had the involvement and positive responses from 13 institutes, 10 schools, 05 provinces in the project area as well as the enthusiastic participation of many farmers in the project area.

5.2. Weaknesses

First: Research projects experienced open and competitive bidding procedures with many participants, however some implementation units faced constraints in writing report to meet the needs of ADB and CPMU,. Most of extended models were implemented in the remote areas, due to small budget (200 million dong per model) while travel costs were significant, affecting the quality of model implementation, and some models were even unable to be extended. The signning of contracts for research projects and extended models followed the principle of lump-sum package while the payment and acceptance of the contract followed administrative procedures. Reseach projects did not allocate contingency fund and budget for paying taxes; however, paying taxes occured annually and there were many additional costs arising (such as increased costs of materials), leading to the time-consuming process of asking for adjstment and repeated recalculation. Tax authorities were not familiar with the tax collection mechanism with regard to agricultural research projects, so project leaders faced difficulty and had to spend a lot of time in tax paying procedures. Some accountants of CPMU were young and inexperienced in financial management, resulting in confusions and a lack of knowledge in guiding settlement procedures for project hosting institutions. A number of institutes and schools did not have the real financial management mechanisms towards autonomy and some research institutions and researchers were still conservative with subsidized thinking and faced difficulty to adapt to the transition toward market-oriented mechanism in accordance with Decree No.115 of the Government.

Second: Low level of english proficiency of staffs at the institutes and schools participating in the project caused difficulty in selecting candidates to attend long-term training courses abroad. At the same time, as the original design of the learning time of fellows was short (3 years), most Ph.D candidates had to ask for extension of time. Together with professional and moral requirements, one of important criteria for eligible selection of staffs of institutes and schools and provinces of the project to attend long-term training courses abroad is to pass the score of IELTS of 5.0; however, due to low level of English proficiency of staffs at institutes and schools of the project, it is difficult to recruit qualified candidates to participate in long-term training courses abroad. At the same time as the original design of the learning time of fellows is short (3 years), 13 PhD candidates and 3 Master candidates had to ask for extension of learning time (living costs during the extended time have to be paid by candidates themselves)

Third, many staffs of procurement specialist teams at the Institutes and Schools, despite being trained, did not have sufficient experience in bidding, so they faced many difficulties in the initial time.The assignment for the institutes and schools to act as investors in charge of procurement of equipment and civil works is the correct policy of the Project. Except for some schools to hire consultants to help them in the bidding process, most of schools appointed their staffs to directly perform this task. Although some units have actively asked their procurement staffs to participate in training courses on procurement and CPMU also organized many training courses on procurement, but many staffs of institutes and schools did not have experience in bidding, especially 10 agricultural colleges and vocational training schools with the first time of procurement of equipment and civil work coonstruction funded by ADB faced quite a lot of constraints in the initial period. During the bidding process, due to the complicated bidding procedures and extended bidding time duration, after announcement of the bidding results, prices of equipment increased compared to bidding offer prices, leading to difficulties in the negotiation and implementation of contracts.

Fourth, the bidding mechanism of AECs in the Project according to the Law on Procurement is not suitable to the specific characteristics of the agriculture sector, reflected in an extended bidding duration, small scale of bidding package, and inconsistent tax policies in districts of each province. Due to the lack of appropriate procurement mechanisms taking into account of specific characteristics of agriculture, the current practice still applies bidding procedures as in construction procurement, which were not suitable to the characteristics and seasonal nature of agriculture. The tendering procedures were too complex and time consumming, many models failed to be implemented, particularly with regard to models requiring strict seasonal features such as cropping models. On the other hand, after sucessful bidding, the prices of materials and seeds/breeds go up compared to the bidding offer prices, while there is a lack of price adjustment mechanism, investors are forced to negotiate with farmers on reduction of amount of seeds and materials to ensure not to exceed bid prices. The size and budget of bid packages were small, failing to attract many extension service providers, especially research institutes and universities located far away the site of implementation of models, and enterprises to pay attention to do business. Due to the lack of uniform guidance by authorities, the taxation of local extension contracts is very arbitrary and different from each other. Also there were no sanctions to deal with the occurence of unforeseen situations, such as natural disasters, diseases of plants and animals, adversely affecting the results of service and lack of appeal to the extension service providers agriculture. The contracts did not allocate contingency fund, so when there are problems arising, the contractors did not have the budget to solve these problems.

During initial time of project implementation, some provinces did not mobilize sufficient and timely counterpart funding for the project, resulting in slow progress of extenstion activities, and the Project had to transfer part of the fund from provinces with slow progress to other better performers for

implementation. In the initial design, funds were equally allocated to the five participating provinces; however, in initial years of project implementation, there were some delays of Ninh Thuan, Quang Nam and Dak Nong provinces in provision of sufficient counterpart fund, leading to slow implementation of extension activities in these provinces, so the Project had to make adjustments by transfering part of the fund from Ninh Thuan, Quang Nam and Dak Nong provinces to Thanh Hoa and Nghe An provinces. During the end phase of the project, Ninh Thuan, Quang Nam and Dak Nong provinces saw the need of implementation of some remaining activities but there were no fund left for these activities.

Fifth, the bidding mechanism with regard to extension contracts to be implemented in accordance with Decree No.02 is not a complete bidding mechanism as stipulated in the Law on Procurement No. 61/2005/QH11. The current application of the competitive bidding mechanism with regard to central extension projects (CEP) is actually not a complete bidding mechanism as stipulated in the Law on Procurement No. 61/2005/QH11 because the procedures of competitive selection are just applied to select the host institution and project cost management institute, not to select the final extension service provider in charge of implementation of extension models for farmers in the Project. On the other hand, the proposal of central extension projects was anounced openly choose the CCDVKN is not responsible for the final implementation model extension with farmers as project KHCNNN.. In the initial design, funds are equally allocated to the five participating provinces; however, in initial years of project implementation, there were some delays of Ninh Thuan, Quang Nam and Dak Nong provinces in provision of sufficient counterpart fund, leading to slow implementation of extension activities in these provinces, so the Project had to make adjustments to On the other hand, the invitation to submitt proposed CEP has been widely annouced, but due to region-related regulations of the Project, so the provincial extension centers can hardly participate in proposals and in project selection. The majority of organizations submitting proposals and were selected to lead the implementation of CEPs were research and training institutions, social organizations, unions at central level, resulting in weakening the linkages between the central extension system (NCAE) and the provinces/cities.

Sixth: EIRR of investment in upgrading research equipment and laboratories of institutes was low. This ratio should be recalculated after the institutes have put the equipment into effective use in 2014 or 2015: EIRR of investments to upgrade research equipment and laboratories of the institutes were calculated by the consultant ranged from -1.7% to +1 , 7% and ENPV ranged from -25.1 billion dong to 15.6 billion dong. The consultant indicated that the analysis of economic benefits of investment to upgrade research equipment and laboratories is needed, but only as long as the research institutes have sufficient expertise in using the equipment and also in the that time, the institutes should be encouraged to use the equipment at maximum level and store accurate and detailed information of costs and benefits. This ratio should be recalculated after the Institute has put the equipment into effective use in 2014 or 2015.

