



MINISTRY OF AGRICULTURE  
AND RURAL DEVELOPMENT (MARD)



ASIAN  
DEVELOPMENT BANK (ADB)



AGRICULTURE SCIENCE AND TECHNOLOGY PROJECT  
No. 2283-VIE(SF)

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# PROJECT COMPLETION REPORT





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AND RURAL DEVELOPMENT**



**ASIAN DEVELOPMENT BANK  
(ADB)**



**LOAN No. 2283-VIE (SF): AGRICULTURE SCIENCE AND TECHNOLOGY PROJECT**

# **PROJECT COMPLETION REPORT**



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## **BASIC INFORMATION**

### **A. Loan Characteristic**

- |                          |  |
|--------------------------|--|
| 1. Country:              | Socialist Republic of Vietnam  |
| 2. Loan Number:          | 2283-VIE(SF)   |
| 3. Project Name:         | Agriculture Science and Technology   |
| 4. Borrower:             | Socialist Republic of Vietnam  |
| 5. Executing Agency:     | Ministry of Agriculture and Rural Development (MARD)   |
| 6. Implementing Agency : | Agriculture Management Project Board (APMB)  |
| 7. Amount (approved):    | USD 40 million, including USD 30 million of ADB loan, USD 10 million of GoV's counterpart fund |

### **B. Loan Data**

- |   |                             |  |
|---|-----------------------------|--|
| 1 | Appraised on:               | 11 December 2006   |
| 2 | Loan Agreement signed on    | 14 March 2007  |
| 3 | Loan Agreement was valid on |  |
|   | - Upon Loan Agreement       | 13 June 2007   |
|   | - Actual date               | 13 June 2007   |
| 4 | Loan Closing Date           |  |
|   | - Upon Loan Agreement       | 31 December 2011   |
|   | - Actual date               | 31 December 2012   |
|   | - Number of variations      | 1  |
| 5 | Loan Covenants              |  |
|   | - Interest                  | 1% /year during the grace period and<br>1,5%/year for the remaining time |
|   | - Expiration time (years)   | 32   |
|   | - Preferential time (years) | 8  |
| 6 | Disbursement                |  |

#### *a. Date*

| First disbursement | Final Disbursement | Duration (Months) |
|--------------------|--------------------|-------------------|
| 1 July 2008        | 30 June 2013       | 59                |
| Valid date         | Loan closing date  | Duration (Months) |
| 13 June 2007       | 01 December 2012   | 66                |

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*b. Disbursement status upon ADB's data (Table LFIS) (\$ US)*

| Item                  | First allocation  | Revised allocation   | Disbursed            |
|-----------------------|-------------------|----------------------|----------------------|
| Civil                 | 1,201,604         | 1,095,074.28         | 1,404,194.96         |
| Equipment             | 9,731,651         | 13,050,391.89        | 12,528,017.37        |
| Vehicles              | 52,964            | 21,432.78            | 20,080.89            |
| Training              | 6,351,124         | 6,295,603.02         | 6,161,878.26         |
| Extension contracts   | 7,894,346         | 7,225,907.53         | 8,266,263.71         |
| Consulting service    | 981,780           | 1,779,,902.44        | 1,208,922.25         |
| Recurrent Expenditure | 662,442           | 916,558.22           | 869,194.21           |
| Interest              | 616,398           | 640,011.22           | 628,817.38           |
| Imprested amount      |                   | 73,681.24            |                      |
| Unallocated amount    | 2,525,002         |                      |                      |
| <b>Total</b>          | <b>30,017,311</b> | <b>31,098,562.62</b> | <b>31,087,369.03</b> |

*c. Project Data*

## 1. Project total cost (USD million)

| Cost                      | At appraisal time | Actual       |
|---------------------------|-------------------|--------------|
| Costs in foreign currency | 17,65             | 17,65        |
| Costs in local currency   | 22,35             | 22,35        |
| <b>Total</b>              | <b>40,00</b>      | <b>40,00</b> |

## 2. Financing Plan (USD million)

| Source       | Total     | (%)        |
|--------------|-----------|------------|
| ADB          | 30        | 75         |
| Vietnam GoV  | 10        | 25         |
| <b>Total</b> | <b>40</b> | <b>100</b> |

## 3. Expenditures by component (USD million)

| Component   | At appraisal time <sup>1</sup> | Adjusted overall planning |
|---|--------------------------------|---------------------------|
| Component 1: Client-oriented Agricultural Research And Capacity Strengthening | 15,74                          | 17,944                    |
| Component 2: Grassroots Agricultural Extension Improvement                    | 7,80                           | 8,407                     |
| Component 3: Rural-based Technical And Vocational Training                    | 9,04                           | 10,846                    |
| Component 4: Project Management   | 3,24                           | 3,937                     |
| <b>Sub-total (A)</b>  | <b>35,82</b>                   | <b>41,133</b>             |
| Contingencies (B)   | 3,56                           | 0                         |
| Financing Charges during Implementation (C)                                   | 0,62                           | 0                         |
| <b>Total (A + B + C)</b>  | <b>40,00</b>                   | <b>41,133</b>             |

<sup>1</sup> Tax included

## **ABBREVIATION**

|      |   |
|------|---|
| ADB  | Asian Development Bank                        |
| AST  | Agriculture Science and Technology            |
| PMU  | Project Management Unit                       |
| CPMU | Central Project Management Unit               |
| MARD | Ministry of Agriculture and Rural Development |
| GDP  | Gross Domestic Product                        |
| EIRR | Economic Internal Return Rate                 |
| NAEC | National Agricultural Extension Center        |
| PAEC | Provincial Agriculture Extension Center       |
| DAES | District Agriculture Extension Station        |
| PCR  | Project Completion Report                     |
| TOR  | Terms of Reference                            |

## **FOREIGN EXCHANGE** Exchange Unit - VND

| <b>Exchange rate</b> | <b>At appraisal time</b> | <b>At completion time</b> |
|----------------------|--------------------------|---------------------------|
|                      | 11 December 2006         | 31 December 2012          |
|                      | 1 USD = VND 16,000       | 1 USD = VND 20,800        |





# 1. PROJECT DESCRIPTION

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## 1.1. BACKGROUND

1. A number of Programs and projects have been funded by ADB in the past 10 years with aim at supporting Vietnam's agriculture in its sustainable development strategy, including (i) Tea and Fruit Development Project (TFDP); (ii) Agricultural Sector Development Project (ASDP); (iii) Quality and Safety Enhancement in Agricultural Products and Biogas Development Project.
2. Agriculture Science and Technology Project (hereinafter called Project) was one part of ADB's Vietnam Support Program during (2002-2004). The Project was approved under the Project Preparation Technical Assistance No.4149-VIE by ADB and Vietnam's GoV. The Project covers (i) thirteen (13) agricultural research institutes; (ii) five (5) Central provinces of Thanh Hoa, Nghe An, Quang Nam, Dak Nong and Ninh Thuan; and (iii) ten (10) Colleges and Technical and Vocational Secondary Schools under MARD (See the list of schools/colleges/institutes in Appendix 1)

## 1.2. PROJECT OBJECTIVES

3. Project objectives include:
  - Overall Objective: ensuring sustainable agricultural contributions to Vietnam's economic development of the country and rural poverty reduction.
  - Specific Objectives: Strengthening the national agriculture science and technology system to make contributions to economic development and reduced rural poverty:
    - Strengthen the capacity for 10 agriculture research Institutes in the field of national priority and regional development;
    - Strengthen capacity and grassroots extension methods for 5 central provinces;
    - Strengthen capacity for 10 rural-based technical and vocational secondary schools.

## 1.3. PROJECT COMPONENTS

4. Project was involved in 4 key components as follows:
  - Client-oriented agricultural research and capacity strengthening;
  - Grass-roots agricultural extension improvement;
  - Rural based technical and vocational training;
  - Project Management.

### *Main content of Component 1*

5. Client-oriented agricultural research and capacity strengthening program encompasses the following activities (i) client-oriented agricultural research program; (ii) overseas master/doctor/post-doctor training programs as well as domestic short-term capacity building training courses for researchers; (iii) upgrading/procurement of research/laboratory equipment for 10 agricultural research institutes.

### *Main content of Component 2*

6. Grassroots agricultural extension improvement embraces (i) making extension plans for all levels; (ii) organizing ToT training courses and capacity building training program for district/provincial/grassroots extension staff/workers as well as service providers; (iii) signing contracts for development of extension models; (iv) Capacity building (equipment procurement) for extension units in 5 project provinces; (v) conducting indigenous knowledge surveys; and (vi) launching extension communication dissemination programs in all 5 provinces and nationwide.

### *Main content of Component 3*

7. Rural-based vocational training consists (i) 20 Curriculum improvement and training material development for 10 colleges/schools; (ii) capacity building training courses for management and teaching staff; (iii) construction/upgrading of classrooms, libraries and equipment procurement serving teaching and practice activities.

### *Main content of Component 4*

8. The following activities were performed in the project management component (i) establishment of 5 Provincial Project Management Unit (PPMUs); Project Management Units for 10 institutes/schools (IPMUs); (ii) selection of consultants; (iii) selection of PMU staff; (iv) implementation arrangement for project activities at CPMU, PPMUs and IPMUs; (v) monitoring and evaluation of project activities; (vi) financial clearance; and (vii) preparation of quarterly/monthly reports for submission to ADB and relevant agencies/departments.

## **1.4. PROJECT COSTS**

9. In accordance with Loan Agreement, Project's total costs, the contingencies and taxes inclusive, were estimated at USD 40 million, in which foreign exchange costs were of USD 17.65 million (equivalent to 41.2% of total costs), costs in local currency of USD 22.35 million (58.8% of total costs); ADB loan of USD 30 million (USD 1.9 million of banking fees included) making up 75% of project fund; GoV counterpart fund of USD 10 million (25%).

## **1.5. PROJECT IMPLEMENTATION ARRANGEMENT**

10. MARD was the executing agency (EA) and was responsible for overall project implementation, approval of Project Investment Report. The CPMU, established under APMB, will perform project activities, oversee the day-to-day project implementation, and ensure inter-departmental coordination within MARD under appropriate technical guidance of (i) Department of Science and Technology Environment (DSTE) for the Client-oriented agricultural research and capacity strengthening component, (ii) National Agriculture Extension Center (NAEC) for Grass-roots agricultural extension improvement component; and (iii) Department of Organization and Personnel (DOP) for Rural-based technical and vocational training component; (iv) CPMU will be in charge of central-level procurement, consultant recruitment, fund disbursement and provision of support for PPMUs/IPMUs.
11. Five (5) PPMUs set up were responsible for overall extension-related activities, including organization of training courses for extension staff at all levels, provision of guidance and bidding for contracts developing extension models, conducting indigenous knowledge surveys, equipment procurement serving extension in provinces and districts, management of project finance and account. PPMUs carried out supervision, assessment and prepared progress reports submitted to CPMU and other stakeholders. Moreover, PPMUs were in charge of maintaining effective coordination among relevant provincial departments, provincial agricultural extension centers (PAECs), regional research institutes and other key stakeholders.

12. IPMUs were established in each of 20 participating institutions (10 institutes and 10 colleges/schools).
13. Project Steering Committee (PSC) established was headed by a Deputy Minister of MARD. Its members include representatives from relevant departments under MARD, Ministry of Education and Training (MOET), Ministry of Finance (MOF), Ministry of Planning and Investment, and Ministry of Science and Technology (MST), State Bank of Vietnam (SBV) and Provincial People's Committee of the project provinces. PSC was in charge of speeding the project progress, coordination among ministries and project provinces in overall policies of related policies as well as project implementation.

## **1.6. CHANGES**

### *Changes in investment capital*

14. Two changes in the investment capital during the implementation are: (i) increasing value of fund due to exchange change between SDR (special withdrawal) and USD exchange rate; this change was informed participating agencies in an official letter by CPMU. Because the exchange rate between SDR and USD kept changing (and keeps changing until now), thus the increase of the capital difference was only temporary (still increase or decrease). This caused difficulty for CPMU and other implementation units to plan, implement and disburse; (ii) the fund for Sub-component 2.1 under Component 2 becomes different among project provinces against the initial fund. Additional fund, therefore, was allocated for Thanh Hoa and Nghe An while the fund for Dak Nong and Ninh Thuan due to their PPCs' delay in counterpart fund provision for project activities as agreed<sup>2</sup>.

### *Changes during project implementation (policies, institution, procedures of ADB and Vietnam GoV).*

15. During the project implementation, there were some changes in policies, regulations, procedures between ADB and GoV (as mentioned below) which performed noticeable impacts in achieving successes, however still caused some difficulties to disbursement of the Project
16. These changes had performed positive effects in creating favorable condition for project implementation agencies in the selection of contractors and acceptance for research projects, and contributed to improving the quality of the construction and upgrading new laboratory at the Institute/School under projects, hastening the disbursement process and also enhancing the quality of research implementation activities, for instance:
17. Some laws and decisions had been established: (i) Law No. 38/2009/QH12 of the National Assemble on amending and supplementing a number of articles of laws concerning capital construction investment, dated 19 June 2009; (ii) Decision No. 413/QĐ-BNN-KHCN of MARD on assigning duties of approval, acceptance and finalization for research projects under AST project funded by ADB;
18. Procedures of ADB, GoV and MARD: according to the agreement with ADB on one more year extension of project implementation duration (closing the loan on 31 December 2012, closing the disbursement on 30 June 2013), GoV issued Official Letter No.7955/VPCP-QHQT, dated 03 November 2010. On that basis, MARD issued Decision No. 581/QĐ-BNN-HTQT, dated 28 March 2011 to allow: (i) some Ph.D. candidates to complete their studies before the proposed loan closing date; (ii) more time for transferring research results into the agricultural extension activities; (iii) preparing about 30 training programs and curriculum revision so that the benefit of project would be maximized; and (vi) lessons learnt in adoption of market mechanism in financing research and agricultural extension systems for public sector management.
19. Notice No.626/TB-BNN-VP issued by MARD on 21 January 2009 on strengthening of management decentralization was assigned (i) institutes/schools to establish basic science

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<sup>2</sup> Notice No. 822/TB-BNN-VP, dated 27 January 2010, MARD.

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council appraising the specifications of research equipment, DSTE was responsible for appraisal and submission to MARD for approval; (ii) Department of Agriculture and Rural Developments (DARDs) to review the technical-economic norms of agricultural extension contracts.

20. The capital allocation for the activity of program development and curriculum improvement was adjusted to increase by USD 600,000 from contingencies, this was approved by ADB on 02 February 2009.
21. Modifications more or less caused difficulties to the project: VAT of imported laboratory equipment increased from 5% (in 2009) to 10%, according to the Circular No. 129/2008/TT- BTC on guiding the implementation of some laws on VAT, applied according to the government's Decree no. 123/2008/ND-CP dated 08 December 2008 and the Circular No. 85/2009/TT-BTC dated 28 April 2009 providing guidelines for implementation of Decision No. 58/2009/QD-TTg of the Prime Minister of the Government dated 16 April 2009 supplementing tax solutions for implementing the policy on stimulating investment and sales in order to alleviate the economic downturn and relieve hardships for enterprises. Increasing VAT from 5% to 10% had reduced the profit of business activities, thus only few bidders want to provide equipment for the Project which means implementing units had less chance to select qualified bidder/service provider. In additions, the exchange rate between USD and VND had fluctuated noticeably and continuously during project implementation (increase from VND 16,000 per USD 1 to VND 21,000 per USD 1), this caused CPMU to keep adjusting budget plan and request for supplementing counterpart fund to satisfy investment needs.

## **2. EVALUATION OF PROJECT DESIGN AND IMPLEMENTATION**

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### **2.1. APPROPRIATENESS OF THE PROJECT**

22. The designed project's objectives were completely in conformity with the priority of Vietnam's GoV and ADB at the appraisal time as well as the current period. Regarding agriculture and rural development sector, during 2005 and 2007 (project preparation and approval time), GoV put priority on strengthening resources for agriculture sector, improving the quality of extension activities served as measures to boost socio-economic growth and development as well as poverty reduction in rural areas. This priority, currently, was remaining upheld.
23. Materials from GoV were used as a base for project formulation and approval, including Socio-Economic Development Strategy (2001-2010) and Socio-Economic Development Plan during 2006-2010. These materials emphasize the priority order: (i) rural industrialization and modernization; (ii) sustainable agricultural production; (iii) technological/scientific development; (iv) water resource preservation management; and (v) development of industry and services. Project's objectives were designed in line with GoV's socio-economic development targets.
24. GoV's socio-economic development during 2011-2020 defined the target of striving to attain the modern, effective and sustainable development for agriculture sector. Poverty rate decreases by an average of 2-3%. Striving to achieve the target of stable agriculture growth at 3.3-3.8% was also specified in the Development Strategy/orientation. This brought about significant expansion of Household's average production scale and scientific/technological application<sup>3</sup>. The project's targets, again, meet the orientation of GoV as well as the agriculture well.
25. Agriculture sector Development Strategy during 2006-2020 clearly indicates (i) the technology solutions help make a breakthrough in research and technology adoption, increasing the contribution of science/technology and management to the growth of agriculture sector by 50%; strengthen the development of technology market oriented towards farmers as the key clients; attach research to training and extension, provision of support for farmers as well as business<sup>4</sup>; (ii) the matters relating to extension as follows: transfer the extension activities under programs into direct extension which meets local production demands<sup>5</sup>. The project objective was seen to be entirely suitable to Vietnam's agriculture sector development strategy.
26. ADB's policy on agriculture and national resource research aims at making contributions to (i) poverty reduction; (ii) sustainable management of agriculture and national resources; and (iii) improvement of agriculture productivity. This policy lays a focus on the necessity of developing the integrated agricultural system with crop diversification, support for agricultural production in disadvantaged/remote/mountainous areas; and technology development and natural resource management with participation of stakeholders. It, therefore, can be concluded that the overall objective of the project was completely in conformity to ADB's policy.

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<sup>3</sup> Agriculture Sector Development Strategy during 2006-2020, Page 27.

<sup>4</sup> Agriculture Sector Development Strategy during 2006-2020, Page 44.

<sup>5</sup> ADB. 1995. The Bank's Policy on Agriculture and Natural Resources Research. Manila (R253-95).

## **2.2. PROJECT OUTCOMES**

### **2.2.1. The achieved outcome compared to the initial objectives of the project**

27. From 2005, GoV had issued Decree No.115/ND-CP dated 05 September 2005 on autonomy, self-responsibility of public science and technology agencies in order to: (i) facilitate the association of science research and technology development into production, business and human resource training; (ii) improve the performance of science and technology organizations; and public science and technology organizations. "Based on the list of assignment of science and technology annually published by MST, the ministries, sectors and local authorities, they self-decide to participate in the selection, procurement of the implementation of science and technology of the State and implementing measures."
28. Through its activities, AST project had significantly contributed to the concretization of content in Decree 115 and Decree 2/2010/ND-CP dated 8 January 2010 on agricultural extension of GoV in the actual implementation of the activities of science and technology in agriculture.
29. Accordingly, there were 125 research projects were selected by the Science and technology Council of MARD based on a diverse criterion with high content of science which includes: research contents based on actual demand of production; research area located in remote/poor/ethnic minorities areas; commitment of coordination/participant of agricultural extension agencies in the activities of research project was highly concerned when assessing any research proposal in bidding process.
30. All of the research projects funded by the Project had the participation or collaboration of Provincial Agriculture Extension Center (PAEC), District Agriculture Extension Station (DAES) and Provincial Department of Agriculture & Rural development. AST project was successfully established a close relationship between research activities and agricultural extension. Agricultural science and technology system for customer had gradually been changing with a technology transfer mechanism that was improving and more efficient.
31. Provision activities of agricultural extension service in the Project were diverse and enriched with the participation of 366 PAEC and DAES; 49 private companies; 45 research institutions and universities; 105 regional and provincial research center and 50 social community in 5 project provinces. By widely bidding mechanism for the contract providing agricultural extension service, in major cases, the Project selected good contracts that was highly appreciated by authorities and beneficiaries in the project provinces.

### **2.2.2. Achieved results in each project component**

#### ***Component 1. Client-oriented Agricultural Research***

##### ***A. Client-oriented agricultural research projects***

32. An obvious limitation in research activities in Vietnam was that research content sometimes did not come from real production at agencies, recommendation for large-scale investment of research results, which had achieved success at one place, were not thoroughly tested in other places through small-scale applications. Although the need of people (especially in remote areas or ethnic minorities) in solving existing/arising issues in practical production drew certain attention, yet it had not been resolved in a satisfactory manner. The participation of agricultural extension

staff and farmer in research project was still poor. This can be seen as one of the reasons so many research results were relatively successful but still slowly applied and replicated in practical production.

33. In AST project, the selection method of research projects towards competitive bidding had determined in project design phase. During the implementation, the research projects were selected in accordance with the project evaluation criteria issued by the MARD<sup>6</sup>. As a result, 125 researches had been selected with a total budget of VND 92.12 billion. The composition of the units undertaking the researches was quite diverse, including 41 agencies and units, in which there were 21 institutes (16 institutes under the MARD); 08 universities, 01 College, 08 centers including 5 centers under the Ministry of Agriculture and Rural Development, 2 associations and 1 DAES. The percentage of state management agencies accounted for 85.4%. The researches had been implemented in the area of 46 provinces, in almost all agro-ecological zones of Vietnam.
34. Competitive bidding mechanism which was applied in the selection process of research project had attracted not only the participation of experienced scientists but also the interest of female scientists and young scientists with many creative ideas. According to the statistic of the Project, among 125 research project directors, there were 34 officials aged below 35 (accounting for 27.3%) and 40 female officials (accounting for 32%).
35. There were 74.5% of research projects had been carried out in the remote/difficult areas increased 34.5% in comparison with the objective of the Project (40%). The content of research projects were quite diverse, not only focus on solving the problem of food security (65%) but also paying attention to urgent issues such as the environment and climate change (41.6%) and the market (23.2%). Thus, these contents had met the objectives of initial design of the Project which aims to solve urgent issues occurring in practical production of people living in the remote/difficult areas (especially the poor and ethnic minorities) where research projects of the State could not fully cover.
36. Many scientists consider the approach of the Project in the selection of research project based on the need of client towards competitive bidding as one of factors contributing to the success of research projects in AST<sup>7</sup> well as narrowing the gap between scientific research and technology transfer, which was limitation in the activities at research institutions of the State. From the result of 125 research projects, AST project had selected 70 models for replication in production with a total budget of nearly 14 billion VND. In these models, farmers had contributed a part of the cost (in form of labor, local materials, etc.) and directly undertaken the implementation and management by themselves. These models were approved by MARD, including 17 excellent models (24%) and 53 good models (76%). (The results from replication models were presented more detail in Section 3.2.2, paragraph 102).
37. The success of the project in sub-component 1.1 was also shown in the contribution of research funded by AST project on capacity building for research officials, agricultural extension staffs and the chance of farmer (especially women or ethnic minorities) approaching new information about agricultural science and technology (Table 1).

