



# Report and Recommendation of the President to the Board of Directors

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Project Number: 39421  
February 2009

Proposed Loan  
Socialist Republic of Viet Nam: Quality and Safety  
Enhancement of Agricultural Products and Biogas  
Development Project

## CURRENCY EQUIVALENTS

(as of January 2009)

Currency Unit	–	dong (D)
\$1.00	=	D17,478
D1.00	=	\$0.0000572131

## ABBREVIATIONS

ADB	–	Asian Development Bank
APMB	–	Agricultural Projects Management Board
AusAID	–	Australian Agency for International Development
BOD	–	biochemical oxygen demand
BPMU	–	biogas project management unit
CDM	–	Clean Development Mechanism
CFSMS	–	crop food safety management system
CO <sub>2</sub>	–	carbon dioxide
CPMU	–	central project management unit
DARD	–	department of agriculture and rural development
DCP	–	Department of Crop Production
DLP	–	Department of Livestock Production
EA	–	executing agency
EARF	–	environmental assessment and review framework
EIRR	–	economic internal rate of return
FAO	–	Food and Agriculture Organization
FGIA	–	first generation imprest account
FIRR	–	financial internal rate of return
GAP	–	good agricultural practices
GDP	–	gross domestic product
GHG	–	greenhouse gas
GLOBALGAP	–	Global Good Agricultural Practices, previously Euro-Retailer Produce Working Group Good Agricultural Practices (EUREPGAP)
HACCP	–	hazard analysis critical control point
ICB	–	international competitive bidding
ICS	–	internal control system
IEC	–	information, education, and communication
IPM	–	integrated pest management
IPMU	–	institutional project management unit
MARD	–	Ministry of Agriculture and Rural Development
MOH	–	Ministry of Health
NAFEC	–	National Agricultural and Fisheries Extension Center
NAFIQAD	–	National Agro-Forestry and Fisheries Quality Assurance Department
NGO	–	nongovernment organization
NZAID	–	New Zealand Agency for International Development
O&M	–	operation and maintenance
PPMU	–	provincial project management unit
R&D	–	research and development
SAZ	–	safe agricultural zone
SDR	–	special drawing rights
SEDP	–	Socio-Economic Development Plan
SGIA	–	second generation imprest account

SOE	–	statement of expenditure
SNV	–	Netherlands Development Organization in Viet Nam
TA	–	technical assistance
TOR	–	terms of reference
VBARD	–	Viet Nam Bank for Agriculture and Rural Development
VIETGAP	–	Viet Nam good agricultural practices
WTO	–	World Trade Organization

### NOTES

- (i) The fiscal year (FY) of the Government and its agencies ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

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## LOAN AND PROJECT SUMMARY

<b>Borrower Classification</b>	<p>Government of Viet Nam Targeting Classification: General intervention Sector: Agriculture and natural resources Subsector: Agriculture sector development Themes: Sustainable economic growth, environmental sustainability, capacity development Subthemes: Developing rural areas; cleaner production, control of industrial pollution; institutional development</p>
<b>Environment Assessment Project Description</b>	<p>Category B (non-sensitive)</p> <p>The Project will (i) create effective regulatory institutions for state management of agro-product safety and quality systems to meet domestic and export requirements; (ii) accelerate the development of agro-production, processing, and marketing to ensure the safety and quality of vegetable, fruit, and tea products for domestic consumption and export; and (iii) improve the quality of physical environment for quality and safety by reducing environmental pollution and greenhouse gases from livestock waste in agricultural areas through increased utilization of biogas technology. It will have four main components: (i) a regulatory framework and fully operational quality and safety system for agro-products; (ii) infrastructure and facilities for safe, quality agro-products; (iii) improved safety and reduced health hazards from livestock waste through support for development of biogas plants by small livestock farmers; and (iv) project management support for effective and timely implementation of project interventions. The Project will cover 16 provinces in Viet Nam that have significant fruit, vegetable, and tea production.</p>
<b>Rationale</b>	<p>Consumers in Viet Nam's major population centers require that certain quality and safety standards be met in the fruit, vegetable and tea products they consume, but poor regulatory management, unsafe production environments, and excessive levels of agro-chemicals and fertilizers, including application of pesticides by Viet Nam's farmers, are major hindrances to achieving the required standards. This will affect the long-term growth prospects of these crops in a competitive production and trading regime. Viet Nam has one of the highest input use rates among countries in the Asia and Pacific region. In the absence of management and regulations, these high input levels are affecting product quality and safety. In addition, unsafe disposal of livestock waste in densely populated areas has contaminated soils and the water used for agricultural products. Consequently, improved livestock waste disposal and promotion of technologies for effective waste treatment and management is a prerequisite to enhancement of the quality and safety of agro-products.</p>

These issues are not being effectively addressed due to the lack of a domestic “safe food” supply framework and/or strategy, and will have continuing negative impacts on the environment and public health if not addressed. Increasing integration of Viet Nam’s agricultural production, processing and marketing with international markets makes it critical that improvements in product quality and food safety be made, if Viet Nam is to maintain and/or increase its international market share. Improving global competitiveness will require strengthening of the capacity of concerned institutions at all levels of government to address the following issues, all of which constrain further growth in the agriculture sector: (i) numerous small and fragmented agricultural production units, (ii) low product quality and safety, (iii) inefficient marketing, and (iv) weak bargaining power. These cause inefficiencies in product marketing and input procurement, and increase the costs to the Government and the private sector of providing agricultural support services.

The Government acknowledges the urgent need to improve agricultural production and marketing quality and food safety to a level comparable with neighboring countries and trade competitors. The Government is gradually introducing measures to improve the performance of state-owned enterprises under the State-Owned Enterprise Law, but constrained access to financial and other resources remains a serious obstacle to the promotion of viable private business opportunities in Viet Nam.

The proposed Project is consistent with the ideals of the Government’s strategies and policies, including the Government’s Socio-Economic Development Plan (SEDP) 2006–2010, which seeks to achieve middle-income status for Viet Nam by 2010 through improvements in the quality and safety of agricultural and processed products that meet domestic and international requirements.

**Impact and Outcome**

The expected impact is sustainable and equitable growth of the agriculture sector through increased livelihood opportunities and improved human health. The Project is expected to increase the agriculture sector’s annual aggregate value-added by about 3.0%–3.2% during 2016–2020, and increase agricultural exports by 12.3%–14.3% over the same period, in line with the Government’s 5-year socio-economic development plan. It is also expected to contribute to a reduction in the poverty incidence in the project area from 19% to 10% over the same period.

The expected outcome is quality and safety improvements in Viet Nam’s agricultural outputs, which thereby meet domestic and international requirements.

**Project Investment Plan**

The Project investment cost is estimated at \$110.39 million, including taxes and duties of \$8.67 million.

**Financing Plan**

It is proposed that the Asian Development Bank (ADB) provide a loan of \$95.0 million (equivalent of 62.4 million special drawing rights) from its Special Funds resources to cover 86.06% of the total project costs. The Government will contribute \$6.22 million, accounting for 5.64% of the total project costs, of which \$3.98 million is contributed by way of taxes and duties. The provincial people's committees in the 16 project provinces will contribute \$6.47 million, accounting for 5.86% of the total project cost, including \$4.69 million in taxes and duties. Partner financial intermediaries will contribute \$1.35 million, accounting for 1.22% of the total project cost, to finance biogas loans to households. Beneficiaries of biogas development component will contribute \$1.35 million in local materials and/or labor, accounting for 1.22% of the total project costs. The ADB loan will have a maturity of 32 years with a grace period of 8 years, and an interest rate of 1% per annum during the grace period and 1.5% thereafter. The Government will bear the foreign exchange risk. Interest charges on the loan are to be capitalized.

**Table 1: Financing Plan**  
(\$ million)

<b>Source</b>	<b>Total</b>	<b>Percent</b>
Asian Development Bank	95.00	86.06
Central Government	6.22	5.64
Provincial People's Committees	6.47	5.86
Partner Financial Institutions	1.35	1.22
Beneficiaries (Biogas Development)	1.35	1.22
<b>Total</b>	<b>110.39</b>	<b>100.00</b>

Source: Asian Development Bank estimates.

**Period of Utilization**

1 July 2009–31 December 2015

**Estimated Project Completion Date**

30 June 2015

**Executing Agency**

Ministry of Agriculture and Rural Development (MARD)

**Implementation Arrangements**

MARD will be the executing agency (EA) of the Project. A central project management unit (CPMU) will be established in the Agricultural Projects Management Board (APMB) for overall project coordination and management. A total of 16 provincial project management units will be established in the provincial departments of agriculture and rural development (DARDs) for local project management. The Department of Crop Production (DCP) will establish an institutional project management unit (IPMU) to implement activities related to institutional and regulatory developments on quality and safety. The Department of Livestock Production (DLP) will establish a biogas project management unit (BPMU) to implement a biogas development program. A credit line provided under the Project will be administered by the Ministry of Finance (MOF) and utilized by partner financial intermediaries to finance eligible household biogas investments, which will be carried out at the local level by its provincial branches. The Project will open one first-generation imprest account to be operated by CPMU and one first-generation imprest account to be operated by the MOF to finance the biogas credit lines to partner financial intermediaries. A total of 20 second-generation imprest accounts will be established, one for each of the 16 provincial project management units, one for the IPMU, one for the BPMU, and one for each of the two partner financial intermediaries. MARD and all agencies proposed as implementing agencies have adequate financial and management capacity and experience to implement the Project. These agencies are government budget-spending units, with staff capable of using standard government accounting and financial management systems. APMB, DCP, DLP, and DARDs have implemented significant donor funded projects, including ADB projects.

**Procurement**

Procurement will mainly be undertaken by the CPMU. Goods, works, and services financed by ADB will be procured in accordance with ADB's *Procurement Guidelines* (2007, as amended from time to time).

**Consulting Services**

The Project will require a total of 208 person-months of consultant services, including 60 person-months of international and 148 person-months of national consultant services in the fields of (i) management of agricultural product quality and safety systems; (ii) policy, regulations and institutional development; (iii) monitoring and evaluation; (iv) applied research and development for agricultural product quality and safety; (v) risk analysis; (vi) communication and training programs; (vii) social development; (viii) environmental assessment; (ix) financial management; (x) biogas technology; and (xi) rural infrastructure. The international specialist in agricultural product quality and safety management will act as the team leader. The consultants will be recruited through a firm following the quality- and cost-based selection (QCBS) process, with a 90:10 quality-cost ratio due to the specialized nature of the Project, and in accordance with ADB's *Guidelines on the Use of Consultants* (2007, as amended from time to time).

## **Project Benefits and Beneficiaries**

The Project is designed to support the Government's efforts to implement a comprehensive legal and regulatory framework related to food safety and quality including the Law on Product Standards, Labels, and Inspection, Ordinance on Food Hygiene and Safety, and the national action plan for food safety. The project area covers about 3.9 million ha of agricultural land with about 3.6 million rural households (or an equivalent of 18 million people) in 16 provinces, where the rural poverty incidence is estimated at 25.9% compared to the national average of 22.0% (2005 data). Main benefits attributable to the Project will include:

(i) incremental benefits from increased crop yields and productivity through adoption of high-yield and tolerant seed varieties, integrated pest management, and good agricultural practices. An estimated 6.5 million farmers will directly benefit from the project interventions. The Project is also expected to generate employment for about 1.4 million people involved in the post-production food chain for tea, fruits, and vegetables. As a result, the Project will make significant contributions to rural poverty reduction in and outside the Project provinces;

(ii) health cost savings realized through safe agricultural products (tea, fruits, and vegetables) and improved livestock waste management. It is expected that significant reduction in the occurrence of food- and waterborne diseases will directly improve human health in the project area, increasing labor productivity and reducing treatment and hospital costs;

(iii) cost savings from substitution of firewood, kerosene, coal, and liquefied petroleum gas for cooking and lighting. The Project will contribute to energy savings among rural households as biogas produced by the digesters will serve as an alternative energy source for cooking and lighting. An estimate of 40,000 households will benefit from this alternative energy source;

(iv) use of bio-slurry, an organic fertilizer that is safer than artificially treated manure. Farmers are currently using artificially treated manure that is considered unsafe for water, air, and soil. Although no empirical evidence is available on the incremental impact of bio-slurry versus manure on crop yields in Viet Nam, elsewhere bio-slurry has been claimed to be a better fertilizer than artificially treated manure; and

(v) reduced levels of water, air, and soil pollution as a result of biogas digester installation and operations, because of improved management and treatment of domestic and livestock wastes. It is estimated that the proposed biogas development operation will reduce carbon dioxide emissions by an equivalent of about 40,000–60,000 tons per annum.

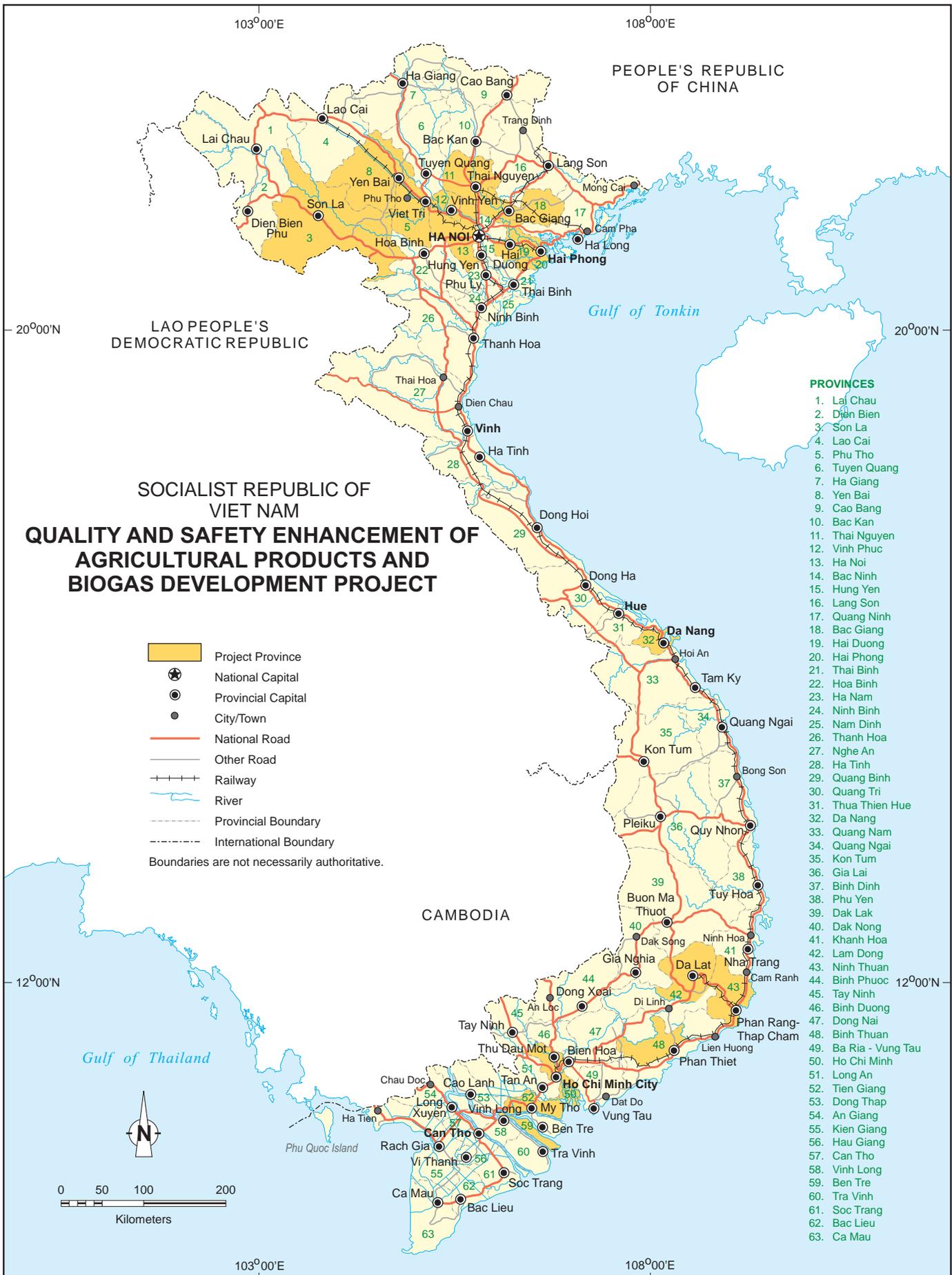
## **Risks and Mitigations**

Risks that may hinder the expansion of opportunities to supply safe, quality fruit, vegetable and tea products to the domestic and export markets are: (i) producers of agro-products (i.e., vegetables, fruits, and tea) may not be fully convinced of the need to comply with national and international quality standards; (ii) food safety scares related to Vietnamese agro-products in major domestic and export markets will affect demand; and (iii) promotional strategies may be unable to build consumer trust and confidence and increase awareness and recognition of safe agro-product brands, particularly regarding their certification schemes and logos, because of frequent past food safety scares. These risks would render Vietnamese agro-products unable to compete with foreign-produced agricultural products in the domestic and international markets. The Project is designed to reduce these risks by building institutional capacity for effective regulation and enforcement of food quality and safety standards. It will also strengthen the capacity of agricultural production and marketing units along the supply chain, backed by certification, promotion and an intensive information, education, and communication campaign. The approach will follow internationally recognized hazard analysis critical control point principles to assure buyers that all commercial units involved in producing and handling safe, quality products are independently monitored and have an established record of supplying products that meet stringent food safety standards. The Project will assist the Government in the continued development and review of standards to meet requirements of international markets and the World Trade Organization.