VI. LESSONS LEARNT

Lesson No.1: Through implementation of the ADB-funded PPTA-4194 project, the AST Project has clearly been designed in accordance with the capacity of MARD, participating provinces, research institutes and agricultural colleges and vocational training schools. Components and Sub-Components and activities in each Sub-Component have detailed design and close connection with objectives and outputs of the Project. The Project has been well designed and implemented, meeting the objective of strengthening resources, thereby contributing to the

sustainable growth of the agriculture sector. The Project has also contributed to sucessfull implementation of Decree No.115 of the Government providing for the autonomy and self - management mechanism applicable to public scientific and technological organizations and Decree and Decree No.02 on agricultural extension of the Vietnam's Government. 5 provinces participating in the Project are all poor provinces with a high number of ethnic minorities, so the implementation of AECs in these areas have substantial contribution to help local people, especially the poor, the ethnic minorities to improve their capacity and diversify livelihood and incomes, contributing to sustainable poverty reduction for participating households in particular, and for communities in the project area and participating provinces in general, thereby contributing to sucessul implementation of target programs of Vietnam. Research institutes and agricultural colleges and vocational training schools of MARD selected to participate in the Project are located in most of local agro-ecological regions of Vietnam, so the increased capacity and resources of these institutions have had certain direct and positive impacts on agricultural development in paricipating localities. Components and Sub-Components and activities in each Sub-Component have detailed design and close connection with objectives and outputs of the Project in accordance with rural development orientations of the agriculture sector in general as well as socio-economic development orientations of the participating provinces in particular. During implementation of the Project, there are some changes compared to original design, such as: (a) In the project design in Sub Component 2.2 " Promotion of Agricultural Extension Contracts", three models to be financed include: (i) village/hamlet model (less than 500 USD); (ii) commune model (less than 5,000 USD), and (iii) provincial model (less than 10,000 USD), due to the modest amount of fund for village and commune models, plus with the fact that the Project do not have financial support to cadres of particiapting villages and communes, so actual implementation did not involve village and commune models but provincial models only, and the implementation of provincial models still ensues partipatory rapid appraisal method; (b) in the initial design, funds are equally allocated to the finve participating provinces; however, the implementation of the project in 5 provinces is uneven due to various reasons related to implementation capacities, mobilization of counterpart fund, VAT refund, leading to an adjustment and reallocation of resources between provinces.

Recommendation: In the case of implementation of model at commune and village level, it is neccessary to allocate appropriate resources and funding for relevant staff working in communes and villages. In case of necessity, the investor should allow adjustment of investment capital compared to original design to fit the actual implementation of the project in each project area.

<u>Lesson No.2:</u> The strong committment with ADB of the Government of Vietnam through the Executive Agency - MARD and the close and effecient directions of the Project Steering Commuttee directly headed by the Diputy Minister of MARD. The close cooperation between PMUs from central to local levels and agencies involved in the projects, scientists, farmers, especially poor farmers, ethnic minorities in the remote areas is the key factor leading to the sucess of the Project. The strong committment of the Government of Vietnam through the Executive Agency - MARD with ADB in implementaion of objectives, outputs, inputs, and activities of Components setforth in the Agreement, together with the close and effecient directions of the Project Steering Commitee directly headed by the Diputy Minister of MARD is the key factor leading to the sucess of the Project. For example, (i) the well performed committment of the GoV with ADB to adequately and timely provide the counterpart fund (25%) for the Project through MARD and the five participating provinces has helped to disburse the ADB fund of 75% ; (ii) demonstration models and extension servies implemented in communes with at least 30% of poor households to participate

(actual implementation is 89.02% because localities have chosen most of poor households to participate in the project); (iii) at least 40% of beneficiaries are women (actual implemenation is 55.62%); (iv) other committments in the Agreement have all been implemented. The close cooperation between PMUs and relevant agencies include: CPMU and IPMUs of 10 research institutes and 10 agricultural colleges and vocational training schools and relevant agencies of MPI, MOF, SBV, and Departments of MARD such as Organization and Personnel Department, Science, Technology and Environment Department, Finance Department, Construction Management Department, NCAE, as well as the colose collaboration of PPMUs of Thanh Hoa, Nghe An, Quang Nam, Dak Nong and Ninh Thuan provinces with relevant units within these provinces, with farmers, particularly poor farmers, ethnic minorities in the remote areas has contributed to sucessful implementation of the Project. However, in initial years of project implementation, there were some delays of Ninh Thuan, Quang Nam and Dak Nong provinces in provision of sufficient counterpart fund, leading to slow implementation of project activities.

***Recommendation**: PMUs at different levels need to report their problems with justification and propose their detailed work plans to submit to the investor for consideration and provision of counterpart fund for their projects. The investor's adequate and timely allocation of counterpart fund reflects good implementation of one of key committments with ADB and contributes to the success of the Project.*

Lesson No.3: The detailed assigment of responsibilities to units participating in the Project, especially, departments of MARD in accordance with Decision No. 455 QD/BNN-DANN dated 1 February 2008 on decentralization of implementation of the ADB-funded AST Project has helped stakeholders to actively implement activities of the Project. The decentralization for the hosting agencies in accordance with Decision No.413/QD-BNN-KHCN dated 23/02/2010 on assignment of responsibility for approval, acceptance and settlement of research projects of the AST Project has contributed to increase accountability of the hosting organization, to promote activeness, capacity and resources of units, while reducing pressure on the management of the DOSTE, Department of Finance and CPMU. MARD issued Decision No.455 QD/BNN-DANN dated 01/02/2008 on decentralization of implementation of the ADB-funded AST Project to assign some departments to lead the implementation of some project activities, such as: DOSTE to lead Sub Component 1.1: Client-oriented Agricultural Research), Sub Component 1.3: Upgrading of Research and Laboratory Equipment; DOP to lead Sub Component 1.2: Training of Research Staff, Sub Component 3.1: Improving Teaching Capacity and School Curricula; 3.2: Investment in upgrading library and laboratory equipment and materials; NCAE to lead Component 2: Grassroots Agricultural Extension Improvement; and some other relevant departments of MARD to support the Project in line with their mandates. This Decision has helped departments of MARD to allocate their staffs to support project implementation, actively implement and monitor project activities (DOSTE, Department of Finance, CPMU have developed checking plans and organized direct check 85 out of 125 research projects, the remainders were assigned to hosting units to check). During implementation of 125 research projects of the AST project, MARD has issued Decision No.413/QD-BNN-KHCN dated 23/02/2010 on assignment of responsibility for approval, acceptance and settlement of research projects of the AST Project, contributing to improve accountability of 41 hosting units of research projects, promoting the activeness, capacity and resource use efficiency of these units, at the same time reducing pressure on the management of the DOSTE, Department of Finance and CPMU.

***Recommendation**: The allocation and assignment of responsibilities to units involved in the project need to be clearly presented in the project feasibility report.*

Lesson No.4: Implementation of decentralization policy for institutes and schools to act as investors in charge of equipment procurement and civil work construction at institutes and schools; and decentralization to provinces of the project to act as investors to implement agricultural extension activities in the province. Although, in the ninitial time of project implementation, there were some problems arised, but this proves to be an **entirely correct policy,** contributing to speed up and improve the efficiency of implementation of project activities. Implementing the general policy of the Government and MARD on decentralization of project activities to localities and units participating in project activities, the AST Project has implemented decentralization of project activities to institutes and schools to act as investors in charge of equipment procurement and civil work construction at Institutes and schools; and decentralization to 5 provinces of the project to act as investors to implement agricultural extension activities in the province. In the ninitial time of project implementation, due to a lack of experience in implementation of ADB-funded projects and in procurement procedures, some institutes and schools, especially 10 agricultural colleges and vocational training schools with the first time of implementing ADB-funded projects, faced some constraints. To deal with this difficulty, institutes and schools and provinces have financed procurement staffs to participate in training courses and obtain certifications on procurement, at the same time, CPMU also organized training courses on procurement according to the Law on Procurement of Vietnam and ADB's regulations. Together with the organization of training courses for staffs, institutes, schools and provinces have well performed activities under responsibilities of investors, so project activities in participating units have gradually improved and achieved impressive results, proving that "the policy of decentralization to institutes, schools and provinces are entirely correct, contributing to speed up and improve the efficiency of implementation of project activities". It is noted that the policy of decentralization is correct, however, in the initial time of project implementation, in addition to some constraints related to procurement as aforementioned, institutes, schools and provinces faced quite a lot of other problems such as : (i) low level of English proficiency while procurement documents requested to be translated into English; and (ii) schools were not familiar with procurement procedures, so they had to do the work many times, leading to expensive cost and slow progress.

Recommendation: Units participating in the project should arrange either a coordinator or an accountant with good English to participate in the project. If possible, the project should allocate a budget line for translation of documents from Vietnamese to English and vice versa.