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<sup>6</sup> Decision No. 2660/QĐ-BNN-KHCN dated 29/8/2008.

<sup>7</sup> Midterm project evaluation report prepared by Tran Thi Thu Ha and Hoang UK Tuan, December 2011.



**Table 1: Some results of capacity building achieved from the activities of 125 research projects assisted by AST project**

| No | List of results   | Unit    | Qty.           |
|----|---|---------|----------------|
| 1  | The number of officials using the result of research project as crucial data to accomplish Thesis |         |                |
|    | <i>PhD</i>  |         | 15             |
|    | <i>Master</i>   |         | 67             |
|    | <i>Bachelor/Engineer</i>  |         | 143            |
| 2  | The number of articles published in journals  |         | 159            |
|    | <i>Publish in national journals</i>   | Article | 157            |
|    | <i>Publish in international journals</i>  |         | 2 <sup>8</sup> |
| 3  | The number of participants in training course or workshop held by research groups                 |         |                |
|    | Agricultural extension staff  |         | 2156           |
|    | <i>Women (35.68%)</i>   |         | 770            |
|    | <i>Ethnic minorities (30.6%)</i>  |         | 660            |
|    | Farmer  | Person  | 20281          |
|    | <i>Percentage of women</i>  |         | 52.1%          |
|    | <i>Percentage of ethnic minorities</i>  |         | 38.2%          |
| 4  | The number of people directly implementing the content of research project                        |         |                |
|    | Agricultural extension staff  |         | 940            |
|    | <i>Women (41.5%)</i>  |         | 390            |
|    | <i>Ethnic minorities (36.8%)</i>  |         | 346            |
|    | Farmer  | Person  | 6538           |
|    | <i>Women (48.4%)</i>  |         | 3164           |
|    | <i>Ethnic minorities (37.2%)</i>  |         | 2432           |

38. A large number of varieties, breeds, and new technical processes formed/created from the result of research project that can be seen as the success achieved in the sub-component.

<sup>8</sup> Journal: AgEconSearch; (2) Proc. Vth IS on Brassicas & XVIth Crucifer WS. Ed: M. Hansen; Acta Hort.867, ISHS 2010.

**Table 2: Some products achieved from the activities of 125 research projects and the result of quality assessment of the project.**

| No | List of result  | Unit    | Quantity   |
|----|---|---------|--|
| 1  | Quantity of new breeding selected and invigorated, suitable to the conditions of each locality.   |         | 197 (improved 7% in comparison with the approved plan) |
|    | <i>New varieties of which the net interest was 25% higher than control experiment</i>   | Seeding | 44   |
|    | <i>New varieties of which the net interest was 15-25% higher than control experiment</i>  |         | 64   |
|    | <i>New varieties of which the net interest was 10-15% higher than control experiment</i>  |         | 42   |
| 2  | New technical process for producing/processing which were suitable to each plant, animal in localities had been established and completed and can be applied to practical production. | Process | 245  |
| 3  | Assessment of MARD on the quality of research project   |         |  |
|    | <i>Excellent</i>  |         | 30 (24.4%)   |
|    | <i>Good</i>   | Project | 90 (73.1%)   |
|    | <i>Medium</i>   |         | 5 (4.0%)   |

#### **B. Training of research staff**

39. Strengthening human resource was a top priority in Rural Agriculture Development Strategy in the period 2011-2020<sup>9</sup> of GoV. Sending agricultural research staffs training abroad was one of Government's solutions to develop high quality human resource, strengthening nationally agricultural technology and science system, enhancing the rapid and sustainable growth of agriculture sector. By the loan of GoV for AST project, there were 57 researcher staffs were sent for training in ten developed countries in the world by fund of the Project, reaching 103.6% in comparison with the project target (such as the USA, Australia, UK, Germany, Japan, etc.), including 4 postdoctoral, 18 doctoral and 35 master-level staffs, in which there were 22.8% participants were female, increased 12.8% regarding the initial estimation). During training time, there were 2 trainees had to come back to Vietnam before completing their training courses due to health reasons.
40. By the end of the Project: there were 53 out of 55 participants, after completing their training courses, have come back Vietnam to work at their previous units according to their commitments. Some of graduated staffs have been transferred to work at various departments under MARD, Ministry of Science and Technology; the 02 postdoctoral trainees who have not completed their courses include: Trinh Thi Thanh Binh (studying in Australia) and Tran Huu Hoang (studying in Germany). According to Department of Organization and Personnel of MARD, after the training course, knowledge and skill of those trainees had significantly improved and their working efficiency were highly appreciated.
41. 200 staffs (54 female staffs accounting for 27.7%) from Institutes, Colleges, Technical secondary colleges/schools, DARD in project provinces, DOP, DSTE, NAEC were sent for training in China, Thailand, Malaysia, South Korea and Taiwan and 10 other staffs participated in training course about climate change in the University of Nebraska, United State (USA), financed by the Project<sup>10</sup>. The result of preliminary impact assessment of foreign training courses conducted by

<sup>9</sup> Rural Agriculture Development Strategy in the period 2011-2020, page 69

<sup>10</sup> Report on the impact assessment of foreign training courses conducted by CPMU, dated 7 November 2012, page 23.

CPMU shows that: 100% staffs after the training had improved their skills, effectively utilized knowledge into management activities and supported project activities, accelerating and raising the effectiveness in order to accomplish initial objectives of the Project.

42. The Project held 54 short-term training courses in the country with the participation of 1673 researchers, managers, and personnel in charge of the laboratory from 17 institutes and 16 centers under Research Institutes within and outside the project. The subject of the short-term training courses was prepared on the need of research staffs from research agencies under MARD. However, there was not much information relating to climate change which had been integrated into the training programs' content of strengthening project capacity (only 3 out of 54 courses had the content relating to climate change with 100 trainees). Therefore, in the context that the agricultural sector of Vietnam was considered as the economic sector that had been suffering directly of climate change, the stakeholders involved in the Project did not pay sufficient attention for the activity of enhancing knowledge for researcher staff on climate change and mitigation and adaptation measures, so this was considered as one of the limitations in this sub-component.
43. After the training, all courses were assessed; accordingly, 94.2% of participants thought that the knowledge gained from 16/17 training contents (except macroeconomics) helped them improve the quality of their work. Especially, nearly 2,700 researchers and lab managers who did not attend the training were shared with knowledge by the staff participated in the training<sup>11</sup>.

### ***C. Investment in Equipment Upgrading***

44. A total of 13 research institutes under the Ministry of Agriculture and Rural Development (an increase of 3 institutes compared to the initial target of 10 institutes)<sup>12</sup> were funded to invest/upgrade equipment and laboratories with a total budget of up to VND 145 billion due to lack of physical resources and outdated equipment. In which, there were many specialized machines with high accuracy such as AAS, HPLC, GC, GC/MS. The devices were 100% new, meeting international standards and in line with environmental standards of Vietnam. More than 90% of the equipment was appropriate for the users<sup>13</sup>. It was considered as favorable conditions which makes Research Institutes more proactive in concretizing Decree No.115 issued by GoV on actual research activities strengthened by physical resources. However, by the time of evaluation (January 2012), most of the institutes had not operate according to the "market-oriented" during using research equipment funded by the Project (the Evaluation on economic efficiency of using equipment of the consultants John A. Wicks and Hoang Anh Tuan pointed out that: the estimated economic internal rate value of laboratory equipment investment only fluctuated from -1.7% to 1.7%. The net economic value also fluctuated from VND -25.1 billion to VND -15.6 billion<sup>14</sup>). Particularly, the Agricultural Environment Institute used efficiently equipment invested by the Project for research activities, brought income to re-invest in other research activities of the Institute. This Institute was highly appreciated by ADB for its sustainability in investment and this was recommended to replicate.

## ***Component 2: Strengthening Grassroots Agricultural Extension***

### ***A. Provincial Pro-poor Extension Services***

#### **➤ Training courses**

45. The project held 129 workshops to specify agricultural extension priority and extension planning in 5 project provinces and 127 project communes, with 6,946 participants of which 26.1% were women and 27.9% were from ethnic minorities. Differing from the approach of the state

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<sup>11</sup> Report on the assessment after the training prepared by agricultural research and management consultant.

<sup>12</sup> See Appendix 1 for a list of Institutes.

<sup>13</sup> Evaluation on equipment utilization report of the consultant Nguyen Van Chien, March 2012.

<sup>14</sup> Evaluation on Project efficiency Report of the consultants John A. Wicks and Hoang Anh Tuan, January 2012, page 19.

agricultural extension system, in the AST project, the agricultural extension plans were prepared annually by the "bottom to up" approach, which had initially limited the "Administrationalization" form of the planning work. This approach clearly had its advantages in raising the effectiveness of grassroots agricultural extension (details were shown in section 3.2.3, paragraph 112 and 113).

46. Through the organization of training courses, foreign and domestic trips had gradually improved human resource and the effectiveness of grassroots agricultural extension, satisfied better the needs of actual production. However, the proportion of participation of female and ethnic minority agricultural extension staffs were only 16,49% and 9,32% respectively, in comparison with the target of 30% and 20%.

**Table 3: Summary of training content and the number of trained agricultural extension staffs at all level**

| No | List of information   | Unit   | Qty    |
|----|---|--------|--------|
| 1  | The number of training courses were held  | Course | 1162   |
| 2  | The percentage of training course had the content integrated with information on linking market for the poor                                  | %      | 30     |
| 3  | The percentage of training course had the content integrated with information related to gender issues, participatory methods, climate change | %      | 60     |
| 4  | The number of training of trainer (TOT)   | Person | 45     |
|    | <i>Women</i>  | %      | 9.0    |
| 5  | The number of trained agricultural extension service providers  | Turn   | 28,615 |
|    | <i>Women</i>  | %      | 29.15  |
|    | <i>Ethnic minorities</i>  | %      | 24.78  |
| 6  | The number of PMU's staff and agricultural extension staffs in 5 provinces participated in 18 domestic trips                                  | Person | 279    |
|    | <i>Women</i>  | %      | 16.49  |
|    | <i>Ethnic minorities</i>  | %      | 9.32   |

47. Training topics closely follow trainees' need, focusing on improving professional knowledge and skill related to agricultural extension (problem solving, communication skill, writing agricultural article technique, etc.) and the "mentoring" method was the strength of training courses in this sub-component. The weakness was that some training documents were still academic and had too much text, only few pictures.

➤ **Promotion of Agricultural Extension Contracts**

48. A common fact of the previous agricultural extension activities in Vietnam was that the agricultural extension plan was built via "top down" approach. Agricultural extension activities were decentralized from NAEC to PAEC and DAES according to the annual plan. This method of building agricultural extension plan was heavily "administrative" and sometimes did not entirely consistent with actual need of production, especially for the needs of women, ethnic minorities and the poor.
49. In the AST project, it was the first time that agricultural extension models had been selected according to the method of national competitive bidding in order to diversify the agricultural extension services and make them highly competitive for the best quality. The information of agricultural service procurement was widely announced on mass media such as television, radio, national and local newspaper. This was one of new aspects in agricultural extension activities of Vietnam that attracted participation of many qualified organizations and agencies. There were 164

out of 234 agricultural extension service providers awarded the contract after the selection. Among 615 agricultural extension contracts, 366 contracts were undertaken by DAES and PAEC; 105 contracts by provincial/regional research centers; 45 contracts by universities and regional research centers; 50 contracts by social organizations; 49 contracts by private enterprise. The total number of agricultural extension service provision contracts increased 12.3% in comparison with the plan objective.

50. Since 2010, the number of NGO bidding as agricultural extension service providers had increased, which also raised the competitiveness and quality of the service in project areas. A report on the assessment of the service providers shows the difference of competitiveness in 5 provinces. However, private sector had not much participated. The reason could be the total package value was not large (USD 10,000) and VAT increased 10%, causing low profit rate due to high input cost which does not draw attention from this sector.
51. The project also focuses on the agricultural extension in areas with difficult conditions, areas with large ethnic minorities. In 615 models conducted, there were 579 demonstration models and 36 pilot models (accounting for 5.85%). 375 models (60.98%), accounting for 65.64% of the total contract value had been implemented in the poor communes, mountainous communes with large ethnic minorities, contributing to the direct provision of technical advances to the poor and ethnic minorities according to the policy of the Government and ADB.
52. A total of 20,999 farmers that were 18,694 poor households (89.02%), 11,680 women (55.62%), and 9,437 households of ethnic minorities (44.94%) participated in demonstration models, pilot models in the field and enhancing knowledge of production activities. There were 104,701 direct beneficiaries, including 52,630 women (50%), 37,190 ethnic minority people (35.53%) and 96,219 poor households (91.9%).
53. It could be seen that the success which the Project achieved at this Component was that: The project mobilized the active participation of the poor, women, and ethnic minorities to grassroots agricultural extension. By this way, the project not only contributed to raising the effectiveness of agricultural extension activities but also creating opportunities for people in remote areas, women and the poor to sustainably improve their capacity, income and living conditions.
54. Along with successes achieved, the implementation method of agricultural extension contract still has limitations in a few communes/districts of 5 project provinces. Accordingly, the method was not different from activities in Poverty Reduction Program of GoV or NGOs. In these areas, agricultural extension service providers focused on the provision of input materials, held training courses for beneficiaries without adequate attention to whether or not the information sharing between farmers within and outside the project by different forms, for example the method "cascade" which was currently very common in many developing countries.
55. The Project funded to conduct a survey on knowledge and local products. It stems from the fact that a majority of agricultural extension models in Vietnam disseminate new varieties to farmer. The advantage of this method was that though the dissemination of new varieties, agricultural extension agencies helped farmers to remove degenerated, low quality varieties/breeds and add potential high productivity and good quality varieties/breeds. However, in some cases, if assessment of adaptability of varieties to specific conditions at local has not done well, the risk to this activity might be possible (varieties less adapted to local ecological conditions, causing low productivity or infested animals, etc). Not to mention new high - yield varieties/breeds with mean high investment (fertilizers, pesticides, industrial food, etc), might have negative impact to environment (if farmers do not comply technical processes) and unsuitable for the poor, ethnic minorities who regularly have limited financial resource.

56. The survey results showed that there were 28 local crop varieties which have the potential to grow in a total of 19 plant varieties and 97 native varieties were discovered during the survey. Similarly, there were 18 local animal breeds (in a total of 7 local species and 29 local animal breeds) proposed by PPMUs to build as value chain development models for market expansion<sup>15</sup>. From the result, project has some recommendations for provinces to promote advantages of local products and improve efficiency for parties participated in production and consumption.

### ***B. National Mass Media Program on Agricultural Extension***

57. The activity of enhancing agricultural extension and communication capacity of Vietnam was facing with various difficulties, including budget for equipment investment. With the aim of increasing communication capacity for agricultural extension agencies at all levels, the Project invested in agricultural extension communication equipment for National Agricultural Extension Center (NAEC), for PAEC in 5 project provinces and for 79 DAES with respective cost of VND 3.5 billion, 789 million and 5.5 billion. All the equipment had been used effectively for agricultural extension activities at province/district levels.
58. The project had collaborated with the NAEC to establish (i) 6 programs to disseminate information on agricultural extension broadcasted on VTV, (ii) 7 programs broadcasted on VOV, (iii) 10 DVDs of agricultural technique broadcasted on VOVTV and VTC16. The projected provinces themselves developed some programs to disseminate information on agricultural extension broadcasted on the local radio - television stations. There were 20 programs on agricultural technique and agricultural extension established and broadcasted on the radio and television stations of 5 projected provinces.
59. However, content quality of some DVD did not satisfy the initial requirements. There was no content related to promote producing clean products, mitigate bad impacts and climate change adaptation executed by the poor. The reasons were considered as (i) the activities were not designed in detailed in the Project document; and (ii) limitation of duration<sup>16</sup>.

## ***Component 3: Agricultural Vocational Training***

### ***A. Improving technical knowledge, teaching skills, management and training program***

60. The project had funded to help 10 colleges/schools organize workshops on program development and making training plans, towards positive changes in management method and the participation of businesses and employers in building training program and compiling textbook. As a result, 177 staffs from agencies outside colleges/schools had been invited and directly participated in preparing the program and compiling textbook of projected colleges/schools. This participation had shortened the difference between training content of vocational colleges/schools and actual production, and thus student after graduating in these colleges/schools will quickly adapt to production and business environment of enterprises.
61. The project held 30 training courses on skills related to 6 capacity building for management staffs and teaching staffs from beneficial units in the project. 921 management staffs and teaching staff from 10 project colleges/schools had participated in training course, in which women accounted for 42.45%. Besides, 10 projected colleges/schools also received fund to improve the quality of curriculum and lecture. Report on quality assessment of curriculum improvement in 10

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<sup>15</sup> Report on Indigenous knowledge and product survey, December 2012.

<sup>16</sup> Project Implementation Summary Report 2012, CPMU.

colleges/schools shows that there were 30 training programs and 244 general textbooks of 10 colleges/schools which were updated to meet the needs of the majority (90.9%) of learners<sup>17</sup>.

***B. Upgrading Equipment for Libraries and Laboratories, Teaching Facilities and Office***

62. A popular fact in Vietnam currently that limitation of budget of the Government and Ministries of Vietnam led to limitation in investment and upgrading laboratory equipment and classrooms for vocational colleges/schools. This caused to lack of equipment for training students to catch up with real requirement of production in many subjects and majors of these colleges/schools. So there were many graduates still lacked of deep skilled and not satisfied requirements of employers and they faced with many difficulties to get an appropriate job with their qualification.
63. Within AST project, the equipment and laboratories of 10 projected colleges/schools had been invested/ upgraded with a total value of more than VND 179.016 billion. In which, the budget to upgrade and newly build some auditorium/classrooms was VND 33.121 billion, which helped colleges/schools reduce the cost of hiring classrooms from outside, reduce the number of classes opening in 3rd shift.
64. By the fund from the Project, the 10 colleges/schools could now increase practical courses, get first step of enhancing vocational skills for students, increase the number of master trainees to use research equipment and complete their thesis. This brought a result that 16,020 teaching staffs and researchers in 10 colleges/schools had used equipment to improve their skills in teaching and practicing laboratory tests for training per year, the number of students who can practice with project equipment were 430,730 students/ year. The report on the efficiency assessment of using facilities and laboratories shows that the investment of project on this activity was highly effective<sup>18</sup>.
65. All project colleges/schools had been invested for electronic libraries. Currently, the electronic library systems were being used to help colleges/schools better serve the needs of the storage, exploiting and sharing digital resources, national and international information on science and technology between staff and students. However, by this time, the Project has not conducted evaluation on efficiency of using e-library at these colleges/schools.

***Component 4. Project Management***

66. *Regarding organizational structure:* The project had arranged adequate organizational structure in accordance with project design (number of units, number of personnel), paid full salary, allowances, fully equipped facilities, furniture in accordance with project design. *Regarding financial allocation:* the project had arranged sufficient counterpart funds, in accordance with the committed schedule, (although there were some delays in the allocation of counterpart funds for the first period but they were insignificant). *Regarding technical issues:* The project had ensured the targeted technical elements through technical support from consultancy of relevant departments such as civil construction, demonstration models, organizing training courses. There was no evidence of technical violations during project implementation. *Regarding operation and maintenance of classrooms, laboratory equipment:* With the invested items, the maintenance and operation activities were currently paid much attention to and evaluated as quite good. However, there was concern about maintenance and operation on how this activity would be continued after

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<sup>17</sup> Evaluation report on quality of curriculum development and revision of training material prepared by consultant Vuong Thanh Huong, January 2013.

<sup>18</sup> Report on project impact assessment, prepared by John A. Wicks and Hoang UK Tuan in January 2012, page 24.

the Project had ended, so as to ensure sustainability of equipment when the fund for this activity was limited. In general, the CPMU's capacity of project implementation can be assessed as 'good'. Because most project activities had been implemented and met their initial objectives, prior to the loan closing date on 30 June 2013. By 30 June 2013, the total disbursement value of the Project was estimated to reach to USD 40.38 million, of which: ADB fund: USD 30.96 million and GoV fund: USD 9.42 million, the ADB loan utilization status reached 103.2% in comparison with initial loan (USD 30 million), reached 99.5% in comparison with the total loan by 30 June 2013 (USD 31.099 million including added expense due to exchange rate difference). The Project had allocated sufficient sources, equipment and fund for managing all activities.

67. Counterpart funds: During the implementation process, the counterpart funds for component 1, 3, 4 were relatively sufficient. However, some PPMUs had troubles with counterpart funds at the commencement of the project. CPMU permitted to re-allocate project fund to support these PPMUs in 2010. After the mid-term review in 2011, the counterpart fund for every province was reported to be sufficient. The fund contributed by the Government for the Project was USD 9,424 million.
68. The progress of report submission and report quality: In the period from 2008 to 2009, there was often a delay in the preparation and submission of reports<sup>19</sup>, although the delay was not significant and could be accepted in the context of the project at the beginning stage. From mid-2010 until now, the reports were gradually improved over time and basically submitted on schedule. However, the quality of progress report should have been better if they were updated the DMF and complied with loan terms<sup>20</sup>.
69. The annual audit reports conducted by independent auditor were submitted on time (within 6 months after the end of the financial year). CPMU, PPMUs and PMUs of institutes and colleges/schools had participated quite actively in supervision activities and monitored the project implementation process. The ADB missions had received positive, timely support from CPMU, institutes, colleges/schools; from provinces to district and commune levels<sup>21</sup>.

### 2.2.3. Project budget allocation

70. Project allocation for each component after the Loan Agreement was signed was presented in Table 4.

**Table 4: The revised allocation of investment funds to components<sup>22</sup>**

(Exchange rate: 20,500VND/USD)

| Component    | Total          | Source (million VND) |                   | Allocation percentage (%) |
|--------------|----------------|----------------------|-------------------|---------------------------|
|              |                | ADB                  | Counterpart funds |                           |
| Component 1  | 366,589        | 279,635              | 86,954            | 44.71                     |
| Component 2  | 171,125        | 126,104              | 45,021            | 20.87                     |
| Component 3  | 219,424        | 163,336              | 56,088            | 26.76                     |
| Component 4  | 62,862         | 45,925               | 16,937            | 7.66                      |
| <b>Total</b> | <b>820,000</b> | <b>615,000</b>       | <b>205,000</b>    | <b>100</b>                |

<sup>19</sup> Aide Memoires of ADB Missions.

<sup>20</sup> Aide Memoires of ADB Missions, May 2013.