Successful reduction of risks to agro-product safety and health quality through biogas development will require strong project management capacity and coordination at the provincial level between the DARDs and financial intermediaries. There is also a risk that the Biogas Development Program may be delayed and may not attain the target of 40,000 households due to (i) an inadequate supply of trained masons to construct the biogas digesters, resulting from a lack of interest in participating in the biogas development program; and (ii) failure by targeted livestock producers to avail themselves of credit, due to non-acceptance of the biogas technology. To mitigate these risks, the Project will disseminate information on the Biogas Development Program and provide training on masonry, both at the central and provincial government levels. Enhanced assistance from both the Government and the Netherlands Development Organization in Viet Nam will support training for masons and households and dissemination of information on biogas technology. Support will also be provided on the proper use and maintenance of biogas digesters. In order to ensure that financial assistance is accessible to small livestock production units, the Department of Livestock Production and provincial DARDs will work with partner financial intermediaries to extend microcredit support.

**Technical Assistance**

Associated technical assistance (TA) will be provided to strengthen project management and develop strategies and options for expanding the biogas program in Viet Nam. Part 1 of the TA will provide startup support for the Project, including oversight and capacity building. The oversight function will provide advisory support to the Government on how to effectively implement and monitor project activities on the quality and safety of agricultural products and biogas development. Part 2 will provide a design for an investment to expand biogas development, involving: (i) technical design of biogas plants of varying sizes for farm households and medium- to large-scale commercial livestock farms, based on field testing, demonstration, and applied research activities; (ii) determination of credit financing options for different socioeconomic groups; (iii) determination of a geographical expansion plan and strategy; (iv) design of a practical institutional and management structure expansion of the biogas program; and (v) development of clean development mechanism projects. The estimated cost of the TA is \$1.8 million, of which \$1.5 million will be financed under the Project, through an ADB grant, while \$0.3 million will be financed by the Government to cover incremental administrative expenses, office space, local travel, and per diem for counterpart staff. The TA will require 103 person-months of consultant services, comprising 46 person-months of international consultant and 57 person-months of national consultant services. All consultants will be recruited by ADB in accordance with the ADB *Guidelines on the Use of Consultants* (2007, as amended from time to time). Individual consultants will be recruited for part 1, while a firm will be recruited, using the quality- and cost-based selection procedure, for part 2.



## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the Socialist Republic of Viet Nam for the Quality and Safety Enhancement of Agricultural Products and Biogas Development Project (the Project). The report also describes the proposed technical assistance (TA) for Strengthening Project Management and Developing Strategies and Options for Biogas Development Program Expansion in Viet Nam, and if the Board approves the proposed loan, I, acting under the authority delegated to me by the Board, will approve the TA. The design and monitoring framework and problem tree analysis are in Appendixes 1 and 2, respectively.

## II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

### A. Performance Indicators and Analysis

2. **Macroeconomic Performance.** Fueled by surging private investment and strong domestic demand, Viet Nam's recent economic performance has been among the best recorded by Asian Development Bank developing member countries. The growth rate in the gross domestic product (GDP) averaged 7.7% per year over 2003–2008. This was equivalent to an annual increase in GDP per capita of about 13% (from \$490 to \$1,053) during the same period.<sup>1</sup> The country's economic structure was also transformed, with industry, construction and services displaying rapid growth, while the share of the economy represented by traditional agro-forestry and capture fisheries declined. Viet Nam has achieved greater competitiveness in key sectors, and expanded its exports significantly. The private sector's contribution to economic activity is increasingly apparent, improving the prospects for further reforms toward a market-based economy.

3. **Reduced Poverty.** Continued and sustained economic growth helped reduce the country's poverty rate from 58% in 1993 to 19.5% in 2004 (measured in terms of the national poverty standard). However, the incidence of poverty among ethnic minorities generally remains high. Various social indicators, such as education levels and infant mortality, have also improved, as reflected in an increase in the country's ranking in the United Nations Development Program human development index.

4. **Changing Food Demand Patterns and Quality and Safety Concerns.** Accelerated economic growth has resulted in improved socioeconomic welfare, rapid urban development, and greater demand for food products with assured quality and safety. Urbanization has led to a rapidly growing "supermarket" subsector<sup>2</sup> that sources high-quality agricultural products free of safety hazards. Incidences of food poisoning from microbiological contamination and excessive pesticide residues in vegetables, fruits, and tea (estimated to account for 30% of the total cases of biological [e.g., *E. Coli*] and chemical poisonings)<sup>3</sup> have raised awareness among Vietnamese consumers, who are demanding that safer, higher quality agricultural products be delivered through the food supply chain. This has resulted in opportunities for profitable "safe food" enterprises for both domestic and international markets, and the Government's realization of the need for a strong institutional and regulatory framework for agricultural product quality and safety to enhance the country's competitiveness in the world market.

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<sup>1</sup> ADB. 2009. *Viet Nam: Country Economic Indicators*. Manila (20 January 2009).

<sup>2</sup> ADB. 2006. *Supermarkets and the Poor in Viet Nam. Report on the TA for Making Markets Work Better for the Poor*. Centre de Cooperation Internationale en Recherche Agronomique pour le Development (CIRAD)/ADB. Ha Noi.

<sup>3</sup> *VN News*. 8 April 2008. A cholera outbreak in northern Viet Nam was directly traced to unsafe vegetables, according to the Ministry of Health in Ha Noi.

5. **Role of Agricultural Growth.** The agriculture sector grew steadily at 4% per annum during 2001–2007, and contributed 20.4% to national GDP in 2006, despite generally weak international commodity prices.<sup>4</sup> Crops constitute about 59% of total agricultural production value, followed by fish (19%), livestock (17%), and forestry (5%).<sup>5</sup> The country maintained its lead in export of rice, coffee and fish, while exhibiting strong growth rates in the production of vegetables (6.2%), fruits (3.5%), and tea (11.8%), which contributed significantly to the growth in the country's agricultural exports.<sup>6</sup> Amongst the Southeast Asian countries Viet Nam ranks first in tea production, second in vegetables production, and third in fruit production, led by growing small-scale and commercial agro-enterprises. The livestock subsector, which accounts for about 17% of total agriculture sector value, has grown at an average annual rate of 14% over 2001–2006,<sup>7</sup> mainly because of swine production, which comprises about 80% of total livestock production.<sup>8</sup> Most livestock production takes place in integrated crop, livestock, and fishpond systems, with some 40% of households practicing both livestock and vegetables.<sup>9</sup>

6. Agricultural growth in the past decade, particularly in the crop subsector, has resulted from: (i) market-oriented economic policies that supported progressive decontrol of prices and market functions, and established liberalized land-use rights with increased household participation in production and marketing; (ii) increased public investment in irrigation and farm-to-market infrastructure; and (iii) intensive use of inputs such as land, labor and agro-chemicals. The policy shift away from rice monoculture has led to increased production and export of other crops, including fresh and processed vegetables, fruits, and tea, and the trend is expected to continue with increased integration of the country's economy in the world markets through the World Trade Organization (WTO) and regional free trade agreements. Poor agro-product quality and safety are key obstacles to tapping expanding domestic and international markets for vegetables, fruits and tea, however, warranting investment in capacity development, infrastructure and training support for farmers, processors and agribusiness enterprises.

7. The Government recognizes that continued agricultural growth depends on both (i) diversified farming systems appropriate for varied agro-ecological conditions; and (ii) more locally driven improvements in competitiveness, quality and safety, and addition of value to agro-products. The Government has aimed to (i) promote production and processing of high-value products; (ii) improve agricultural research, extension, and market information services; (iii) intensify efforts to ensure better product quality and food safety based on sound agricultural practices; and (iv) promote competitive business and agro-based products. The proposed Project is consistent with Government's efforts to reduce poverty, promote livelihoods and improve living conditions through interventions that will enhance the quality and safety of agricultural products and generate multiple environmental, economic, and social benefits through biogas development. A more detailed sector analysis is presented in Appendix 3.

## **B. Analysis of Key Problems and Opportunities**

### **1. Status of Quality and Safety Standards of Agricultural Products**

8. **Poor Regulatory Management and Unsafe Production Environments.** At present, it is not clear which Ministry of Agriculture and Rural Development (MARD) departments are

<sup>4</sup> ADB. 2007. *Key Indicators of Developing Asian and Pacific Countries – Viet Nam*. Manila.

<sup>5</sup> Viet Nam General Statistics Office. 2007. *Statistical Yearbook of Vietnam 2006*. Ha Noi.

<sup>6</sup> FAO. 2007. *Selected Indicators of Food and Agriculture in Asia Pacific 1996-06, RAP 2007/15*. Rome. ADB. 2009. Project Completion Report on Tea and Fruit Development Project in Viet Nam. Manila. (draft)

<sup>7</sup> General Statistics Office of Viet Nam. Available: <http://www.gso.gov.vn>

<sup>8</sup> United States Department of Agriculture. Ha Noi. 2005. *Foreign Agricultural Service*. (Annual Livestock and Products Report – September).

<sup>9</sup> ADB. 2001. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Grant Assistance to the Socialist Republic of Viet Nam for the Central Region Livelihood Improvement Project*. Manila.

responsible for policy formulation, management, monitoring, inspection, communication, accreditation, and development of standards for food safety (Appendix 3). Existing quality and safety standards for agricultural products, especially fruits and vegetables, do not meet internationally recognized standards,<sup>10</sup> and pose significant risks to consumers. The absence of a well-developed system of quality and safety certification for agro-products, continued agricultural production in unsafe or unsuited areas,<sup>11</sup> and other similar practices further limit the quality and safety of the food products supplied to domestic and international markets. Farmers, primary processors, and traders are unaware of food safety hazards as well as techniques to address consumer concerns regarding food safety. The small size of farms and fragmented landholdings constrain economies of scale in safe production practices, as well as investment in agri-business and postharvest facilities to make safe food part of the market chain. Increased government efforts to promote commercial values in the agricultural product supply chain (particularly for vegetables, fruits, and tea) require more than simply an overall strategy to enhance competitiveness by improving access by farmers, primary processors, and traders to improved production and postharvest technologies and more efficient marketing. Higher quality and safety standards for agricultural products are also needed, and can be developed by providing services and access to financial assistance to small and medium-scale enterprises, and through the creation of safe agricultural zones (SAZs).<sup>12</sup>

9. Rapid development of urban areas has altered the structure of agricultural production from monoculture to diversified farming, and resulted in competition for differing land uses. Peri-urban vegetable production near major cities or heavily populated and industrialized areas<sup>13</sup> has raised concerns regarding the need for development of SAZs that are free from excessive microbiological, chemical, and heavy metal pollution and contamination. Creation of SAZs will remove obstacles to the production and distribution of safe, high quality agricultural products (including vegetable, fruit, and tea products). Demand for these products is rising rapidly, driven by increasing incomes and development of high-value domestic and foreign urban markets.

10. **Reducing Food Safety Risks from Agro-chemicals and Animal Wastes.** High levels of agro-chemical residues in vegetables, fruits, and tea have been recognized as a major threat to food safety,<sup>14</sup> and 75% of fruits (oranges, grapes, and mangos) and 15%–30% of beans and leafy vegetables have excessive pesticide levels.<sup>15</sup> Viet Nam has one of the highest chemical input use rates among countries in Asia and the Pacific.<sup>16</sup> Untreated disposal of livestock waste in densely populated areas has contaminated soils and water, resulting in substandard agricultural products, in terms of safety and quality. Each year an estimated 73 million tons of livestock waste are disposed of improperly into ponds, channels, and sewers, or left in fields, eventually polluting the surrounding areas. Wastewater samples taken from livestock farms indicated that about 90% do not meet the applicable industrial wastewater discharge standards,

<sup>10</sup> Ministry of Trade and European Union. 2005. *Viet Nam: Needs Assessment for Trade Related Assistance in the Period 2007–2010*. Ha Noi.

<sup>11</sup> These agricultural production areas are assessed as having high levels of pollution and contamination as well as inadequate safe water and market access infrastructure.

<sup>12</sup> These agricultural lands are safeguarded from excessive microbiological, chemical, and heavy metal pollution and contamination, and are defined as meeting Viet Nam's standard for irrigation water (TCUN6773: 2000) and soil (TCUN5941: 1999).

<sup>13</sup> High value and highly perishable leafy vegetables tend to be produced closer to urban areas. About 95% of lettuce is produced within 10 kilometers (km) of Ha Noi, while about 75% of tomatoes are produced within 30 km. Source: CIRAD. 2003. *Sustainable Development of Peri-urban Agriculture in Southeast Asia*. Ha Noi.

<sup>14</sup> A survey of Ha Noi residents found that 88% of vegetables are unsafe due to excessive residues. Source: CIRAD. 2003. *Sustainable Development of Peri-urban Agriculture in Southeast Asia*. Ha Noi.

<sup>15</sup> Government of Viet Nam. 2008. *Department of Plant Protection Surveys, 2005–2007*. MARD. Ha Noi.

<sup>16</sup> On average, an application rate of about 220 kilograms of fertilizers per hectare. Source: FAO. 2007. *Selected Indicators of Food and Agriculture Development in Asia Pacific Region 1996–2006, RAP 2007/15*. Ha Noi.

especially with regard to biological oxygen demand and chemical oxygen demand levels.<sup>17</sup> Moreover, an estimated 17.52 million tons of carbon dioxide (CO<sub>2</sub>) are emitted if the waste remains untreated.<sup>18</sup> Therefore, poor management of livestock waste disposal can undermine the efforts to enhance the quality and safety of agro-products, and pose high environmental and health risks. Use of improved technologies such as bio-digesters can control environmental pollution, thereby reducing risks associated with the use of agricultural products. Bio-digesters can also provide an alternative source of household energy, and serve as a safe and economical source of organic manure for crop production. By better managing agro-chemical use and integrating animal waste management, safety risks associated with the on-farm use of agricultural products can be reduced.

11. **Market-Driven Food Safety Standards.** Establishment of a “safe food” supply framework and/or strategy is a prerequisite to the creation of a role for the private sector and market forces in ensuring higher and stricter quality and safety standards for food, as demanded by conscious consumers in both domestic and international markets. Likewise, support has to be provided to build capacity for and improve the efficiency of production, product assembly, and marketing and distribution by numerous small and fragmented agricultural production units, in order to be competitive while meeting the demand for product quality and safety standards.

## 2. Government Objective and Strategy

12. **Strengthening of the Regulatory Framework.** Accession to the WTO in 2006 accelerated implementation of the country’s action programs that will streamline the over 200 food safety regulations that have already been decreed. Establishment of a comprehensive regulatory framework is high priority under the action plan for food safety, 2008–2012, which includes (i) establishment of a lead agency for food safety; (ii) planning of SAZs; (iii) strengthening of certification, inspection, and monitoring; and (iv) improving food quality and safety services (Supplementary Appendix B).<sup>19</sup> The Government initially aims to ensure that 50% of Viet Nam’s standards conform with international food quality and safety standards. In addition, the capacity of accreditation organizations such as the Department of Crop Production (DCP) and the provincial departments of agriculture and rural development offices (DARDs) will need to be strengthened, as staff lack sufficient background on food safety, accreditation, and certification. The Government’s monitoring and inspection systems will need to be improved along with the capacity of the monitoring and inspection staff. Laboratory facilities and staff capacity will need to be upgraded to extend support at the regional and local levels. Coordination between MARD and the Ministry of Health (MOH) in quality and safety inspection activities, which is currently limited, will likewise need to be strengthened.

13. **Good Agricultural Practices.** Government agencies are promoting good agricultural practices (GAP) among producers, processors, and traders through Viet Nam good agricultural practices (VIETGAP) and Global Good Agricultural Practices (GLOBALGAP).<sup>20</sup> However, the achievement of GAP targets is impeded by: (i) a lack of understanding of food safety among primary producers, processors, distributors, consumers, and public servants; (ii) weak linkages

<sup>17</sup> Ministry of Agriculture and Rural Development. 2008. *Feasibility Study - Biogas Program for the Animal Husbandry Sector in Vietnam 2007–2011*. Ha Noi (14 January).

<sup>18</sup> Assumes a ton of manure handled using traditional manure management methods will emit about 0.24 tons of CO<sub>2</sub> equivalents.

<sup>19</sup> Prime Minister’s decision on the approval of the national action plan on the assurance of food safety to 2010 No. 43/2006/QĐ-TTg, dated 20 February 2006.

<sup>20</sup> GAP standards drafted for vegetables, tea and fruit in early 2008 provide a basic safe production compliance code for farmers, and therefore meet basic requirements for hazard analysis critical control point or other international safety and quality standards.

between technical knowledge and extension services and farmers; (iii) inadequate revenue resources for monitoring, supervision, and field demonstrations of vegetables, fruits and tea; (iv) small and fragmented production units, with farmers that operate individually, with little incentive for adopting VIETGAP; (v) lack of a regulatory framework to facilitate domestic adoption of and compliance with international food safety standards, and a lack of clarity regarding which agency is responsible for public sector crop inspection and certification; (vi) limited capacity of testing laboratories, including a shortage of qualified staff and funds; and (vii) unclear laws and regulations regarding penalty enforcement, and failure to enforce penalties.