Lesson No.5: in the AST Project, the selection criteria for research projects are clear and the recruitment process goes fast and simple, do not cause difficulty to leaders of research projects, creating opportunities for researchers throughout the country, especially young researchers to participate. Among implemented reseach projects, about 50% of models have been extended, and model's results have helped to solve difficulties in production, helping farmers improve their capacity, increase the value of agricultural products and increase incomes, and at the some time helping many scientists in the agricultural sector to use the results to improve their knowledge and education. Clear selection criteria of research projects include: (i) Evaluation criteria for preliminary registration, and (ii) Evaluation criteria for presentation of detailed research projects issued together with Decision No. 2660/QD-BNN-KHCN dated 29/8/2008. The recruitment of research projects is fast and simple through evaluation results of preliminary registration and presentation of detailed research projects of the authors. These criteria are clear and the recruitment process goes fast and simple in accordance with young scientists/researchers - who are in charge of implementing research projects

and and technology transfer to farmers. The research projects implemented in the AST Project take the inheritance of ministrial level researches that have been done previously to transfer to farmers and do not overlap with researches of MARD in the period 2009 -2012. As above mentioned with regard to strengs of the Project, 70 extended models in the Project have been applied and institutionalized by MARD and other Ministries/Agencies. However, the models of selection and implementation of this study may be suitable for applied research and in particular for experimental research in the field in the remote and poor areas. The results of the models have solved difficulties in production, help farmers improve capacity, increase the value of agricultural products and increase income, such as: (i) model "Modeling production links in accordance with GAP on 3 trees of longan, rambutan, and pomelo" done by SOFRI, after fruit trees reach GAP standards, SOFRI has invited representatives of the U.S. Department of Agriculture to visit for consideration and got the US's CODE for longan and rambutan, so rambutan of Vietnam has been exported to the U.S.; (ii) model of production of hybrid corn seed VNL10 at My Son commune (Ninh Son district, Ninh Thuan province), in which a number of households has increased their incomes by 15-18 million dong compared to previous crop on the same area; the efficiency of the model increased by a range of 1.8 to 2.2 times higher than commercial corn production, 2.5 times higher than rice production. The research projects and demonstration models are not only practical but also meaningful in term of science; through research projects and models, 225 scientific staffs of the host institutions have used the research results to successfully defend their thesises of graduate, master and PhD.

Recommendation: A number of research projects upon completion can be considered to be extended models, then there should have a mechanism to give permission, allocate fund and create favorable conditions for replication implementation.

Lesson No.6: the selection of candidates for post graduate study abroad of the AST project is done correctly in accordance with the criteria of the MOET and MARD. To avoid risks for candidates in the learning process, it is necessary to thoroughly prepare for the candidates of foreign languages, communication skills, life skills, document collection skills, presentation skills and their ability to integrate into cultural and living environment overseas. DOP takes charge of the activity to select/appoint candidates for post graduate study overseas. The Department has cooperated with CPMU, Hanoi Agricultural University , and Water Resources University to conduct short-term training courses on professional knowledge and English and to recruit candidates in accordance with the criteria of the MOET and MARD. During the recruiment process as well as during the learning process of candidates overseas, the language proficiency of staffs is one of the major barriers to the recruitment and study of the candidates, Moreover, candidates are selected in different regions of the country and study in various countries around the world, in order to create better conditions for the candidates in learning and living, as well as to avoid risks that may arise, there needs to thoroughly prepare for the candidates of foreign languages, communication skills, life skills, document collection skills, presentation skills and their ability to integrate into cultural and living environment overseas.

Recommendation: Allocate funds to organize short-term training courses (1-2 months) on communication skills, life skills, document collection skills, presentation skills and their ability to integrate into cultural and living environment overseas. At the same time, foreign language training for research staff of institutes and schools of MARD is the urgent requirement of the units in the future.

Lesson No.7: further enhance the diversification of the agricultural extension service providers; ensure transparency and fairness in competitive bidding for AECs; announce bidding invitation on both Bidding Newspaper and local newspapers. In the initial period of the project, the bidding process of provision of agricultural extension services just witnessed the participation of the state extension system only, after 2 years of project implementation, there appeared and formed many private companies to bid to provide extension services, and accordingly, thanks to the diversification of the agricultural extension service delivery, the quality of extension services has been better. Therefore, diversification of the agricultural extension service providers should be encouraged and continue to attract potential extension service providers. This is like in Chile, where the provision of extension services "is absolutely through contractual arrangements with private agencies" and "it has aroused the interest and created similar approaches as in Latin America" In the AST project, the competitive bidding of AECs was conducted openly, transparently and fairly. To better mobilize extension service provides to participate in bidding, in addition to bidding invitation announced in the Bidding Newspaper, there needs to announce bidding notice in the local newspapers and/or send bidding invitations to potential extension service providers. In Vietnam in general and in 5 provinces participating in the Project in particular, most of the agricultural extension service providers have extensive experience in the field of transfer of technology, but has never participated in the bidding; moreover, there is an absence of the appropriate bidding mechanism to fit specific characteristics of agriculture and the current practice still apply bidding procedures similar to bidding procedures in construction, so agricultural extension service providers have faced many difficulties in participating in the bidding process.

Recommendation: There should be bidding mechanism taking into account the nature and characteristics of the agricultural sector and agricultural extension; extension service providers need to participate more training courses to improve capacity in bidding of contracts to provide agricultural extension services. PMUs at different levels need to provide detailed guidelines on bidding procedures and organize short-term training courses in this field for extension service providers.

Lesson No. 8:, the selection of extension model must come from the grassroots level according to the needs of farmers, in line with the oriented development of the local economy and market demand, and match each type of peasant household; During the implementation of extension model, it is necessary to have the active participation of local governments and to establish, build and train staffs on monitoring and evaluation at all levels. The identification of the need for extension must come from the grassroots level according to the needs of farmers, in line with the oriented development of the local economy and market demand, so people will feel more excited in implementation of extension model, therefore, it is necessary to apply the participatory extension method through organizing workshops at the facility to determine extension priorities and select extension model. The selection of a suitable model for each type of household has affected a lot the extension and sustainability of the model. For poor households, there should invest for them to apply models geared toward the direction of longer-term models like animal and poultry breeding, seed production, and after the end of the project, they can still use supported breeds as the production materials to continue seed/breed production without having to invest the money to buy new seeds. For the middle-income households, investment should come into models producing commercial products with short term and rapid payback, such as lean pork and safe poultry raising models, and after the end of the project, if these models are effective, they are likely to continue to invest in new seeds to reproduce. To review, monitor, supervise and evaluate the quality and quantity of contents and activities of the extension service providers with regard to extension contracts, it is

necessary to establish, develop and train monitoring and evaluation staffs at all levels (commune, district - and this activity can be coordinated with the government and unions at grassroots level).

Recommendation: Based on the participants in extension models, there should have appropriate mechanisms and policies to support farmers. It is also necessary to allocate funds to pay allowances for staffs involved in the project in villages and communes, especially allowances for local staffs involved in the monitoring and evaluation.

Lesson No.9: to build effective and close links between agricultural research and agricultural extension, and between research - extension and training, technology transfer and markets. Agricultural production of developing countries in the world often experiences through 3 stages: (i) early stage extension, (ii) science and technology period, and (iii) market period. In the first phase (early extension), when agricultural production is at a low level, farmers do not know how to use chemical fertilizers to increase yields, during that time, the advice to farmers to use fertilizers and pesticides, etc., has helped to increase the productivity and production of crops a lot, at this stage extension system plays a key role and commonly seen in some African countries such as Tanzania, Kenya, Mozambique, Nigeria and Vietnam, Indonesia in the 1990s. In the second phase (Agricultural Science and Technology), the increased inputs of chemical fertilizers and plant protection chemicals will not help to further increase productivity, but also pollute the environment; during this period, countries need to seek alternative methods to develop agricultural science and technology through revolution on seeds/breeds, farming techniques, post-harvest technology, higher added-value products, and in this period, the research units plays a key role in the direct transfer of high technology to farmers. **Currently, Vietnam is beginning in the second stage**, countries like South Korea, Taiwan, Thailand is at the end of this second phase. When agricultural science and technology develop to reach the peak, agricultural production will move to the third stage - the market stage. During this period, farmers / farmer groups / businesses have the ability to plan and carry out production closely meeting the strict needs of the market in quantity and quality of products. Countries such as Japan, Denmark, Israel, the Netherlands are beginning the third phase. In the third phase, the commercial enterprises play the leading role and they pay a substantial cost for securing market share. The AST Project has initially built effectively close links "between research and extension", "between research-extension and training, technology transfer and market", which is the basis to help policy makers as well as scientific and extension management officers to give recommendations to the State and the Government to consider for transferring the agricultural production of Vietnam toward ending the science and technology stage and quickly move to the market phase.