<sup>21</sup> Aide Memoires of ADB Missions.

<sup>22</sup> Decision No. 1823/QĐ – BNN – KH date 10/8/2011 Exchange rate of 1 USD = VND 20,000



## 2.2.4. Disbursement

**Table 5: Actual expenses of the project**

*Unit: USD*

| Content                           | Total project budget<br>(according to ADB budget) |                   |                  | Actual expense<br>up to June, 30 <sup>th</sup> , 2013 |                   |                  | ADB<br>budget<br>emaining |
|-----------------------------------|---|-------------------|------------------|---|-------------------|------------------|---------------------------|
|                                   | Total   | ADB               | GOV              | Total   | ADB               | GOV              | ADB                       |
| <i>Investment expense</i>         |   |                   |                  |   |                   |                  |                           |
| Civil construction                | 1,460,099   | 1,095,074         | 365,025          | 1,872,260   | 1,404,195         | 468,065          | (309,121)                 |
| Facilities                        | 17,400,523  | 13,050,392        | 4,350,131        | 16,664,023  | 12,498,017        | 4,166,006        | 552,375                   |
| Vehicle                           | 42,866  | 21,433            | 21,433           | 40,162  | 20,081            | 20,081           | 1,352                     |
| Commodities                       | -   |                   | -                |   | -                 |                  |                           |
| Training                          | 8,071,286   | 6,295,603         | 1,775,683        | 7,874,203   | 6,141,878         | 1,732,325        | 153,725                   |
| Research & agricultural extension | 9,263,984   | 7,225,908         | 2,038,076        | 10,501,620  | 8,191,264         | 2,310,356        | (965,356)                 |
| Consulting service                | 1,779,902   | 1,779,902         |                  | 1,208,922   | 1,208,922         | -                | 570,980                   |
| <i>Regular expense</i>            |   |                   |                  |   |                   |                  |                           |
| Payroll                           | -   |                   |                  | 440,000   |                   | 440,000          | -                         |
| Other operating costs             | 1,222,077   | 916,558           | 305,519          | 1,151,686   | 863,764           | 287,921          | 52,794                    |
| Interest rate                     | 640,011   | 640,011           |                  | 628,817   | 628,817           | -                | 11,194                    |
| Advancing                         | 73,681  | 73,681            |                  |   |                   | -                | 73,681                    |
| <b>Total</b>                      | <b>39,954,429</b>                                 | <b>31,098,562</b> | <b>8,855,867</b> | <b>40,381,693</b>                                     | <b>30,956,939</b> | <b>9,424,754</b> | <b>141,623</b>            |

## 2.2.5. Project implementation progress

71. There was no delay in the approval of investment project by the Government. On 17 November 2006, ADB Board of Directors approved the project (approval for RRP) and on 11 December 2006 approved the loan. On 15 January 2007, the government approved the investment project as the basis for negotiating the loan. After 3 months from the approval by ADB Board of Directors for the loan, on 14 March 2007, the loan agreement between ADB and the Government of Vietnam was signed and coded 2283 VIE (SF). On 13 June 2007 the loan agreement came into effective.
72. In accordance with the loan agreement, the completion date of the project was scheduled on 31 December 2011 and the loan closing date was scheduled on 30 June 2012. However, for: (i) some researchers studying in foreign countries to complete their PhD programs before the end of the loan period, (ii) having more time to transfer and replicate research results of researches into the agricultural extension activities and build about 30 training programs, modify the curriculum to

maximize the project benefits, ADB and the Government of Vietnam had agreed to extend the Project until 30 June 2013.

### **2.2.6. Implementation arrangement**

73. Thanks to experiences from the implementation of previous projects, immediately from the TA stage, the organization and management model of the project had been designed quite suitably. The establishment of PMUs in the institutes and colleges/schools under the project, the allocation and assignment of organization, management and implementation of activities in component 2 to the project provinces, the assignment of implementation of construction and installation, procurement of equipment packages to 10 institutes/10 colleges/schools which were the owners were not only consistent with the provisions of ADB, but also consistent with the management mechanism of scientific, training and agricultural extension activities of the Government of Vietnam. Therefore, the management and implementation of the project were quite favorable and received high consensus from the central to local levels, contributing to speeding up the project progress. The implementation arrangement of the project by this way was appropriate.

### **2.2.7. Compliance with loan Covenants**

74. The loan agreement provisions were generally being complied and evaluated by the periodic ADB missions as good. There was no evidence showing that the project executing agencies and owners do not comply with any provision of the loan agreement and no corruption was discovered in the implementation of projects. Project activities were adjusted timely and reached a strong consensus among MARD, provinces, institutes, colleges/schools.

### **2.2.8. Bidding and procurement**

75. All procurement activities, consultant selection, construction and equipment were fully undertaken in accordance with User Guide for consulting service for ADB and Borrower (2007) and Guidelines for procurement of ADB (2006).
76. Consultant recruitment for project implementation support: Consulting service provision contract was signed between the Project and joint-venture between Hassall & Associates Pty Ltd. Co., VICA Consultants International Ltd. Co., and Sustainable Development Solution Company. International consultant supporting project implementation was selected by CPO according to Quality- and Cost-based Selection (QCBS).
77. Contractor selection for equipment provision and construction works: For procurement of equipment contracts, due to small scale, only two procedures were applied in the project, those were shopping and national competitive bidding (NCB) procedures. For the construction and installation contracts, two procedures were applied namely shopping based on the comparison of at least 3 offers and national competitive bidding (NCB). Due to the small scale of procurement, there were no packages having to apply international competitive bidding method in the project.
78. The procurement activities were conducted in accordance with the regulations of GoV and ADB. All institutes/schools were trained on procurement and bidding procedures and applied the bidding process specified by the Bidding Law of Vietnam and ADB rules on procurement. Procurement activities of the units were based on 3 legal documents approved by MARD namely: The decision on approval of SIP for 10 institutes/10 colleges/schools, the decision on approval of master procurement plan and decision on approval of characteristics and specifications of devices. All packages applied the standard bidding documents were issued and appraised by ADB. The evaluation of bids were implemented by PPMUs and IMPUs and approved by local investors.
79. The procurement of provincial agricultural extension services contracts were strictly conducted in accordance with ADB guidelines and the Government of Vietnam. Bidding information was publicly available on the mass media, ensuring the required number of bidding documents and components.

80. Regarding the capacity of contractors: the awarded contractors met the requirements on implementation qualification and quality. By this time, all packages of consultant, equipment procurement, works, research and extension service provision have been completed well and there was no corruption or dispute related to bidding and procurement of the Project happened.

*Issues and problems happened during bidding/procurement and loan disbursement and solution measures.*

81. During project implementation, there was tardiness in bidding, procurement and disbursement due to these reasons: (i) slowness in recruiting consultants for the Project; (ii) PPMUs, IPMUs were not used to conduct disbursement procedure of ADB; (iii) the extension service provision packages were temporary while the annual fund disbursement was slow, sometimes took up to 4 months to allocate fund plan.
82. Value of extension service provision packages was low (USD 10,000 USD per package), the implementation places of these packages were located in remote areas so they were not attractive enterprises and institutes.
83. For the packages of equipment supply and installation and construction: the Value Added Tax (VAT) for the types of imported laboratory equipment which increased from 5% in 2009 to 10% since 1/10/2010 caused many difficulties for contractors in supplying the equipment. In addition, the exchange rate between USD and VND that increased quickly during project implementation led to various difficulties in bidding and implementing goods and works contracts.
84. CPMU and ADB took taken some active measures to accelerate the disbursement: (i) Strengthening decentralization of management in accordance with Announcement No. 626/TB-BNN-VP of MARD on 21/1/2009; namely: assigning institutes/schools to establish the local scientific council for appraising the technical configuration (according to the previous decision of MARD, VNAST approved the appraisal) of research equipment, VNAST reviewed the appraisal results and submitted to MARD for approval; (ii) decentralizing provincial DARD to approve technical and economic norms of the agricultural extension contracts (according to the previous decision appraised by the National Science & Technology Center); (iii) proposing GoV and ADB to adjust the loan agreement by extending the period of project implementation by 30/06/2013; (iv) decentralizing the agencies which implement the researches to approve the explanation and detailed cost estimates of the annual researches (Decision No. 413/QD-BNN-KHCN, dated 23 February 2010) also contributed to accelerating the implementation progress of the research contents.
85. ADB enhanced its support for the projected provinces through focusing on dealing with bids and requesting for no-objection in short time (within 3-5 working days). The Project Officer (Ms. Sununtar Setboonsarng) and officer in charge of disbursement (Ms. Eileen Quisumbing) were very whole-hearted in handling ADB procedures for every request from CPMU and PPMUs.
86. ADB and the Government prompted decentralizing PPMUs to comprehensively manage and implement the activities and disbursement, this made a positive effect in improving financial management capacity at grassroots level and activeness at locals in project implementation. During the first period, PPMUs had met various difficulties and problems in project management, however, after about 6 months, with the support of the CPMU accountant, the disbursements were put into place.

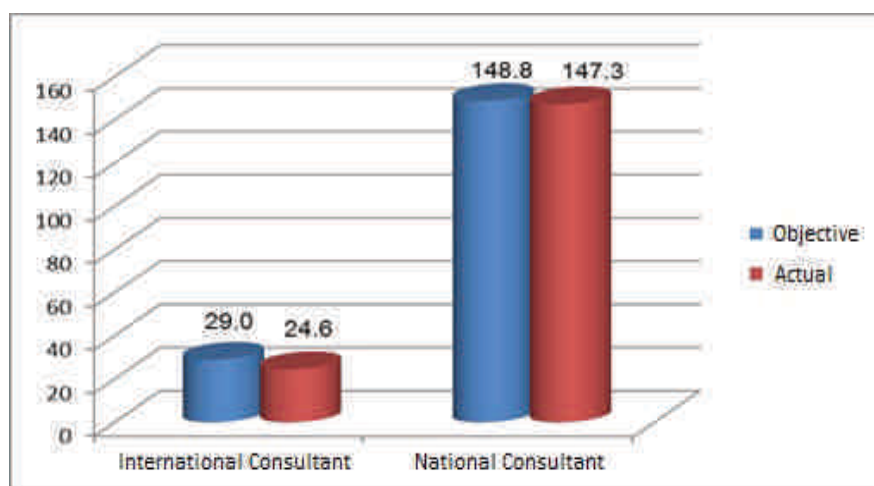
### **2.2.9. Project consultant's activities**

87. During the implementation process, inputs of consultants had changed from the original plan due to the withdrawal of some positions or the change, addition of consultants in accordance with the change in the scope of project activities. A total of 7 international consultants and 15 national consultants were mobilized during the period from September 2008 to December 2012. These people had knowledge and experience in the project activities in other countries with the same conditions and development level as Vietnam (for international consultants) and in projects on agricultural development together with science and technology in Vietnam (for national

consultants). The professional quality of mobilized consultants was generally suitable to meet the requirements of the Terms of Reference (TOR). During the project implementation, some international and national consultants were replaced because of objective reasons.

88. Since 22 May 2009, there were 2 consultants withdrawn from the project. They were International Agricultural Extension Management Specialist (IAEMS) and International Agricultural Vocational Training Specialist (IAVTS). Missing international consultant in the field of agricultural extension more or less caused trouble for the implementation of Component 2<sup>23</sup>.
89. The project had mobilized 7 independent consultants (experts in agricultural extension for 5 provinces, 1 training specialist, and 1 coordinator of CPMU). However, in November 2010, the consultant working in Dak Nong quit because of personal reasons. The independent consultants who were mobilized to work in 5 PPMUS also had in-depth knowledge of agriculture, great understanding of the real situation in the local project area, extensive experience in agricultural extension work so they also ensured well the requirements set out in the Terms of Reference (ToR).

The total input of consultant mobilization by 31 December 2012 was 171.9 months for each person, accounting for 97% (Figure 1)



**Figure 1:** Status of consultant mobilization (month/ person) - comparison between objective and actual

#### **2.2.10. The coordination of consultants with CPMU, PPMUs, institutes, colleges/schools and the project participants**

90. In the first year, the collaboration between consultants with CPMU, PPMUs, institutes, colleges/schools and the project participants experienced some difficulties because the mobilization of project implementation consultant team was delayed 13 months, while some project activities were conducted, the team needed time to get familiar with the project procedures.
91. Since September 2009, the coordination between consultants and CPMU, PPMUs, IPMUs and the project participants had been improved significantly. Consultants had actively supported CPMU as well as PPMUs, institutes and colleges/schools regarding technology in implementation of project activities, and were highly appreciated by stakeholders. PPMUs postulated that project consultants had contributed significantly to the project's activities. The institute and school PMUs postulated that consultants had collaborated with them quite effectively during the implementation of operations<sup>24</sup>.

<sup>23</sup> Completion report prepared by consultant team and aide memoires of ADB missions.

<sup>24</sup> Interview results of project evaluation consultant, December 2011.

**2.2.11. Loan utilization**

92. In an overview, during the first period, loan utilization for activities of equipment and works investment at institutes and colleges/schools was slow due to their limitations in conducting bidding and procurement procedure of ADB and GoV. In cases of extension service provision contracts, it was required to long wait for approval on annual counterpart fund of project provinces (as mentioned at the section Project Implementation Progress). In case of extension service provision activities, the professional units faced with various difficulties in preparing estimate for agricultural models due to VAT without standard norms of the State, so it depended on each project province/district. CPMU had to solve this by supporting PPMUs and IPMUs in this activity as well as enhancing capacity of project implementation units via training courses. PPC of the provinces positively coordinated with stakeholders to agree the VAT norm for extension service provision contracts in their provinces. During the last years of project implementation, loan utilization was being executed favorably, and there was no noticeable problem in any project implementation units.

**2.2.12. Compliance with safeguard, environmental and social policies of GoV/ADB**

93. A majority of project activities fully complied with environmental safeguard policies of the Government and ADB. Project environmental consultants had made the initial evaluation of environmental safeguard in the project institutes and colleges/schools, pointed out the problems and proposed solutions relating to the guarantee of environmental safeguard. In general, the units benefitted from the project had heightened awareness of ensuring the environment safeguard when operating the research equipment and laboratories. However, not all institutes/schools in the project were able to fully equip separate sewage disposal system for different laboratories due to limited finance. This issue was hoped to be addressed step by step in the coming time when the equipment fund by the Project was utilized effectively towards “market- oriented”, the expense received from research services and other financial resources would support these institutes and colleges/schools to get more finance to finish treatment system towards standard-orient. In the Project, the contents (or partial content) of many research projects were related to the protection and maintenance of soil fertility, reduction and adaptation of climate change. The demonstration and pilot models on fields with contents relating to the environment were encouraged to perform. The problem of rural environmental sanitation in the husbandry models was initially performed well in some local project areas. The percentage of research projects and the demonstration models which reduced at least 10% of chemical fertilizers and 65% pesticides, increased by 15% compared to the stated target (50%)<sup>25</sup>.

94. However, in some technical training document of agricultural extension service providers, a large number of chemical fertilizer and plant protection chemicals were still recommended to use. The use of on-site organic materials such as green manure or compost was not recommended strongly.

95. The poor, ethnic minorities and women were the direct beneficiaries of the project through capacity building and income generation activities. The project had maintained a special interest in gender equality, the poor and ethnic minorities and always encourages their direct participation in research activities and technology transfer which will help them improving knowledge, production skills and having sustainable income generation even after the completion of the project. Unfortunately, gender issue was not implemented well at the ToT training activity under the Component 2. The features of the project activities were not related to the site clearance, compensation and resettlement; thence, there were no negative impact on the lives of the project beneficiaries.

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<sup>25</sup> Evaluation report on researches prepared by consultant Nguyen Thi Lan, October 2012.

## 3. EVALUATING RESULTS OF THE IMPLEMENTATION

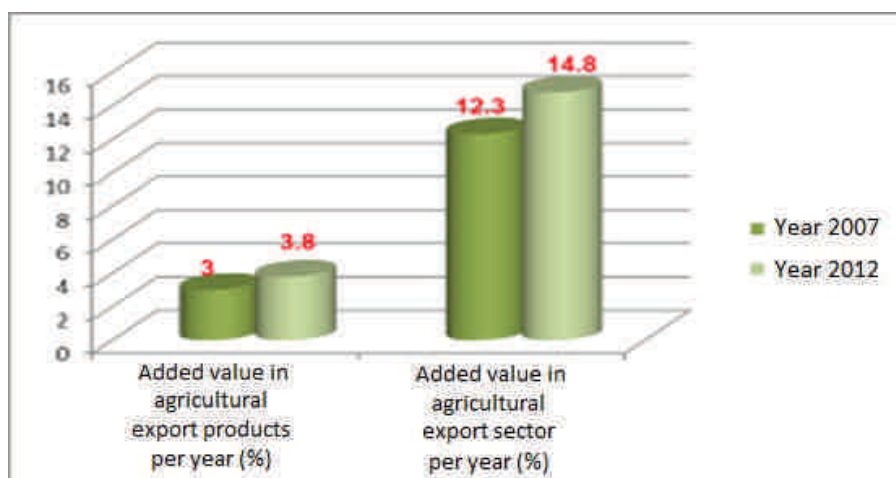
### 3.1. RELEVANCE

96. One of the reasons for limiting the growth of Vietnam's agricultural sector in Vietnam in recent years was the lack of high-quality resources for research, agricultural extension and training, as well as the transfer quality of technical advances into real production. The Project which was designed and implemented had met the purpose of enhancing the resources, contributed in certain part to the sustainable growth of the agriculture sector. The project had also contributed to the successful implementation of Government's Decree No. 115 on autonomy in research units and Decree No. 02 on agricultural extension at grassroots level of the Government of Vietnam.
97. The research institutes and vocational colleges/schools under MARD which were selected to participate in projects were located in most of the 7 local agro-ecological zones of Vietnam; thereupon, improving the resources for these units had less or more direct and positive impact on the development of agriculture in the local project areas.
98. Five (5) project provinces were the poor provinces, where many ethnic minorities live; therefore, the implementation of agricultural extension contracts in these provinces had a significant contribution in helping local people, especially the poor and ethnic minorities gradually improve their capacity, diversify the livelihood and income, sustainably contribute to poverty reduction for the participating households in particular and the project community and the project provinces in general, contribute to the successful implementation of the target programs of the Government of Vietnam.
99. The project activities were consistent with the development orientation of the agricultural sector as well as the economic - social development orientation of project provinces.

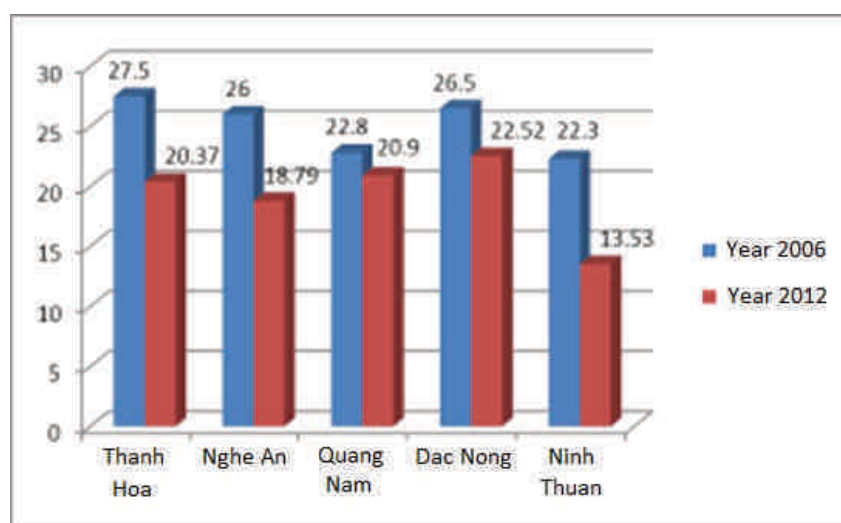
### 3.2. RESULTS OF ACHIEVING PROJECT OBJECTIVES

#### 3.2.1. Objective of project impact - achieved a balanced and sustainable agricultural growth

100. The project had initially contributed to the achievement of a balanced and sustainable agricultural growth in Vietnam, reflecting in indicators: (i) added value in annual agricultural export products and annual export value of agriculture sector during the period 2006-2012; (ii) reduction of poverty rate in rural areas.



**Figure 2:** Comparison of changes in some indicators relating to general objective of the project

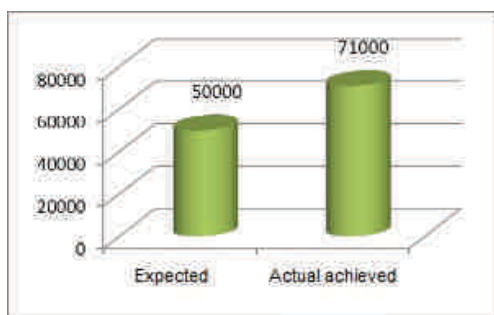


**Figure 3:** Comparison of poverty rate (%) before and after the project implementation in rural areas of the 5 project provinces

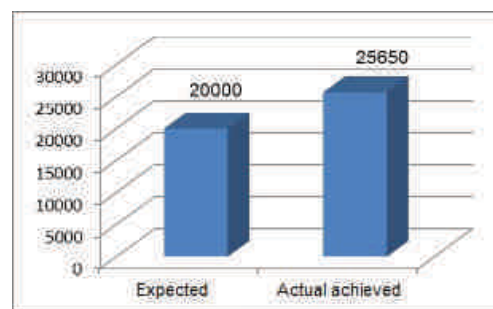
### 3.2.2. The achieved efficiency compared to the expected project outcome

101. From the research results of 125 researches funded by the project, 292 pilot models had been established with higher productivity and economic efficiency than mass production (5.8% higher than the plan). Especially, some models had higher net interest than mass production from 200 to 400%. 86 out of 125 researches had raised the income of farmer households from 0.35 to 40 million VND /household/year compared with that before the researches, accounting for 68.8%.
102. From the results of 125 researches, the Project conducted 70 models had been replicated on a total area of 1121.7 hectares with the participation of 6,265 farmer households. Additionally, there were 12,200 trained people, in which 8,160 people had registered for technical advance application. The models also organized inception workshops and disseminated knowledge to 8,460 people. From these models, more than 33,700 people found jobs, in which there were about 22,700 women (67.35%) and 5,000 people from ethnic minorities (14.83%). The total number of beneficiaries from 70 models above was expected at over 56,000 people.
103. There were 355 researchers had used equipment funded by the project to enhance their research capabilities. Many of them (42 doctors, 98 masters, 129 bachelors/engineers) had used these devices to serve the completion of their graduation papers/dissertations/theses.
104. The investment in equipment for the institutes from the project budget helped these units increase by 65 implemented researches and programs compared to the previous years: 65 researches and programs. The percentage of hiring equipment and sample analysis had reduced by 67.5%. The accuracy of research results increased by 47.8%. 30 research areas had been further extended or implemented more intensively<sup>26</sup>.
105. The number of farmer households whose income had been improved was higher than the expected (over 28.3%) thanks to the application of research results from the researches funded by the project (new plant varieties/animal breeds were created or invigorated, new production processes, etc.) or thanks to the participation in the implementation of the agricultural extension contracts. (Figure 6).
106. The changes in the approach to agricultural extension services of the project (poor-oriented agricultural extension) had helped a large number of farmers receive support and advice from these services, 42% higher than the expected (Figure 7)

<sup>26</sup> Evaluation report on efficiency of equipment use prepared by consultant Nguyen Van Chien, March 2012.