**14. Creation of Safe Agricultural Zones.** A major element of the Government's food agriculture strategy is to safeguard agricultural land from excessive microbiological, chemical, and heavy metal pollution and contamination and ensure the production and distribution of agricultural products that are safe and of high quality. Creation of SAZs will ensure that: (i) farm agro-production practices avoid food safety risks, (ii) production activities are organized and efficiently linked with processing and marketing, (iii) investments in processing and marketing infrastructure result in greater efficiency, and (iv) the climate encourages greater investments by farmers and agribusiness.<sup>21</sup>

**15. Improving Livestock Waste Management to Reduce Agro-Product Safety and Health Hazards.** The Government initiated its national biogas program in 2003.<sup>22</sup> The program has the potential to both (i) address the adverse impacts of traditional livestock waste disposal methods on the physical environment (particularly, water, soil, and air) and, consequently, on the quality and safety of agricultural products; and (ii) develop alternative and clean energy sources. The program was envisioned to mitigate and avert further environmental pollution, and has achieved nationwide success mainly due to: (i) a well-established legal framework for program implementation and cooperation among relevant government agencies, participating nongovernment organizations (NGOs), and private organizations; (ii) availability of appropriate biogas technology for small-scale livestock producers; and (iii) extensive training and promotion. A total of 45,000 biogas plants have been constructed in 30 provinces during 2003–2007; as a result of increasing demand for biogas technology among small farm households, a second phase is being implemented (through 2011). Given the wider prospects for biogas, it is crucial that further investments in demonstration and applied research for the design and viability of various sizes of biogas plants be made, particularly for plants of medium to large size.

**16. Broadening the Framework for Food Security.** An integrated approach to production, trade and marketing that also ensures access by consumers to sufficient and safe food will help support economic growth and rural livelihood development. The Government is committed to develop a functioning regulatory framework that involves partnership among producers, processors and traders as well as coordination and communication among relevant government regulatory and monitoring and coordinating agencies, such as MARD, MOH, Ministry of Trade and Commerce, and Ministry of Environment and Natural Resources. The approach requires a strong synergy between interventions that address the institutional management, regulatory capacity, infrastructure, and training needs of public and private sector stakeholders for quality and safety enhancement of agricultural products with those that would (i) create safer production and processing zones for specific commodities or commodity groups; and (ii) improve the biophysical environment in which agricultural products are produced, processed, and traded. Creation of SAZs and improved management of fertilizer and pesticide use—

<sup>21</sup> A description of the SAZs is presented in Supplementary Appendix D.

<sup>22</sup> The Biogas Program for the Animal Husbandry Sector in Viet Nam, supported by the Government of the Netherlands' official development assistance, is being implemented by the MARD Livestock Production Department, with technical support from the Netherlands Development Organization in Viet Nam (SNV).

through measures such as integrated pest management (IPM) and pricing policies for agrochemicals—can eliminate the risk of microbiological, chemical and heavy metal pollution and contamination in food products. Likewise, introduction of technologies such as biogas can reduce environmental pollution and food safety risks while also providing a safe and economic substitute and/or complement to chemical fertilizers, and an alternative energy source for cooking and generating electricity for lighting, thereby contributing to broader benefits, including increased agricultural productivity, reduced health risks for women, and enhanced food security.

### 3. Legal and Institutional Framework for Quality and Safety Enhancement

17. The Government acknowledges the urgent need to improve quality and food safety in agricultural production and marketing to levels comparable with neighboring countries and trade competitors. In recent years there have been numerous regulatory efforts in Viet Nam related to food safety and quality, in the form of ordinances, laws, standards, and action plans, which culminated in the Government's directive proclaiming 2008 as the year of quality and safety of agricultural products. On 28 January 2008, MARD established the National Agro-forestry and Fisheries Quality Assurance Department (NAFIQAD). NAFIQAD was given wide responsibility for formulation and implementation of regulations, and will be guided by the newly developed food safety and agricultural health action plan.<sup>23</sup> There is also strong commitment from the provincial DARDs to strengthen their capacity to implement quality and safety improvement projects, in partnership with the private sector.<sup>24</sup>

18. The Government has developed strategies for sustainable development and environmental protection that support these regulatory efforts and reform initiatives, including (i) the Sustainable Development Strategy (Viet Nam Agenda 21) for harmonization of economic, social, and environmental development, which is a general framework to shift Viet Nam towards a sustainable development path; and (ii) the national strategy for environment protection (2010–2020), which aims to halt the spread of pollution, restore degraded areas, improve overall environmental quality, and ensure achievement of sustainable national development. These are complemented by the renewable energy action plan of the Ministry of Industry which has a focus that includes the development of renewable energy sources, with priority given to biogas development as an efficient energy source for rural and mountainous areas. The Project is consistent with the ideals of these strategies and policies. It is also in line with the SEDP 2006–2010, which is intended to guide Viet Nam to middle-income nation status by late 2010 through improved quality and safety of agricultural and processed products that meet domestic and international requirements.

19. The Government has identified 16 provinces<sup>25</sup> that constitute major vegetable, fruit, and tea production areas (Map) as the main targets for enhancing the quality and safety of agricultural products.<sup>26</sup> A large number of small farm households in these areas also raise livestock for a living and are in dire need of appropriate livestock waste management and disposal facilities. The poorly managed disposal of livestock waste is a major cause of pollution of both water and the production environment, and affects the safety of vegetable products, with

<sup>23</sup> See also the Prime Minister's directive on the implementation of urgent methods to assure food hygiene and safety No. 06/2007/CT-TTg, dated 28 March 2007.

<sup>24</sup> The Government is now gradually introducing measures to improve the performance of state-owned enterprises under the state-owned enterprises law to further liberalize markets for improved private sector participation.

<sup>25</sup> The selected provinces are (i) Bac Giang, (ii) Ben Tre, (iii) Binh Thuan, (iv) Da Nang, (v) Ha Noi, including Ha Tay, (vi) Hai Duong, (vii) Hai Phong, (viii) Ho Chi Minh City, (ix) Lam Dong, (x) Ninh Thuan, (xi) Phu Tho, (xii) Son La, (xiii) Thai Nguyen, (xiv) Tien Giang, (xv) Vinh Phuc, and (xvi) Yen Bai.

<sup>26</sup> ADB 2007. *Technical Assistance to the Socialist Republic of Viet Nam for Preparing the Enhancement of the Quality and Safety of Agricultural Products*. Manila.

potential adverse impacts on the health of the affected communities. There is strong demand for biogas technology among farm households in these provinces. A detailed description of the project area and criteria for the selection of provinces covered under the Project are presented in Supplementary Appendix A.

#### 4. ADB's Country Partnership Strategy

20. The key challenges to be addressed in Viet Nam are identified by ADB's country strategy and program (2007–2010)<sup>27</sup> as (i) development and strengthening of institutional capacity, (ii) promotion of socially equitable and balanced development, and (iii) sustainable environmental management. Promotion of sustainable rural livelihoods and control of pollution emanating from farming activities are among the high priority areas for support. The Project is consistent with this strategy and will contribute to poverty alleviation and environmental management objectives in Viet Nam. It is also consistent with ADB's mission and vision being pursued under its long-term strategy framework 2008–2020 (Strategy 2020) which focuses on inclusive growth and environmentally sustainable development while remaining dedicated to poverty reduction.<sup>28</sup>

21. ADB's agriculture sector strategy in Viet Nam has been to improve agriculture growth to reduce poverty. A combination of program and project financing have supported (i) reform of sector institutions and administration; and (ii) strengthening of (a) research and extension infrastructure, (b) human resources capacity and service delivery mechanisms for improved productivity, and (c) rural roads and transport infrastructure to provide increased linkages to markets. Increases in farm income and in the value of agricultural production were targeted through tea and fruit development,<sup>29</sup> while the agriculture sector development program<sup>30</sup> pursued policy and institutional reforms to develop an environment conducive to market-based agricultural and agro-industry development. Making Markets Work Better for the Poor (2003–2007), a grant cofinanced by the Department for International Development of the United Kingdom and the Australian Agency for International Development (AusAID), enhanced understanding of links between growth and poverty and the dynamics of markets and institutions.<sup>31</sup> The ongoing Agriculture Science and Technology Project (2007–2012), aims to improve and modernize the country's agriculture science and technology systems and institutions, as well as the capacity of their staff, researchers, and other stakeholders.<sup>32</sup> The Central Region Rural Infrastructure Project<sup>33</sup> is increasing the connectivity of rural hinterlands with markets and urban population centers, and thereby supporting enhancement of product values. The Project will (i) ensure sustainability in agricultural growth by preparing farmers, processors, and traders to supply safe products; (ii) provide benefits to health, living standards and quality of life (especially for women) through the introduction of household biogas production; and (iii) improve livelihoods, living conditions, and human health. The Project will

<sup>27</sup> ADB. 2008. Viet Nam Country Strategy and Program 2007–2010. Manila.

<sup>28</sup> ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank 2008–2020*. Manila.

<sup>29</sup> ADB. 2000. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Socialist Republic of Viet Nam for the Tea and Fruit Development Project*. Manila.

<sup>30</sup> ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Socialist Republic of Viet Nam for the Agriculture Sector Development Program*. Manila.

<sup>31</sup> ADB. 2008. *Technical Assistance to the Socialist Republic of the Viet Nam for Making Markets Work Better for the Poor*. Manila.

<sup>32</sup> ADB. 2006. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Socialist Republic of Viet Nam for the Agriculture Science and Technology Project*. Manila.

<sup>33</sup> ADB. 2007. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Socialist Republic of Viet Nam for the Central Region Rural Infrastructure Project*. Manila.

demonstrate that integrated biogas development will enable households to generate higher positive social, economic and environmental benefits, and broaden rural development.<sup>34</sup>

## 5. External Assistance

22. Strategic partnerships with other development partners have enhanced market liberalization-related reforms and helped Viet Nam transition smoothly from a centrally planned production system to a production-marketing system dominated by farmers and agribusiness enterprises.<sup>35</sup> TA and loan projects extended to Viet Nam's agriculture sector have supported (i) capacity strengthening of public and private sector institutions that provide services and infrastructure to small and medium-sized farms (World Bank loan); (ii) improving competitiveness, entrepreneurship, and organization of farmers in the central region (World Bank loan); (iii) improving food safety, farm product value, and trade development (Canadian International Development Agency grant); (iv) capacity building of MARD and improvement of the quality and safety of fisheries products (Danish International Development Agency grant); (v) increasing productivity and competitiveness of agriculture and rural enterprises through improving agricultural research and development (AusAID grant); (vi) strengthening market linkages and capacity in agriculture and sustainable peri-urban agriculture (International Fund for Agricultural Development, Centre de Cooperation Internationale en Recherche Agronomique pour le Development, and Asian Vegetable Research and Development Center grant); (vii) improving government capacity for pest risk analysis and export certification (World Health Organization, United Nations Food and Agriculture Organization and New Zealand Agency for International Development grant); and (viii) biogas development (Netherlands General International Cooperation grant). International private investments, accompanied by technical support, also enabled a small but growing number of SME production and processing enterprises to achieve international standards certification required by the investors' export markets. A list of relevant externally assisted projects is in Appendix 4.

## 6. Lessons

23. Lessons from previous projects indicate that the participation of key stakeholders in project design and implementation, in subproject selection, and in the identification of interventions are key success factors. Projects that seek to improve agricultural production and marketing performance require strong linkages between research and extension, and client demand and participation. The participatory and client-driven approach strengthens stakeholder ownership of the project, and helps ensure that the needs of the private sector (including farmers) regarding improvements in agricultural production and marketing techniques are properly addressed. Other lessons indicate that (i) strengthening of current commercial capacity and market linkages is essential to improving efficiency along the agricultural product value chain; (ii) quality is primarily set by markets and consumers, and high quality standards ensure competitiveness and profitability; (iii) consumer confidence in food safety relies on the quality and safety measures established within each link of the production-marketing chain; (iv) it requires 2–3 years to develop the capacity to commercially produce certified safe and quality agro-products; and (v) a pilot approach involving “lead” or “innovative” farmers and the private sector reduces management risk and allows prospective investors and other farmers to assess the potential for new investments and learn from firsthand experiences.

<sup>34</sup> A similar experience can be found in ADB. 2002. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the People's Republic of China for the Efficient Utilization of Agricultural Waste Project*. Manila.

<sup>35</sup> As of 31 December 2007, ADB had provided 21 loans to Viet Nam for agriculture, irrigation, fisheries, and rural development, amounting to about \$922 million, or 26% of all loans to the country (which total about \$3.4 billion).

### III. THE PROPOSED PROJECT

#### A. Impact and Outcome

24. The expected impact is sustainable and equitable growth of the agriculture sector through increased livelihood opportunities and improved human health. During 2016–2020, the Project is expected to contribute to increase the agricultural sector's annual aggregate value-added by about 3.0%–3.2%, and agricultural exports by 12.3%–14.3%, in line with Government's SEDP 2006–2010.

25. The expected outcome is quality and safety improvements in Viet Nam's agricultural outputs, which thereby meet domestic and international requirements. To attain this outcome, the Project will (i) create effective regulatory institutions for state management of agro-product safety and quality systems to meet domestic and export requirements; (ii) accelerate the development of agro-production, processing, and marketing to ensure the safety and quality of vegetable, fruit, and tea products for domestic consumption and export; and (iii) support biogas development to supply clean energy to households and reduce agro-product safety and health hazards from livestock waste in the 16 project provinces.

#### B. Outputs

##### 1. Improved Regulatory Framework and Fully Operational Quality and Safety System for Agro-Products

26. It will improve the institutional management and regulatory framework, particularly at MARD,<sup>36</sup> so that safe agricultural products are produced, processed, and distributed. It will support (i) improvement of the regulatory framework and coordination for state management of quality and safety; (ii) quality and safety-related capacity development of state agencies and certification bodies; (iii) establishment of a crop food safety management system (CFSMS) for food safety coordination, monitoring, and management from the central to the commune level.

27. **Improvement of Regulatory Framework and Coordination for State Management.** A detailed review will be undertaken of existing decrees, policies, and strategies for ensuring agro-product safety and quality in Viet Nam.<sup>37</sup> It will assess whether regulations are consistent with policies and strategies, and identify requirements for further regulations. The review will serve as the basis for formulating new regulations, policies, and strategies for improving the safety and quality of fruits, vegetables, and tea, and will recommend strategies for: (i) strengthening coordination among MARD agencies and cooperation between MARD and other relevant ministries and departments for food safety; (ii) identifying lead agencies for different aspects of food safety, and establishing a multi-level food safety system; (iii) establishing monitoring, information, and communication systems; (iv) developing SAZs; and (v) developing standards, accreditation and certification procedures, and certification incentive policies.

28. **Strengthening Capacity of State Agencies and Certification Bodies.** The Project will: (i) facilitate the development of policies and regulations on food safety and quality; (ii) strengthen the capacity of the lead agencies within MARD (namely DCP and NAFIQAD) in food safety coordination and monitoring and certification for agro-product quality and safety; (iii)

<sup>36</sup> An assessment of the Government's institutional capacity for food quality and safety regulation and certification is in Supplementary Appendix B.

<sup>37</sup> Over 200 food safety regulations will be reviewed, consolidated, and harmonized to facilitate certification, enforcement, inspection, and monitoring by agencies concerned, and to allow producers, processors, and traders to easily conform with these regulations and with international food quality and safety standards.

support the design and establishment of a provincial food safety index and an agro-product safety information and communication system; (iv) improve the skills and knowledge of food safety specialists at MARD (about 134 staff) and DARD (about 144 staff in 16 project provinces), who will in turn train district and commune food safety facilitators; (v) further develop VIETGAP and other standards for agro-product safety and quality, including improvement of the inspection system; (vi) improve planning and management capacity of SAZs; (vii) improve the capacity of food safety facilitators to demonstrate and disseminate good agricultural practices; and (viii) improve the capacity of laboratories to perform tests and risk analysis. In addition, staff from up to 100 potential certification organizations and 20 laboratories will be trained.

29. **Establishment of a Crop Food Safety Management System.** The creation of the CFSMS<sup>38</sup> will include: (i) establishment of a standing committee on food safety at MARD, headed by a MARD vice minister; (ii) establishment of a food safety monitoring unit within NAFIQAD; (iii) establishment of a crop food safety management unit within DCP responsible for formulation of policies, development of standards, accreditation of certification bodies, and communication of information on crop food safety; and (iv) identification of staff for specialized positions at the central, provincial, district, and commune levels responsible for (a) management of the food safety system, (b) facilitation of safe food production, and (c) internal control system (ICS) of certified producers. The proposed system is consistent with existing regulations that give a mandate to DCP in crop food safety and to NAFIQAD in overall food safety and monitoring. Designated food safety specialists at MARD and the DARDs, and district and commune food safety facilitators will assist in piloting of CFSMS in the 16 project provinces.