Recommendations: Currently, MARD has assigned Department of Science and Technology and Environment to lead and appraise science and extension activities, creating a good opportunity for the Department to recommend orientations of combination between research and extension.

Lesson No.10, the compliance with safety, environmental and social policies of GoV and ADB and the understanding, care and support to the poor, ethnic minorities and women are considered matters of priority of the Project. The majority of project activities comply pretty good safety environment policies of the Government and ADB. The environmental consultant of the Project has conducted initial environmental assessment at institutes and schools involved in the Project, indicating problems and recommendations of measures for environmental safety assurance. In general, beneficiary units has high sense in ensuring environmental safety when operating equipment and laboratories, but due to limited funding, not all research institutes and schools are able to able to

build an adequate system of wastewater treatment separately for different laboratories. In the Project, several research projects have mentioned or partly mentioned to the protection and maintenance of soil fertility, mitigation and adaptation to climate change. The demonstration models and field trials have contents related to environment are encouraged to implement. The issue of rural sanitation in the livestock models was initially addressed well in a number of localities in the project. The poor, ethnic minorities and women are the direct beneficiaries of the project activities through capacity building and income generation. The project has maintained a special interest in gender equality, the poor and ethnic minorities and encouraged those people to participate directly in the research and technology transfer, helping them steps to improve their knowledge, skills and produce more opportunities to improve income in a sustainable way, even after the project ends.

Recommendations: It is necessary to have comprehensive investment of equipment and take consideration of providing investment on the treatment system and environmental protection together with equipment investment. There is a need to develop criteria for selection of households, villages, communes and areas to participate in the project to ensure appropriate participants to be selected.

Lesson No.11: ADB has helped accelerate project implementation, particularly disbursement progress. The relationship between ADB and Vietnam is the partnership based on trust and trust building in development cooperation. ADB's missons have helped in the formation and appraisal process for Vietnam and ADB to conclude the Agreement, then explained the guidelines and procedures of ADB and reviewed the project progress. There were many ADB's missons to work with CPMU, PPMUs and IPMUs (six months per time on average) to review the progres of the Project. Findings and recommendations of the ADB's missions have been discussed with CPMU, PPMUs and IPMUs to reach agreement of suitable interventions. At the end of each mission is a wrap-up meeting between the mission and agencies involved in the Project under the chairmanship of the Deputy Minister of MARD. Findings of the mission and concluding remarks of the meeting were presented in the memorandum for both sides to implement. To ensure the fund efficiency and accelerate implemetation progress of the Project, ADB does not only perform the function of the donor by the ADB's regulations and regulations stipulated in the Agreement, but also support the project, focusing in development of overall and nnual work plans, review and feedback of no objection to the sub-projects, recruitment of consultants and auditing, disbursement of ADB fund. Some of ADB's activities are key factors for the project to help solve problems and accelarate project progress, including: (i) review of project performance every six months and proposal of detailed work plans for the next 6 months of the project; (ii) together with the borrower to consider necessary adjustments of the Agreement if needed through the mid-term review; (iii) increase of the celling of the imprest account of the Project from 1 million to 3 million USD in 2010. The relationship between ADB and the Project is very good, reflecting a two-way partnership based on trust and trust building in development cooperation.

*Recommendation:*ADB considers and sends letter of no objection to the bidding packages in a shorter time will help accelarate implementation progress of the project.

Lesson No.12, in the first year of implementation, the cooperation between consultants and PMUs and stakeholders faced some difficulty. However, with the mobilization of international and local consultants and local experts in 5 provinces with appropriate professional qualifications and meeting the requirements of the Terms of Reference (TOR), these consultants have provided active technical supports to CPMU, PPMU, and IPMUs during

project implementation and their efforts have been highly appreciated by stakeholders. During implementation, there are some changes in consultant inputs compared to the oringinal plan. In the first year, the cooperation between consultants with CPMU, PPMUs, IPMUs and stakeholders faced some constraints due to a delay of 13 months in mobilization of the consultant team, and during that time some activities started whereas it took some time for the consultant team to get accustomed to procedures of the Project. During implementation, some changes in consultant inputs compared to the original plan were due to the withdrawal of some positions or substitution, supplemence of consultants according to changes in operational scale of the Project. However, with the mobilization of international and local consultants with appropriate professional qualifications and meeting the requirements of the Terms of Reference (TOR), and the mobilization of independent consultants working in 5 PPMUs with in-depth knowledge of agriculture, good understanding of actual situation in the project areas, and extensive experience in agricultural extension, since September 2009, the cooperation between consultants and CPMU, PPMUs, IPMUs, and stakeholders has significantly been improved. These consultants have provided active technical supports to CPMU, PPMU, and IPMUs in implementation of project activities and their efforts have been highly appreciated by stakeholders. The difficulty was that since 22 May 2009, there were two international consultants (one on extension management and one on rural-based vocational training) who asked to leave the Project, and the shortage of international consultants in extension has caused some difficulty for implementaion of the Component 2 as well as afected the quality of implemented activities, which was most evident in the quality of the activity of capacity improvement of extension communication.

Recommendation: *There should be no changes in consultant inputs during project implementation.*

GENERAL CONCLUSIONS AND RECOMMENDATIONS

The post-graduate training for 55 candidates overseas in conjunction with short-term training courses and study tours within and without the country has helped strengthen the capacity of the agricultural sector in general and the participating units in particular. The investment in equipment for institutes and schools has helped improve research capacity and technology transfer of these units. The extension contracts implemented in the Project were made possible upon determination from the meetings at the grassroots communities on participatory extension methods, reflecting the real needs of farmers, so the farmers in the participating provinces welcomed the project and actively participated in the project. The competitive bidding mechanism applied in extension contracts of the project is a new approach, reflecting advances in agricultural extension activities in Vietnam, creating a good opportunity for extensive participation of extension service providers in the project. The renovation and reconstruction of 30 training curriculum and the compilation of the 244 sets of training curriculum folllowing the new method have been applied to teaching and meets the needs of training curriculum for schools. In addition, the Project has obtained many other positive results. From the results of the project through the analysis of the strengths and weaknesses of the project, 12 lessons learned have been drawn out, helping stakeholders of Vietnam and international communities to consider for possibility of application in project implementation as well as in making new policies relating to agricultural science and technology improvement in the coming time.

General Recommendations: Based on the results and lessons learned of the AST Project, recomendations submited to MARD, Ministries and Agencies at central level, and Provincial People's Committees include the following: (i) A number of research projects upon completion can be considered to be extended models, then there should have a mechanism to give permission, allocate fund and create favorable conditions for extension of the models (ii) Enhance the close and effective links between research, technology transfer and extension, (iii) Annually, the Government and People's Committees of Provinces to allocate budget to implement local extension programs; and (iv) develop comprehensive policies to implement agricultural science and technology and extenstion tasks in accordance with the competitive bidding mechanism under Decree No. 115 and Decree No. 02 of the Government.

APPENDIX 1 : LIST OF INSTITUTIONS AND PROVINCES PARTICIPATING IN THE AST PROJECT

1. Thirteen (13) Agricultural Research Institutes include: The 10 initial research institutes (i) Cuu Long Delta Rice Research Institute (CLRRI); (ii) Southern Fruit Research Institute (SOFRI); (iii) The Institute of Agricultural Science for Southern Vietnam (IAS); (iv) Western Highland Agro - forestry Science and Technology Institute (WASI); (v) Forest Science Institute of Vietnam (FSIV); (vi) Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD); (vii) Field Crops Research Institute (FCRI); (viii) Soils and Fertilizers Research Institute (SFRI); (ix) Northern Mountainous Agriculture and Forestry Science Institute (NOMAFSI) (x) Plant protection research institute (PPRI); and the 3 additional research institutes: (xi) Institute for Agricultural Environment (IAE); (xii) Agricultural Science Institute of Northern Central Vietnam (ASINCV); and (xiii) Southern Coastal Central Agricultural Science Institute (ASISOV).