**Figure 4:** Number of households received support and advice from agricultural extension services of the project

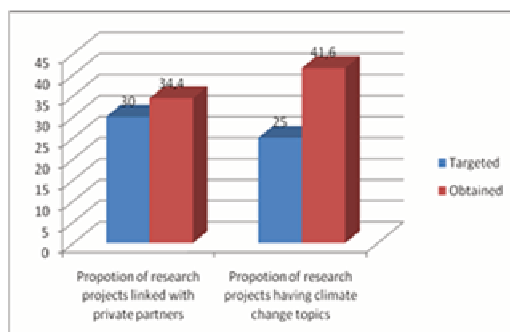


**Figure 5:** Number of households with improved income (household income was expected to increase from 5-10%; the actual household income increases from 10-30%)

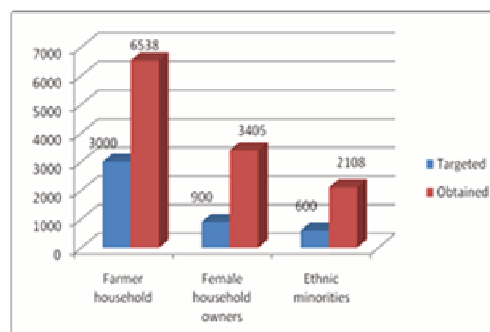
107. Thanks to the investment and upgrade of equipment and laboratories, in 10 project colleges/schools, the quality of 55.5% researches had increased remarkably compared to that before the project. Annually average growth rate of students admitted in 10 project colleges/schools was 33.5%<sup>27</sup>;
108. The project was effectively supporting improvement activities for human and physical resources of project schools: (i) increase the number of staff with postgraduate qualification; the quantity and quality of classrooms, laboratories and teaching equipment were necessary conditions for upgrading vocational colleges/schools in accordance with the policy of Ministry of Education and Training of Vietnam. By the end of 2012, 8 out of 10 project colleges/schools had been upgraded from vocational colleges/schools to colleges. Project colleges/schools would not be successful without contribution from AST project.
109. The quality of training and facilities of the colleges/schools had significantly improved (with the contribution of AST project to some extent), accepted by the businesses and labor market. Average percentage of students in 10 colleges/schools who find a job in 6 months - 1 year after graduation had increased from 75.3% in 2009 (1 year after the equipment funded by the Project came into operation) to 77, 0% in 2011. Although this was only a slight increase but in the overall context of Vietnam's economy currently when so many businesses had difficulties in production, the rate was remarkable.

### 3.2.3. Achieved efficiency compared to the expected project output

110. The project had contributed to changes in the agricultural research approach. Thus, the implemented research contents had been diversified more, paid more attention on supporting local people to adapt to climate change, so the participation of stakeholders had been mobilized quite effectively (private agencies, people) in these activities.



**Figure 6:** Percentage of researches containing contents relating to climate change and percentage of linked researches



**Figure 7:** Number and composition of participants in activities of researches

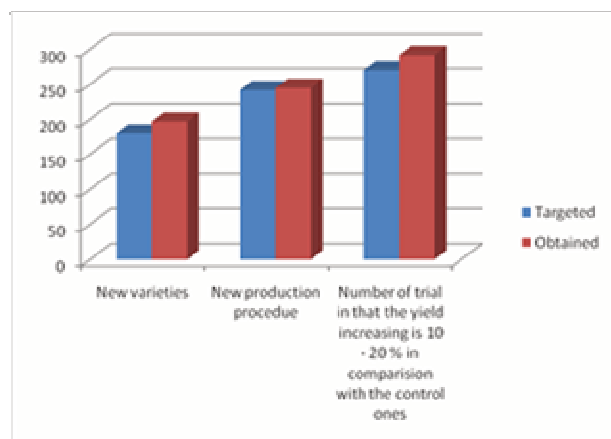
<sup>27</sup> Report on the quality assessment of textbook and lecture prepared by Vuong Thanh Huong, January 2013.



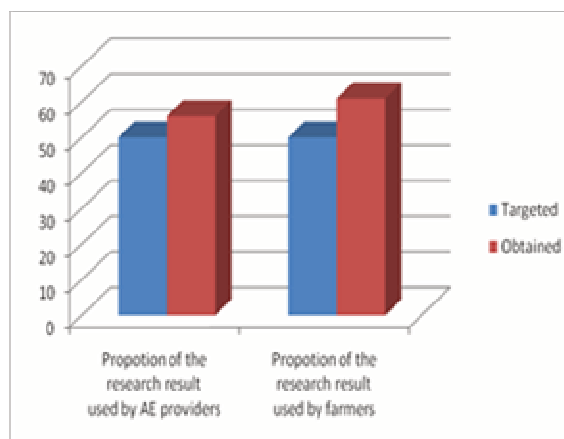
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111. By applying the new research approach, from the project budget, the research results of were initially recognized by the agricultural extension service providers and local people. Therefore, the percentage of research results which can be applied in actual production was higher than the expected, with a certain contribution to the improvement of crop, livestock yields, and household income.

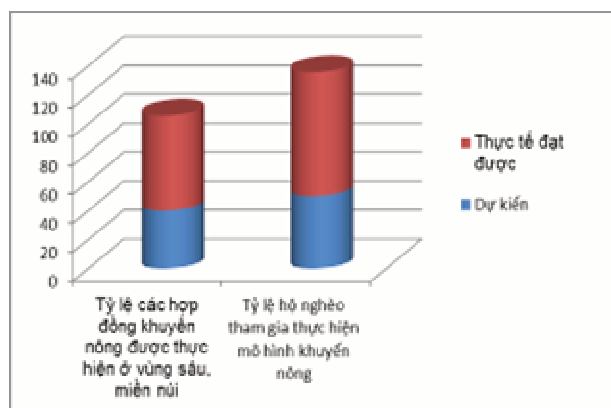


**Figure 8:** Results achieved from 125 researches funded by the project

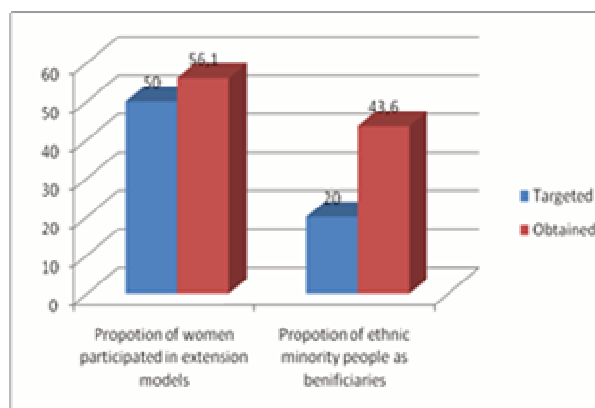


**Figure 9:** Applicability of results from researches funded by the project

112. Agricultural extension at grassroots level had gradually shifted toward focusing on the implementation of services in the remote, mountainous, and difficult areas and pro-poor, women and ethnic minorities. The resources (human, financial and material) in agricultural extension of 5 project provinces had been enhanced, which was an important contributory factor in improving the quality of agricultural extension at all levels.

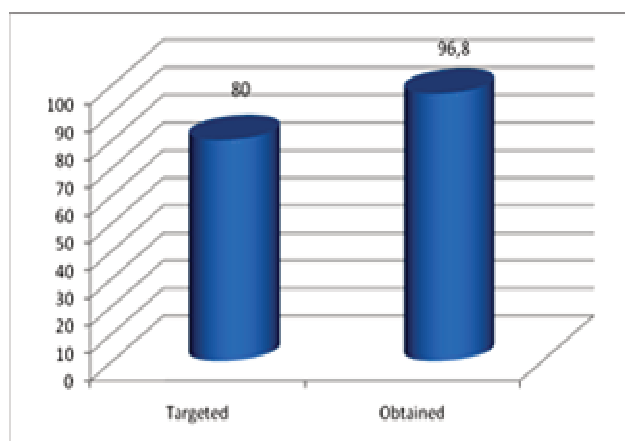


**Figure 10:** Percentage of agricultural extension contracts implemented in difficult areas and percentage of poor households participated in the models

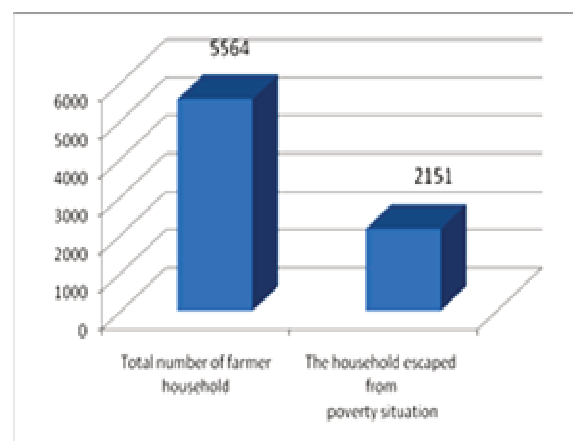


**Figure 11:** Percentage of women participated in the models and ethnic minorities benefited from the agricultural extension models

113. The quality of agricultural extension services had been improved gradually, effectively contributing to increasing income for local people and reducing poverty in the project communes of these 5 provinces.

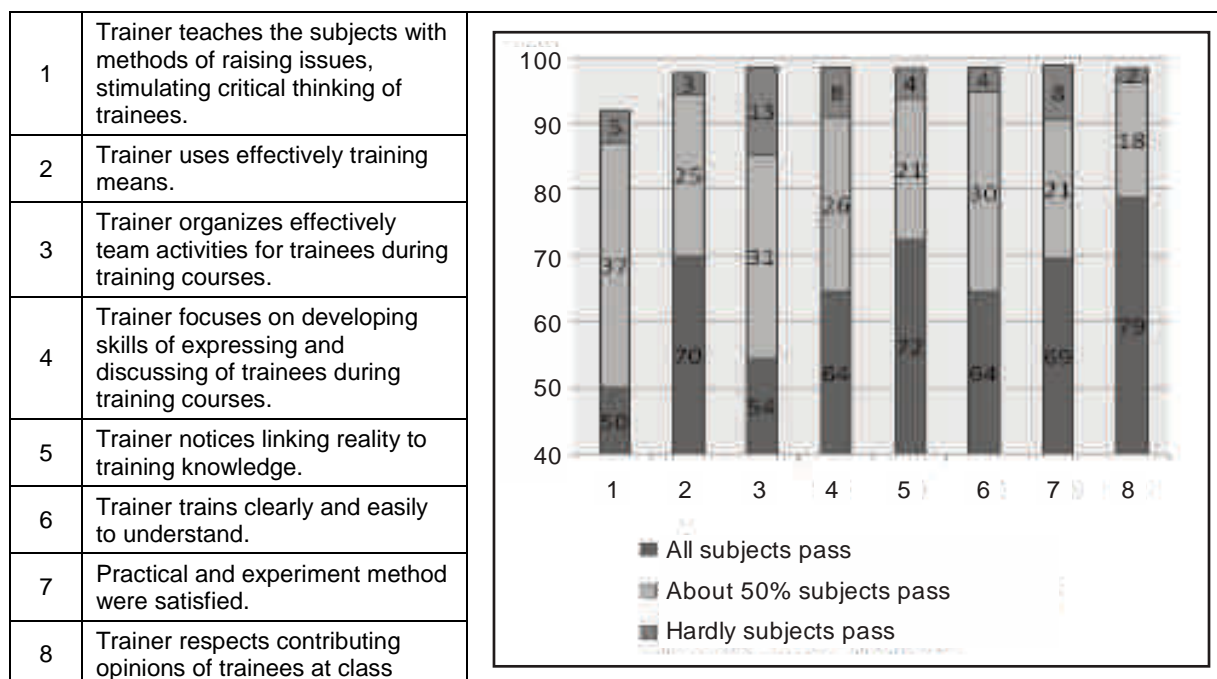


**Figure 12:** Percentage of agricultural extension contracts which increased the profit for beneficiary household by 10% compared to reality



**Figure 13:** Percentage of households escaped from poverty after participating in the project of project communes of Nghe An province

114. Improving management capacity building and training for staffs of some colleges/schools supported by the project had created positive impact on these schools' quality of training. There were 30 training programs completed, which was 50% beyond the expectation. The equipment invested was also used more effectively and meet the needs of the trainees.



**Chart 1.** Satisfaction levels of trainees about training quality of trainers at project colleges/schools

### **3.3. EFFICIENCY IN ACHIEVING PROJECT OBJECTIVES**

#### **3.3.1. Economic efficiency**

115. The economic analysis<sup>28</sup> of the main AST project's components/activities shows that: the project was feasible in terms of economy with EIRR of 20% and the ENPV value of the entire project of about VND 266 billion. This rate was relatively high for a project with so many different activities as the Agricultural Science and Technology Project. The sensitivity analysis performed for the changes in project costs and benefits, as well as the latency of the benefits had confirmed the feasibility of the project in terms of economy.
116. The economic internal rate of return (EIRR) for the researches ranges from 50% (based on the project life cycle of 8 years) to 52% (based on the project life cycle of 10 years) and the economic net present value (ENPV) ranges from VND 29.4 billion to VND 36.0 billion. However, when each individual result was reviewed, the EIRR value fluctuates significantly, thus some researchers were very effective, the efficiency of many researches' results were acceptable and some researches' results were not as effective as expected.
117. EIRR of overseas training activities only fluctuates from 2.3 - 2.7%, equivalent to ENPV which fluctuated from VND -37.6 billion to -36.7 billion based on calculation benefit of trainees' hopes for increasing salary/income. By applying the alternative estimate plan based on the international difference level of USD 20,000 per year, EIRR then was 12.6% and the equivalent ENPV was VND 3.8 billion, only a bit higher than the economic viability threshold. However, the benefits of strengthening international cooperation, changing thinking in research, laboratory management, etc. of overseas training activity could still not be quantified.
118. The EIRR of the activity of investing and upgrading research equipment and laboratories at institutes (in January 2012) was estimated to fluctuate from -1.7% to +1/7% and ENPV fluctuated from VND -25.1 billion to 15.6 billion by the project consultant. That evaluation results of the consultant was appropriate to the context that the institutes could still not transfer to market mechanism according to the Decree 115, hence, the institutes could not use the equipment funded by the Project to provide research services to bring sustainable source of income for the research agencies.
119. The average EIRR value of speeding up agricultural extension contracts sign was 68%. Similar to the researches, the economic feasibility of these agricultural extension models also had significant difference between each model compared with expectations
120. The EIRR value of support for technical training and vocational colleges/schools was estimated by consultant as 41% and ENPV was VND 354.4 billion based on investment cost information provided by colleges/schools. When using the financial data of the project to calculate the EIRR value reduces to 36% and ENPV reduces to VND 336.2 billion. This calculation result shows that investment in colleges/schools was economically efficient.

#### **3.3.2. Social efficiency**

121. By implementing national competitive bidding procedure for researches and agricultural extension service contracts, the project had contributed positively to the progress of "Public Administration Reform" in research operations and agricultural extension at grassroots level, contributed to strengthening the financial autonomy of the research agencies under Decree No. 115 and the quality of agricultural extension activities under Decree No. 02 of the Government of Vietnam<sup>29</sup>.

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<sup>28</sup> Report on project impact assessment, prepared by John A. Wicks and Hoang UK Tuan in January 2012.

<sup>29</sup> Decree No. 115/2005/ND-CP dated 05 September 2005 on autonomy in research units and Decree No. 02/2010/ND-CP dated 08 January 2010 on agricultural extension at grassroots level of the Government of Vietnam.

122. The project had implemented research activities on native knowledge and value chain for local agricultural products, which initially helps the local authorities and local people had market orientation in agricultural production, contributes to enhancing the value of agricultural products, diversifying income sources for producers.
123. Through the encouragement of the participation of many components by widely bidding agricultural extension contracts, the project had contributed to improving the management capacity of some public organizations such as the Women's Union, Farmers Association, Youth Union in many the project areas
124. The device equipped by the project helped reduce hard labor in the laboratories of the 10 research institutes averagely by 29%, increase average yield by 27%, and significantly reduce the toxic effects of chemicals on the health of the research staff
125. The project had well implemented gender equality issues, with priority given to participation and benefit of disadvantaged groups such as the poor ethnic minorities, and women which was expressed in the higher percentage of participation and benefits of these researches in all project activities than the expected goals. This was well implemented in the Sub-component 1.1 and Sub-component 2.2 thanks to participation of females, the poor and ethnic minorities that were one of the criteria for selecting research projects to get funded by the Project or selecting extension contracts.

#### 3.3.3. Environmental efficiency

126. Some researches on soil and fertilizer had identified seven plant varieties and 14 species of microorganisms which were good to soil improvement and production processes fertilizer and help people in the project areas had more choices of cultivation methods to partially reduce erosion, environmental pollution as well as improve soil fertility<sup>30</sup>.
127. The equipment invested by the project for the institutes and vocational colleges/schools had contributed to reducing pollution by 42%. 65% of researches and 50% of agricultural extension models in the project had reduced at least 10% of chemical fertilizer and pesticide that had been used.

### 3.4. PRELIMINARY EVALUATION ON SUSTAINABILITY OF THE PROJECT

128. The project had had a positive impact on society, reflected in having a large and diverse number of people benefited directly or indirectly from the project, including research staff, teaching staff, managers, agricultural extension staff, farmers, some agricultural business owners. Through the project, the link between these objects had been initially formed, contributed to the efficient transfer of technical advances in production, gradually raised income for producers, developed the agricultural markets. Accordingly, local people's knowledge on production, markets and skills had been gradually improved, they had become more confident in requesting for loans to expand the scale of production models, contribute to increasing the sustainability of the project activities.
129. Many research contents/demonstration and on-farm pilot models which had been built by "participatory methods", were generally consistent with local natural, economic & social conditions, implemented with the direct participation of local people so the ability to replicate was quite high.
130. At the project institutes and colleges/schools, research/training capacity building was always accompanied by investment in/upgrade of equipment/laboratory so the operation and maintenance of the equipment/laboratory performance were ensured. In addition to the use for research purpose, equipment/laboratory were also used for units outside the project and the production units, the enterprises, the funds obtained from this service will contribute to increasing the budget for maintenance and increasing income for staff working in the laboratory. Besides, the maintenance of machinery, equipment/laboratory was also integrated with the maintenance

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<sup>30</sup> Report of environmental consultant Nguyen Thi Loan, March 2012..

schedule of the project units. So the sustainability of equipment investment was guaranteed, even if it will no longer receive budget from the project.

131. In the project provinces, along with improving skills for agricultural extension staff, the project had also provided equipment for some DAESs, contributing to ensuring the effective operation of the agricultural extension staff as well as the sustainability of capacity building activities for agricultural extension staff at all levels.
132. The contents of the models had been built in the provincial/district and commune agricultural extension plans by participatory method, based on the needs of local people so they were quite consistent with natural, economic and social conditions, particularly, they were initially associated with the demands of local agricultural products market, were able to increase income for producers so they can be replicated further by local people after the project ends
133. Some training programs of vocational colleges/schools were built in accordance with the guidelines of "innovating and improving the quality of education and training" of the Ministry of Education and Training, and there was participation of businesses and employers so it not only meets the needs of society in the short term but it can also ensure the suitability of training programs in the future, become a basis to confirm the sustainability of activities in this component.
134. Project management: The staff of CPMU, PPMUs, institutes and colleges/schools had chance to participate in training courses as well as improve management skills through sharing experience with experts from ADB and project implementation consultants. This was the condition for the PMU staff at all levels to improve their skills and complete assigned tasks well. One highly appreciated point of the project was that the staff of provinces, colleges/schools and institutes participated in the PPMUs had confirmed that they had sufficient capacity to manage the activities of other projects similar to AST project.

### **3.5. SOME LIMITATIONS DURING THE PROJECT IMPLEMENTATION**

#### **3.5.1. Component 1**

135. The financial management mechanism of the researches does not adhere to the rules of market that was lump-sum contracting and contract acceptance by output. Some institutes and colleges/schools had not really had an autonomy-oriented financial management mechanism, some research units and researchers still had a heavily subsidized thinking, which was difficult to adapt when switching to market-oriented mechanism (Decree No.115 of the Government)
136. The recruitment of staff participating in some training courses of institutes was not really suitable, so there was uniformity in the professional level of trained staff. This reason caused more or less negative impact on short-term training courses in the country.
137. In some project institutes, equipment was installed scatteredly and there was no appropriate environmental treatment system attached.

#### **3.5.2. Component 2**

138. The percentage of women participating in ToT training courses was low and did not meet the set objectives; some training courses in the first years were highly theoretical. The contents of some training programs still encouraged the use of pesticides, chemical fertilizers, etc., in some cases, or they were not well integrated with the contents on climate change, gender and the environment as required by ADB.

#### **3.5.3. Component 3**

139. Leaders in some colleges/schools did not understand the importance of the development of electronic library system which were used for the teaching and research purposes of students and lecturers, so they did not pay adequate attention to this activity. Thus, the effectiveness of the project investment in electronic library system in these units was not as high as desired.

### **3.6. IMPLEMENTATION STATUS OF THE PROJECT AFTER ENDING**

140. The sustainability of almost project activities was confirmed. However, maintenance and extending operation scope after the Project had ended did not only depend on subjective factors such as relevance, methodology, applicability of project activities etc., but also depended on other factors such as (i) the policy of GoV and MARD in priority investment in agricultural science and technology solutions and development of human resources in agriculture in the context of global climate change; (ii) the constant concern of leaders of the units involved in the Project to continue using, integrating and combining investment results of the Project with operation of their unit after the Project had ended; (iii) The donors were interested in supporting replication of project results of the project provinces, institutes and colleges/schools.
141. However, even with support of the Government and the Donor, the results of researches, demonstrations, field-experiment models would only be replicated if their performance was evaluated in a comprehensive manner, according to a specific set of criteria at three aspects: economy, society and environment. Similarly, the success of capacity building activity should also be verified through an assessment after training. The evaluation results should be enough objective and qualified to convince GoV as well as the Donor to continue investing in these activities.
142. The activities of replicating results of researches, demonstrations, field-experiment models were expected to be conducted if farmers were prioritized to borrow loan under development priorities policies/programs of GoV such as policy of direct support for ethnic minorities; programs which were included in the Comprehensive poverty reduction and growth strategy (CPRGS), etc.
143. The activity of investing/upgrading equipment, laboratories, lecture halls for the institutes/vocational colleges/schools and facilities for district AEC were expected to continue its effectiveness and maintenance via a part of expense collected from operation of this equipment, own funds of the units from the research projects, extension services and a part of annual GoV's assist.
144. Project management capacity of PMU staff at various levels that had been improved was the valuable resource to continue undertaking duties under other projects in their localities. Human resources and grassroots agricultural extension materials that had been enhanced would support the project provinces continuing effective implementation of extension activities and replication of the project results in these provinces.