## 2. Infrastructure and Facilities for Quality and Safe Agro-Products

30. This component will support: (i) implementation of SAZ plans and development of support infrastructure in SAZs; (ii) certification of agro-products; (iii) strengthening of provincial capacity for agro-food safety monitoring and assessment, including training for farmers, primary processors, and traders on GAPs, hazard analysis critical control point (HACCP), and other farm food safety standards-based practices; (iv) replacement of pest- and disease-prone varieties with tolerant varieties; and (v) provision of support services to project provinces. The first four subcomponents will be mainly implemented by DARD in each of the 16 provinces. The fifth subcomponent will operate at central and regional levels, but will benefit all 16 provinces.

31. **Implementation of Safe Agricultural Zones Plan and Development of Support Infrastructure.**<sup>39</sup> The Project will support development of SAZs through (i) analysis of soil and water parameters, and assessment of conditions for production and preliminary processing; and (ii) mapping and registration of safe production zones under provincial land planning zone schemes. In each of the 16 provinces three model sites will be established to demonstrate safe production, primary processing and/or packing, and trading. Project will also support (i) development of risk assessment procedures, legal registration of plans, and consultation among land owners and stakeholders; and (ii) design and construction of basic public infrastructure in the SAZs, such as internal access roads and safe water irrigation systems, safe water wells for washing vegetable products, waste management facilities, and support infrastructure for postharvest, packing, and grading. To maintain the agro-product safety along the marketing chain, the Project will (i) establish and/or rehabilitate wholesale market facilities, and (ii) upgrade markets and group farm shops where facilities for improved hygiene and storage management as well as facilities for safe water and waste management will be installed.

<sup>38</sup> See Supplementary Appendix C on the crop food safety management system.

<sup>39</sup> A description of the SAZs is presented in Supplementary Appendix D.

32. **Certification of Agro-Products.** The Project will provide support for: (i) certification of production, primary processing, and trading entities seeking certification with VIETGAP, International Federation of Organic Agriculture Movements recommended organic standards, and other standards (e.g., GLOBALGAP and HACCP); (ii) production and marketing entities with respect to the cost of (a) processing certification applications, (b) testing and initial inspection, (c) information, (d) developing linkages along the certified market chain, and (e) development of a logo for licensing; and (iii) equipment and logistics, and strengthening staff capacity in relevant provincial agencies for monitoring and assessment of agro-production safety and quality.

33. **Strengthening Provincial Capacity for Agro-Food Safety Monitoring and Assessment and Training to Farmers, Primary Processors, and Traders.** The Project will build capacity of certification bodies in (i) training and advising production and marketing entities seeking certification for food safety, VIETGAP, organic, and other standards; and (ii) facilitating processing of certification applications, testing, and initial required inspections. About 50 staff in each province will be trained in GAP and food safety system monitoring, assessment, and certification while about 500 production, processing, and marketing enterprises will be certified during project implementation. Support will also be provided for (i) training farmers, postharvest processors and enterprises in VIETGAP; (ii) setting up an agro-products safety management system; and (iii) improvement of provincial and district extension facilities for food quality and safety.

34. **Replacement of Poor Quality and Pest- and Disease-Prone Varieties with Better Varieties to Improve Quality and Safety of Agro-Products.** The Project will support farmers in replacing some fruit and tea varieties that are highly vulnerable to disease infection, thereby reducing the dependence of farmers on agro-chemicals and improving the quality and safety of agro-products. This is particularly important in lowland tea areas and for certain fruits, such as lychee, that have a short and intensive harvest season. About 20 pest and disease-tolerant fruit and tea varieties will be developed during project implementation to replace susceptible varieties currently being grown by farmers. The new varieties are expected to be cultivated in at least 35% of the area targeted by provinces for variety replacement.

35. **Provision of Laboratory Services to Project Provinces.** The capacity of laboratories in Viet Nam will be assessed with regard to their operational efficiency, the presence/absence of operating and financial management systems, and personnel/logistical requirements (i.e., incremental staff, equipment, and related facilities), to determine investment requirements and the cost of upgrading regional laboratories. The Project will support the upgrading of three regional laboratories in Da Nang, Ha Noi, and Ho Chi Minh City by providing these facilities with appropriate testing equipment and sufficient qualified staff to meet the demand from monitoring and certification agencies for inspection, analysis, and assessment of agricultural products. The Project will also support the contract services of applied research and development institutions for the (i) creation of new varieties; (ii) monitoring and evaluation; (iii) design and transfer of standardized demonstration models in safe production, post harvest, and primary processing; (iv) marketing of safe products; and (v) information system and database development.

### 3. **Biogas Development for Clean Energy, Improved Agro-Product Safety and Reduced Health Hazards from Livestock Waste**

36. This component will support: (i) biogas infrastructure investment, (ii) a credit facility for biogas, and (iii) demonstration and applied biogas research services.<sup>40</sup> The component will be linked to the design of a future investment project to expand the national biogas program through associated TA (para. 59).

<sup>40</sup> The description of support to the biogas development component, including unit cost of small biogas digesters and criteria for selecting targeted households, is presented in Supplementary Appendix E.

37. **Biogas Infrastructure Investment.** The Project will provide: (i) direct financial assistance for the construction of 20,000 household biogas units of various sizes to ensure safe and effective construction of biogas plants;<sup>41</sup> (ii) support for biogas infrastructure development;<sup>42</sup> and (iii) support for planning and integration of livestock within the SAZs. The Project will facilitate construction of about 40,000 household biogas digesters in 16 provinces.<sup>43</sup>

38. **Credit for Biogas.** The Project will provide a credit line that will be managed by a number of partner financial intermediaries active in the rural and agriculture sector in Viet Nam to facilitate easier access to credit among potential biogas farm households, with particular emphasis on the poor, women, and other disadvantaged groups. Potential financial intermediaries identified by MARD include the Viet Nam Bank for Agriculture and Rural Development (VBARD), Central Credit Fund (CCF) and its subordinate People's Credit Funds (PCFs), and Viet Nam Bank for Social Policies (VBSP).<sup>44</sup> Based on assessment of the financial management capacity and previous experience in ADB-funded projects, VBARD and the CCF and PCFs are good candidates to be included as business partners for delivering credit to biogas households at the start of the Project. The participation of VBSP should be subject to the conduct of due diligence on its financial management.

39. **Demonstration and Applied Research Services.** Investments under this subcomponent will provide support for (i) improving the design of existing household biogas plants, (ii) transfer of technology regarding biogas and digested slurry, and (iii) research and transfer of technology for medium- and large-scale biogas plants. Research findings will serve as the basis for expansion of biogas development activities to a larger number of small farm households and medium-sized and large enterprises in other provinces.

#### 4. Project Management Support

40. The Project's three components will place significant management demands on the key implementing agencies (IAs) of MARD—namely APMB, which will host the central project management unit (CPMU); DCP, where the institution project management unit (IPMU) will be established; and DLP, where the biogas project management unit (BPMU) will be established—as well as the 16 provincial DARDs, where the provincial project management units (PPMUs) will be established. Project management support offices (with logistical facilities and technical staff) will be established at APMB, DCP, DLP, and 16 provincial DARDs. In addition, a team of consultants will render management support and technical advice to CPMU, IPMU, BPMU, and PPMUs, and to provide supervision and capacity-building assistance with respect to quality and safety enhancement of agro-products and biogas development in the project area.

#### C. Special Features

41. The Project will apply an integrated approach to enhancing the quality and safety of agricultural products. In addition to strengthening the institutional and regulatory capacity of government agencies, and the capacity of agricultural producers, primary processors and traders in applying GAPs and creating SAZs, the Project will also support biogas development

<sup>41</sup> Another 20,000 households will be provided financial assistance by the ongoing MARD-SNV Project: *Support Project to the Biogas Program for the Agricultural Sector in Some Provinces in Viet Nam*.

<sup>42</sup> Includes promotion among stakeholders and farmers, training of technicians, quality supervision, and monitoring.

<sup>43</sup> Although the Project will provide direct financial support to only 20,000 biogas digesters, a credit line will be made available to all 40,000 households (i.e., 20,000 biogas digesters targeted under the Project and 20,000 biogas digesters targeted under the SNV project).

<sup>44</sup> The Central Credit Fund (CCF) and its subordinate People's Credit Funds (PCFs), Viet Nam Bank for Social Policies and VBARD have submitted expressions of interest to participate in the Project. VBARD and CCF and its subordinate PCFs have participated in the previous ADB-funded Tea and Fruits Development Project.

in project areas that will control environmental pollution and thereby reduce food quality and safety-related risks, while making energy and fertilizer options available to rural households. The strong complementarity and synergy between the interventions will enable the Project to have a broader and more significant impact on livelihoods, productivity, and health (particularly of women and consumers) than would otherwise be possible.

42. Clean development mechanism (CDM) projects will be developed for the biogas component to generate additional carbon-derived revenue. The Government may use this revenue to recover initial financial support provided to biogas farmers, or to provide additional subsidies to biogas households. It is estimated that the biogas component will reduce CO<sub>2</sub> emissions by the equivalent of about 40,000–60,000 tons of CO<sub>2</sub> per year, once all 40,000 biogas digesters are installed. The total carbon-derived revenue is estimated at \$200,000–\$300,000 per year for 10 years, assuming a carbon price of \$10 per ton of CO<sub>2</sub> for credits generated until 2012, and \$5 per ton thereafter. MARD is working with ADB and the Netherlands Development Organization in Viet Nam (SNV) on necessary CDM documentation and institutional setup for the CDM project. The Project may also benefit from ADB's carbon fund(s) for upfront cofinancing for future carbon credits. The possibility of developing a programmatic CDM project for the national biogas program will also be explored; this would allow subsequent biogas projects to be added once the CDM program is registered. The CDM assessment is presented in Supplementary Appendix G.

#### D. Project Investment Plan

43. The project investment cost is estimated at \$110.39 million, including taxes and duties of \$8.67 million (Table 1). Detailed cost estimates are in Appendix 5.

**Table 1: Project Investment Plan**  
(\$ million)

Item	Amount <sup>a</sup>
<b>A. Base Cost<sup>b</sup></b>	
1. Institutional and Regulatory Development	4.92
2. Development of Production and Consumption of Safe and Quality Agro-Products	71.70
3. Biogas Development	22.25
4. Project Management	5.92
<b>Subtotal (A)</b>	<b>104.79</b>
<b>B. Contingencies<sup>c</sup></b>	
Physical Contingencies	0.62
Price Contingencies	3.31
<b>Subtotal (B)</b>	<b>3.93</b>
<b>C. Financing Charges During Implementation<sup>d</sup></b>	<b>1.67</b>
<b>Total (A+B+C)<sup>e</sup></b>	<b>110.39</b>

<sup>a</sup> Includes taxes and duties of \$8.67 million.

<sup>b</sup> In September 2008 prices.

<sup>c</sup> Physical contingencies are computed at 1% for all expenditure categories, except for material and civil works where no contingencies are allocated because project implementation will use a sector approach. Price contingencies were computed at 2% on local currency and foreign exchange costs.

<sup>d</sup> Includes interest charges. Interest during implementation is computed at 1% per annum.

<sup>e</sup> Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

**E. Financing Plan**

44. It is proposed that ADB provide a loan of \$95.00 million (equivalent of 62.4 million special drawing rights) from its Special Funds resources to cover 86.06% of the total project costs. The Government will contribute \$6.22 million (5.64% of the total Project costs), including \$3.98 million by way of taxes and duties. The provincial people’s committees of 16 project provinces will contribute \$6.47 million (5.86% of the total project costs), including \$4.69 million in taxes and duties. Partner financial intermediaries will contribute \$1.35 million (1.22% of the total project cost) to finance biogas loans to households. Beneficiaries of the biogas development component will contribute \$1.35 million in local materials and/or labor, accounting for 1.22% of the total project costs. The ADB loan will have a maturity of 32 years with a grace period of 8 years, and an interest rate of 1% per annum during the grace period, and 1.5% thereafter. The Government will bear the foreign exchange risk. Interest charges on the loan are to be capitalized. The summary financing plan is in Table 2 and details are in Appendix 5.

**Table 2: Financing Plan**  
(\$ million)

<b>Source</b>	<b>Total</b>	<b>Percent</b>
Asian Development Bank	95.00	86.06
Central Government	6.22	5.64
Provincial People’s Committees	6.47	5.86
Partner Financial Institutions	1.35	1.22
Beneficiaries (Biogas Development)	1.35	1.22
<b>Total</b>	<b>110.39</b>	<b>100.00</b>

Source: Asian Development Bank estimates.

45. It is proposed that the ADB loan proceeds be utilized by the Government to finance project activities using two mechanisms: (i) extension of a central budget grant to finance activities related to quality and safety enhancement and the development of the biogas sector, and (ii) extension of loans to households via partner financial intermediaries (FIs) to finance construction of biogas digesters. The central budget grant will finance activities related to institutional and regulatory development (component 1), development of production and consumption of safe and quality agro-products (component 2), and project management (component 4). For biogas development (component 3), the central budget grant will support biogas infrastructure, and applied biogas demonstrations, and services. Support for biogas infrastructure includes a financial assistance of at least D1.0 million for eligible project households to be disbursed after biodigesters are constructed, put in operation, and certified as meeting the agreed technical standards. The financial assistance will be provided to households identified and enlisted by the Project regardless of whether such households finance the construction of the biogas digester by partner FIs or from the households’ own sources.

46. For household loans to construct biogas digesters, MOF will enter into subsidiary loan agreements with partner financial intermediaries that will in turn extend subloans to eligible household beneficiaries for construction of biogas digesters. The subsidiary loan from MOF to partner financial intermediaries will be denominated in dong and have a maturity of 20 years with a grace period of 6 years. Terms and conditions of the subsidiary loans from MOF to partner financial intermediaries will be decided by the Government and agreed by ADB. Lending interest rates of the Government’s development assistance fund are expected to be used as a reference interest rate for subsidiary loans unless otherwise agreed between ADB and MOF.<sup>45</sup>

<sup>45</sup> The current normal rate of interest applicable to funds from the Government’s development assistance is about 12%. MARD has proposed to MOF that a preferential interest rate be applied to the credit line to be provided for

47. Partner financial intermediaries will utilize the subsidiary loan proceeds for lending to eligible household beneficiaries under the Project for construction of biogas digesters. Loans to households will carry terms and conditions as currently being applied by partner financial intermediaries (which may be amended from time to time). Interest rates for subloans to households will be determined based on relending rates from MOF to partner financial intermediaries plus a margin agreed between MOF and partner financial intermediaries. The actual lending interest rates to households will be agreed upon in subsidiary loan agreements between MOF and partner financial intermediaries, and ensure that households have access to affordable financing for biogas digester construction. Households in the project provinces that are currently supported and recommended by the SNV-funded biogas development project are also eligible for loans from partner financial intermediaries, if these households have demand for such loans. Technical and environmental criteria related to biogas will be added to partner financial intermediaries' standard loan eligibility criteria to ensure loans reach the Project's targeted clientele. For each biogas loan amount, ADB will finance 81.8%, partner financial intermediaries will finance 9.1%, and households will contribute 9.1% in labor. However, disbursement of funds for the biogas investment credit facility will be subject to (i) entry by the financial intermediaries into a project agreement with ADB, and (ii) entry by the Government into a subsidiary loan agreement with the financial intermediary(ies) concerned, with terms and conditions satisfactory to ADB.

## **F. Implementation Arrangements**

### **1. Project Management**

48. MARD will be the project executing agency (EA). A CPMU will be established in the Agricultural Projects Management Board (APMB) for overall project coordination and management. A total of 16 PPMUs will be established in the DARDs for local project management. The Department of Crop Production (DCP) will establish an IPMU to implement activities related to institutional and regulatory development on quality and safety. The DLP will establish a BPMU to implement the biogas development program. A credit line provided under the Project will be administered by the MOF and utilized by partner financial intermediaries to finance eligible household biogas investments, which will be carried out at the local level by its provincial branches. The Project will open one first-generation imprest account (FGIA) to be operated by CPMU and a FGIA to be operated by the MOF to finance the biogas credit lines to partner financial intermediaries. A total of 20 second-generation imprest accounts (SGIAs) will be established, one for each of the 16 PPMUs, one for the IPMU, one for the BPMU, and one for each of the two partner financial intermediaries. MARD and all agencies proposed as IAs have adequate financial and management capacity and experience to implement the Project. These are government budget-spending units, with staff capable of using standard government accounting and financial management systems. The APMB, DCP, DLP, and DARDs have implemented significant donor-funded projects, including ADB projects. The Project's organizational chart is presented in Appendix 6.<sup>46</sup>

### **2. Implementation Period**

49. The Project will be implemented over 6 years from July 2009 to June 2015. The Project implementation schedule is in Appendix 7.

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construction of biogas digesters under the Project, considering the contribution of the biogas plants in improving water quality and environmental hygiene as part of the water and environmental hygiene program of MARD.

<sup>46</sup> The detailed organizational structure for CPMU, DCP/IPMU, DLP/BPMU, and PPMUs, and broad terms of reference for their respective staff are in the Supplementary Appendix H.