2. Five (5) provinces in the Central Region of Vietnam include: Thanh Hoa, Nghe An, Quang Nam, Dak Nong and Ninh Thuan.

3. Ten (10) colleges and vocational and technical schools of MARD, include: (i) DaNang Food Production College; (ii) BaoLoc Secondary Technical and Vocational School (Lam Dong); (iii) Southern Agricultural College (SAC - Tien Giang); (iv) The Southern College for Engineering and Agriculture (CEA - Can Tho); (v) Secondary Technical School for Food Management (Hai Phong); (vi) Secondary Technical School for Food Processing (Ho Chi Minh city); (vii) Hanoi College of Technology and Economics (HNCTE); (viii) Water Resources Secondary Technical and Vocational School (Ha Nam); (ix) Water Resources Secondary Technical and Vocational School (Quang Nam); (x) Northern Vietnam College of Agriculture and Rural Development (NVCARD - Ha Tay)

APPENDIX 2 : TERMS OF REFERENCE (TOR)

1. Background

The Agricultural Science and Technology Project, Loan No.2283-VIE (SF) is funded by the Asian Development Bank through a Loan with total cost of USD 40 million equivalent, in which the ADB fund is 20,198,000 SDR (USD 30 million equivalently) and the counterpart f und is USD 10 million. The Loan Agreement of the Project was signed between the Government of Vietnam and ADB on 14th March 2007 and became effective on13th June2007. The project activities are expected for completed by 31st December 2011 and the loan closing date is scheduled for the 30t h June 2012.

The overall objective of the AST Project is to achieve sustainable and equitable agricultural growth and ultimately contribute to reduction in rural poverty. The specified objectives of the project are to strengthen the nationally agricultural science and technology (AST) system in Vietnam, through addressing the critical issues involved in AST development including the low level of linkages among the key AST areas of agricultural research, agricultural extension and agricultural vocational training, and gaps in the physical and human resource capacities of the national AST system.

The AST Project comprises 4 Components:

- Client oriented agricultural research programs and capacity strengthening(10 participating Research Institute)
- Grass roots agricultural extension improvement (5provinces in central Vietnam)
- Rural-based technical and vocational training (10 participating Schools and Colleges)
- Project management

The project has been implemented in 5provinces (Thanh Hoa, Nghe An, Quang Nam, Ninh Thuan.Dak Nong), 10 Research Institutes (Cuu Long Rice Research Institute, Food and foodstuff institute, Vietnam Academy of Agriculture Science, Southern Fruits Research Institute, Institute of Agricultural Science of Sourthem Vietnam–Binh Thang center, Institute of Plant Protection .Western Highland Agro - forestry Science and Technology Institute, Institute of Soil and Fertilizer. Forest Science Institute of Vietnam, Institute of Policy and Strategy for Agriculture and Rural) and 10 vocational and technical schools (DaNang Food College, BaoLoc Secondary Technical and Vocational School, Secondary Technical, Vocational, and Agriculture and Rural Development School, HaTay, Agricultural and Rural Development Secondary Technical School Tien Giang, Secondary School for Mechanics, Agricultural Technique and Rural Development; CanTho, Secondary Technical School for Food and Food stuff Management; HaiPhong, Secondary Technical School for Food Processing; HoChiMinh City ,Agricultural Materials and Food Secondary Technical School- Hanoi, Water Resources Secondary Technical and VocationalSchoolNo1 -HaNam; Water Resources Secondary Technical and Vocational School No.2-QuangNam.

Details of the three Project Components are described below. Progress in each subcomponent indicated as well.

Component 1: Client-oriented Agricultural Research and Capacity Strengthening

Sub-component1.1: Client-oriented research program: The AST Project has funded 125 client-oriented research projects for 2-3 years each. Projects are focused on the needs of rural households in rural and remote areas of Central and northern mountainous regions of Vietnam. The majority of projects are scheduled to be completed by the end of 2011.

Sub - component12: Training of research staff: Forty short training, courses have been conducted on17 different topics in 2008, 2009 and 2010 under the coordination of VAAS. Further courses will be conducted in 2011. Post- course evaluation will be completed in Q2 2011 (separate activity). Overseas study programs for PhD. Masters and post- doc courses have been funded for 57 candidates. Most of these programs will be completed in 2012·2013(during the unfunded extension period of the Project).

Sub - component 1.3: Upgrading of research and laboratory equipment has been funded for 1 2 Research Institutes (the 10 participating Institute and 2 addition Research Institutes). Installation and use of equipment is expected to be completed during 2011.

Component 2: Grassroots Agricultural Extension Improvement

Sub - component 2.1: Pro - poor Provincial Extension Service: The main focus of this sub – component is capacity building of agricultural extension staff, extension service providers and grassroots extension staff in the five project provinces. It also includes procurement of basic equipment, provision of incremental operational cost during the first 2 years of project implementation and financing national medial program regarding Agricultural Science and Technology

Sub - component 2.2: Promotion of Agricultural Extension Contracts: Over the period 2008 to 2010, 513 individual contracts for design and management of on-farm demonstration trials have been awarded to a variety of government and non-government extension service provide.

Component 3: Rural based Technical and Vocational Training

Sub - component 3.1: Improving technical and managerial knowledge and skill and school Curricula: Strengthening capacity or rural based technical and vocational training schools through a number of training program to improve teachers' technical knowledge and teaching and managerial skills. Under this sub – component, 30 individual curricula have been developed or revised for range of subject areas of relevance to the 10 participating schools. Eleven of the 30 have been completed and the other 19 will be completed in 2011.

Sub - component 3.2: Investment in upgrading library and laboratory equipment and materials, teaching and laboratory facilities, and office equipment for 1O schools will be completed in2011.

Following the ADB Loan Review Mission in April 2012.ADB requested that a proposal document successful subproject experiences and lesson learnt under Project for nationwide implementation of decree 115 and decree o2 and for enriching the project completion report (PRC). It is proposed that 03 person month's international specialist and two 4 person months national specialist are required to conduct this study, the international specialist shall be the Team leader of the lesson learnt consultant group including one national research lesson learnt specialist and a national extension lesson learnt specialist

2. Consultancy Objectives

a. Conduct quantitative and qualitative studies to identify the strengths and weaknesses of the competitive mechanisms applied for research projects and extension contracts financed by AST.

b. Conduct review of impacts of different interventions for vocational schools and colleges as well as research institutes under AST to extract lessons learnt for future interventions.

c. Propose the lessons learnt for implementation decree 115 and Decree 02

d. Document success stories in the project as knowledge products and as multi-media materials to promote pro-poor research and extension in Vietnam;

3. Scope of services

a. Review the implementation of research projects, extension contracts, and interventions for vocational schools, colleges, and research institutes under AST to identify the strengths and weaknesses of the project's competitive mechanisms inline with the Decree 115 and Decree 02;

b. Review implementation arrangements from PPMU down to poor commune, particularly on participatory process on poverty identification and serviced liveries and make are commendation for improvement for implementation of Decree 02.

c. Compare the project's competitive mechanisms with the ether current mechanisms applied by MARD and propose the lesson-learn for nationwide application;

d. Utilize data in the Project monitoring system and collect additional quantitative data of representative size to derive the findings.

e. Conduct gender analysis to evaluate gender impacts of project activities and recommend strategy to improve gender mains treading in future interventions in Viet Nam.

f. Evaluate compliance to ADB social and environmental safeguard in project activities, extract lessons and make recommendation for future project interventions.

g. Document the good example and experiences of project's activities and impacts as documents and as multi-media materials for wider promotion of AST and for utilization for the PCR;

h. Propose the future activities and investments to enhance the research and vocational training capacity of MARD's research institutes and colleges/vocational schools;

4. Required deliverable

- An inception report after 2 weeks of mobilization;
- Documentations of success scores as short report and at least 10 multi-media products.
- A draft final report submitted for comments one month prior to project completion.
- Final report at the completion of the assignment

5. Requirements

This study requires an international lesson-learnt specialist with

- Post-graduate qualifications in agricultural economies or ether similar fields
- Extensive experience in project procurement and implementation;
- Experience in agriculture in Viet Nam and knowledge of agricultural research and extension systems in Vietnam

This study requires the national research lesson-learnt specialist with

- Post-graduatequalificationsinagriculturalresearchorethersimilarfields;
- Extensive experience in research project management and implementation;
- Experience in agriculture research in Viet Nam and knowledge of agricultural research system inMARD;

This study requires the national extension lesson-learnt specialist with

- Post-graduate qualifications in agriculture or ether similar fields;
- Extensive experience in extension contract management and implementation;
- Experience in agriculture extension in Viet Nam and knowledge of agricultural extension system in MARD.