### **3.7. EVALUATION ON ADB PROJECT IMPLEMENTATION**

145. ADB contributed to accelerate project implementation progress, particularly in disbursement schedule. The two-sided relation was a partnership based on trust and construction in development cooperation. ADB missions contributed to accelerating the project preparation and implementation progress. ADB had initially given an attention on the project by organizing fact-finding mission since 2005 and project appraisal mission in 2006. The following missions would start up and evaluate the project in order to (i) explain about the objective, reasonableness, and preparation for project implementation; (ii) clarify the modes of project and components implementation; (iii) explain the ADB requirements for consultant selection, procurement activity, maintenance in record book and loan systems as well as benefit of testing and evaluation; (iv) "explain" and "guide" on the procedures referring to withdrawal and disbursement; (v) review the preparatory work among CPMU, PPMU along with PMU of institutes and colleges/schools.
146. A large number of ADB mission worked with the project provinces, institutes and school during the period from January 2008 to May 2013 (every 6 months on average) to review the progress of project implementation. Missions' opinions and recommendations were discussed with CPMU,

PPMU as well as PMU of institutes and colleges/schools to have suitable guidelines. There were record books after every mission operation so that two sides could perform together. To ensure the efficiency of capital, accelerate the project implementation, ADB fulfilled the function of the donor in accordance with ADB regulation and Agreement provisions but also supported the project in focus on making plan; reviewed and not oppose to the submitted sub-projects and procurement activities of the provinces; monitored and supervised the project activities; adjusted plans and project activities of each province, institute and school annually; disbursed the capital; selected consultant. Especially, ADB and the Borrower considered the adjustment to project agreement in the mid-term evaluation (December 2010) and seek the appropriate solution for problems. The tight cooperation between ADB and CPMU contributed mainly to the success of the Project.

## **4. OVERALL EVALUATION AND RECOMMENDATIONS**

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### **4.1. OVERALL EVALUATION**

147. Even though there were some obstacles at the early stages, the Project has achieved its design objectives and expected outcomes, some were even better than expected, thus, the Project was evaluated as "successful".

### **4.2. LESSONS LEARNT**

148. The Project was designed suitable to the capacity of MARD, PPMUs, institutions, and vocational schools. The project was evaluated as successful in terms of research accessing method, training, and agricultural activities. The success of the project was a good lesson learnt for other institutions and agricultural extension centers, to have basis for implementing Decree 115 and 02 by the government.
149. The strong commitment, the close supervision of the ADB and MARD (CPMU), PPMUs, the active involvement of the institutions/vocational schools, research project executing agencies/directors, farming households from many provinces/cities were the main factors leading to the Project's success. The beneficiaries of this Project were management staff, research staff, trainers, and the local people. The strong commitment in implementing the Project Agreement, the close supervision of the ADB and MARD (CPMU), project PPCs, and the cooperation of all stakeholders, the active participation of the local people were the basic factors leading to the AST project's success, as same as all other projects.
- 150 The policy of decentralization created favorable conditions for the Project to achieve success. Although the Project had faced with a number of problems at the beginning of implementation, the results of the Project demonstrated that the strategy of decentralization for research institutes, colleges/schools and provinces was completely correct, this contributed to accelerate progress and improve efficiency of project implementation. Appropriate decentralization would promote the institutes, colleges/schools and project provinces to effectively mobilize available resources. However, it was still in need of adequate guidance of CPMU for the decentralized units, legal assistance and local counterpart funds to promote effectively the synergy power of stakeholders of the Project.
151. Develop a trustworthy and enduring relationship. The relationship between the ADB and Vietnam was not purely a relationship among the "Donor" and the "loan receiver", it has become a partner relationship based on bilateral trustworthiness. Develop a friendly relationship among the MARD and PPCs of Thanh Hoa, Nghe An, Quang Nam, Dak Nong, Ninh Thuan, and the ADB, based on bilateral respect, sharing responsibilities, and responsible for development outcomes, contributes to developing the long-term and sustainable relationship between Vietnam and the ADB, and other donors.
152. Suitable regime and adjustments. During the project implementation progress, there should be a certain project regime with reasonable adjustments to boost the project progress. Adjustments made to the project agreement, procurement, changes to the percentage of counterpart fund, removal of unnecessary activities and replace with more effective ones, including the bidding packages of the AST project as mentioned above were lessons learnt for implementing other projects.
153. A comprehensive, systematic, and strategic approach in building capacity for researching, training, and transferring technology, agricultural extension were developed based on actual



demand of the agriculture sector (as in the Development Strategy for Agriculture Sector, 2010 - 2020). The approach will be a necessary condition for making best use of human and physical resources of the project.

154. The capacity building activity can only produce best outcomes when it was developed based on actual needs: accessing training/ investment demands applying reasonable indicators and implementing method was a necessary condition to ensure the activity's success and sustainability.
155. A flexible approach in boosting grassroot agriculture extension: there were distinctions in terms of national conditions, socio-economic conditions, and quality of human resources in the agricultural sector of the 5 project provinces, thus, applying a flexible approach to each locality will help the project achieve better results, and ensure the sustain abilities of activities after the project was completed.
156. Establish a close linkage among research, training, transferring technology and market: The research and possibility of multiplying research outcomes were only ensured when there was a strong and effective linkage among researchers, trainers, agricultural extension staffs, and agricultural entrepreneurs, with the active involvement of all stakeholders.
157. Compliance of project design and implementation: the project was designed in compliance with actual conditions of the sector, locality, and the expectations of the beneficiaries. The project design was details in terms of activities and cost of each activity. When there was a good coordination among the Donor and project stakeholders, the project produces better outcomes and project implementation period would be ensured or even shorter than expected. This was proved when only from June 2007 to December 2012, the AST project has disbursed 96.95% of the project's total investment fund.
158. A functional M&E mechanism and system: M&E activity should be carried out periodically to ensure all project activities were properly functioning, meeting all requirements of the Government and the Donor. The M&E indicators should be designed in accordance with SMART<sup>31</sup> standard, and should be well managed. The M&E data should only be kept in a simple format, which facilitates people who require to access. It was not easy to attain the success of the project as well as its sustainability and the objective assessment of project activities unless M&E work was effectively implemented. Regular M&E was conducted in CPMU, PPMUs and IPMUs under all 4 components, which helped to boost project activities to be completed as planned and avoid waste of investment costs.

### **4.3. RECOMMENDATIONS**

#### ***To the Government of Vietnam:***

159. The achieved success of the Project in applying new approach for research activities and strengthening grassroots agricultural extension was obvious. It has significantly contributed to strengthen the link between research and agricultural extension for the poor, to increase efficiency of science and agricultural extension activities of Institutes and project provinces. This trial mechanism should be consider to be institutionalized in research system and national agricultural extension, in order to promote effectively the investment in research and agricultural extension of GoV in the whole country.

#### ***To ADB:***

160. The ADB should continue to donor Final for the project's second phase, to: (i) multiply research outcomes; (ii) multiply the success demonstration models; (iii) invest in researching in larger scale

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<sup>31</sup> Specific, measurable, attainable, realistic and timely.

to help solve huge obstacles of the agriculture sector, such as mitigating negative impacts and adapting to climate changes, managing agricultural wastes, etc., especially in those ecological zones which were vulnerable to climate change, aiming to a green agriculture, reduction in greenhouse emission.

**To CPMU:**

161. The success of AST project drew not only the attention of the GoV, but also huge attention of the international development community. Impact of climate change on agriculture sector was getting greater and the need for more investment in research and agricultural extension which will assist agriculture sector to improve adaptation to climate change and retain low carbon agricultural growth was now essential than ever. Therefore, the experience of this project should be documented as a knowledge product of Vietnam to share with the international development community in regionally and globally.

**To IPMUs:**

162. To make better use of the project's investments, those institutions/schools received facilities from the project should pay more attention to training its staff on the use of invested facilities, utilizing facilities towards "market orientation", operating and maintaining invested facilities by their own profit.

**To PPMUs of Thanh Hoa, Nghe An, Quang Nam, Ninh Thuan and Dak Nong**

163. The following issues should be reviewed by local specialized agencies: (i) the implementation of procurement mechanism for agricultural extension contract sponsored by technology, science fund of provinces; (ii) integrate AST activities to replicate effectively success models in region outside the project; (iii) use effectively ToT to train agricultural extension staffs at all levels and farmers at local; (iv) apply the survey result of knowledge and local products in developing the content of demonstration model with the purpose of plant and animal gene conservation; increase suitability and feasibility of the models to the characteristic of the poor, ethnic minorities in remote and difficult areas; (v) apply the survey result of knowledge and local products in developing the chain value model to expand consumption market.

## **APPENDIX**

### **Appendix 1. LIST OF PROJECT INSTITUTES AND SCHOOLS/COLLEGES**

#### **Institutes**

- 1      Cuu Long Delta Rice Research Institute
- 2      Southern Fruit Research Institute
- 3      Institute of Agricultural Science of South Viet Nam
- 4      Western Highland Agro-Forestry Science and Technology Institute
- 5      Forest Science Institute of Viet Nam
- 6      Institute of Policy and Strategy for Agriculture and Rural Development
- 7      Field Crops Research Institute
- 8      Soils and Fertilizers Research Institute
- 9      Northern Mountainous Agriculture and Forestry Science Institute
- 10     Plant Protection Research Institute
- 11     Institute for Agricultural Environment
- 12     Agricultural Science Institute of Northern Central Vietnam
- 13     Southern Coastal Central Agricultural Science Institute

#### **Schools/Colleges**

- 1      Da Nang Food and Food Stuff College,
- 2      Northern Agricultural and Rural Development College
- 3      Central Region College Of Technology - Economics And Water Resources
- 4      Bao Loc College of Technology & Economics
- 5      Hai Phong Secondary Technical School for Food and Foodstuff Management  
(Do Son)
- 6      Ho Chi Minh City Secondary Food Technology School
- 7      Hanoi Secondary Technology and Economics
- 8      Southern College for Mechanics and Agriculture
- 9      Southern Agricultural and Rural Development Vocational School)
- 10     Northern Water Resources College

## Appendix 2. SUMMARY OF PROJECT OUTCOMES BASED ON DESIGN AND MONITORING FRAME

| Design Summary   | Performance Targets/Indicators  | Data Sources/Reporting Mechanisms  | Assumptions and Risks  | Achievements/Progress As of 30 April 2013  |
|--|---|--|--|--|
| <b>Impact</b><br><br>Sustainable and equitable agricultural growth achieved                    | <ul style="list-style-type: none"> <li>Aggregate value added and exports of the agriculture sector to increase at about 3.0–3.2% and 12.3–14.3% respectively per annum during 2006–2010 in line with the 5-Year Socioeconomic Development Plan</li> <li>Poverty incidence in rural areas decreased from 45% (2003)</li> </ul> | <ul style="list-style-type: none"> <li>National accounts</li> <li>National agricultural statistics (annual yields, production volume and value, varieties of crops and other products, and other relevant data)</li> <li>Poverty assessments</li> <li>Monitoring by the Ministry of Agriculture and Rural Development (MARD), and Ministry of Planning and Investment (MPI)</li> </ul> | <b>Assumptions</b> <ul style="list-style-type: none"> <li>Macroeconomic stability maintained during the project period</li> <li>The country's agriculture sector continues to be effectively integrated into international markets</li> <li>Sustainable use of on-farm and off-farm natural resources</li> </ul> | <ul style="list-style-type: none"> <li>Aggregate value added and exports of the agriculture sector to increase at about 3.8% and 14.8% respectively per annum during 2006–2010 in line with the 5-Year Socioeconomic Development Plan</li> <li>Poverty incidence in rural areas decreased from 45% (2003) to 15.9 % (2011)<sup>32</sup></li> </ul>   |
| <b>Outcome</b><br><br>National system of agriculture science and technology (AST) strengthened | <ul style="list-style-type: none"> <li>Client-oriented AST system in place with improved and more effective mechanisms for technology dissemination</li> <li>Closer linkages</li> </ul>   | <ul style="list-style-type: none"> <li>Monitoring by MARD and MPI</li> <li>Project review missions of the Asian Development Bank (ADB)</li> <li>Project monitoring system and progress</li> </ul>  | <b>Assumptions</b> <ul style="list-style-type: none"> <li>Continued Government commitment to the market-oriented agriculture sector in line with the national socioeconomic development plans</li> </ul>   | <ul style="list-style-type: none"> <li>The Degree N0 115/NĐ – CP dated Sep 5<sup>th</sup>, 2005 on self – control of research institutions has been issued. Based on that, the selection method of research programs in AST project has been changed to competitive bidding. The research projects were selected by competitive method in accordance with the project evaluation criteria issued by the Ministry of Agriculture and Rural</li> </ul> |

<sup>32</sup> Poverty line of 2012 is not yet update because there is no related data at the moment be issued. it will be issued in June, 2013 by Government Statistic Office.

| Design Summary  | Performance Targets/Indicators   | Data Sources/Reporting Mechanisms  | Assumptions and Risks  | Achievements/Progress As of 30 April 2013   |
|---|--|--|--|---|
|   | <p>established between research and extension activities</p> <ul style="list-style-type: none"> <li>Multiple extension services in place, involving various service providers</li> </ul>   | <p>reports</p> <ul style="list-style-type: none"> <li>Regular dialogue with key stakeholders involved in the national AST system, including extension centers and research institutes</li> </ul>   | <ul style="list-style-type: none"> <li>Continued Government policies and actions to streamline AST institutions to respond to the national development goals</li> <li>Agriculture market information systems effectively implemented</li> </ul>  | <p>Development.</p> <ul style="list-style-type: none"> <li>100% research projects were selected on a competitive bidding basis</li> <li>Commitment of provincial Agriculture Extension Centers/ district AE stations to participate into the research program's activities is considered as one of indicator of the research programs' selection</li> <li>There were 366 Agricultural Extension centers and stations; 49 private sectors; 45 research institutes/universities; 105 provincial/regional research centers and 50 mass organizations provided extension services in 5 project provinces.</li> </ul>  |
| <p><b>Outputs</b></p> <p>1. Capacity of physical and human resources for agricultural research improved</p> | <ul style="list-style-type: none"> <li>Efficiency and usage of laboratory equipment increased substantially</li> <li>Research staff with relevant postgraduate qualification increased from 20% in 2003 to 30% in 2008 in line with the human resource development plan for agricultural research</li> </ul> | <ul style="list-style-type: none"> <li>Monitoring by MARD and MPI</li> <li>ADB review missions</li> <li>Project monitoring system and progress reports, including inventories of equipment and staff lists</li> <li>Midterm and completion reviews of the Project</li> <li>Regular dialogue with key stakeholders involved in the national AST system</li> </ul> | <p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>The Government's plan for research institute reorganization implemented</li> <li>Skilled staff retained in the national AST system</li> <li>Adequate financial resources for proper operation and maintenance</li> </ul> <p><b>Risk</b></p> <ul style="list-style-type: none"> <li>Inappropriate intervention into procurement and</li> </ul> | <ul style="list-style-type: none"> <li>355 researchers have used equipment funded by the project to enhance their research capabilities. Many of them (42 PhD students, 98 masters students, 129 graduated students) have used these devices to serve the completion of their thesis</li> <li>The investment in equipment for the institutes from the project budget helped : <ul style="list-style-type: none"> <li>The institutes increase the number of implemented researches and programs compared to the previous years: 65 researches and programs. The percentage of hiring equipment and sample analysis has reduced by 67.5%.</li> <li>Increased quality of research by 47.8%; developed or implemented in a more specialized manner of 30 research topics</li> </ul> </li> <li>The average number of samples in need of</li> </ul> |

| Design Summary   | Performance Targets/Indicators   | Data Sources/Reporting Mechanisms   | Assumptions and Risks   | Achievements/Progress As of 30 April 2013  |
|--|--|---|---|--|
|  |  |   | selection of trainees   | analysis of 10 institutes is 213,450 of which mainly serves research projects (81%) while that for services accounts is 19%.<br><ul style="list-style-type: none"> <li>Income from service provision of 10 institutes is VND 1,945 million. This budget has being used for equipment O &amp; M</li> <li>Percentage of researchers who are in Master level or higher in 10 project institutes increased from 38.3% in 2008 to 53% in 2011.</li> </ul> |
| 2. Agricultural research activities made more responsive to client needs         | <ul style="list-style-type: none"> <li>Research and technology transfer contracts undertaken in provinces of different agro-ecological regions</li> <li>Not less than 40% of the value of research contracts addressing needs of upland or remote communities</li> </ul> | <ul style="list-style-type: none"> <li>Monitoring by MARD and MPI</li> <li>ADB review missions</li> <li>Project monitoring system and progress reports, including contract awards</li> <li>Midterm and completion reviews of the Project</li> <li>Regular dialogue with key stakeholders involved in the national AST system</li> </ul> | <b>Assumptions</b> <ul style="list-style-type: none"> <li>Government procedures and regulations improved for the client-oriented AST system of the country</li> <li>Increased awareness among the stakeholder agencies about the need for client-oriented agricultural research activities</li> </ul> | <ul style="list-style-type: none"> <li>Research projects were conducted in all 46 provinces as well as in all Vietnam's eco-regions. 65% of 125 projects<sup>33</sup> were about food security; 41.6% related to environment and climate change; 23.2% of market-related research.</li> <li>74.5% of research projects were implemented in the remote and disadvantaged areas.</li> </ul>  |
| 3. Farmers' access to participatory and pro-poor agricultural extension improved | <ul style="list-style-type: none"> <li>Needs-based provincial planning systems for agricultural extension</li> </ul>   | <ul style="list-style-type: none"> <li>Monitoring by MARD and MPI</li> <li>ADB review missions</li> <li>Project monitoring system and progress</li> </ul>   | <b>Assumptions</b> <ul style="list-style-type: none"> <li>Active participation of key stakeholders in local communities in</li> </ul>   | <ul style="list-style-type: none"> <li>All 5 project provinces developed the extension plans from commune to district based on local people's demands, thus effectively mobilized their participation. 129 workshops identifying extension priorities and planning were organized in</li> </ul>  |

<sup>33</sup> Total revised research projects after Midterm Review on 5-13 May, 2010 (as agreed by relevant departments/agencies of Vietnam and ADB) was only 125 projects.

| Design Summary  | Performance Targets/Indicators   | Data Sources/Reporting Mechanisms   | Assumptions and Risks   | Achievements/Progress As of 30 April 2013   |
|---|--|---|---|---|
|   | <ul style="list-style-type: none"> <li>established</li> <li>Project extension activities implemented in upland and remote areas of the five project provinces</li> <li>Not less than 40% of the value of extension contracts addressing needs of upland or remote communities</li> </ul>   | <ul style="list-style-type: none"> <li>reports, including assessment of poverty incidence and evaluation of training and seminar programs conducted under the Project</li> <li>Midterm and completion reviews of the Project</li> <li>Regular dialogue with key stakeholders involved in the national AST system</li> </ul> | <ul style="list-style-type: none"> <li>planning and implementation of grassroots extension services</li> <li>Effective linkage between research and extension maintained</li> </ul> <p><b>Risk</b></p> <ul style="list-style-type: none"> <li>Inadequate finance made available for the extension services</li> </ul> | <p>5 provinces and 127 communes</p> <ul style="list-style-type: none"> <li>615 extension service provision contracts were performed mostly in upland and remote areas of the five project provinces. 65.64% of the value of which addressing needs of upland or remote communities</li> </ul>   |
| 4. Improved linkage of agricultural extension services with research strengthened | <ul style="list-style-type: none"> <li>Participation of provincial extension centers in regional research activities, including provincial research programs and field research trials</li> <li>Practical linkages between farmer groups, extension service providers, and research institutes formalized</li> <li>Effective mechanisms for increased</li> </ul> | <ul style="list-style-type: none"> <li>Monitoring by MARD and MPI</li> <li>ADB review missions</li> <li>Project monitoring system and progress reports</li> <li>Midterm and completion reviews of the Project</li> <li>Regular dialogue with key stakeholders involved in the national AST system</li> </ul>                | <p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>Government procedures and regulations improved for effective linkages between research and extension</li> <li>Increased awareness among local extension workers about the need to strengthen linkages with research activities</li> </ul>            | <ul style="list-style-type: none"> <li>The Government of Vietnam has issued the Decree 2/2010/NĐ-CP, dated Jan, 8<sup>th</sup> 2010 about Agriculture Extension in that effective linkages between research and extension was strongly emphasized</li> <li>There were 50 provincial AE centers and district AE stations have participated into research activities of 125 research programs as research programs' partners</li> <li>There were 6.538 farmer households, 52,1% are female household owner; 38,2% are ethnic minorities 940 agricultural extension workers, 41,5% are female and 36,8% are ethnic minorities participated in to research programs and field research trials.</li> </ul> |

| Design Summary   | Performance Targets/Indicators  | Data Sources/Reporting Mechanisms  | Assumptions and Risks   | Achievements/Progress As of 30 April 2013   |
|--|---|--|---|---|
|  | stakeholder participation in extension services established   |  |   | <ul style="list-style-type: none"> <li>• Bidding method was used for extension service providers' selection.</li> <li>• Information of bidding were announced in National and provincial television programs and newspapers</li> </ul>  |
| 5. Rural-based technical and vocational training made more responsive to national sector goals | <ul style="list-style-type: none"> <li>• Effective systems to link between schools and industries in place</li> <li>• Appropriate curriculum guidelines introduced to reflect national sector goals</li> </ul>  | <ul style="list-style-type: none"> <li>• Monitoring by MARD and MPI</li> <li>• ADB review missions</li> <li>• Project monitoring system and progress reports</li> <li>• Midterm and completion reviews of the Project</li> <li>• Regular dialogue with key stakeholders involved in the national AST system</li> </ul> | <b>Assumptions</b> <ul style="list-style-type: none"> <li>• National curriculum guides developed in line with the national sector goals</li> <li>• School-industry councils provide effective guidance to schools</li> <li>• Labor market information effectively communicated to technical and vocational schools</li> </ul> | <ul style="list-style-type: none"> <li>• There were 177 people who are staffs of companies and agencies (outside of the project schools) participated in to the process of preparation of training programs and curriculums.</li> <li>• In most of cases, the content of the curriculum commented by the employers</li> <li>• A total of 30 curriculums has been assigned to colleges/schools, and has been put into use by headmasters in 2010 (phase 1) and 2011 (phase 2). Among the 30 curriculums, 18 are for colleges, and 12 are for vocational school. A total of 233 new training materials have been compiled, most of which has been put into use, some others will be introduced in 2013</li> </ul> |
| 6. Capacity of rural-based technical and vocational training strengthened                      | <ul style="list-style-type: none"> <li>• Average usage of school and laboratory equipment in the schools selected under the Project increased substantially</li> <li>• Average of about 90% of the graduates of the targeted schools enter into full-time employment</li> </ul> | <ul style="list-style-type: none"> <li>• Monitoring by MARD and MPI</li> <li>• ADB review missions</li> <li>• Project monitoring system and progress reports</li> <li>• Midterm and completion reviews of the Project</li> <li>• Regular dialogue with key stakeholders involved in the national AST system</li> </ul> | <b>Assumptions</b> <ul style="list-style-type: none"> <li>• Adequate financial resources provided for operation and maintenance of upgraded equipment and facilities</li> </ul>   | <ul style="list-style-type: none"> <li>• There were 16,020 teaching staff and researchers have used equipment to improve their skills in teaching and practicing laboratory tests for training per year, the number of students who can practice with project equipment is 430,730 students/year.</li> <li>• Average percentage of students in 10 schools who find a job in 6 months - 1 year after graduation has increased from 75.3% in 2009 (one year after the equipment funded the project is put into operation) to 77, 0% in 2011</li> </ul>  |