### 3. Procurement

50. A procurement plan is outlined in Appendix 8 with indicative procurement and recruitment contracts. No international procurement is envisaged under the Project. Prior and post review thresholds were discussed and agreed with the EA and are included in the plan. Procurement will mainly be undertaken by the CPMU. Goods, works, and services financed by ADB will be procured in accordance with ADB's *Procurement Guidelines* (2007, as amended from time to time). Packages for works valued at less than \$2.0 million or equivalent but more than \$100,000 or equivalent, and packages for goods valued at less than \$1.0 million or equivalent but more than \$100,000 or equivalent, will be procured using national competitive bidding (NCB) procedures acceptable to ADB. For goods and works packages valued below \$100,000 or equivalent, shopping procedures acceptable to ADB will be used. Plant and seed varieties required for the Project to replace pest- and disease-susceptible varieties will be purchased directly from a list of prequalified and approved government-owned research institutes (in absence of a market, commercial seeds are available primarily from government institutes). Direct contracting will be used to procure seed varieties required for the Project.

### 4. Consulting Services

51. The Project will require a total of 208 person-months of consultant services, including 60 person-months of international and 148 person-months of national consultant services in the fields of (i) management of agricultural product quality and safety systems; (ii) policy, regulations and institutional development; (iii) monitoring and evaluation; (iv) applied research and development for agricultural product quality and safety; (v) risk analysis; (vi) communication and training programs; (vii) social development; (viii) environmental assessment; (ix) financial management; (x) biogas technology; and (xi) rural infrastructure.<sup>47</sup> The international specialist in agricultural product quality and safety management will act as the team leader. The consultants will be recruited through a firm following the quality- and cost-based selection (QCBS) process, with a 90:10 quality-cost ratio due to the specialized nature of the Project, and in accordance with ADB's *Guidelines on the Use of Consultants* (2007, as amended from time to time).

### 5. Anticorruption Policy

52. ADB's *Anticorruption Policy* (1998, as amended to date) was explained to and discussed with MARD and APMB. Consistent with its commitment to good governance, accountability, and transparency, ADB reserves the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the Project. To support these efforts, relevant provisions of ADB's *Anticorruption Policy* are included in the loan regulations and the bidding documents for the Project. In particular, all contracts financed by ADB in connection with the Project shall include provisions specifying the right of ADB to audit and examine the records and accounts of MARD, APMB, CPMU, IMPU, BPMU, PPMUs, all contractors, suppliers, consultants, and other service providers as they relate to the Project. The project design and implementation arrangements provide for mitigation of corruption risks. Risks associated with project management, including procurement and disbursement, will be mitigated by (i) engaging an international consultant and a national consultant to advise and assist in the procurement of goods and services, and the engagement of other consultants; (ii) introducing a dual signing system in which the civil works contractor awarded the contract will also sign an anticorruption contract with the employer; and (iii) periodic inspection by the CPMU of the contractor's activities relating to fund withdrawals and settlements.

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<sup>47</sup> Detailed consultant terms of reference are in Supplementary Appendix I.

## 6. Disbursement Arrangements

53. To ensure effective project implementation and timely loan disbursement, the Government will establish two or more FGIA's at a commercial bank acceptable to ADB immediately after loan effectiveness for the exclusive use of ADB loan proceeds. One FGIA will be administered by the MARD (CPMU) to finance project activities and the other FGIA will be operated by the MFIs to finance the biogas credit lines. The maximum ceiling for the CPMU FGIA will be 6 months of estimated expenditures to be funded from the CPMU FGIA, or \$8.29 million (10% of \$82.85 million), whichever is lower. The maximum ceiling for the FGIA for the biogas credit line will be 6 months of estimated expenditures to be funded from the FGIA, or \$1.215 million (10% of the credit line of \$12.15 million), whichever is lower. Funds will flow to the various IAs (DCP-IPMU, DLP-BPMU, PPMUs, and partner financial intermediaries) to finance the activities they are individually responsible for. The DCP-IPMU, DLP-BPMU, and each of the 16 PPMUs will establish an SGIA at the provincial treasury of the respective project province to ensure proper management of the provincial accounts to finance eligible activities related to quality and safety. Loan proceeds will be made available from the FGIA to the SGIAs. The maximum ceiling of each SGIA will be equivalent to 6 months estimated expenditures to be funded from the SGIA, or \$300,000, whichever is lower. The SGIAs are required for locally purchased equipment and materials, contractual services, and small-scale training activities at geographically dispersed locations in the 16 project provinces, and will be managed by the IPMU, BPMU, and PPMUs, which will prepare liquidation and replenishment requests for the SGIAs. These will be submitted to the CPMU, which will consolidate the requests and send them to MOF. Disbursements will be made in accordance with ADB's *Loan Disbursement Handbook* (2007, as amended from time to time).

54. For the biogas credit line, two SGIAs will be opened and managed by the head offices of each of the two partner financial intermediaries. The maximum ceiling will be the lower of (i) 6 months of estimated biogas loan disbursements funded through the SGIA; or (ii) 10% of the credit line amount in accordance with the subsidiary loan agreement between MOF and the financial intermediary. Partner financial intermediaries will utilize their own internal systems to transfer the subsidiary loan proceeds to their local branches in the 16 project provinces to extend biogas loans. The subsidiary loan proceeds will be exclusively for financing the construction of biogas digesters. The biogas loan portfolio will be accounted for and reported separately. Partner financial intermediaries will submit requests for ADB financing through MOF, using the list of biogas loans actually extended, and based on the needs of the Project.

55. All the imprest accounts, including the SGIAs, will be established, managed, replenished, and liquidated in accordance with ADB's *Loan Disbursement Handbook* (2007, as amended from time to time) and the financial regulations of the Government. The accounts will be liquidated and replenished according to ADB's statement of expenditures (SOE) procedures, based on withdrawal applications submitted to ADB from time to time. Each individual payment reimbursed or liquidated using the SOE procedures will not exceed \$100,000 equivalent.

## 7. Accounting, Auditing, and Reporting

56. CPMU, DCP-IPMU, DLP-BPMU, PPMUs, and partner financial intermediaries involved in project implementation will maintain records and accounts that identify goods and services from loan proceeds, financing resources received, expenditures incurred, and use of local funds. These accounts will be established and maintained in accordance with sound accounting principles and internationally accepted accounting standards. The CPMU will review and consolidate the accounts and have them audited annually in accordance with sound accounting practices by the sovereign audit agency of the Government or other auditors acceptable to ADB.

The audit report will include a statement verifying whether or not the funds disbursed by ADB were used for the purposes for which they were provided, as well as the auditor's opinion on the use of the imprest accounts (including the SGIAs) and SOE procedures. Copies of the audited accounts and auditor's report will be submitted to ADB within 6 months after the end of each financial year. The CPMU will prepare consolidated quarterly reports indicating progress made, problems encountered during the period, steps taken or proposed to remedy the problems, proposed program of activities, and progress expected for the next quarter. Within 3 months of physical completion of the Project, the CPMU will submit to ADB a completion report that describes achievements in relation to the Project's expected impact, outcome, and outputs.

## **8. Project Performance Monitoring and Evaluation**

57. CPMU will establish and maintain a project performance management system designed to permit adequate flexibility to adopt remedial action regarding project design, schedules, activities, and development impacts. The system will adopt gender disaggregated indicators, including those specified in the design and monitoring framework, regarding: (i) physical progress of the implementation of specified component and/or subcomponent activities; (ii) the number and area of SAZs, with soil and water monitoring data; (iii) the safe agricultural product model areas established, their area, and number of farmers involved; (iv) the quantity and value of agro-products produced that are certified as safe; (v) the volume of agro-products traded in wholesale markets and supermarkets that are certified as safe; (vi) the number and type of laboratory tests completed on agro-product quality and safety; (vii) changes in farm incomes and poverty incidence; and (viii) social development. The CPMU will confirm achievable targets, firm up monitoring and recording arrangements, and establish systems and procedures no later than 6 months after project inception. Baseline and progress data will be reported by the IPMU, BPMU, and PPMUs to the CPMU at the requisite time intervals, including annual reporting on the environmental management plan.

## **9. Project Review**

58. ADB will conduct regular (at least twice per year) reviews throughout project implementation to assess implementation performance and achievement of project outcomes and objectives, examine financial progress, and identify issues and constraints affecting the Project and work out time-bound action plans for their resolution. ADB and the Government will undertake a midterm review to assess implementation status and take measures (which could include modification of scope and implementation arrangements and reallocation of loan proceeds) as appropriate.

## **IV. TECHNICAL ASSISTANCE**

59. Associated TA will be provided to strengthen project management and develop strategies and options for expanding Viet Nam's biogas program. Part 1 of the TA will provide startup support for the Project, including oversight and capacity building. The oversight function will provide advisory support to the Government on how to effectively implement and monitor project activities related to the quality and safety of agricultural products and biogas development. Part 2 will provide a design for an investment to expand biogas development involving: (i) technical design of biogas plants of varying sizes for farm households and medium- to large-scale commercial livestock farms, based on field testing, demonstration, and applied research activities (para. 39); (ii) determination of credit financing options for different socioeconomic groups; (iii) determination of a geographical expansion plan and strategy; (iv) design of a practical institutional and management structure for expanded biogas development; and (v) development of CDM projects. The estimated cost of the TA is about \$1.8 million, of which

about \$1.5 million will be financed under the Project through an ADB grant, with \$0.3 million financed by the Government in the form of incremental administrative expenses, office space, local travel, and per diem for counterpart staff. The TA will require 103 person-months of consultant services, comprising 46 person-months of international consultant and 57 person-months of national consultant services. All consultants will be recruited by ADB in accordance with ADB's *Guidelines on the Use of Consultants*. Individual consultants will be recruited for part 1, while a firm will be recruited, using the QCBS procedure, for part 2. In view of the highly specialized nature of the consultant inputs a 90:10 quality-cost ratio will be used in consultant selection. Details of the proposed TA are presented in Appendix 9.

## V. PROJECT BENEFITS, IMPACTS, ASSUMPTIONS, AND RISKS

### A. Benefits and Impacts

60. **Project Benefits and Impact on Policy/Strategy Implementation.** The Project is designed to support the Government's effort to implement a comprehensive legal and regulatory framework related to food safety and quality, including a law on product standards, labels, and inspection, ordinance on food hygiene and safety, and the national action plan for food safety. It will also facilitate the implementation of the national strategy for environment protection (2001–2020) which (i) aims to halt the spread of pollution, restore degraded areas, improve overall environmental quality, and ensure achievement of sustainable national development; and (ii) recognizes and guarantees that all citizens are entitled to live in an environment where the quality of the air, land, and water meets standards stipulated by the State. Moreover, the Project will assist the implementation of the national energy policy, which focuses on renewable energy development as a substitute for firewood in line with the forest protection strategy. The Project will provide timely support to the implementation of these policies and strategies along with creation of SAZs and biogas development. These will help realize the main objective of SEDP 2006–2010 to attain middle-income nation status by late 2010.<sup>48</sup>

61. **Socioeconomic impacts.** The project area covers about 3.9 million ha of agricultural land, with about 3.6 million rural households (or an equivalent of 18 million people) in 16 provinces, where the rural poverty incidence is estimated at 25.9% compared to the national average of 22.0% (2005 data).<sup>49</sup> Main benefits attributable to the Project will include:

- (i) incremental benefits from increased crop yields and productivity through adoption of high yield and tolerant seed varieties, IPM, and GAPs. An estimated 6.5 million farmers will directly benefit from the project interventions. The Project is also expected to generate employment for about 1.4 million people involved in the post-production food chain for tea, fruits and vegetables. As a result, the Project will make significant contributions to rural poverty reduction within and outside of the project provinces;<sup>50</sup>
- (ii) health cost savings realized through safe agricultural products (tea, fruits, and vegetables) and improved livestock waste management. It is expected that a significant reduction in the occurrence of food- and waterborne diseases will improve human health in the project area, resulting in increased labor productivity

<sup>48</sup> Detailed policy and economic justifications are in Appendix 10.

<sup>49</sup> The Project's poverty reduction and social strategy is in Appendix 11.

<sup>50</sup> The average poverty incidence in project provinces was estimated to be 25.9%. The project interventions will contribute significantly to reduction of the national poverty incidence (expected to reach about 15.0% by 2010).

- and reduced treatment and hospital costs.<sup>51</sup> Likewise, replacement of charcoal and firewood by biogas for cooking will have direct health benefits to women;
- (iii) cost savings from substitution of biogas-derived energy for firewood, kerosene, coal, and liquefied petroleum gas (LPG) used for cooking and lighting. The Project will contribute to energy savings among rural households as biogas produced by the digesters will serve as an alternative energy source for cooking and lighting. An estimated 40,000 households will benefit from this alternative energy source;
  - (iv) availability of bio-slurry as a safer organic fertilizer than untreated manure.<sup>52</sup> While farmers are currently using manure for their crops, the untreated manure is considered unsafe for water, air, and soil. Although no empirical evidence is available on the incremental impact on crop yields in Viet Nam of bio-slurry versus manure that is otherwise treated, elsewhere bio-slurry has been claimed to be a better fertilizer than artificially treated manure;<sup>53</sup> and
  - (v) reduced water, air, and soil pollution as a result of biogas digester installation and operation, because domestic and livestock wastes will be better managed and treated. It is estimated that the proposed biogas development will reduce CO<sub>2</sub> emissions by an equivalent of about 40,000–60,000 tons of CO<sub>2</sub> per annum.

62. A number of other benefits will be attributable to the Project. First, the combination of food safety and biogas-related activities will create better-paid employment opportunities in local areas and reduce outmigration. Second, improvement in management of operation and maintenance (O&M) activities will reduce the annual O&M costs paid by governments and/or farmers. Third, in addition to adopting IPM and GAPs, participating farmers will exchange experience and skills related to food safety, including production efficiency and productivity. Fourth, women, as a major source of on-farm labor, will be exposed to new farming practices, knowledge and skills, which will improve their social and economic status. Women comprise half of all workers in the agriculture sector, and contribute more hours of labor to cultivation, and processing and marketing of agricultural produce than men. Replacement of charcoal and firewood with biogas for cooking will reduce health risks for women by providing a clean kitchen environment. Finally, project interventions—such as establishment of SAZs and training of farmers regarding GAPs and other farm food safety standards-based practices—will positively impact ethnic minorities in the project area.<sup>54</sup> The Project's gender action plan ensures women will be equitably benefited from the Project (Appendix 12). Detailed analyses are in Appendix 10.

63. Project interventions, including the establishment of SAZs, will not alter the current land holding structure, and are not expected to entail involuntary resettlement. Infrastructure within SAZs will only be constructed on public land or where communities agree to donate their land in exchange for benefits. The Project's social development specialist will undertake a social assessment at each model site in consultation with landowners and stakeholders. A summary poverty reduction and social strategy is presented in Appendix 11.

64. **Environmental Impact.** The Project is designed to contribute to safer, better quality agricultural outputs and reduce health hazards from livestock wastes. The Project has been

<sup>51</sup> According to Viet Nam Food Administration, poisoning from microbiological contamination and excessive pesticides in fruits, tea, and vegetable products accounted for about 30% of all food poisoning cases (Tran Dang, 2008, presentation to food safety working group meeting, 28 March 2008, Viet Nam Food Administration, Ha Noi).

<sup>52</sup> In traditional practice, domestic and livestock waste is collected, piled up and covered with pond mud for about a month before being applied to crops as "organic fertilizer".

<sup>53</sup> Information was derived from the SNV report on biogas operation.

<sup>54</sup> The Project is classified as category B for indigenous peoples.

classified as environmental category B (non-sensitive) in accordance with ADB's Environment Policy (2002). An initial environmental examination (IEE) was carried out to assess the overall project impacts, and revealed no significant adverse environmental impacts. Potential adverse impacts associated with construction or improvement of existing small-scale infrastructure in the established SAZs are temporary, minor, and localized in extent and can be mitigated to acceptable levels. The environmental assessment and review framework (EARF) will guide the environmental assessment, with institutional responsibilities for the subprojects to be identified during implementation. Relevant environmental reports, including a summary IEE, IEE, and EARF, are presented in Supplementary Appendix J.

## **B. Risks**

65. Risks that may hinder realization of the expansion of opportunities to supply safe, quality fruit, vegetable and tea products to the domestic and export markets are: (i) producers of agro-products (i.e., vegetables, fruits, and tea) may not be fully convinced of the need to comply with national and international quality standards; and (ii) promotional strategies may be unable to build consumer trust and confidence and increase awareness and recognition of safe agro-product brands, particularly regarding their certification schemes and logos, because of frequent past food safety scares. These risks would render Vietnamese agro-products unable to compete with foreign-produced agricultural products in the domestic and international markets. The Project is designed to reduce these risks by building institutional capacity for effective regulation and enforcement of standards, and by strengthening the capacity of agricultural production and marketing units along the supply chain, backed by certification, promotion, and an intensive information, education, and communication campaign. The approach will follow the internationally recognized principles of HACCP to assure buyers that all parties involved in producing and handling safe quality products are independently monitored, and that products meet stringent food safety standards. The Project will assist the Government in the continued development and review of standards to meet international market requirements.