6. Conditions

Consultant will be reasonability to the Project Director for consultancy scope of services as details in the Terms of Reference.

The working period of the consultant's is *5* months to commence in Q3 2012 and to be completed by December 2012. The working location of the consultants is in Ha Noi and in the Project provinces as required.

The Consultant will supported by national and international consultants working on the Project and by research project leaders and staffs of the project Management Unit in the Research Institutes, Provinces and schools as well as staff of the Central Project Management Unit

The Consultant will cooperate with the PCR specialist and other specialist who has been mobilized from GHD/VICA consultant contract.

APPENDIX 3: OFFICIAL LETTER OF APMU ON COLLECTION OF INFORMATION FOR DOCUMENTATION OF LESSONS LEARNT FROM THE AST PROJECT

AGRICULTURAL PROJECTS MANAGEMENT BOARD

AGRICULTURAL SCIENCE & TECHNOLOGY PROJECT

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom - Happiness

No: 1137 /DANN-KHCN
ref: collection of information for documentation of lessons learnt from the AST Project

Hanoi, 16 May 2013

To: ……

The Asian Development Bank has approved and selected a International Consultant to document the lessons learned in the implementation of the AST Project and possible modalities to apply these lessons in future project management.

The Central Project Management Unit (CPMU-AST) of the AST Project kindly requests your agencies to provide information to fill in the questionnaires in the Annexes attached and sends the answered questionnaires to CPMU-AST at the below address not later than 25 May 2013 in writing and in e-version to the email addresses at xanhdv@gmail.com and lenhung33@gmail.com for complilation and analysis ./.

** Address "The Agricultural Science and Technology Project, room No.806, 8th floor, Building 2, 16 Thuy Khue, Tay Ho, Hanoi*

Recipients:

- As above;
- General Director (for reporting);
- Filed at Administration Office, AST project .

Authorized by APMB General Director
Project Director

Nguyen The Hinh
(signed)

Questions for discussion with PPMU of AST and Extension Center 5 provinces (Thanh Hoa ,Nghe An, Quang Nam,Ninh Thuan.Dak Nong)

1. Please assess of activities PPMU within AST in province

After assess, Please mark ✓ in the ❒ suitable with this content

❒ Very good ❒ Good ❒ Average
❒ Bad

2. Please assess of quality of extension service suppliers within AST in the province

After assess Please mark ✓ in the ❒ suitable with extension service suppliers

❒ Very good ❒ Good ❒ Average
❒ Bad

3. Please analysis gender activities and evaluate gender impacts within AST project in the province?

After assess, Please mark ✓ in the ❒ suitable with this content gender activities

❒ Very good ❒ Good ❒ Average
❒ Bad

4. Please evaluate compliance to ADB social and environmental safeguard of activities within AST project in the province?

After assess, Please mark ✓ in the ❒ suitable with gender social and environmental safeguard

❒ Very good ❒ Good ❒ Average
❒ Bad ❒ Very bad

5. What are strengths of competitive mechanisms (bidding mechanisms) for extension contracts within AST

6. What are weaknesses of competitive mechanisms (bidding mechanisms) for extension contracts within AST

7. What are main issues in the implementation of competitive mechanisms for extension contracts within AST in the province? What are finding and recommendation of extension activities within AST in province

8. Please present lesson learnt from applying of competitive mechanisms for extension contracts within AST in province? How can apply the lesson learnt from AST in the province in the future?

Questions for discussion with the 13 research Institutes (Cuu Long Rice Research Institute, Food and food stuff institute, Vietnam Academy of Agriculture Science, Southern Fruits Research Institute, Institute of Agricultural Science of Southem Vietnam–BinhThang Center, Institute of Plant Protection, Western Highland Agro-forestry Science and Technology Institute, Institute of Soil and Fertilizer, Forest Science Institute of Vietnam and Institute of Policy and Strategy for Agriculture and Rural, Agricultural Environment Institute, North Central Region Agriculture Science and technology institute, South Central Region Agriculture Science and technology institute) and some service providers

1. Please assess of activities IPMU within AST in Institute

After assess, Please mark ✓ in the ❒ suitable with this content

❒ Very good ❒ Good ❒ Average
❒ Bad

2. Please assess of quality of national training courses that were implemented by VAAS

After assess, Please mark ✓ in the ❒ suitable with national training courses

❒ Very good ❒ Good ❒ Average
❒ Bad

3. Please analysis gender activities and evaluate gender impacts within AST project in the institutes

After assess, Please mark ✓ in the ❒ suitable with gender activities and evaluate gender impacts

❒ Very good ❒ Good ❒ Average
❒ Bad

4. Please evaluate compliance to ADB social and environmental safeguard of activities within AST project in the institutes

After assess, Please mark ✓ in the ❒ suitable with social and environmental

❒ Very good ❒ Good ❒ Average
❒ bad

5. Please assess effective of using of equipment that were invested by AST in the institute

After assess, Please mark ✓ in the ❒ suitable with using of equipment

❒ Very good ❒ Good ❒ Average
❒ Bad

6. What are strengths of procurement and sign contract of research project following competitive mechanisms within AST in Institutes
7. What are weaknesses of procurement and sign contract of research project following competitive mechanisms within AST in Institutes
8. What are main issues of procurement and sign contract of research project following competitive mechanisms within AST in Institutes? What are finding and recommendation of procurement and sign contract of research project following competitive mechanisms within AST in Institutes?
9. Please present lesson learnt of procurement and sign contract of research project following competitive mechanisms within AST in Institutes? How can apply the lesson learnt from AST in the institute in the future?

Questions for discussion with the 10 vocational and technical schools (DaNang Food College, Bao Loc Secondary Technical and Vocational School, Secondary Technical, Vocational, and Agriculture and Rural Development School, HaTay, Agricultural and Rural Development Secondary Technical School Tien Giang, Secondary School for Mechanics, Agricultural Technique and Rural Development; CanTho, Secondary Technical School for Food and Foodstuff Management; Hai Phong, Secondary Technical School for Food Processing; HoChiMinh City, Agricultural Materials and Food Secondary Technical School-Hanoi, Water Resources Secondary Technical and Vocational School No1 -HaNam; Water Resources Secondary Technical and Vocational School No.2-QuangNam.

1. Please assess of activities IPMU within AST in Institute

After assess, Please mark ✓ in the ❒ suitable with activities IPMU

❒ Very good ❒ Good ❒ Average
❒ Bad

2. Please assess of quality of national training courses of improvement program that were implemented by DOP

After assess, Please mark ✓ in the ❒ suitable with national training courses

❒ Very good ❒ Good ❒ Average
❒ bad

3. Please assess of quality of building of curricula of the schools within AST?

After assess, Please mark ✓ in the ❒ suitable with building of curricula

❒ Very good ❒ Good ❒ Average
❒ bad

4. Please analysis gender activities and evaluate gender impacts within AST project in the school?

After assess, Please mark ✓ in the ❒ suitable with gender

❒ Very good ❒ Good ❒ Average
❒ bad

5. Please evaluate compliance to ADB social and environmental safeguard of activities within AST project in the school?

After assess, Please mark ✓ in the ❒ suitable with social and environmental safeguard

❒ Very good ❒ Good ❒ Average
❒ bad

6. What are effective of using of equipment and civil work that were invested from AST for school?

After assess, Please mark ✓ in the ❒ suitable with equipment and civil work

❒ Very good ❒ Good ❒ Average
❒ bad ❒ Very bad

7. What are strengths of procurement and sign contract of equipment and civil work following competitive mechanisms within AST in school
8. What are weaknesses of procurement and sign contract of equipment and civil work following competitive mechanisms within AST in school
9. What are main issues of procurement and sign contract of equipment and civil work following competitive mechanisms within AST in school? What are finding and recommendation of procurement and sign contract of equipment and civil work following competitive mechanisms within AST in school
10. Please present lesson learnt of procurement and sign contract of equipment and civil work following competitive mechanisms within AST in school? How can apply the lesson learnt from AST in the vocational school in the future?