# **Project Completion Report**

Agriculture Science and Technology Project - L2283-VIE (SF)

| Design Summary   | Performance Targets/Indicators | Data Sources/Reporting Mechanisms                  | Assumptions and Risks   | Achievements/Progress As of 30 April 2013  |
|--|--------------------------------|--|---|--|
| <b>Activities with Milestones</b>  |                                |  |   |  |
| 1.1 Provision of laboratory facilities and equipment for research  |                                | Procurement commenced by December 2007             | <b>Inputs</b> <ul style="list-style-type: none"> <li>• ADB \$30.0 million</li> <li>• Government \$10.0 million</li> </ul> | <ul style="list-style-type: none"> <li>• Total of 13 research institutes (10 project institutes) were funded for upgrading facilities and equipment</li> <li>• 52 packages were awarded to 13 Institutes with total fund of 145.061 bil.VND</li> <li>• Procurement completed</li> </ul>  |
| 1.2 Provision of training programs for staff and researchers of research institutes                              |                                | Training programs to be initiated by December 2007 |   | <ul style="list-style-type: none"> <li>• 54 training courses were conducted for 1673 research/management staff as well as lab undertakers (47.1% of females) from 17 institutes and 16 centers under project/non-project institutes</li> <li>• Training programs completed</li> </ul>  |
| 1.3 Provision of the agricultural research fund  |                                | Establishment of the fund by December 2007         |   | <p>Totally, 125 researches have been selected with a total budget of 92.12 billion.VND</p> <ul style="list-style-type: none"> <li>• The fund for 125 research programs disbursement</li> </ul>   |
| 2.1 Establishment of formal linkages between farmer groups, extension service providers, and research institutes |                                | Issuance of circulars by June 2007                 |   | The Government of Vietnam has issued the Decree 2/2010/NĐ-CP, dated Jan, 8 <sup>th</sup> 2010 about Agriculture Extension in that effective linkages between research and extension was strongly emphasized in Clause No3  |
| 2.2. Provision of training facilities and equipment for provinces and districts                                  |                                | Procurement commenced by September 2007            |   | <ul style="list-style-type: none"> <li>• 79 district extension stations have been provided training facilities and with total budget of 5.551.216 bil. VND. The budget for purchasing of training facilities of provincial AE centers of 5 project provinces is 789. 524 mil. VND .</li> <li>• Procurement completed</li> </ul>  |
| 2.3 Development of national and provincial extension contract systems with local service providers               |                                | Systems developed by December 2007                 |   | <ul style="list-style-type: none"> <li>• The Government of Vietnam has issued the Decree 2/2010/NĐ-CP, dated Jan, 8<sup>th</sup> 2010 about Agriculture Extension in that national and provincial extension contract systems with local service providers was mentioned in clause No 7</li> <li>• There were 615 extension contracts were signed with local service providers</li> </ul> |

| <b>Design Summary</b>                            | <b>Performance Targets/Indicators</b> | <b>Data Sources/Reporting Mechanisms</b>   | <b>Assumptions and Risks</b> | <b>Achievements/Progress As of 30 April 2013</b>  |
|--|---------------------------------------|--|------------------------------|---|
| 3.1 Provision of school facilities and equipment |                                       | Procurement commenced by December 2007     |                              | <ul style="list-style-type: none"> <li>•71 packages were awarded with 14 of civil works and 76 of equipment under awarded fund of VND 179.016 billions (VND 33.12 billion for civil works, VND 145.895 billion for equipment);</li> <li>•Procurement completed</li> </ul>   |
| 3.2 Revision of school curriculum guidelines     |                                       | Revisions to be completed by December 2008 |                              | <ul style="list-style-type: none"> <li>• Revision of school curriculum guidelines completed by October, 2008</li> <li>• MARD has issued the Decision No 3948/QĐ-BNN-TCCB date Dec. 10th, 2008 (phase 1) and the Decision No 5188/BNN-TCCB date Sep. 23th, 2010 to allow project schools to develop curriculum and programs using project budget.</li> </ul> |

### Appendix 3. PROCUREMENT

#### Appendix 3.1. Procurement Status of Equipment and Goods of 13 Research Institutes

| No           | Institution  | Investor approved cost estimate |                | Procured      |                | Awarded       |                | No of utilized/procured packages |           |
|--------------|--|---------------------------------|----------------|---------------|----------------|---------------|----------------|----------------------------------|-----------|
|              |  | No of package                   | Amount         | No of package | Amount         | No of package | Amount         | Procured                         | Utilized  |
| 1            | Northern Mountainous Agriculture and Forestry Science Institute        | 6                               | 19,681         | 6             | 18,962         | 6             | 18,962         | 6                                | 6         |
| 2            | Plant Protection Research Institute                                    | 5                               | 15,565         | 5             | 15,53          | 5             | 15,53          | 5                                | 5         |
| 3            | Soils and Fertilizers Research Institute                               | 9                               | 23,065         | 9             | 21,009         | 9             | 21,008         | 9                                | 9         |
| 4            | Field Crops Research Institute   | 3                               | 9,837          | 3             | 9,651          | 3             | 9,944          | 3                                | 3         |
| 5            | Forest Science Institute of Viet Nam                                   | 5                               | 7,769          | 5             | 8,065          | 5             | 8,03           | 5                                | 5         |
| 6            | Institute of Policy and Strategy for Agriculture and Rural Development | 4                               | 14,108         | 4             | 12,812         | 4             | 12,812         | 4                                | 4         |
| 7            | Southern Fruit Research Institute                                      | 3                               | 6,742          | 3             | 6,728          | 3             | 6,728          | 3                                | 3         |
| 8            | Cuu Long Delta Rice Research Institute                                 | 6                               | 15,885         | 6             | 16,578         | 6             | 16,578         | 6                                | 6         |
| 9            | Institute of Agricultural Science of South Viet Nam                    | 4                               | 8,189          | 4             | 7,64           | 4             | 7,64           | 4                                | 4         |
| 10           | Western Highland Agro-Forestry Science and Technology Institute        | 3                               | 5,265          | 3             | 5,271          | 3             | 5,271          | 3                                | 3         |
| 11           | Agricultural Science Institute of Northern Central Vietnam             | 2                               | 9,692          | 2             | 9,909          | 2             | 9,909          | 2                                | 2         |
| 12           | Central Northern Agriculture and Science Institute                     | 1                               | 6,945          | 1             | 6,944          | 1             | 6,944          | 1                                | 1         |
| 13           | Southern Coastal Central Agricultural Science Institute                | 1                               | 5,999          | 1             | 5,996          | 1             | 5,996          | 1                                | 1         |
| <b>Total</b> |  | <b>Total</b>                    | <b>148,749</b> | <b>52</b>     | <b>145,061</b> | <b>52</b>     | <b>145,061</b> | <b>52</b>                        | <b>52</b> |

**Appendix 3.2. Procurement Status of Equipment and Goods of 10 Colleges/Schools**

| No           | Institution  | MARD approved cost estimate |                | Procured      |                | Awarded       |                | No of utilized/procured packages |           |
|--------------|--|-----------------------------|----------------|---------------|----------------|---------------|----------------|----------------------------------|-----------|
|              |  | No of package               | Amount         | No of package | Amount         | No of package | Amount         | Procured                         | Utilized  |
| 1            | Hanoi College for Technology and Economics                                     | 5                           | 13,237         | 5             | 13,675         | 5             | 13,675         | 5                                | 5         |
| 2            | Northern Agricultural and Rural Development College (Xuan Mai)                 | 6                           | 20,626         | 6             | 18,778         | 6             | 18,778         | 6                                | 6         |
| 3            | Central Region College Of Technology - Economics And Water Resources (Hoi An)  | 8                           | 13,268         | 8             | 13,551         | 8             | 13,551         | 8                                | 8         |
| 4            | Southern College for Mechanics and Agriculture                                 | 9                           | 22,003         | 9             | 20,882         | 9             | 20,882         | 9                                | 9         |
| 5            | Northern Water Resources College (Ha Nam)                                      | 10                          | 19,11          | 10            | 21,140         | 10            | 19,54          | 10                               | 10        |
| 6            | Da Nang Food and Foodstuff College   | 7                           | 20,074         | 7             | 21,905         | 7             | 21,905         | 7                                | 7         |
| 7            | Southern Agricultural College (Tien Giang)                                     | 9                           | 20,408         | 9             | 20,824         | 9             | 20,824         | 9                                | 9         |
| 8            | Bao Loc College of Technology & Economics                                      | 7                           | 18,879         | 7             | 20,719         | 7             | 20,719         | 7                                | 7         |
| 9            | Ho Chi Minh City Secondary Food Technology School                              | 6                           | 13,975         | 6             | 13,31          | 6             | 13,31          | 6                                | 6         |
| 10           | Hai Phong Secondary Technical School for Food and Foodstuff Management (Do Son | 4                           | 13,218         | 4             | 14,232         | 4             | 14,232         | 4                                | 4         |
| <b>Total</b> |  | <b>71</b>                   | <b>174,074</b> | <b>71</b>     | <b>179,016</b> | <b>71</b>     | <b>179,016</b> | <b>71</b>                        | <b>71</b> |

**Appendix 4. COMPLIANCE WITH LOAN COVENANTS  
(As at 30 April 2013)**

| Reference in LA | Covenant  | Responsibility  | Status of Compliance  |
|-----------------|---|---|---|
| Sec 4.02 (a)    | The Borrower shall (i) maintain, or cause to be maintained, separate accounts for the Project; (ii) have such accounts and related financial statements audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to the Asian Development Bank (ADB); (iii) furnish to ADB, as soon as available but in any event not later than 6 months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and compliance with the financial covenants of this Loan Agreement as well as on the use of the procedures for imprested account/ statement of expenditures), all in the English language; and (iv) furnish to ADB such other information concerning such accounts and financial statements and the audit thereof as ADB shall from time to time reasonably request. | Central Project Management Unit (CPMU), Provincial Project Management Units (PPMU), and Institute Project Management Units (IPMU) | Being complied with.<br><br>(i) Separate accounts are being maintained for the project including level 1 account at CPMU, and level 2 at 5 PPMUs, 10 institutes, 10 schools<br>(ii) Project accounts have been audited and financial statements prepared.<br><br>(iii) Timely annual financial statements are being submitted to ADB. |
| Sec 4.02 (b)    | The Borrower shall enable ADB, upon ADB's request, to discuss the Borrower's financial statements for the Project and its financial affairs related to the Project from time to time with the auditors appointed by the Borrower pursuant to Section 4.02(a), and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB, provided that any such discussion shall be conducted only in the presence of an authorized officer of the Borrower unless the Borrower shall otherwise agree.  | CPMU, PPMUs, and IPMUs  | Being complied with.  |
| Sec 4.03        | The Borrower shall enable ADB's representatives to inspect the Project, the goods financed out of the proceeds of the Loan, and any relevant records and documents.   | CPMU, PPMUs, and IPMUs  | Being complied with.  |

| Reference in LA       | Covenant   | Responsibility         | Status of Compliance   |
|-----------------------|--|------------------------|--|
| Sched. 4, para. 7 (a) | The Borrower shall ensure that all Goods and Works procured (including without limitation all computer hardware, software and systems, whether separately procured or incorporated within other goods and services procured) do not violate or infringe any industrial property or intellectual property right or claim of any third party.  | CPMU, PPMUs, and IPMUs | Being complied with.   |
| Sched. 4, para. 7 (b) | The Borrower shall ensure that all contracts for the procurement of Goods and Works contain appropriate representations, warranties and, if appropriate, indemnities from the contractor or supplier with respect to the matters referred to in subparagraph 7 (a) of Schedule 4.  | CPMU, PPMUs, and IPMUs | Being complied with.   |
| Sched. 4, para. 8     | The Borrower shall ensure that all ADB-financed contracts with consultants contain appropriate representations, warranties and, if appropriate, indemnities from the consultants to ensure that the consulting services provided do not violate or infringe any industrial property or intellectual property right or claim of any third party.  | CPMU                   | Being complied with.<br><br>Have not received any complaints on this.  |
| Sched. 5, para. 3     | The Central Project Management Unit (CPMU), headed by a Project Director, shall be established in the Agricultural Project Management Board under MARD, and comprise a Deputy Director, a planning officer, a finance and accounting officer, a monitoring and evaluation officer, and other necessary supporting staff on a full-time basis. The CPMU shall be responsible for day-to-day Project implementation; interdepartmental coordination among MARD's concerned departments; central-level procurement, consultant recruitment, and fund disbursement; and provision of support to the Provincial Project Management Units (PPMUs). | MARD, APMB, CPMU       | Being complied with.<br><br>The CPMU within MARD's Agricultural Projects Management Board was established on 9 March 2006 based on decision No. 651/QĐ/BNN-TCCB of MARD. There are 20 working full-time staffs for CPMU, include: 01 Director, 02 Vice Directors, and planning staffs, accountant staffs, technical staffs and administration staffs. The CPMU in accordance with Ministries, Departments under MARD implemented in compliance with goal, target, activities of each component of project and closely monitored project implementation progress. |

| Reference in LA   | Covenant   | Responsibility   | Status of Compliance  |
|-------------------|--|--|---|
| Sched. 5, para. 4 | The PPMU, headed by a PPMU manager, shall be established under the provincial department of agriculture and rural development in each of the Project provinces, and comprise a planning officer, a monitoring and evaluation officer, an accountant, and other necessary supporting staff. The PPMU shall be responsible for (i) overall management and supervision of Project activities related to agricultural extension in the concerned province, including contractual arrangements for service delivery, finance and project accounting, procurement, monitoring and evaluation, and reporting, and (ii) provincial-level coordination among the relevant provincial departments. Each of the PPMUs shall have a meeting with the CPMU at least once every other month. Project implementation units may be established under participating research institutes, and technical and vocational training schools, if required and deemed appropriate, to facilitate the Borrower's decentralization policy for project implementation and management. | MARD, Provincial People's Committees (PPC), DARD, PPMU, CPMU | Being complied with.<br><br>CPMU coordinated with PPMUs through coordination meetings, workshops, monitoring and evaluation missions,<br><br>5 PPMUs were established in Apr- May 2007. Each PPMU comprises a director, an accountant, and a coordinator.<br><br>IPMUs were established comprising 10 research institutes and 10 agricultural colleges and vocational schools. Each IPMU comprises a director, an accountant, a monitoring and evaluation staff, a technical staff and a project staff. MARD issued Decision 455/QĐ-BNN-DANN, dated 01 Feb 2008 on decentralization and assignments of AST's implementation.<br><br>The CPMU, 25 project agencies and relevant agencies have annual meetings.<br><br>Project review meeting in 2012 was held on 16 January 2013 in Hue. |
| Sched. 5, para. 2 | The Project Steering Committee (PSC), headed by a Vice Minister of MARD, shall be established and comprise representatives of concerned departments of MARD, the Ministry of Planning and Investment, the Ministry of Finance, the State Bank of Vietnam, the Ministry of Science and Technology, the Ministry of Education and Training, and the Project provinces. The PSC shall be responsible for inter-ministerial coordination and provision of overall policy guidance to the Project and shall endorse the Project annual work plans and budget. Representatives of farmers' associations and other Project's stakeholders shall participate in the PSC meetings as required.  | MARD, MPI, MOF, SBV, MOST, and PPMU                          | Complied. The PSC was established on 4 June 2007.<br><br>Members of the PSC are: Vice minister, representatives of: MPI, MOF, MOET, MOST, SBV and Departments under MARD ( Planning Department, DSTE, DOP, NAEC). The PSC organized annually meetings with representatives from Ministries, Departments and representatives of stakeholders. The most recent meeting was held on 19 December 2012 in Quang Ninh.  |

| Reference in LA   | Covenant   | Responsibility | Status of Compliance  |
|-------------------|--|----------------|---|
| Sched. 5, para. 5 | The Borrower shall ensure that adequate counterpart staff and funds will be provided for operation and maintenance of the Project facilities upgraded in the selected agriculture research institutes, and further ensure that such institutes will provide adequate staff and funds for operation and maintenance after their transformation into self-financed organizations in accordance with the Borrower's Decree No. 115, issued in 2005. | SBV, IPMU      | Being complied with.<br><br>Institutes ensured that they provide enough staff with capacity and MARD ensured that it provides counterpart funds for equipment procurement of 10 project schools.<br><br>There are 40 staff of 10 project research institutes, 35 staff of 10 project schools. .MARD provided counterpart funds 25% :<br><br>10 research institutes: 2,191 million USD<br><br>10 schools : 2,748 million USD |
| Sched. 5, para. 6 | MARD shall establish a committee, represented by the Science and Technology Council of MARD, other relevant government agencies, universities, private sector organizations and agro-industries, to examine and select research proposals to be funded under the Project on a competitive basis.   | MARD           | Complied.<br><br>MARD issued decision No. 1322/QĐ-BNN-KHCN to establish a science and technology committee with 11 members from DSTE under MARD, Ministry of Planning and Investment, VAAS, Viet Nam Gardening Associations (VGA), Vietnam National Vegetable, Fruit and Agricultural Product Corporation, Agricultural Project Management Board on 02 May 2008.  |
| Sched. 5, para. 7 | The Borrower shall ensure that the following criteria will be applied for selecting such research proposals:<br><br>(i) appropriateness to the client needs in the region through the results of participatory rural assessments;  | MARD           | Complied.<br><br>Procedures on process and selection criteria of research projects including need-based selection criteria were approved by Deputy Minister of MARD   |



| Reference in LA   | Covenant   | Responsibility | Status of Compliance   |
|-------------------|--|----------------|--|
|                   | <ul style="list-style-type: none"> <li>(ii) relevance to the national sector goals, strategies, and priorities;</li> <li>(iii) technical and financial viability and sustainability;</li> <li>(iv) linkage with agricultural extension and effective mechanisms for participatory technology development and information dissemination;</li> <li>(v) compliance with social and environmental requirements;</li> <li>(vi) involving at least one provincial agricultural extension center or extension advisory council; and</li> <li>(vii) not more than \$100,000 for each research proposal.</li> </ul> |                | <p>on 20 June 2008 based on decision No.1874/QĐ-BNN-KHCN and approved by ADB on 7 July 2008. 125 of 550 research proposals which come from research institutes and organizations in country were selected. 100% research proposals were selected in compliance with ADB regulations, customer's need was identified based on agricultural extension staff system at the levels in provinces, districts, villages participating in research proposal implementation. Not more than \$100,000 for each research proposal. Research proposals take into consideration climate change, environment, poverty reduction, food safety and market linkage.</p> |
| Sched. 5, para. 8 | The Borrower shall ensure that overseas study programs to be funded under the Project will be carried out in a manner acceptable to ADB. In particular, the Borrower shall ensure that appropriate arrangements are developed so that the trainees participating in the overseas study programs will provide relevant services after returning from the programs. Such arrangements shall be developed in consultation with ADB prior to the implementation of the study programs. The selection of the trainees shall be subject to ADB's approval.   | DOP, CPMU      | <p>Being complied with.</p> <p>Positive support to trainees studying overseas. Up to now 39 Trainees after completion of overseas training courses returned to MARD (61.1%). The remaining (12 PhD, 03 Masters) will complete the training courses in 2013. Especially, 01 PhD is proposing to extend the courses.</p>   |
| Sched. 5, para. 9 | The Borrower shall ensure that at least 10% of the trainees are women.   | DOP, CPMU      | <p>Complied.</p> <p>As of 15 April 2013, 22.8% of trainees studying overseas are women.</p>  |

| Reference in LA    | Covenant   | Responsibility        | Status of Compliance  |
|--------------------|--|-----------------------|---|
| Sched. 5, para. 10 | The Borrower shall ensure that demonstration trials and extension services under the Project will be implemented in poor communes where at least 30% of households are classified as poor households, as defined by the Borrower's appropriate laws and regulations.   | CPMU, and PPMU, PAEC  | Being complied with.<br><br>100% communes participating in AST are poor. 89% of poor households participated in agriculture extension model in 5 provinces.   |
| Sched. 5, para. 11 | The Borrower shall ensure that the following criteria will be applied for the extension contracts financed under Component 2.2 as described in paragraph 2 of Schedule 1 to the Loan Agreement:<br><br>(i) Extension contracts are in line with the provincial plan for agricultural extension in the respective province;<br><br>(ii) they focus on the priority subjects included in the plan for improved knowledge and technology related to crop and livestock production and marketing; and<br><br>(iii) Each of the extension contracts shall cost up to the maximum of \$10,000. | CPMU, and DARD, PPMUs | Being complied with.<br><br>(i) The extension contracts are in line with the provincial plan.<br>(ii) There are 615 models, including: 389 models raising pigs, chicken, cows, ducks, 175 crop models intensive farming rice, planting maize, hybrid rice, bean, peanuts, 36 fishery models, and 15 another models<br>(iii) 100% of all contracts is lower than \$10,000. |
| Sched. 5, para. 12 | The Borrower shall ensure that Project activities will be implemented in line with the Project's gender action plan, as agreed between the Borrower and ADB. In particular, the agreed gender action plan shall be reflected in the provincial plans for agricultural extension to be developed under the Project.   | CPMU, PPMU, and IPMU  | Being complied with.<br><br>Provincial Action Plans of 5 PPMUs were approved reflecting gender issues as per the Gender Action Plan.  |
| Sched. 5, para. 13 | The extension contracts to be funded under the Project shall have provisions that at least 40% of beneficiaries of these services are women. The contracts to be awarded in the final year of project implementation shall have provisions that at least 50% of beneficiaries are women.   | CPMU, PPMU, and IPMU  | Being complied with.<br><br>There were 56% of households where head of household are women participating in agriculture extension contract implementation. Women beneficiaries are 52.6%  |

| Reference in LA    | Covenant   | Responsibility                                     | Status of Compliance   |
|--------------------|--|--|--|
| Sched. 5, para. 14 | The Borrower shall ensure that Project activities will be implemented in line with the Project's specific actions for indigenous peoples, as agreed between the Borrower and ADB, and that the agreed specific actions for indigenous peoples will be reflected in the provincial plans for agricultural extension to be developed under the Project.  | CPMU, and PPMUs                                    | Being complied with.<br><br>Specific activities for indigenous people are included in the Provincial Action Plans of the 5 PPMUs.  |
| Sched. 5, para. 16 | The Borrower shall ensure that civil works to be financed under the Project will not require resettlement or land acquisition, as defined in ADB's Policy on Involuntary Resettlement. If, due to unforeseen circumstances, such resettlement or land acquisition is unavoidable, the Borrower shall (i) prepare a resettlement plan in accordance with ADB's Policy on Involuntary Resettlement; (ii) submit it to ADB for approval prior to awarding the concerned civil works contract; and (iii) ensure that any resettlement activities will be carried out in compliance with the resettlement plan. | CPMU, 10 technical and vocational training schools | Being complied with.<br><br>Civil works were carried out within the existing compounds of 10 technical and vocational training schools and did not require resettlement or land acquisition. |
| Sched. 5, para. 17 | The Borrower shall ensure that (i) environmental impact assessments under Category II, as defined under the Borrower's laws and regulations, will be carried out during the design phase of all civil works, and (ii) the environmental monitoring plan for the Project will be effectively implemented.   | CPMU, 10 technical and vocational training schools | (i) Being complied with.<br><br>(ii) The environmental impact assessment reports of equipment, civil works of 10 institutes, 10 schools was prepared.  |