66. Successful reduction of risks to agro-product safety and health quality through biogas development will require strong project management capacity and coordination at the provincial level between the DARDs and financial intermediaries. There is also a risk that the Biogas Development Program may be delayed and may not attain the target of 40,000 households due to (i) an inadequate supply of trained masons to construct the biogas digesters, resulting from a lack of interest in participating in the biogas development program; and (ii) failure by targeted livestock producers to avail themselves of credit, due to non-acceptance of the biogas technology. To mitigate these risks, the Project will disseminate information on the Biogas Development Program as well as provide training on masonry. Enhanced support from both the Government and SNV will provide training for masons and households and dissemination of information on biogas technology. In order to ensure that financial assistance is accessible to small livestock production units, the Department of Livestock Production and provincial DARDs will work with partner financial intermediaries to extend microcredit support.

## **C. Sustainability**

67. The institutional backbone of the Project will be formed through establishment of a standing committee on food safety for overall coordination of food safety issues, a food safety monitoring unit at NAFIQAD, a crop food safety management unit at DCP, and subunits for food safety at DARDs. These will not significantly increase staff numbers or other incremental costs. The Government has assured ADB of adequate counterpart funds for project implementation and for O&M of the food safety system, equipment and facilities established and procured under the Project. Ongoing ADB-funded projects will enhance the Project's sustainability (these include the Agriculture Science and Technology Project), and cover: (i) client-oriented

agricultural research and capacity strengthening; (ii) grassroots agricultural extension improvement; and (iii) rural-based technical and vocational training. The Government's Biogas Program aims to enhance technical and promotional capacity for biogas usage in Viet Nam. The Government has assured ADB that the Netherlands-funded project TA for biogas will be expanded in all 16 project provinces. The proposed associated TA for project management and developing strategies and options for expanding the biogas development component into a national biogas program will further enhance project sustainability.

## VI. ASSURANCES

### A. Specific Assurances

68. The Government will ensure that:

- (i) Information, education, and communication activities are carried out in all project provinces to promote the replication of safe agriculture production models and biogas technology application and utilization.
- (ii) Consistent with the decision related to the national action plan for food safety and its implementation directive,<sup>55</sup> and the decree on food safety management,<sup>56</sup> units for food safety monitoring, information, and communication will be piloted at NAFIQAD; food safety units will be piloted at DCP; and subunits for food safety will be piloted at the project province DARDs.
- (iii) Provisions for staff at the central, provincial, district, and commune level in the project provinces will be made to facilitate the implementation of food safety regulations and policies by reassigning or adding responsibilities to existing staff, or identifying new staff to carry out the tasks of food safety specialists and food safety facilitators.
- (iv) Provincial governments complete the identification, designation, and registration of SAZ plans prior to undertaking any physical construction activities under the Project;
- (v) The SNV Support Project to the Biogas Program will be expanded further to the remaining six project provinces i.e., Ben Tre, Binh Thuan, Da Nang, Ho Chi Minh, Lam Dong, and Ninh Thuan. If funding from SNV is not forthcoming (as agreed upon between SNV, the Government, and ADB), the Government will fund expansion of the biogas program to the six project provinces.
- (vi) Partner financial intermediaries will onlend loan proceeds to household borrowers in strict accordance with the criteria agreed upon by the Government and ADB. Subloans to households will comply with terms and conditions, including interest rates being applied by partner financial intermediaries, as may be amended from time to time. Technical and environmental criteria related to biogas will be added to partner financial intermediaries' standard loan eligibility criteria to ensure the Project's targeted clientele is reached. For each household loan, ADB will finance 81.8%, partner financial intermediaries will finance 9.1%, and the household will finance 9.1%<sup>57</sup> of the total cost of a biogas digester.
- (vii) Project activities will not cause significant environmental problems. Any potential adverse environmental impacts will be managed through screening of final

<sup>55</sup> Prime Minister's Decision on the approval of national action plan on the assurance of food safety to 2010 No. 43/2006/QĐ-TTg, dated 20 February 2006; and Prime Minister's Directive on the implementation of urgent methods to assure food hygiene and safety No 06/2007/CT-TTg, dated 28 March 2007.

<sup>56</sup> Government Decree No. 79/2008/NĐ-CP on the system of food safety management, inspection and testing, dated 18 July 2008.

<sup>57</sup> Households provide a contribution equal in value to this percentage in the form of local materials and/or labor.

investment plans, incorporation of appropriate mitigation measures and environmental monitoring during implementation. The Government will ensure that its laws and regulations governing environmental impact assessments, as well as ADB's *Environment Policy* (2002) are followed. If there is any discrepancy between the recipient's laws and regulations and ADB's *Environment Policy*, then ADB's policy requirements will apply. The Government will ensure that MARD, following relevant government internal processes, carries out environmental assessments prior to commencement of civil works. MARD will ensure that the assessments (a) meet EARF requirements, and (b) include details of local consultations. MARD will ensure that environmental assessments are made available at the PPMU office of each subproject province in a local language for the public and other interested parties before the relevant subproject starts.

- (viii) Project interventions will have no resettlement impact. Construction of new facilities will be carried out on existing sites on public land, free from all encumbrances, habitation, dispute or controversy, and proposals for civil works will include confirmation that no land acquisition or resettlement will be required under the Project. In the event of unforeseen land acquisition or involuntary resettlement, the Government will immediately inform ADB and prepare the necessary planning documents in compliance with ADB's *Involuntary Resettlement Policy* (1995).
- (ix) Project activities will be implemented in line with the proposed gender action plan. Women and men will be remunerated equally for work of equal value and child labor will not be allowed.
- (x) All project activities to be funded under the project will give special consideration to the participation and practices of ethnic minorities in compliance with ADB's *Policy on Indigenous Peoples* (1998). In the event that indigenous people are beneficiaries of any subproject, particularly SAZs, MARD will ensure that (a) all ethnic minority groups in and around the proposed subproject locations are consulted on their willingness to participate and on the suitability of the sites and subproject activities, and are given equal opportunity to participate in subproject activities, including training; and (b) the outcome of the consultation is summarized in the subproject investment plans or subproject feasibility study.

## **B. Condition for Loan Effectiveness**

69. The provincial people's committees (PPCs) of the 16 project provinces establish the PPMUs, and MARD establishes the IMPU and BPMU.

## **VII. RECOMMENDATION**

70. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and, acting in the absence of the President, under the provisions of Article 35.1 of the Articles of Agreement of ADB, I recommend that the Board approve the loan in various currencies equivalent to Special Drawing Rights 62,405,000 to the Socialist Republic of Viet Nam for the Quality and Safety Enhancement of Agricultural Products and Biogas Development Project from ADB's Special Funds resources with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan Agreement presented to the Board.

21 February 2009

C. Lawrence Greenwood, Jr.  
Vice President

## DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b> Sustainable and equitable growth of the agriculture sector</p>	<p>Contribution to annual increases during 2016–2020 in Viet Nam's aggregate agriculture sector value added of about 3.0%–3.2%, and agricultural exports of about 12.3%–14.3%, in line with the Government's 5-Year Socio-Economic Development Plan (SEDP)</p>	<p>National income and export statistics</p> <p>Monitoring by the Ministry of Planning and Investment (MPI) and the Ministry of Agriculture and Rural Development (MARD)</p>	<p><b>Assumptions</b> Medium-term macroeconomic policy for balanced growth is maintained by the Government</p> <p>Positive economic impacts resulting from the SEDP are effectively disseminated to poor communities</p> <p><b>Risks</b> Slow progress in the provision of government support for rural infrastructure development</p> <p>Government priority shifts away from agriculture sector development</p>
<p><b>Outcome</b> Improved quality and safety of agricultural products of Viet Nam</p>	<p>Production, postharvest handling, and trading of safe vegetables, fruits, and tea doubles by 2015 from the levels in 2009</p> <p>About 20% of the total vegetable, fruit, and tea production processed by accredited laboratories is certified safe by 2015</p> <p>Incidence of food poisoning related to unsafe vegetables, fruits, and tea (including gastro-enteric diseases due to unmanaged livestock waste) decreases by 30% by 2015 from the level in 2009</p> <p>Medical treatment cost due to food-borne diseases reduced by about \$30 million/year by 2013</p>	<p>CPMU and PPMU monitoring reports</p> <p>DARD and NAFEC annual reports on safe agriculture</p> <p>Annual reports on agriculture-related analytical services from laboratories of MARD, DARD, and MOST.</p> <p>Annual reports of the Viet Nam Food Administration</p> <p>Provincial DOH annual reports on food-borne diseases</p> <p>Annual biogas user survey</p>	<p><b>Assumptions</b> Government commitment to improving food safety and quality through market-oriented systems is sustained with adequate budgetary support</p> <p>Price differential and market signals encourage viable adoption of good agricultural practices</p> <p><b>Risk</b> Ineffective promotion or certification fraud undermines consumer and market confidence in safe certification schemes</p>
<p><b>Outputs</b> 1. Improved regulatory framework and fully operational quality and safety system for agro-products</p>	<p>All policies and regulations on quality and safety of agricultural products assessed by 2010</p> <p>10 new decisions and/or regulations on state management of food safety from central to local level are implemented by 2013</p> <p>A standing committee on food safety chaired by a vice minister is established at MARD by 2010</p> <p>Specialized units on food safety are established in NAFIQAD, DCP and DARDs by 2010</p>	<p>CPMU reports and document records</p> <p>MARD decrees and decisions on food safety and quality</p> <p>CPMU training completion reports</p> <p>Standard committee on food safety membership lists and minutes of meetings</p> <p>GAP standards committee membership list and minutes of meetings.</p>	<p><b>Assumption</b> Institutions have an appreciation for and feel the need to improve policy and regulatory framework for food quality and safety</p> <p><b>Risk</b> Trained staff on quality and safety do not remain in their respective positions and institutions and do not perform the duties they are trained for</p>

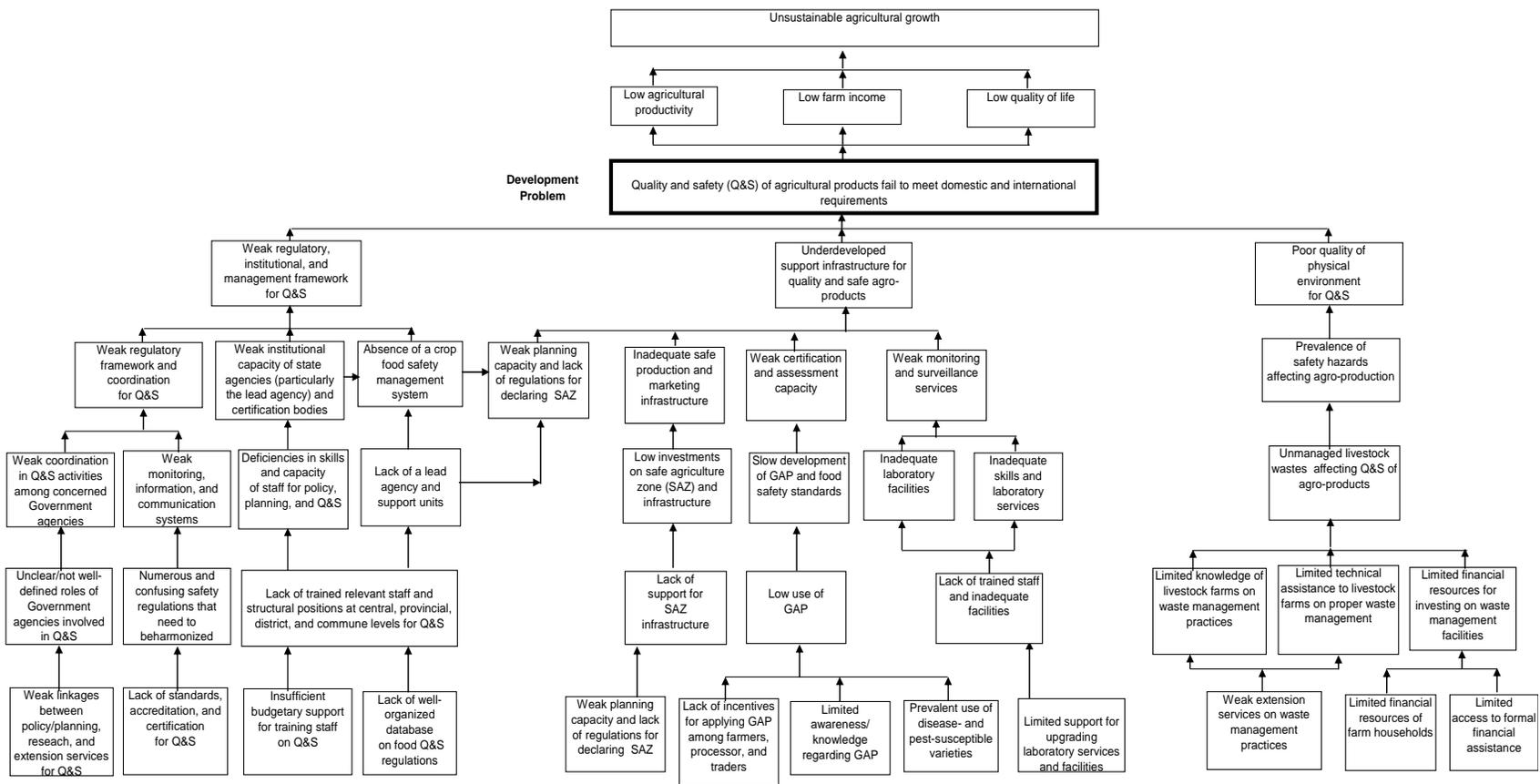
Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
	<p>A food safety monitoring system is enhanced under NAFIQAD and a provincial food safety index is introduced in 16 provinces by 2011</p> <p>130 staff in relevant MARD and 140 in DARDs departments are trained in food safety and quality certification systems management during 2010–2015</p> <p>At least 20 certification bodies for safe vegetables, fruits, and tea are accredited and servicing the project provinces during 2010–2015.</p> <p>20 new GAPs standards for vegetables, fruit, and tea are tested with certified users and reviewed annually by the GAP standards committee during 2010–2015</p>		
<p>2. Infrastructure and facilities for quality and safety of agro-products.</p>	<p>Three demonstration sites (one each for safe production, primary processing/packing and trading) are established in each project province SAZ during 2010–2015</p> <p>At least 35% of safe production areas covered by the Project are assessed for safety and included in SAZ planning schemes by 2015</p> <p>At least 25% of SAZs have market access roads, electricity, safe water, waste disposal, and safe packing, primary processing, and marketing infrastructure by 2015</p> <p>At least 500 production, processing, and marketing enterprises are certified by 2012</p> <p>100 staff in each province trained on GAP, food safety system management and certification during 2010–2015</p> <p>20 pest and disease-tolerant fruit and tea varieties produced to replace susceptible varieties, and at least 35% of the total area targeted for safe variety replacement is achieved by 2015</p> <p>A total of three laboratories upgraded to serve south, central and northern regions during 2010–2015</p>	<p>Provincial people's committee documentation of planning zones</p> <p>Certification body monitoring and certification records</p> <p>CPMU and PPMU quarterly reports</p> <p>Operating records of safe food producer groups and enterprises</p> <p>Provincial DARD and NAFEC quarterly and annual reports</p>	<p><b>Assumption</b> Certification bodies have sufficient commercial interest and capacity to service the project area</p> <p><b>Risk</b> Government is unable to control industrial pollution in areas where SAZs are located, thus rendering these ineffective</p>

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
<p>3. Biogas development for clean energy, improved agro-product safety and reduced health hazards from livestock wastes</p>	<p>40,000 new household biogas units are operating in 16 provinces by 2015</p> <p>Financial assistance and training provided to 40,000 farm households to ensure safe and effective biogas unit construction, operation, and safe use of biogas and slurry and waste by 2015</p> <p>16 provinces have incorporated livestock into SAZ registered planning schemes by 2010</p> <p>Applied research and development contracts to advise and assist all DARDs implement demonstrations are completed, and designs for medium- and large-scale biogas systems have been established and evaluated by 2011</p> <p>Five medium- or large-scale biogas demonstration units have been established and evaluated by 2011 and another five units by 2012</p> <p>40,000 farm households have access to bank loans for establishment of biogas units and are able to repay</p>	<p>Construction quality and safety inspection records</p> <p>CPMU and PPMU quarterly progress reports</p> <p>Project procurement records</p> <p>Benefit and impact monitoring reports</p> <p>Service bank loan records</p>	<p><b>Assumptions</b> Livestock farmers have suitable sites available.</p> <p>There is sufficient demand for credit for biogas investment.</p> <p><b>Risks</b> Adequate counterpart funds are not made available on time by Government.</p> <p>Funds reserved by farm households for credit repayment are utilized for other purposes.</p>
<p>4. Effective project management support established at central and provincial levels.</p>	<p>CPMU established and operational with staff and facilities in MARD by 3<sup>rd</sup> quarter (Q3) of 2009</p> <p>PMU for institutional and regulatory development established at the DCP and operational with qualified staff by Q3 2009</p> <p>BPMU for biogas development established at the DLP and operational with qualified staff by Q3 2009</p> <p>PPMU for quality and safety established and operational with qualified staff in 16 provinces by Q3 2009</p> <p>Project performance and monitoring system operating effectively by 2010</p>	<p>CPMU and PPMU quarterly progress reports</p> <p>Project procurement records</p> <p>Project review missions</p> <p>Project completion report</p>	<p><b>Assumptions</b> Qualified CPMU and PPMU/IPMU/BPMU staff are appointed on time and most stay with the Project throughout its implementation</p> <p>Sufficient number of qualified and experienced staff available in MARD and DARDs</p> <p><b>Risk</b> Adequate counterpart funds not made available on time</p>