Questions for discussion with DOP, one candidate completed PhD study, and some agencies of candidates

1. To what degree do you assess the usefulness of training courses overseas under the AST Project to MARD?

After assess, Please mark ✓ in the ❒ suitable with overseas training activities

❒ Very good ❒ Good ❒ Average
❒ bad ❒ Very bad

2. What are strengs in implementation of activities of overseas training programs?

3. What are weaknesses in implementation of activities of overseas training programs?

4. What are major problems/constraints in implementation of activities of overseas training programs?

5. Please present lessons learnt of implementation of activities of overseas training programs under the AST Project? How can apply the lessons learnt from the AST Project in MARD in the future

Questions for discussion with Department of Science, Technology and Environment

1. What are strengs in implementation and management of research projects in the Client-oriented Agricultural Research Programs of the AST Project?
2. What are weaknesses in implementation and management of research projects in the Client-oriented Agricultural Research Programs of the AST Project?
3. What are major problems/constraints in implementation and management of research projects in the Client-oriented Agricultural Research Programs of the AST Project? What are your findings and suggestions of activities in implementation and management of research projects in the Client-oriented Agricultural Research Programs of the AST Project?.
4. What are similarities and differences in implementation and management of research projects of the AST Project compared to implementation and management of research projects of MARD annually?
5. What are similarities and differences in implementation of 70 extended models compared to normal extension models?
6. Please present lessons learnt of implementation and management of research projects of the Client-oriented Agricultural Research Programs of the AST Project? How can apply the lessons learnt from the AST Project in MARD in the future.

APPENDIX 4: OFFICIAL LETTER OF APMU ON ANNOUNCEMENT OF WORKING AGENDA OF THE INTERNATIONAL CONSULTANT IN COLLECTION OF INFORMATION FOR DOCUMENTATION OF LESSONS LEARNT FROM THE AST PROJECT

AGRICULTURAL PROJECTS MANAGEMENT BOARD

AGRICULTURAL SCIENCE & TECHNOLOGY PROJECT

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom - Happiness

No: 1136 /DANN-KHCN
ref: announcement of working agenda of the international for documentation of lessons learnt from the AST Project

Hanoi, 16 May 2013

To: ……

To synthesize the lessons learnt during the implementation of the project AST for better direction and management of projects, the Central Project Management Unit (CPMU-AST) of the AST Project kindly introduces the international Consultancy to work with your agency to discuss the results of the project, the lessons learned from the success of the AST project following the attached working agenda of the International Consultant.

The CPMU-AST kindly request your agency to prepare necessary contents requested in the attached working agenda and appoint staffs to work with the international consultant./.

Recipients:

- As above;
- General Director (for reporting);
- Filed at Administration Office, AST project .

Authorized by APMB General Director
Project Director

Nguyen The Hinh
(signed)

Working Agenda of international consultant in accordance with official letter No. 1136 DANN-KHCN dated 16 May 2013

No.	Date	Hours	Agency to work	Transport	Working contents	Remark
1	20/5/2013	8:30 - 9:30	Plant Protection Research Institute	car	Strengs and weaknesses in the bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute. Problems and constraints in the bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute Lessons learnt of implementation of bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute. How can apply these lessons in the Institute in the future?	
2		10:00 – 11:00	**Forest Science Institute of Vietnam**	car	Strengs and weaknesses in the bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute.	
3		14-00 - 15:30	Soils and Fertilizers Research Institute	car	Problems and constraints in the bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute	

No.	Date	Hours	Agency to work	Transport	Working contents	Remark
4	21/5/2013	10:00 - 12:00	Secondary Technical School for Food Management	car	Strengs and weaknesses in bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. Problems and constraints in bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. Lessons learnt of implementation of bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. How can apply these lessons in the school in the future?	
5	22/5/2013	10:00 - 12:00	Northern Vietnam College of Agriculture and Rural Development	car	Strengs and weaknesses in bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. Problems and constraints in bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. Lessons learnt of implementation of bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. How can apply these lessons in the school in the future?	
6	23/5/2013	14:00 - 16:30	PPMU of Thanh Hoa	car	Strengs and weaknesses in implementation of the competitive mechanism with regard to AECs within the scope of the AST Project in the province. Major problems and constraints in implementation of the competitive mechanism with regard to AECs within the scope of the AST Project in the province. Major lessons learnt of implementation of the competitive mechanism with regard to AECs within the scope of the AST Project in the province.. How can apply these lessons in the province in the future?	
7	24/5/2013	14:00 - 16:30	PPMU of Nghe An	car	Strengs and weaknesses in implementation of the competitive mechanism with regard to AECs within the scope of the AST Project in the province. Major problems and constraints in implementation of the competitive mechanism with	

No.	Date	Hours	Agency to work	Transport	Working contents	Remark
					regard to AECs within the scope of the AST Project in the province. Major lessons learnt of implementation of the competitive mechanism with regard to AECs within the scope of the AST Project in the province.. How can apply these lessons in the province in the future?	
8	25/5/2013		Nghe An - Ha Noi	car		
9	3/6/2013	8:50 -9:50 (VN1513)	Hanoi - Da Nang	airplane	Strengs and weaknesses in bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. Problems and constraints in bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. Lessons learnt of implementation of bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. How can apply these lessons in the school in the future?	
10		14:00 - 16:30	Da Nang Food Production College	car		
11	4/6/2013	10:-00 - 12:00	Water Resources Secondary Technical and Vocational School (Quang Nam)	car		

No.	Date	Hours	Agency to work	Transport	Working contents	Remark
12	5/6/2013	8:45-9:45 (VN 1305)	Da Nang - HCM	airplane		
13		15:00 - 16:30	Institute of Agricultural Science for Southern Vietnam	car	Strengs and weaknesses in the bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute. Problems and constraints in the bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute Lessons learnt of implementation of bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute. How can apply these lessons in the Institute in the future?	
14	6/6/2013	10:00 - 12:00	Southern Agricultural College (Tien Giang)	car	Strengs and weaknesses in bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. Problems and constraints in bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. Lessons learnt of implementation of bidding process and contractual arrangements of implementation of equipment and civil work package within the scope of the AST Project in the school. How can apply these lessons in the school in the future?	
15		14:00 - 16:00	Southern Fruit Research	car	Strengs and weaknesses in the bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute.	

No.	Date	Hours	Agency to work	Transport	Working contents	Remark
			Institute		Problems and constraints in the bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute Lessons learnt of implementation of bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project in the Institute. How can apply these lessons in the Institute in the future?.	
16	7/6/2013		Tien Giang - HCM	car		
		18:00 – 20:00 (Vn 7264)	HCM- Hanoi	Airplane		
17	11/6/2013	8:30-9:30	Department of Personnel	car	Strengs, weaknesses, problems/constraints, lessons learnt and how can apply these lessons in MARD on the overseas postgraduate training programs for Master, PhD and Post-doctoral candidates within the scope of AST Project	
		10:00 - 12:00	DOSTE	car	Strengs, weaknesses, problems/constraints in the bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project. Similarities and differences in management and implementation of research projects of the AST Project and annual research projects of MARD Lessons learnt of implementation of bidding process and contractual arrangements of implementation of research projects with the adoption of competitive mechanism within the scope of the AST Project How can apply	

No.	Date	Hours	Agency to work	Transport	Working contents	Remark
					these lessons in MARD in the future	
		14:00 - 16:00	NCAE	car	Strengs, weaknesses, problems/constraints in implementation of the competitive mechanism with regard to AECs within the scope of AST Project. Similarities and differences in implementation of the competitive mechanism with regard to AECs compared to implementation of normal extension activities. Major lessons learnt of implementation of the competitive mechanism with regard to AECs within the scope of AST. How can apply these lessons in MARD in the future.	