## Appendix 5. REPORTED DATA OF CPMU AND CONSULTANTS

### 5.1. Evaluation/Acceptance results of research projects by MARD's science review council

| No                | Types of Project            | Qty. of projects | Qty. of excellent-type projects |                         | Good projects |                         | Satisfactory projects |                         | Projects for extension |                         |
|-------------------|-----------------------------|------------------|---------------------------------|-------------------------|---------------|-------------------------|-----------------------|-------------------------|------------------------|-------------------------|
|                   |                             |                  | Total                           | % female project leader | Total         | % female project leader | Total                 | % female project leader | Total                  | % female project leader |
| 1                 | Crop production             | 67               | 18                              | 6                       | 47            | 11                      | 1                     | 0                       | 40                     | 4                       |
| 2                 | Plant protection            | 9                | 4                               | 4                       | 5             | 4                       | 0                     | 0                       | 5                      | 5                       |
| 3                 | Husbandry                   | 10               | 0                               | 0                       | 9             | 1                       | 1                     | 0                       | 7                      | 1                       |
| 4                 | Forestry                    | 7                | 1                               | 1                       | 6             | 0                       | 0                     | 0                       | 3                      | 1                       |
| 5                 | Soil and Fertilizer         | 8                | 3                               | 1                       | 5             | 1                       | 0                     | 0                       | 3                      | 2                       |
| 6                 | Preservation and Processing | 11               | 0                               | 0                       | 9             | 3                       | 2                     | 0                       | 3                      | 1                       |
| 7                 | Environment                 | 2                | 1                               | 1                       | 1             | 0                       | 0                     | 0                       | 1                      | 1                       |
| 8                 | Mulberry                    | 3                | 2                               | 1                       | 1             | 0                       | 0                     | 0                       | 2                      | 1                       |
| 9                 | Other                       | 8                | 1                               | 0                       | 7             | 1                       | 1                     |                         | 6                      | 1                       |
| <b>Total</b>      |                             | <b>125</b>       | <b>30</b>                       | <b>14</b>               | <b>90</b>     | <b>21</b>               | <b>5</b>              | <b>0</b>                | <b>70</b>              | <b>17</b>               |
| <b>% of women</b> |                             |                  |                                 | <b>46.7</b>             |               | <b>23.3</b>             |                       | <b>0</b>                |                        | <b>24.3</b>             |

## 5.2. Technical evaluation results of research projects

| No | Type of Research Projects | Number of projects | No of new varieties |             | No of processes (production practices) |             | Models  |             | Others  |   |
|----|---------------------------|--------------------|---------------------|-------------|--|-------------|---------|-------------|---|---|
|    |                           |                    | Planned             | Implemented | Planned                                | Implemented | Planned | Implemented | Planned   | Implemented   |
| 1  | Crop production           | 67                 | 148                 | 158         | 122                                    | 130         | 158     | 169         | 100 macapuno coconut buds; 15 custard-apple trees, 15 peach tree; 600kg raddish; 2000 tea poly-bags | 100 macapuno coconut buds; 15 custard-apple trees, 48 peach tree; 600kg raddish; 2000 tea poly-bags |
| 2  | Plant protection          | 9                  | 4                   | 4           | 13                                     | 13          | 17      | 18          | 100 samples of pests and diseases   | 100 samples of pests <b>and</b> diseases  |
| 3  | Husbandry                 | 10                 | 10                  | 10          | 21                                     | 17          | 18      | 20          | 135 breeding pigs 1 team production model   | 196 breeding pigs 1 team production model   |
| 4  | Forestry                  | 7                  | 2                   | 2           | 8                                      | 8           | 10      | 11          | 80 dominant trees and 1000 plants from cuttings<br>10000 seedlings                                  | 100 dominant seedlings and 12000 seedlings (from nursery) 1000 plants from cuttings 10000 seedlings |
| 5  | Soil and Fertilizer       | 8                  | 5                   | 7           | 26                                     | 27          | 21      | 22          | 17 types of microorganisms<br>4 types of organic fertilizer<br>100 tons of fertilizer               | 16 types of microorganisms<br>4 mineral organic fertilizer<br>280 tons of fertilizer                |

|   |                             |            |            |            |            |            |            |            |   |   |
|---|-----------------------------|------------|------------|------------|------------|------------|------------|------------|---|---|
| 6 | Preservation and Processing | 11         |            | 2          | 25         | 22         | 17         | 17         | 4 preservative substances 4 pigments<br>600 kg products   | 4 preservative substances 4 pigments<br>600 kg products   |
| 7 | Environment                 | 2          |            |            | 2          | 2          | 2          | 2          | 3 crop varieties and 1 automatic measurement system   | 3 crop varieties and 1 automatic measurement system   |
| 8 | Mulberry                    | 3          | 8          | 7          | 6          | 6          | 12         | 12         |   |   |
| 9 | Other                       | 8          | 7          | 7          | 19         | 19         | 21         | 21         | 1 proposal for linkage model, 3 cooperatives and 1 information system<br>2 guidelines<br>Red lac:<br>2tons/ha | 1 proposal for linkage model, 3 cooperatives and 1 information system<br>2 guidelines<br>Red lac: 2 tons/ha |
|   | <b>Total</b>                | <b>125</b> | <b>184</b> | <b>197</b> | <b>242</b> | <b>245</b> | <b>276</b> | <b>292</b> |   |   |

**5.3. Number of research staff trained for capacity building during the implementation of research projects having articles posted in the local and overseas journals**

| No           | Research field              | Number of researchers have been trained at all levels |                    |           |            | Number of articles |            |
|--------------|-----------------------------|---|--------------------|-----------|------------|--------------------|------------|
|              |                             | Total   | By training levels |           |            | International      | Domestic   |
|              |                             |   | Doctor             | Master    | Engineer   |                    |            |
| 1            | Crop production             | 134   | 10                 | 37        | 87         |                    | 84         |
| 2            | Plant production            | 6   | 0                  | 3         | 3          | 1                  | 11         |
| 3            | Animal Husbandry            | 30  | 1                  | 6         | 23         | 1                  | 11         |
| 4            | Forestry                    | 5   | 0                  | 4         | 1          |                    | 8          |
| 5            | Soils and fertilizer        | 24  | 0                  | 6         | 18         |                    | 16         |
| 6            | Processing and preservation | 22  | 4                  | 9         | 9          |                    | 12         |
| 7            | Mulberry                    | 2   | 0                  | 0         | 2          | 0                  | 0          |
| 8            | Environment                 | 0   | 0                  | 0         | 0          | 0                  | 3          |
| 9            | Other                       | 2   | 0                  | 2         | 0          | 0                  | 12         |
| <b>Total</b> |                             | <b>225</b>  | <b>15</b>          | <b>67</b> | <b>143</b> | <b>2</b>           | <b>157</b> |

**5.4. Status of short-term domestic training on capacity building for research staff from project institutes**

| No. | Content   | Duration<br>(days/<br>course) | No of courses by year |      |      |      |               |       | Total of trainees |        |          |
|-----|---|-------------------------------|-----------------------|------|------|------|---------------|-------|-------------------|--------|----------|
|     |   |                               | 2008                  | 2009 | 2010 | 2011 | 2012&<br>2013 | Total | Total             | Female | % Female |
| 1   | Use GIS technology in environmental impact assessment and human resource management   | 7                             | 0                     | 2    | 2    |      |               | 4     | 114               | 40     | 35.09    |
| 2   | Using of the HRGC/HRMS approach   | 7                             |                       | 2    |      |      |               | 2     | 37                | 21     | 56.76    |
| 3   | Using Atom Absorbent Spectrum (AAS)   | 7                             |                       | 2    |      |      |               | 2     | 35                | 21     | 60.00    |
| 4   | Using high pressure liquid chromatography equipment (HPLC)  | 7                             |                       | 2    |      |      |               | 2     | 37                | 19     | 51.35    |
| 5   | Method of analysis content of rice  | 7                             |                       | 1    |      |      |               | 1     | 30                | 17     | 56.67    |
| 6   | Training course on book classification skill, catalogue setting skill and book searching skills in library  | 7                             |                       | 1    |      |      |               | 1     | 28                | 25     | 89.29    |
| 7   | Managing Science & Technology improvement responsibility at all levels, acceptance evaluation, technology advance recognition, method of writing progress report, acceptance report and science | 7                             |                       | 2    | 2    |      |               | 4     | 149               | 64     | 42.95    |
| 8   | Network, computer and applications management   | 8                             | 2                     | 2    |      |      |               | 4     | 97                | 34     | 35.05    |
| 9   | Designing Website with source code website system.  | 7                             | 2                     |      |      |      |               | 2     | 31                | 9      | 29.03    |
| 10  | Enhancing computer skills and Microsoft Office skills   | 7                             | 2                     |      |      |      |               | 2     | 36                | 25     | 69.44    |
| 11  | Data processing in studying Agricultural Science.   | 7                             |                       | 2    | 2    | 2    |               | 6     | 195               | 89     | 45.6     |
| 12  | Method of making plan, outline, international cooperation and setting document for selection research proposal/project authors.   | 7                             | 2                     | 2    | 2    | 2    |               | 8     | 326               | 139    | 42.6     |
| 13  | Human management skill and method of organizing laboratory  | 7                             | 2                     |      |      |      |               | 2     | 84                | 38     | 45.24    |



**Project Completion Report**

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| No.          | Content   | Duration<br>(days/<br>course) | No of courses by year |           |           |          |               |           | Total of trainees |            |             |
|--------------|---|-------------------------------|-----------------------|-----------|-----------|----------|---------------|-----------|-------------------|------------|-------------|
|              |   |                               | 2008                  | 2009      | 2010      | 2011     | 2012&<br>2013 | Total     | Total             | Female     | % Female    |
| 14           | Macroeconomic in GTAP, CGE and supply-demand balance forecast.  | 7                             | 1                     |           |           |          |               | 1         | 33                | 18         | 54.55       |
| 15           | Method of using genetic analysis in pure level study and GM product.  | 7                             |                       |           | 1         |          |               | 1         | 35                | 20         | 57.14       |
| 16           | Method of useful microorganism classification (mushroom, bacteria) in analyzing soil.   | 7                             |                       |           | 1         |          |               | 1         | 30                | 22         | 73.33       |
| 17           | Method of using equipment in analysis content of soil, plant, and water.  | 7                             |                       |           | 1         |          |               | 1         | 35                | 23         | 65.71       |
| 18           | Skills of design, construction, follow-up, collection, processing, and indicating of results of some main crops   | 7                             |                       |           |           | 2        |               | 2         | 65                | 34         | 52.3        |
| 19           | Climate change: Scenario, mitigation and adaptation, development mechanism, environmental impacts on agricultural production, environmentally proper farming  | 7                             |                       |           |           | 2        |               | 2         | 70                | 33         | 47.1        |
| 20           | Methods of design, construction and analysis of laboratory results in advanced experiment of crops  | 7                             |                       |           |           |          | 1             | 1         | 43                | 21         | 48.8        |
| 21           | Procedures of development, selection and taking over of research projects, project (basic construction, Variety –related project); and Methods of writing and presenting scientific reports, journals | 7                             |                       |           |           |          | 1             | 1         | 43                | 19         | 44.2        |
| 22           | Practice of skills to arrange and implement experiment; evaluation the results of bio-agricultural research   | 7                             |                       |           |           |          | 2             | 2         | 60                | 30         | 50%         |
| 23           | Measures of greenhouse emission reduction in agricultural production  | 7                             |                       |           |           |          | 2             | 2         | 60                | 27         | 45%         |
| <b>Total</b> |   |                               | <b>11</b>             | <b>18</b> | <b>11</b> | <b>8</b> | <b>2</b>      | <b>54</b> | <b>1.673</b>      | <b>788</b> | <b>47.1</b> |

### 5.5. Number of overseas study tours and training

|              | Country  | Objective  | Time                     | Total<br>(people) | Female<br>(people) | Rate<br>(%) |
|--------------|----------|--|--------------------------|-------------------|--------------------|-------------|
| 1            | China    | Study for experience on establishing the school/college development strategy, improvement of curriculum and compilation of textbooks (10 schools/colleges) | 29/3–04/4/2008           | 18                | 4                  | 22,2        |
| 2            | Thailand | Study of experience in extension activity implementation and management. (05 provinces)  | 20–29<br>December 2008   | 24                | 6                  | 25,0        |
| 3            | Korea    | Exchange and study of the experience among research/management staff of Vietnam and Korea (10 Institutes)  | 20 – 27/9/2009           | 20                | 6                  | 30,0        |
| 4            | Taiwan   | Exchange and study of the experience in extension model implementation and management (5 provinces)  | 06-14/4/2011             | 19                | 3                  | 18,7        |
| 5            | Thailand | Exchange and study of the experience in training methods, market-oriented rural-based vocational training  | 02/4/2012 –<br>08/4/2012 | 30                | 7                  | 23,3        |
| 6            | Taiwan   | Organic cultivation and commerce   | 06-14/8/2011             | 30                | 8                  | 26,6        |
| 7            | Taiwan   | Climate change adaptation agricultural production  | 20- 28/8/2011            | 30                | 13                 | 43,3        |
| 8            | Malaysia | Study on agricultural technology transfer  | 24/3/2013 -<br>30/3/2013 | 29                | 7                  | 23.3        |
| 9            | USA      | Study on climate change  |                          | 10                | 4                  |             |
| <b>Total</b> |          |  |                          | <b>210</b>        | <b>58</b>          | <b>27,6</b> |

## 5.6. Economic effectiveness of equipment utilization invested in the institutes

| No.                     | List of Institutes   | Quality<br>(Review<br>Council's<br>evaluation) | % of<br>utilization<br>capacity | Utilization Effectiveness        |               |                |                                |              |              |
|-------------------------|--|--|---------------------------------|----------------------------------|---------------|----------------|--------------------------------|--------------|--------------|
|                         |  |  |                                 | Average analysis<br>samples/year |               |                | Earned value<br>(million)/year |              |              |
|                         |  |  |                                 | For<br>research                  | Service       | Total          | For<br>research                | Service      | Total        |
| 1                       | Northern Mountainous Agriculture and Forestry Science Institute        | Good   | 50                              | 4.200                            | 600           | 4.800          | 1.050                          | 150          | 1.200        |
| 2                       | Plant Protection Research Institute                                    | Good   | 60                              | 8.950                            | 150           | 9.100          | 630                            | 150          | 780          |
| 3                       | Soils and Fertilizers Research Institute                               | Good   | 70                              | 63.300                           | 39.300        | 102.600        | 2.680                          | 1.500        | 4.180        |
| 4                       | Field Crops Research Institute   | Good   | 60                              | 17.200                           | 0             | 17.200         | 363                            | 0            | 363          |
| 5                       | Forest Science Institute of Viet Nam                                   | Good   | 70                              | 21.750                           | 0             | 21.750         | 648                            | 0            | 648          |
| 6                       | Institute of Policy and Strategy for Agriculture and Rural Development | Good   | -                               | -                                | -             | -              | -                              | -            |              |
| 7                       | Southern Fruit Research Institute                                      | Good   | 60                              | 4.750                            | 50            | 4.800          | -                              | 5            | 5            |
| 8                       | Cuu Long Delta Rice Research Institute                                 | Good   | 40                              | 6.100                            | 0             | 6.100          | 125                            | 0            | 125          |
| 9                       | Institute of Agricultural Science of South Viet Nam                    | Good   | 40                              | 500                              | 0             | 500            | 160                            | 0            | 160          |
| 10                      | Western Highland Agro-Forestry Science and Technology Institute        | Good   | 60                              | 43.800                           | 0             | 43.800         | 70                             | 0            | 70           |
| 11                      | Institute for Agricultural Environment                                 | Good   | 90                              | 2.100                            | 700           | 2.800          | 640                            | 140          | 780          |
| <b>Total/on average</b> |  |  | <b>60*</b>                      | <b>172.650</b>                   | <b>40.800</b> | <b>213.450</b> | <b>6.366</b>                   | <b>1.945</b> | <b>8.311</b> |

**5.7. Summary of training courses on capacity building for extension staff in provinces (by the end of December /2012)**

| No       | Institutions/Agency                 | No. of courses | Total trainees |          |                |                   |                |
|----------|-------------------------------------|----------------|----------------|----------|----------------|-------------------|----------------|
|          |                                     |                | Total          | Female   |                | Ethnic minorities |                |
|          |                                     |                |                | Quantity | Percentage (%) | Quantity          | Percentage (%) |
|          | District/Provincial Extension Staff |                |                |          |                |                   |                |
| 1        | Thanh Hoa                           | 22             | 511            | 186      | 36,40          | 53                | 10,37          |
| 2        | Nghe An                             | 17             | 422            | 158      | 37,44          | 59                | 13,98          |
| 3        | Quang Nam                           | 11             | 264            | 63       | 23,86          | 8                 | 3,03           |
| 4        | Ninh Thuan                          | 8              | 234            | 81       | 34,62          | 39                | 16,67          |
| 5        | Dak Nong                            | 6              | 128            | 61       | 47,66          | 9                 | 7,03           |
| Subtotal |                                     | 64             | 1.559          | 549      | 35,21          | 168               | 10,78          |
|          | Grassroots extension workers        |                |                |          |                |                   |                |
| 1        | Thanh Hoa                           | 232            | 5672           | 2069     | 36,48          | 1360              | 23,98          |
| 2        | Nghe An                             | 383            | 9504           | 2555     | 26,88          | 2328              | 24,49          |
| 3        | Quang Nam                           | 151            | 3757           | 706      | 18,79          | 586               | 15,60          |
| 4        | Ninh Thuan                          | 85             | 2550           | 904      | 35,45          | 1643              | 64,43          |
| 5        | Dak Nong                            | 97             | 2076           | 400      | 19,27          | 635               | 30,59          |
| Subtotal |                                     | 948            | 23559          | 6634     | 28,16          | 6552              | 27,81          |
|          | Extension Service Providers         |                |                |          |                |                   |                |
| 1        | Thanh Hoa                           | 25             | 586            | 225      | 38,40          | 42                | 7,17           |
| 2        | Nghe An                             | 30             | 855            | 312      | 36,49          | 98                | 11,46          |

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| No                   | Institutions/Agency | No. of courses | Total trainees |             |                |                   |                |
|----------------------|---------------------|----------------|----------------|-------------|----------------|-------------------|----------------|
|                      |                     |                | Total          | Female      |                | Ethnic minorities |                |
|                      |                     |                |                | Quantity    | Percentage (%) | Quantity          | Percentage (%) |
| 3                    | Quang Nam           | 26             | 650            | 203         | 31,23          | 10                | 1,54           |
| 4                    | Ninh Thuan          | 20             | 543            | 196         | 36,10          | 69                | 12,71          |
| 5                    | Dak Nong            | 22             | 328            | 89          | 27,13          | 56                | 17,07          |
| <b>Subtotal</b>      |                     | <b>123</b>     | <b>2962</b>    | <b>1025</b> | <b>34,60</b>   | <b>275</b>        | <b>9,28</b>    |
| <b>M&amp;E staff</b> |                     |                |                |             |                |                   |                |
| 1                    | Thanh Hoa           | 12             | 184            | 63          | 34,24          | 52                | 28,26          |
| 2                    | Nghe An             | 4              | 91             | 13          | 14,29          | 20                | 21,98          |
| 3                    | Quang Nam           | 3              | 74             | 13          | 17,57          | 2                 | 2,70           |
| 4                    | Ninh Thuan          | 2              | 40             | 6           | 15             | 8                 | 20,00          |
| 5                    | Dak Nong            | 1              | 25             | 5           | 20,00          | 3                 | 12,00          |
|                      | <b>Subtotal</b>     | <b>22</b>      | <b>414</b>     | <b>100</b>  | <b>24,15</b>   | <b>85</b>         | <b>20,53</b>   |
| <b>TOT</b>           |                     |                |                |             |                |                   |                |
| 1                    | Thanh Hoa           | 2              | 50             | 12          | 24,00          | 5                 | 10,00          |
| 2                    | Nghe An             | 1              | 25             | 6           | 24,00          | 0                 | 0,00           |
| 3                    | Quang Nam           | 2              | 46             | 15          | 32,61          | 6                 | 13,04          |
| <b>Subtotal</b>      |                     | <b>5</b>       | <b>121</b>     | <b>33</b>   | <b>27,27</b>   | <b>11</b>         | <b>9,09</b>    |
| <b>Total</b>         |                     | <b>1162</b>    | <b>28.615</b>  | <b>8341</b> | <b>29,15</b>   | <b>7091</b>       | <b>24,80</b>   |