Activities with Milestones	Inputs
<p>1.1 MARD issues 10 new decisions and/or appended regulations on state management of food safety from central to local level by 2013.</p> <p>1.2 Establish a standing committee on food safety chaired by a vice minister at MARD by 2010.</p> <p>1.3 Establish specialized units on food safety at NAFIQAD, DCP and DARDs by 2010.</p> <p>1.4 Establish a food safety monitoring system under the leadership of NAFIQAD and a provincial food safety index is introduced by 2011.</p> <p>1.5 Establish at least 20 certified bodies for safe vegetables, fruits, and tea in the project provinces during 2010–2015.</p> <p>1.6 Test about 20 new GAPs standards for vegetables, fruits, and tea with certified users and submit for review annually by GAPs standards committee during 2010–2015.</p> <p>2.1 Establish 1–3 demonstration sites in each province SAZ during 2010–2015.</p> <p>2.2 Assess 35% of agro-production areas under the Project for safety and include them in SAZ planning schemes during 2010–2015.</p> <p>2.3 Build market access roads, electricity, safe water, waste disposal, safe packing and primary processing, and safe marketing infrastructure in at least 25% of SAZ areas by 2015.</p> <p>2.4 Certify a total of 500 production and marketing enterprises by 2012.</p> <p>2.5 Train a total of 100 staff (at least 30% are women) in each province trained on GAPs, food safety system monitoring, assessment, and certification by 2010.</p> <p>2.6 Upgrade a total of three regional laboratories for food safety by 2010.</p> <p>2.7 Introduce a total of 20 pest and disease tolerant fruit and tea varieties, and replace susceptible varieties in least 35% of the area by 2015.</p> <p>3.1 Develop biogas on 16,000 farms by 2010 and on 40,000 farms by 2015 in 16 provinces.</p> <p>3.2 Support credit financing for construction of 16,000 farm biogas units by 2010 and 40,000 farm biogas units by 2015 in 16 provinces.</p> <p>4.1 Make the CPMU and PPMUs operational, equipped, and staffed by Q3 2009.</p> <p>4.2 International consultants engaged by Q4 2009.</p> <p>4.3 National consultants engaged by Q4 2009.</p> <p>4.4 Develop the project performance monitoring system by Q1 2010.</p> <p>4.5 Organize project inception workshop and submit inception report to ADB by Q4 2009.</p> <p>4.6 Prepare quarterly and annual progress reports and submit to ADB on a regular basis.</p> <p>4.7 Undertake baseline surveys in all project provinces by Q2 2010.</p>	<p>Total costs: \$110.39 million</p> <p>Inputs by expenditure category:</p> <ul style="list-style-type: none"> <li>• Materials—\$12.21 million</li> <li>• Civil works—\$50.87 million</li> <li>• Research and development—\$3.60 million</li> <li>• Training, workshops, and overseas study tours—\$8.35 million</li> <li>• Equipment, vehicles, and furniture—\$18.16 million</li> <li>• Consulting services—\$2.10 million</li> <li>• Design and supervision, M&amp;E, and certification—\$7.08 million</li> <li>• Project auditing—\$0.52 million</li> <li>• Recurrent costs—\$5.82 million</li> <li>• Interest during implementation—\$1.68 million</li> </ul> <p>Inputs by financiers:</p> <p>ADB—\$95.00 million  Central Government—\$6.22 million  Provincial people's committees—\$6.47 million  Partner financial institutions—\$1.35 million  Beneficiaries of biogas component—\$1.35 million</p> <p>TA cost: \$1.80 million  ADB—\$1.50 million  Government—\$0.30 million</p>

ADB = Asian Development Bank, BPMU = biogas project management unit, CPMU = central project management unit, DARD = Department of Agriculture and Rural Development, DCP = Department of Crop Production, DLP = Department of Livestock Production, DOH = Department of Health, GAP = Good Agricultural Practices, IPMU = institutional project management unit, MARD = Ministry of Agriculture and Rural Development, M&E = monitoring and evaluation, MOST = Ministry of Science and Technology, NAFEC = National Agricultural and Fisheries Extension Center, NAFIQAD = National Agro-Forestry and Fisheries Quality Assurance Department, PPMU = provincial project management unit, SAZ = safe agricultural zone, SEDP = socio-economic development plan, TA = technical assistance.

### PROBLEM TREE ANALYSIS



GAP = good agricultural practice, Q&S = quality and safety, SAZ = safe agricultural zone. Source: Asian Development Bank.

## SECTOR ANALYSIS

### A. Agriculture Sector Situation

1. During 2001–2006, Viet Nam's gross domestic product (GDP) grew at an average of 7.8% per year. In per capita terms, this was equivalent to about 6.7% per year, implying a rise in GDP per capita from \$415 to \$725 over the same period. The country's agriculture sector also grew steadily at an annual growth rate of 4%, despite generally weak international commodity prices, especially over the last 3 years, and contributed about 20.4% to national GDP in 2006. Crops constitute about 59% of the total agriculture sector production value, followed by fisheries (19%), livestock (17%), and forestry (5%). Among major crops, the average annual production growth rates of vegetables (6.2%), fruits (3.5%), and tea (11.8%) were robust, and contributed significantly to the growth in the country's agricultural product exports. Among Southeast Asian countries, Viet Nam has emerged as the largest tea producer, second in the production of vegetables, and third in fruit production, due mainly to growth and expansion of commercial farms and small-scale agro-enterprises. The development of the livestock industry has likewise been vigorous in past years, both in quantity and size. Despite growth in the crop and livestock subsectors, however, the poverty incidence remains higher in rural than in urban areas,<sup>1</sup> and the level of private sector investment remains low.

2. Agriculture sector growth over the past decade, particularly in crops, can be attributed to a combination of: (i) the Government's market-oriented economic policy, which was launched in 1986 and led to progressive decontrol of prices and market functions, recognition of farm households as the key unit of production and marketing, and liberalized land-use rights; (ii) increased public investment in irrigation systems; and (iii) increased use of land, labor and agro-chemicals and fertilizers, particularly in rice production. Continued heavy reliance on increased public spending on irrigation systems, however, will not be able to sustain agricultural growth in light of the diminishing marginal returns from new irrigation investments and the substantial cost of operating and maintaining these systems. Moreover, further increases in agricultural production, especially rice, are now being constrained by increasing input prices, declining revenues from rice exports due to weak international prices, limits to productivity of agricultural inputs and financial capacity of farmers, and limits on further expansion of the rural labor force and land for agricultural cultivation.

3. Agriculture provides employment for about 57% of the country's workforce, mainly from rural areas, where about 73% of the population resides and where most of the poor (about 70%)<sup>2</sup> are located.<sup>3</sup> An alternative strategy for sustainable agricultural growth is needed to support the country's economic growth and attainment of its poverty reduction targets. This strategy will require the development of: (i) diversified farming systems that are adaptable to varied agro-ecological conditions; and (ii) more locally driven, productivity-based improvements in quality and safety for increased value and competitiveness of agricultural products, particularly high-value crops. There is growing interest in supporting commercial production of annual and perennial crops (e.g., vegetables, fruits, and tea) that have exhibited rapid growth, with improved access to domestic and international markets. This is reflected by the expansion of areas under these crops, while areas under food grain cultivation have declined significantly

<sup>1</sup> For example, in rural Son La, the poverty incidence is 46%, while in Ho Chi Minh City, the poverty incidence is 4%. Source: Vietnam General Statistics Office. 2007. *Statistical Yearbook of Vietnam 2006*. Ha Noi.

<sup>2</sup> The World Bank. 2006. *Viet Nam Household Living Standards Survey, 2006*. Ha Noi.

<sup>3</sup> ADB. 2007. *Key Indicators of Developing Asian and Pacific Countries – Viet Nam*. Manila.

over the past decade.<sup>4</sup> Moreover, the Government now accords high priority to quality and safety improvements at all stages of the value chain (from production to retail), in response to demand by consumers for higher and stricter food quality and safety standards. However, many important issues relating to agricultural diversification and food quality and safety still need to be addressed by the Government to enable agricultural producers/traders to effectively tap domestic markets and compete globally.

4. Key constraints to further increases in agricultural production and improvements in the efficiency of agricultural product marketing include low product quality, poor marketing, weak bargaining power, and unsafe production zones.<sup>5</sup> These constraints are compounded by the lack of knowledge on the part of farmers, primary processors, and traders regarding food safety hazards and techniques to address them. The competitiveness of the agriculture sector is also adversely affected by small farm sizes and fragmented landholdings, which constrain economies of scale, the development of stronger business models, and the provision of postharvest facilities. In light of these constraints, efforts to enhance sector competitiveness should be based on an overall strategy for improving access by major players to advanced production and postharvest technology and more efficient marketing. These efforts must be complemented by the establishment of higher/stricter quality and safety standards for agricultural products, and provision of services to facilitate access to financial assistance for the development of small and medium-scale enterprises, as well as the creation of safe agricultural zones<sup>6</sup> to protect productive land from competing land development demands.

5. The trend away from food crop monoculture and toward crop diversification is expected to continue as the country's economy increasingly integrates with the world market through membership in the World Trade Organization (WTO) and regional free trade agreements among Southeast Asian countries. An immediate challenge facing Viet Nam is meeting WTO commitments related to the Sanitary and Phytosanitary (SPS) Agreement.<sup>7</sup> Viet Nam agreed to fully comply with the SPS Agreement immediately upon its accession to the WTO.<sup>8</sup> The SPS agreement requires that Viet Nam notify WTO members of changes to Vietnam's SPS measures and of proposed changes that are not consistent with an agreed international standard, so that countries that will be potentially affected by the proposed measure can be consulted during the drafting process. Viet Nam will need to strengthen the capacity of its newly established SPS notification authority and inquiry point to enable it to answer questions related to SPS measures.

<sup>4</sup> For example, the area devoted to vegetables doubled from about 300,000 hectares (ha) in 1994 to about 605,000 ha in 2004. The growth in production of vegetable soybeans (10.5%) and pomelo (15.5%) was also notable. Total area under food grain production in 2000 was about 8.4 million ha, declining to about 8.3 million ha in 2007.

<sup>5</sup> These are agricultural production areas assessed as having high levels of pollution and contamination as well as inadequate safe water and market access infrastructure.

<sup>6</sup> These are agricultural lands that are safeguarded from excessive microbiological, chemical, and heavy metal pollution and contamination.

<sup>7</sup> SPS measures include "any measure: to protect human or animal life or health from risks arising from additives, contaminants, toxins or disease-causing organisms in food, beverages or foodstuffs; to protect human life or health from risks arising from diseases carried by animals, plants or products thereof, or from the entry, establishment or spread of pests; to protect animal or plant life or health from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organism or disease causing organisms." (Source: Vergano, P. 2003, *Vietnam's Implementation of the Transparency Provisions under TBT and SPS Agreement*, EU, MUTRAP). Ha Noi. The SPS agreement includes "all relevant laws, decrees, regulations, requirements and procedures including, inter alia, end product criteria; process and production methods; testing, inspection, certification and approval procedures; quarantine treatments related to food safety."

<sup>8</sup> In contrast, all other developing countries, including Cambodia and the People's Republic of China (which only recently joined the WTO), were given a transition period to comply with WTO agreements. Source: Oxfam. 2005. *Minding the Gap: Countdown to Viet Nam's Accession to the WTO*. Ha Noi.

6. Exporters and other businesses also need to be made more aware of the importance of implementing Codex Alimentarius<sup>9</sup> and WTO directives, as well as the need to certify that other standards set by individual trading partners have been met. Mechanisms to trace suppliers need to be strengthened, so non-compliant sources can be determined and action taken against these suppliers. Greater capacity will be needed to ensure that domestically produced products meet international standards.<sup>10</sup> The capacity of MARD staff to deal with these trade policy and enforcement issues requires strengthening.

7. As Viet Nam becomes progressively integrated into international markets, future agriculture sector growth will depend heavily on improved postproduction activities (i.e., grading, processing, and marketing) and measures to meet more stringent market requirements for quality and safety. Agro-industries will play a vital role in the development of export markets, leading to further product development and expansion of other sectors. However, these agro-industries will increasingly rely on farmers for a reliable and secure supply of raw materials of consistent quality and safety, and will need to provide attractive terms and support services for these supplier farmers. In addition, the Government needs to sustain efforts to improve the performance of state-owned enterprises under the State-Owned Enterprises Law, and further liberalize markets in order to promote viable private business opportunities in Viet Nam.

8. Another important aspect of the agricultural economy is the rapid growth in the livestock subsector, which accounts for about 17% of the total agricultural production value, and has grown at an average annual rate of 14% during 2001–2006,<sup>11</sup> mainly as a result of swine production, which comprises about 80% of total livestock production.<sup>12</sup> Most of this production takes place within an integrated crop, livestock, and fish pond system, and up to 40% of households grow both livestock and vegetables.<sup>13</sup> The rapid recent growth in the livestock population has increased concerns regarding the adverse impacts of traditional livestock waste disposal methods, particularly on environmental quality, including water, soil, and air, and the subsequent impacts on the quality and safety of agricultural crops and other agro-products. To address this concern and to develop alternative and clean energy sources the Government, through a grant provided by the Government of the Netherlands,<sup>14</sup> initiated its national biogas program in 2003 to contain and improve the management of livestock waste disposal in selected provinces. The program was designed to mitigate and avert further environmental pollution in major livestock production areas, and thereby ensure the quality and safety of agricultural food products such as fruits and vegetables. It also aimed to improve the health of the affected population. The program has attained nationwide success, mainly as a result of: (i) a well-established legal framework for program implementation and cooperation among relevant government agencies, participating nongovernment organizations (NGOs), and private organizations; (ii) application of appropriate technology that small farm investors can afford; and

<sup>9</sup> Viet Nam had adopted about 60% of CODEX standards relating to food and foodstuffs as of 2005, and planned to adopt all remaining ones (Source: Ministry of Trade/European Union. 2005. *Viet Nam: Needs Assessments for Trade Related Assistance in the Period 2007–2010*. Ha Noi. p. 131).

<sup>10</sup> Viet Nam's fresh fruit and vegetable standards, for example, do not currently meet internationally recognized standards. Source: Ministry of Trade/European Union. 2005. *Viet Nam: Needs Assessments for Trade Related Assistance in the Period 2007–2010*. Ha Noi. p.130.

<sup>11</sup> General Statistics Office of Viet Nam. Available <http://www.gso.gov.vn>

<sup>12</sup> United States Department of Agriculture. 2005. *Foreign Agricultural Service*. Annual Livestock and Products Report. Ha Noi (September).

<sup>13</sup> Report and Recommendation of the President to the Board of Directors on a Proposed Loan and Grant Assistance to the Socialist Republic of Vietnam for the Central Region Livelihood Improvement Project, November 2001.

<sup>14</sup> *Biogas Program for Animal Husbandry Sector in Vietnam*, granted by the Government of the Netherlands' official development assistance, which is implemented by the Livestock Production Department, MARD, with technical support from the Netherlands Development Organization in Vietnam (SNV).

(iii) extensive training and promotion. A total of 45,000 biogas plants have been constructed under the program in 30 provinces during 2003–2007. Increasing demand for biogas technology among small farm households has resulted in implementation of a second phase (until 2011). Despite the growing demand for biogas technology among farmers, research and development in the design and financial viability of various sizes of biogas plants, particularly medium and large biogas plants, is still needed.

9. The Government recognizes that continued agricultural growth will require both diversified farming systems (i.e., crop and livestock farming systems) appropriate for varied agro-ecological conditions and more locally driven improvements in competitiveness, quality and safety, and the value of agro-products. Consequently, the Government has aimed to (i) promote production and processing of high-value products; (ii) improve agricultural research, extension, and market-information services; (iii) intensify efforts to ensure better product quality and food safety based on sound agricultural practices; and (iv) promote competitive business and agro-based products. The proposed Project is consistent with Government's efforts to address these concerns and issues and is envisioned to contribute significantly to its strategy for improving the quality and safety of agricultural products.