APPENDIX 5: LIST OF PEOPLE MET AND INTERVIEWED

No.	Name	Organization	Position
1	Pham Thi Vuong	Plant protection research institute	Deputy President
2	Pham Thi Hong Hanh	Plant protection research institute	Staff of planning division
3	Nguyen Van Chi	Plant protection research institute	Reseach project leader
4	Nguyen Nam Hai	Plant protection research institute	Reseach project leader
5	Nguyen Thi Thuy	Plant protection research institute	Reseach project leader
6	Pham Thi Luong	Plant protection research institute	Reseach project leader
7	Nguyen Thi Hoa	Plant protection research institute	Reseach project leader
8	Doan Van Thu	Forest Science Institute of Vietnam	Deputy President
9	Nguyen Tien Linh	Forest Science Institute of Vietnam	Deputy Director of Scientific Planning Department
10	Tran Duc Toan	Soils and Fertilizers Research Institute	Deputy President
11	Tran Thi Hanh	Soils and Fertilizers Research Institute	Chief Accountant
12	Nguyen Quang Hai	Soils and Fertilizers Research Institute	Head of Planning and International Cooperation Divison
13	Nguyen Minh Hung	Soils and Fertilizers Research Institute	Deputy Head of Planning and International Cooperation Divison
14	Cao Ky Son	Soils and Fertilizers Research Institute	Director of Fertilizer Center
15	Nguyen Van Ga	Soils and Fertilizers Research Institute	Head of the Department of Economics
16	Nguyen Duy Phuong	Soils and Fertilizers Research Institute	Deputy Head of the Department of Land Use
17	Thai Hong Van	Soils and Fertilizers Research Institute	Expert

No.	Name	Organization	Position
18	Pham Van Noi	Secondary Technical School for Food Management	Rector
19	Nguyen Thanh Vinh	Secondary Technical School for Food Management	Vice Rector
20	Duong Thi Khuy	Secondary Technical School for Food Management	Chief accountant
21	Nguyen Phi Hung	Secondary Technical School for Food Management	Deputy Head of Training Division
22	Tran Van Du	Northern Vietnam College of Agriculture and Rural Development	Vice Rector
23	Bui Huy Thuc	Northern Vietnam College of Agriculture and Rural Development	Chief accountant
34	Vu Huu Doan	Northern Vietnam College of Agriculture and Rural Development	Head of Training Management Division
25	Tran Ngoc Hung	Northern Vietnam College of Agriculture and Rural Development	Head of Planning and International Cooperation Divison
26	Phi Trong Hop	Northern Vietnam College of Agriculture and Rural Development	Expert
27	Le Van Hanh	PPMU of Thanh Hoa province	Deputy Director of the AST project in the province, Director of Provincial Agricultural Extension Center of Thanh Hoa province
28	Tran Van Cuong	PPMU of Thanh Hoa province	Staff of PPMU
29	Nguyen Van Thang	PPMU of Nghe An province	Phó Giám đốc , Giám đốc Trung tâm khuyến nông tỉnh Nghệ An
30	Phan Nguyen Hung	PPMU of Nghe An province	Chief accountant
31	Phan Vu Hoai	PPMU of Nghe An province	Monitoring staff
32	Doan Hanh Lam	PPMU of Nghe An province	Accountant
33	Phan Thi Oanh	PPMU of Nghe An province	Staff of PPMU
34	Tran Quoc Viet	Da Nang Food Production College	Rector

No.	Name	Organization	Position
35	Nguyen Huu Han	Da Nang Food Production College	Head of Divison, Coordinator
36	Nguyen Duc Chau	Water Resources Secondary Technical and Vocational School (Quang Nam)	Rector
37	Le Tan Son	Water Resources Secondary Technical and Vocational School (Quang Nam)	Vice Rector
38	Pham Thanh Dung	Water Resources Secondary Technical and Vocational School (Quang Nam)	Accountant
39	Huynh Viet Bi	Water Resources Secondary Technical and Vocational School (Quang Nam)	Project coordinator
40	Dao Huy Duc	Institute of Agricultural Science for Southern Vietnam	Deputy President
41	Ngo Thi Thu Huong	Institute of Agricultural Science for Southern Vietnam	Accountant
42	Tran Van Tuong	Institute of Agricultural Science for Southern Vietnam	Staff
43	Nguyen Chi Thanh	Southern Agricultural College	Vice Rector
44	Duong Van Tho	Southern Agricultural College	Head of accountant division
45	Bui Viet Khoa	Southern Agricultural College	Coordinator
46	Nguyen Minh Chau	Southern Fruit Research Institute	President
46	Nguyen Minh The	Southern Fruit Research Institute	Deputy President
48	Vo Huu Thoai	Southern Fruit Research Institute	Coordinator
49	Tran Thi Dinh	DOSTE	Senior Researcher
50	Pham Hung	Department of Organization and Personnel	Deputy Director
51	Nguyen Thi Thu	Department of Organization and Personnel	Expert
52	Ha Thuy Hanh	NCAE	Deputy Director
53	Dang Tran Tinh	Consultant on lessons learnt of agricultural extension	Local consultant

No.	Name	Organization	Position
54	Luong Tat Nho	Consultant on lessons learnt of agricultural research	Local consultant
55	Nguyen The Hinh	APMB	Deputy General Director of APMB, Director of the AST Project
56	Vu Tien Dung	AST Project	Deputy Director
57	Le Thi Nhung	AST Project	Former Deputy Director, technical support staff, AST Project

APPENDIX 6: LIST OF PARTICIPANTS OF THE WORKSHOP

No.	Name	Organization	Position
1	Nguyen The Hinh	APMB and AST project	Deputy General Director of APMB, Director of the AST Project
2	Tran thi Anh Thu	Department of Organization and Personnel	Expert
3	Nguyen Tan Hinh	DOSTE	Deputy General Director
4	Tran Thi Dinh	DOSTE	Senior Researcher
5	Nguyen van Chung	NAFEC	Staff
6	Ha Thuy Hanh	NAFEC	Deputy Director
7	Nguyen Van Huong	NAFEC	Staff
8	Vu Thi Thuy	NAFEC	Staff
9	Tran Ngoc Hung	Northern Vietnam College of Agriculture and Rural Development	Head of Planning and International Cooperation Divison
10	Bui Huy Thuc	Northern Vietnam College of Agriculture and Rural Development	Chief accountant
11	Phi Hong Hai	Forest Science Institute of Vietnam	Staff
12	Pham Thi Vuong	Plant protection research institute	Deputy Director
13	Duong Van Xanh	Consultant on lessons learnt of AST	International Consultant
14	Vu Tien Dung	AST	Vice Director
15	Nguyen Dinh Dieu	AST	Chief accountant
16	Nguyen thi Minh Huong	AST	Staff
17	Le Thi Nhung	AST	Staff
18	Hoang Thi Thu Hang	AST	Staff
19	Trinh Thi Thuy Hoi	AST	Staff
20	Nguyen Thi Ngoc Lan	AST	Staff
21	Luong Huy Hoang	AST	Staff

No.	Name	Organization	Position
22	Nguyen Van Quy	AST	Staff
23	Hoang Thai Ninh	AST	Staff
24	Nguyen Thi Viet Ha	AST	Staff
25	Duong Thi Diem Hang	AST	Staff
26	Pham Thi Tra Vinh	AST	Staff
27	Pham Thi Huong	AST	Staff
28	Nguyen Thi Thanh Nga	AST	Staff
29	Bui Thuy Linh	AST	Staff
30	Tran Diem My	AST	Staff
31	Nguyen Thi Thanh	AST	Staff
32	Nguyen Tien Linh	Forest Science Institute of Vietnam	Deputy Director of Scientific Planning Department
33	Nguyen Thu Huong	APMB	Staff
34	Nguyen Ngoc Thang	VIDECO Company	President
35	Vu Quynh Trang Quỳnh Trang	VIDECO Company	Staff
36	Dang Tran Tinh	Consultant on lessons learnt of agricultural extension	Local consultant
37	Phan Thu Nga	APMB	Staff
38	Phan Anh Tuan	APMB	Staff

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