### 5.8. Summary of extension models in provinces

| No           | Type of Models  | Thanh Hoa |               |            | Nghe An   |               |            | Quang Nam |               |           | Ninh Thuan |               |           | Đak Nong |               |           | The whole project |               |            |
|--------------|-----------------|-----------|---------------|------------|-----------|---------------|------------|-----------|---------------|-----------|------------|---------------|-----------|----------|---------------|-----------|-------------------|---------------|------------|
|              |                 | Trial     | Demonstration | Total      | Trial     | Demonstration | Total      | Trial     | Demonstration | Total     | Trial      | Demonstration | Total     | Trial    | Demonstration | Total     | Trial             | Demonstration | Total      |
| 1            | Husbandry       | 4         | 175           | 179        | 2         | 101           | 103        | 2         | 49            | 51        | 2          | 14            | 16        | 1        | 39            | 40        | 11                | 378           | 389        |
| 2            | Crop Production | 2         | 40            | 42         | 8         | 30            | 38         | 4         | 25            | 29        | 7          | 52            | 59        | 2        | 7             | 9         | 23                | 154           | 177        |
| 3            | Aquaculture     | 1         | 14            | 15         |           |               |            | 1         | 20            | 21        |            | 2             | 2         |          |               |           | 2                 | 32            | 34         |
| 4            | Mechanization   |           |               | 0          |           |               |            |           |               | 0         |            | 13            | 13        |          |               |           | 0                 | 13            | 13         |
| 5            | Others          |           | 2             | 2          |           |               |            |           |               | 0         |            |               |           |          |               |           | 0                 | 2             | 2          |
| <b>Total</b> |                 | <b>7</b>  | <b>231</b>    | <b>238</b> | <b>10</b> | <b>131</b>    | <b>141</b> | <b>7</b>  | <b>90</b>     | <b>97</b> | <b>9</b>   | <b>81</b>     | <b>90</b> | <b>3</b> | <b>46</b>     | <b>49</b> | <b>36</b>         | <b>579</b>    | <b>615</b> |

### 5.9. Number of HHs and beneficiaries from extension models in provinces

| Provinces    | Participating HHs | Female HH    | (%)          | Ethnic minority | (%)          | Poor HHs      | (%)          | Total of beneficiaries | Female       | (%)       | Ethnic minority | (%)          | Poor HHs      | (%)          |
|--------------|-------------------|--------------|--------------|-----------------|--------------|---------------|--------------|------------------------|--------------|-----------|-----------------|--------------|---------------|--------------|
| Thanh Hoa    | 8,129             | 4,351        | 53.52        | 2,463           | 30.30        | 7,366         | 90.61        | 28,513                 | 14,282       | 50        | 9,019           | 31.63        | 27,326        | 95.84        |
| Nghe An      | 6,081             | 3,891        | 63.99        | 2,000           | 32.89        | 5,725         | 94.15        | 41,111                 | 20,698       | 50        | 13,06           | 31.77        | 39,505        | 96.09        |
| Quang Nam    | 3,414             | 1,632        | 47.80        | 2,808           | 82.25        | 2,731         | 79.99        | 18,904                 | 8,954        | 47        | 4,434           | 23.46        | 15,534        | 82.17        |
| Ninh Thuan   | 2,478             | 1,298        | 52.38        | 1,799           | 72.60        | 2,199         | 88.74        | 12,137                 | 6,675        | 55        | 8,811           | 72.60        | 10,766        | 88.70        |
| Dak Nong     | 897               | 508          | 56.63        | 367             | 40.91        | 673           | 75.03        | 4,036                  | 2,021        | 50        | 1,866           | 46.23        | 3,088         | 76.51        |
| <b>Total</b> | <b>20,999</b>     | <b>11,68</b> | <b>55.62</b> | <b>9,437</b>    | <b>44.94</b> | <b>18,694</b> | <b>89.02</b> | <b>104,701</b>         | <b>52,63</b> | <b>50</b> | <b>37,19</b>    | <b>35.52</b> | <b>96,219</b> | <b>91.90</b> |

**5.10. Summary of capacity building training courses for 10 participating schools/colleges**

| No           | Content  | Total courses<br>(2008 -2013) | Total trainees    |            |              |
|--------------|--|-------------------------------|-------------------|------------|--------------|
|              |  |                               | Total<br>trainees | Female     | (%)          |
| 1            | Training on “Performing training/education by credit system”                 | 6                             | 195               | 45         | 23.07        |
| 2            | Skills of compiling textbooks  | 6                             | 189               | 77         | 40.22        |
| 3            | Skills of curriculum development   | 10                            | 271               | 108        | 39.85        |
| 4            | E-library  | 3                             | 78                | 58         | 74.35        |
| 5            | Methods of managing and undertaking scientific tasks and technology transfer | 3                             | 98                | 42         | 42,85        |
| 6            | Application of e-room and collective archive                                 | 2                             | 90                | 61         | 67.77%       |
| <b>Total</b> |  | <b>30</b>                     | <b>921</b>        | <b>391</b> | <b>42.45</b> |



**5.11. Impacts of procure equipment on training/education activities of schools/colleges**

| No. | Schools/Colleges  | Impacts of equipment on training activities          |  |  |                     |  |
|-----|---|--|--|--|---------------------|--|
|     |   | Subjects having the higher average marks than before | % of increased quality of subjects thanks to equipment | %/year of increased students thanks to equipment | Expanded curriculum | Areas specialized/expanded   |
| 1   | Hanoi College for Technology and Economics                                    | 17   | 75   | 35   | 5                   | 3 areas<br>- Application electronics,<br>- Technique of automobile/motorbike repair and operation,<br>- Library Management...  |
| 2   | Northern Agricultural and Rural Development College (Xuan Mai)                | 47   | 50   | 50   | 22                  | 6 areas:<br>- Training of key teachers;<br>- Training of hi-tech;<br>- Training on new vocations to adapt to climate change;<br>- On-spot short-term vocational training for farmers (20 provinces);<br>- International Cooperation in vocation training<br>- Vocational training for farmers under project programs |
| 3   | Central Region College Of Technology - Economics And Water Resources (Hoi An) | 5  | 75   | -  | 3                   | 3 areas:<br>- Water resource technology,<br>- Construction technology<br>- Accounting  |

| No. | Schools/Colleges                               | Impacts of equipment on training activities          |  |  |                     |   |
|-----|--|--|--|--|---------------------|---|
|     |  | Subjects having the higher average marks than before | % of increased quality of subjects thanks to equipment | %/year of increased students thanks to equipment | Expanded curriculum | Areas specialized/expanded  |
| 4   | Southern College for Mechanics and Agriculture | 31   | 80   | 35   | 19                  | 10 areas:<br>- Automatic control,<br>- Environmental technology in agriculture<br>- Mechanic technology,<br>- Technology of crop selection and generation,<br>- Technology of livestock selection and generation,<br>- Organic agriculture,<br>- Production of high-quality rice,<br>- Adopting micro-biotech in food technology,<br>- Technology of agri-product processing,<br>- Post-harvesting agri-product preservation. |
| 5   | Northern Water Resources College (Ha Nam)      | 4  | 15   | 0  | 0                   | 4 areas:<br>- Construction technology/technique,<br>- Construction technique/technology,<br>- Water resource technology/technique,<br>- Water supply/drainage.  |
| 6   | Da Nang Food and Foodstuff College             | 8  | 80   | 20   | 8                   | 6 areas:<br>- Environmental technology in agriculture<br>- Post-harvesting technology<br>- Food Safety and Hygiene  |

| No. | Schools/Colleges                           | Impacts of equipment on training activities          |  |  |                     |  |
|-----|--|--|--|--|---------------------|--|
|     |  | Subjects having the higher average marks than before | % of increased quality of subjects thanks to equipment | %/year of increased students thanks to equipment | Expanded curriculum | Areas specialized/expanded   |
|     |  |  |  |  |                     | <ul style="list-style-type: none"> <li>- Technology of crop selection and generation</li> <li>- Organic agriculture</li> <li>- Adopting micro-biotech in food technology, technology of agri-product processing.</li> </ul>  |
| 7   | Southern Agricultural College (Tien Giang) | 55   | 80   | 15   | 3                   | 6 areas : <ul style="list-style-type: none"> <li>- Improvement of teaching methodology</li> <li>- Establishment of Center for Foreign Language and Informatics,</li> <li>- Development of e-library</li> <li>- Establishment of collective experiment and equipment utilization</li> <li>- Training for staff and teachers</li> <li>- Scientific research</li> </ul>   |
| 8   | Bao Loc College of Technology & Economics  | 32   | 50   | 150  | 20                  | 5 areas: <ul style="list-style-type: none"> <li>- Soil analysis for study, teaching with high-quality agriculture orientation.</li> <li>- Analysis of pesticide residues in vegetable and agri-products, which served teaching towards a sustainable and safe agriculture</li> <li>- Tissue culture – a new technology in agriculture</li> <li>- Development of bio-physic/chemical labs with advanced technology.</li> <li>- Technology of agri-product processing, especially in tea production sector.</li> </ul> |

| No.          | Schools/Colleges   | Impacts of equipment on training activities          |  |  |                     |   |
|--------------|--|--|--|--|---------------------|---|
|              |  | Subjects having the higher average marks than before | % of increased quality of subjects thanks to equipment | %/year of increased students thanks to equipment | Expanded curriculum | Areas specialized/expanded  |
| 9            | Ho Chi Minh City Secondary Food Technology School                              | 12   | 20   | 30   | 5                   | 4 areas:<br>- Training development (training topics/vocations/ as well as training scale)<br>- Human resource strengthening (training for young staff – teachers)<br>- Research of technology/science \ |
| 10           | Hai Phong Secondary Technical School for Food and Foodstuff Management (Do Son | 40   | 30   | -  | 2                   | 5 areas:<br>- Food processing<br>- Salt production technology,<br>- Food safety control<br>- Food safety hygiene,<br>- Information Technology   |
| <b>Total</b> |  | <b>249</b>   | <b>555</b>   | <b>335</b>                                       | <b>87</b>           | <b>52 areas</b>   |

# Hội nghị Tổng kết Hoàn thành Dự án Khoa học Công nghệ Nông nghiệp (Summary Conference of Agricultural Science and Technology Project)



## 1. TRAO ĐỔI KINH NGHIỆM QUỐC TẾ VÀ SINH VIÊN ĐI HỌC NƯỚC NGOÀI ĐƯỢC TÀI TRỢ BỞI DỰ ÁN AST (SHARING INTERNATIONAL EXPERIENCE AND STUDENTS STUDYING ABROAD FUNDED BY AST PROJECT)

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Trao đổi kinh nghiệm với bạn bè quốc tế  
(Sharing experience with international partners)



Trao đổi kinh nghiệm với chuyên gia tại Đài Loan  
(Sharing experience with experts in Taiwan)



Thạc sỹ do Dự án tài trợ tốt nghiệp tại Mỹ  
(A Master in the USA funded by the Project)



Thạc sỹ do Dự án tài trợ tốt nghiệp tại Australia  
(A Master in Australia funded by the Project)



## 2. CÁC ĐỀ TÀI, MÔ HÌNH THUỘC DỰ ÁN KHOA HỌC CÔNG NGHỆ NÔNG NGHIỆP (RESEARCH PROJECTS, MODELS UNDER AST PROJECT)

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Thu hoạch ngô giống lai LVN152 (CN09 3) vụ Thu 2010, Đề tài của Dự án tại xã Thụy Sơn, Ngọc Lặc, Thanh Hóa (*Harvesting hybrid corn of LVN152 (CN09 3) variety in Autumn crop 2010, in Thuy Son commune, Ngoc Lac, Thanh Hoa*)



Phụ nữ người dân tộc Nùng với niềm vui được mùa khoai tây nhờ tham gia Dự án tại xã Đông Hà, Quận Bạ, Hà Giang (*A Nung woman is happy with bumper crop of potatoes in Dong Ha commune, Quan Ba, Ha Giang thanks to the participation in researches*)



Mô hình chăn nuôi lợn của Dự án tại hộ Bùi Thị Chính, xóm 4 xã Nghi Đồng (*Pig production model under the Project of Ms. Bui Thi Chinh, village 4, Nghi Dong commune*)



Bà Nguyễn Thị Đào (Quảng Nam) khi nhận bò giống khi tham gia Dự án (*Ms. Nguyen Thi Dao (Quang Nam) receiving breeding cows when participating in the Project*)



Mô hình của Dự án sử dụng máy gặt đập liên hoàn thu hoạch lúa cho nhóm hộ nông dân tại Ninh Thuận (*A model of using combine harvester to harvest rice for farmer groups under the Project in Ninh Thuan province*)



Đề tài nghiên cứu trồng cây phủ đất nhằm phục hồi đất thoái hóa của Trung tâm nghiên cứu cây ăn quả Phú Quý (VAAS) (*The research subject of planting cover crops to restore degraded land of Phu Quy Fruit Research Center (VAAS)*)



Mô hình chế biến phân hữu cơ vi sinh từ phế phụ phẩm nông nghiệp tại xã Vũ Linh, thị xã Nghĩa Lộ, Yên Bái. (*Model of processing microbial organic fertilizer from waste agricultural by-products in Vu Linh commune, Nghia Lo town, Yen Bai*)



Chị Vi Thị Hương (dân tộc Thái) ở Bản Thái Sơn 2, xã Môn Sơn, Con Cuông, Nghệ An, Chị hội trưởng phụ nữ của Bản nói: trong dự án này, phụ nữ chúng tôi được khuyến khích tham gia các hoạt động dự án. Nhờ đó mà chúng tôi cảm thấy tự tin hơn khi tham gia các hoạt động cộng đồng và được bình đẳng hơn với nam giới. Trong gia đình, chúng tôi cũng được chồng con tôn trọng hơn nhiều nhờ có thêm thu nhập từ việc tham gia thực hiện mô hình khuyến nông. (*Mrs. Vi Thi Huong (Thai woman) in Thai Son 2 village, Mon Son commune, Con Cuong district, Nghe An, chairwoman of village Women's Union said, "In this project, women are encouraged to participate in the project activities. Whereby we feel more confident to participate in community activities and more equal with men. In the family, we are also more respected by husband and children because of additional income from participating in the agricultural extension models.)*



Ông Chama lác Nhiêm, dân tộc Raglai, xã Lợi Hải, huyện Thuận Bắc, tỉnh Ninh Thuận nói: giống cừu lai của dự án cấp cho tôi nuôi nhanh lớn, đẻ tốt, bán được nhiều tiền hơn giống cũ. Chúng tôi còn được tập huấn nữa nên biết cách nuôi rồi. Năm sau chắc chắn gia đình tôi sẽ có nhiều tiền hơn để mua sách vở cho con đi học để biết thêm kiến thức và sẽ không nghèo như chúng tôi (*Mr. Chama Lac Nhiem, Raglai man, in Loi Hai commune, Thuan Bac district, Ninh Thuan province said, "The hybrid sheep breed given by the project to me grows quickly, reproduces well, and they are sold much higher than old breed. We are also trained how to raise it. Next year, I'm sure my family will have more money to buy books for my children to learn more knowledge and they will not be poor like us.)*



### 3. LÃNH ĐẠO VỤ KHOA HỌC, CÔNG NGHỆ VÀ MÔI TRƯỜNG, BAN QUẢN LÝ DỰ ÁN TRUNG ƯƠNG ĐI KIỂM TRA CÁC ĐỀ TÀI MÔ HÌNH CỦA DỰ ÁN

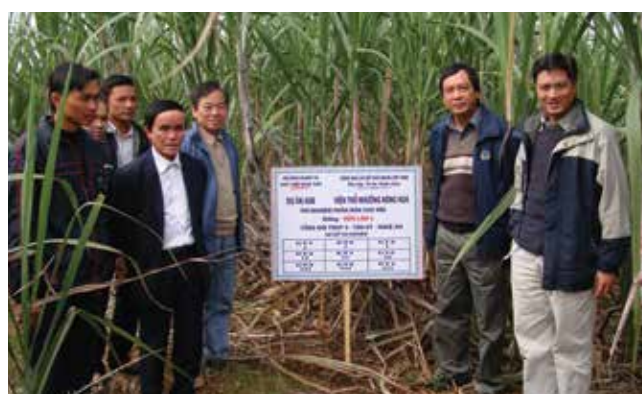
(LEADERS OF DEPARTMENT OF SCIENCE, TECHNOLOGY AND ENVIRONMENT, AND CPMU INSPECTING MODELS UNDER THE PROJECT)

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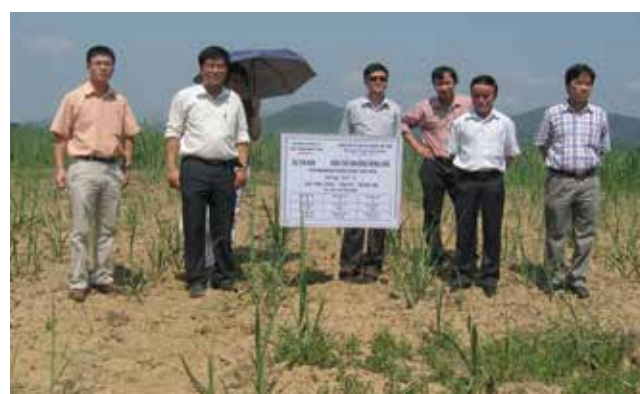
Đoàn cán bộ Vụ KHCNMT, Ban quản lý dự án kiểm tra đề tài tại Hà Giang  
(A mission including staff of DSTE, CPMU are inspecting a research project in Ha Giang)

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Lãnh đạo Vụ Khoa học - Công nghệ và Môi trường kiểm tra mô hình thí nghiệm giai đoạn trước khi thu hoạch (Leaders of DSTE are inspecting an experimental model at the period of pre-harvest)

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Ban quản lý dự án AST kiểm tra mô hình thí nghiệm giai đoạn mới triển khai đề tài (CPMU of AST Project is inspecting an experimental model at the beginning period of research project)

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Đoàn Bộ NN đang kiểm tra triệu chứng bệnh sưng rễ cải bắp ở trong mô hình (The mission of MARD is inspecting symptoms of cabbage clubroot in a model)

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Đoàn cán bộ Vụ KHCNMT, Ban quản lý dự án kiểm tra đề tài tại Hà Giang (The Mission of DSTE and CPMU is inspecting a research project in Ha Giang)



#### 4. DỰ ÁN AST ĐẦU TƯ THIẾT BỊ CHO CÁC VIỆN, TRƯỜNG VÀ TRẠM KHUYẾN NÔNG

(AST PROJECT INVESTED EQUIPMENT FOR INSTITUTES, SCHOOLS AND AGRICULTURAL EXTENSION STATIONS)

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Cán bộ phòng thí nghiệm được trang bị bảo hộ lao động - Viện Bảo vệ thực vật (*Laboratory staff is equipped with labor protection at the Institute of Plant Protection*)



Cán bộ Viện KHKT Nông lâm nghiệp miền núi phía Bắc sử dụng máy sắc khí khối phổ (*A staff of Mountainous Northern Agricultural Forestry Science and Economy Institute is using Gas Chromatography Mass Spectrometry machine*)



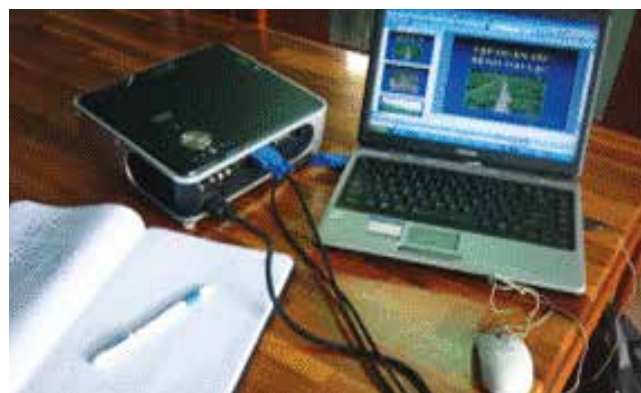
Ổng hút khí độc của thiết bị tại Viện Khoa học Nông Lâm nghiệp Tây Nguyên (*Equipment's toxic gas collector in Western Highlands Agricultural & Forestry Science Institute*)



Kinh tế Bảo Lộc, Lâm Đồng đang học vi tính được trang bị từ Dự án AST (*Students of Bao Loc College of Technology & Economics, Lam Dong are studying with computers equipped by AST Project*)



Sinh viên trường Cao đẳng Cơ điện và Nông nghiệp Nam Bộ-Cần Thơ đang thực tập Lập trình điều khiển thiết bị công nghiệp tại phòng học vi tính của do dự án AST đầu tư (*Students of Southern College for Mechanics and Agriculture (Can Tho) is practicing programming industrial equipment control at computer classroom invested by AST Project*)



Các trạm khuyến nông huyện được Dự án trang bị các thiết bị phục vụ hoạt động khuyến nông (huyện Nông Sơn, tỉnh Quảng Nam) (*The DAES is equipped with facilities for training activities (Extension Station of Nong Son district, Quang Nam province)*)

## 5. TẬP HUẤN TĂNG CƯỜNG NĂNG LỰC CHO CÁC CÁN BỘ CÁC VIỆN, TRƯỜNG, NHÀ CUNG CẤP DỊCH VỤ KHUYẾN NÔNG VÀ NÔNG DÂN (TRAINING FOR ENHANCING CAPACITY OF STAFF OF INSTITUTES, SCHOOLS, AGRICULTURAL EXTENSION PROVIDERS AND FARMERS)

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Các khuyến nông viên cơ sở đã được tập huấn thường xuyên từ Dự án  
(Grassroots agricultural extensionists were regularly trained by the Project)

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Tập huấn ngắn hạn nâng cao năng lực cho các cán bộ  
tại các trường  
(Short-term training course on enhancing capacity of  
staff at schools under the Project)



Lớp tập huấn về Sử lý số liệu trong nghiên cứu khoa  
học nông nghiệp cho cán bộ các Viện, Trường tại TP  
Hồ Chí Minh  
(Training course on processing data in agricultural  
science research for staff of institutes and schools in  
HCM city)

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Tập huấn kỹ thuật cho nông dân tại tỉnh Thanh Hóa,  
năm 2011 (Technical training for farmers in Thanh  
Hoa, 2011)



Tập huấn cho cán bộ các Viện, Trường tại Hà Nội  
(Training for staff of Institutes, Schools in Hanoi)