## **B. Quality and Safety Improvement Issues**

10. Current achievements in production growth are unfortunately being undermined by high environmental and health risks resulting from excessive fertilizer use (on average about 220 kilograms/ha)<sup>15</sup> by Viet Nam's farmers, which is one of the highest input rates in Asia and the Pacific. Crop yields have not increased in recent years despite substantial increases in fertilizer and agro-chemical usage, which has in turn been found to increase environmental and health risks.<sup>16</sup> Moreover, the lack of appropriate production management, particularly with regard to disposal of livestock waste in densely populated areas, has contaminated water, land, and air, and greater effort must be expended to contain and improve livestock waste disposal, and to promote effective waste treatment/management technology. An estimated 73 million tons of livestock waste are improperly disposed of annually into ponds, channels, sewers, etc., or left in fields, which eventually pollutes the surrounding areas. About 90% of wastewater samples taken from livestock farms did not meet applicable standards (TCVN5945-1995), especially with regard to biological oxygen demand and chemical oxygen demand levels.<sup>17</sup> Moreover, if left untreated, the waste is estimated to emit some 17.52 million tons of CO<sub>2</sub>.<sup>18</sup>

11. As a consequence, these biological contaminants have created serious environmental problems that have adversely affected the health of the affected communities. Frequent incidents of environmental damage and poisoning from agro-chemicals and biological contaminants have made consumers more conscious of the need for higher/stricter quality and safety standards for marketed agricultural products. Although a growing number of processors and exporters have modern value chains and established quality and safety certification systems that meet export market requirements,<sup>19</sup> and are certified and audited by international

<sup>15</sup> FAO. 2007. *Selected Indicators of Food and Agriculture in Asia Pacific 1996-06, RAP 2007/15*. Rome.

<sup>16</sup> Surveys conducted during 2005–2007 by the MARD Plant Protection Department observed that about 75% of oranges, grapes, and mangos grown in various areas of Viet Nam had excessive pesticide levels. For beans and leafy vegetables, the incidence of excessive pesticide levels was observed to decrease from 50% to 15%–30% during 2000–2005.

<sup>17</sup> Ministry of Agriculture and Rural Development. 2008. *Feasibility Study - Biogas Program for the Animal Husbandry Sector in Vietnam 2007–2011*. Ha Noi (14 January).

<sup>18</sup> Assumes that a ton of manure managed using traditional methods will emit about 0.24 tons of CO<sub>2</sub> equivalents.

<sup>19</sup> Such as GlobalGAP, Codex Alimentarius food safety HACCP, and ISO 22000.

certification bodies, a considerable portion of farmers remain outside this system and grow and sell inferior products in the open market. These “free producers” not only bring average prices and quality down, but inevitably add to the contamination risk faced by exporters, processors, and consumers, and contribute to negative environmental and public health impacts. These issues will not be effectively addressed in the absence of a domestic “safe food” supply framework/strategy; if left unchecked, they will continue to negatively impact the environment and public health.

12. The need for improvements in product quality and food safety has also become a critical issue in the context of improving Viet Nam’s global competitiveness, which will necessitate the elimination of inefficiencies in product marketing and procurement of input supplies, and in other factors that contribute to the increased cost (to Government and the private sector) of providing agricultural support services. Moreover, the lack of appropriate production management, particularly with regard to disposal of livestock waste in densely populated areas, has resulted in serious environmental problems (through water, land, and air pollution), with consequential adverse impacts on the health of the affected communities.

### **C. Policy and Institutional Issues**

13. The Government’s policy focus must shift from increasing production volume to promoting higher product value and income, if Viet Nam’s farmers, processors, and traders are to be able to effectively tap domestic and remain competitive in international markets. In this context, rapid improvement of quality and safety of agricultural products (particularly for vegetables, fruits, and tea) is required to address the needs of client farmers and enterprises in order to benefit from (i) improved product quality, (ii) better skills to deal with complex supply chains and sophisticated markets, (iii) efficient processing and postharvest operations and innovative marketing skills, and (iv) improved collaboration between private and public sectors. The Government decreed 2008 as the year of quality and safety for agricultural products, and established the National Agro-forestry and Fisheries Quality Assurance Department (NAFIQAD),<sup>20</sup> with wide responsibility for formulating and implementing regulations. In addition, a food safety and agricultural health action plan has been developed, and the provincial departments of agriculture and rural development (DARDs) are strongly committed to strengthening their capacity to implement the quality and safety improvement projects.

14. The attainment of targets set under the Government’s new policies and strategies relating to food safety and good agricultural practices—Vietnam good agricultural practices (VIETGAP) is a new concept being promoted by Government agencies among producers, processors, and traders—will be constrained by several issues: (i) farmers, government officials, consumers, and the general public have limited understanding of and training in food safety; (ii) there is a shortage of research scientists working on food safety, resulting in limited information available to extension staff on VIETGAP and Global Good Agricultural Practices (GLOBALGAP);<sup>21</sup> (iii) linkages between research, Department of Plant Protection (DPP), extension services, and farmers are weak; (iv) the operating budget provided to extension and plant protection staff for the conduct of monitoring, supervision, and field demonstrations relating to vegetables, fruits, and tea is insufficient; (v) production units are small and fragmented, and farmers operate individually, with little incentive to adopt VIETGAP; (vi) a

<sup>20</sup> MARD Decision no. 29/2008/QĐ-BTS, 28 Feb. 2008.

<sup>21</sup> Standards for good agricultural practices (GAPs), drafted for vegetables, tea and fruits in early 2008, provide a basic safe production compliance code for farmers and therefore meet exporter/processor basic requirements for HACCP or other international safety and quality standards.

regulatory framework to facilitate domestic adoption of and compliance with international food safety standards does not exist, and no agency has a clear mandate for public sector crop inspection and certification; (vii) existing laboratories have limited capacity to undertake plant tissue testing, due to a shortage of qualified staff and operating funds; and (viii) the laws and regulations provide limited ability to enforce penalties imposed on violators, and penalties are often not enforced in any case. These have discouraged consumers from paying premium prices for safe, high quality food due to a lack of assurance regarding food quality, and limited awareness of safety or the availability of cheaper alternatives.

15. The Government has laid out strategies for sustainable development and environmental protection, in support of its regulatory efforts and reform initiatives. For example, the Sustainable Development Strategy (Viet Nam Agenda 21) for harmonization of economic, social, and environmental development is a general activity framework designed to shift Viet Nam towards a sustainable development path. It considers environmental protection and improvement as crucial elements in the development process. The national strategy for environment protection (2010–2020) aims to halt the spread of pollution, restore degraded areas, improve overall environmental quality, and ensure achievement of sustainable national development. It also recognizes and guarantees that all citizens are entitled to live in an environment where air, land, and water quality meet state standards. The national energy policy focuses on the development of renewable energy that may substitute for firewood, in line with the Government's forest protection policy and strategy. This policy is complemented by the renewable energy action plan of the Ministry of Industry which has a focus that includes the development of renewable energy sources, with priority given to biogas development as an efficient energy source for rural and mountainous areas. The Project is consistent with the ideals of these strategies and policies. It is also in line with the Government's Socio-Economic Development Plan (SEDP) 2006–2010, which is intended to guide Viet Nam to middle-income nation status by late 2010.

16. A number of regulations specify the functions and responsibilities of various MARD departments related to policy formulation, management, monitoring, inspection, communication, accreditation, and development of standards related to food safety. However, the existing regulations provide insufficient clarity on three key institutional issues, namely (i) who will take the lead in coordinating the efforts of various departments, (ii) who will take the lead in monitoring, and (iii) how the food safety management system will be managed.

17. **Internal and External Coordination.** Internally, various MARD departments are mandated with monitoring (e.g., the Department of Crop Production [DCP] and NAFIQAD) and all departments are mandated with communication and policy formulation. It is unclear, however, which department will take the lead in coordination and how various efforts will be harmonized. Externally, MARD needs to coordinate its activities on food safety with other key ministries, most notably the Ministry of Health, the Ministry of Science and Technology, the Ministry of Industry and Trade, the Ministry of Planning and Investment, and various key organizations such as the Viet Nam Food Administration and the Directorate for Standards and Quality. For example, the development of national food standards is managed by Directorate for Standards and Quality, but requires considerable input from MARD. MARD currently lacks a body to coordinate with external agencies.

18. **Monitoring.** Existing regulations indicate monitoring is the responsibility of all MARD departments. NAFIQAD is mandated with supervising specialized monitoring activities by other departments, but no actual monitoring system—with specific resources, budgets, and tools—is

in place that is capable of producing regular reports on various aspects of food safety to allow progress assessments and measure achievement of food safety policy objectives.

19. **Management.** Development of an effective food safety management system requires establishment of operational structures. Currently, no food safety units exist, either at the central (MARD) or provincial (DARD) levels. Staff engaged in food safety are usually involved in other activities and not fully specialized in food safety. At MARD, for example, standards and practices for safe production of fruits, vegetables, and tea have been established and a body of related regulations has been developed. However, there are only three part-time staff at DCP involved in these activities, while the department itself is charged with numerous functions and responsibilities including policy formulation, accreditation of certification bodies, monitoring and inspection, communication, promotion of safe agricultural zones, and training.

#### **D. Regulatory Issues**

20. In view of these problems and issues, the need to strengthen the country's regulatory framework and institutional capacity to enforce regulations for food quality and safety has been given the highest priority by the Government. Its accession to the WTO in November 2006 accelerated implementation of the Government's action programs for streamlining over 200 food safety regulations, which need to be reviewed, consolidated, and harmonized to avoid confusion. Considerable work still needs to be done to establish a comprehensive regulatory framework, most of which is expected to be carried out under the action plan for food safety, 2008–2012. The Government also aims to harmonize 50% of all standards in Viet Nam to conform to international food quality and safety standards. In this regard, the capacity of accreditation organizations (such as DCP and the DARDs) will need to be strengthened, as most of the staff involved in accreditation lack an adequate background on food safety and accreditation and certification. There is likewise limited coordination between MARD and the Ministry of Health in quality and safety inspection activities. The monitoring and inspection procedures and system need to be streamlined, and staff capacity to carry out this task strengthened, together with the laboratory system, which is needed to provide support at the regional and local levels.

## EXTERNAL ASSISTANCE

Project Title	Duration	Source	Objectives	Grant/Loan	Amount (\$ million)
Agriculture Science and Technology	2007–2012	ADB	Improve and modernize the Agriculture Science and Technology system and institutions as well as the capacity of their staff, reserachers, and other stakeholders.	Loan	30.0
Agricultural Sector Development Program	2002–2007	ADB	Support policy and institutional reforms to develop an environment for market-based agricultural and agro-industry development.	Loan	90.0
Tea and Fruit Development Project	2000–2006	ADB	Increase farm income and raise the value of agricultural production through tea and fruit development.	Loan	40.2
Livestock Competitiveness and Food Safety Project	Pipeline for 2008	WB	Strengthen capacity of public and private sector institutions to provide support services and infrastructure to small and medium farms.	Loan	75.0
Agricultural Competitiveness Project	Pipeline for 2009	WB	Improve the competitiveness, entrepreneurship, and organization of farmers in the central region of Viet Nam.	Loan	55.0
Food and Agricultural Products Quality Project <sup>a</sup>	2005–2010	CIDA	Food safety, farm product value, and trade development (SPS export requirements and quality standards).	Grant	16.0
Agriculture Sector Programme	2000–2007	DANIDA	Capacity-building at the Ministry of Agriculture and Rural Development and improvement of quality and safety in fisheries products.	Grant	46.5
Support Collaboration for Agriculture and Rural Development	2004–2010	AusAID	Increase productivity and competitiveness of agriculture and rural enterprises through support for agricultural research and development.	Grant	15.0
Making Markets Work Better for the Poor	2003–2007	ADB DFID AusAID	Enhance understanding of links between growth and poverty and the dynamics of markets and institutions.	Grant	2.9
Market Linkages and Capacity in Agriculture; and Sustainable Peri-Urban Agriculture	2003–2007	IFAD CIRAD AVRDC	Promotion of public-private dialogue to maintain poor-friendly fruit and vegetable street vending; safe vegetable production pilots.	Grant	3.0
Sector Program Support Capacity Building Program	2006–2008	AusAID	Building capacity of the Ministry of Agriculture and Rural Development enquire point for sector program support.	Grant	0.5
Phytosanitary Capacity Building Project II	2005–2008	WHO/FAO NZAID	Improve government capacity for pest risk analysis and export certification.	Grant	0.5
Multi-lateral Trade Assistance Policy Program II	2004–2008	EU	Assistance to the Ministry of Trade to strengthen integration into the global trading system.	Grant	0.8
Support for Biogas Program Phase I	2003–2006	DGIS	Support for program development and construction of household biogas units.	Grant	2.5
Support for Biogas Program Phase II	2007–2010	DGIS	Support for program development and construction of household biogas units.	Grant	4.8

ADB = Asian Development Bank, WB = World Bank, CIDA = Canadian International Development Agency, DANIDA = Danish International Development Agency, AusAID = Australian Agency for International Development, DFID = Department for International Development, IFAD = International Fund for Agricultural Development, CIRAD = Centre de Cooperation Internationale en Recherche Agronomique pour le Development, WHO = World Health Organization, FAO = Food and Agriculture Organization, NZAID = New Zealand Agency for International Development, EU = European Union, DGIS = Netherlands General International Cooperation.

<sup>a</sup> Project implementation will be carried out in close collaboration with this project to avoid overlaps.

Source: Asian Development Bank.

## DETAILED COST ESTIMATES

**Table A5.1: Detailed Cost Estimates by Expenditure Category**

Item	D Billion			\$ '000			% Total Base Costs
	Foreign	Local	Total	Foreign	Local	Total	
<b>A. Investment Costs</b>							
<b>1. Materials</b>	0.0	162.2	162.2	0.0	10,139.6	10,139.6	9.7
<b>2. Civil Works</b>							
a. Quality and Safety Enhancement	0.0	428.6	428.6	0.0	26,785.4	26,785.4	25.6
b. Biogas Development Support	0.0	71.4	71.4	0.0	4,464.0	4,464.0	4.3
c. Credit Line for Biogas Digester Construction	0.0	216.0	216.0	0.0	13,500.0	13,500.0	12.9
d. Financial Assistance for Biogas Digester Construction	0.0	20.8	20.8	0.0	1,300.0	1,300.0	1.2
e. Household Contribution to the Credit Line	0.0	21.6	21.6	0.0	1,350.0	1,350.0	1.3
<b>Subtotal (A2)</b>	0.0	758.4	758.4	0.0	47,399.4	47,399.4	45.2
<b>3. Research and Development</b>							
a. For Quality and Safety Enhancement	30.1	0.0	30.1	1,881.0	0.0	1,881.0	1.8
b. For Biogas Development	16.4	0.0	16.4	1,026.0	0.0	1,026.0	1.0
<b>Subtotal (A3)</b>	46.5	0.0	46.5	2,907.0	0.0	2,907.0	2.8
<b>4. Training, Workshops, and Overseas Study Tours</b>							
a. Training and Workshops	0.0	103.4	103.4	0.0	6,464.7	6,464.7	6.2
b. Overseas Study Tours	8.4	0.0	8.4	526.5	0.0	526.5	0.5
<b>Subtotal (A4)</b>	8.4	103.4	111.9	526.5	6,464.7	6,991.2	6.7
<b>5. Equipment, Vehicles, and Furniture</b>							
a. Equipment	240.7	0.0	240.7	15,044.9	0.0	15,044.9	14.4
b. Vehicles	0.9	0.0	0.9	54.0	0.0	54.0	0.1
c. Furniture	1.8	0.0	1.8	110.3	0.0	110.3	0.1
<b>Subtotal (A5)</b>	243.3	0.0	243.3	15,209.2	0.0	15,209.2	14.5
<b>6. Consulting Services for Implementation</b>							
a. International Consulting Services	17.1	0.0	17.1	1,071.0	0.0	1,071.0	1.0
b. National Consulting Services	0.0	11.3	11.3	0.0	705.6	705.6	0.7
<b>Subtotal (A6)</b>	17.1	11.3	28.4	1,071.0	705.6	1,776.6	1.7
<b>7. Design and Supervision, M&amp;E, and Certification</b>							
a. Baseline Surveys	16.2	12.9	29.1	1,011.5	809.2	1,820.7	1.7
b. Design and Supervision	13.9	11.1	25.1	871.0	696.8	1,567.8	1.5
c. Certification	17.2	13.8	31.0	1,078.0	862.4	1,940.4	1.9
d. Monitoring and Evaluation (M&E)	6.6	5.3	11.9	412.9	330.3	743.3	0.7
<b>Subtotal (A7)</b>	54.0	43.2	97.2	3,373.4	2,698.7	6,072.2	5.8
<b>8. Project Auditing</b>	0.0	7.0	7.0	0.0	440.5	440.5	0.4
<b>9. Duties and Taxes *</b>	0.0	133.0	133.0	0.0	8,309.5	8,309.5	7.9
<b>Subtotal (A)</b>	369.4	1,218.5	1,587.9	23,087.1	76,157.9	99,245.1	94.7
<b>B. Recurrent Costs</b>							
<b>1. Incremental Staff Remuneration for Institutional and Regulatory Developm</b>	0.0	13.0	13.0	0.0	810.0	810.0	0.8
<b>2. Incremental Staff Remuneration for Project Management</b>							
a. At CPMU Level	0.0	14.8	14.8	0.0	924.0	924.0	0.9
b. At PPMUs Level	0.0	17.7	17.7	0.0	1,104.0	1,104.0	1.1
c. District Operation Support	0.0	3.1	3.1	0.0	192.0	192.0	0.2
<b>Subtotal (B2)</b>	0.0	35.5	35.5	0.0	2,220.0	2,220.0	2.1
<b>3. Operations and Maintenance</b>							
a. At CPMU Level	0.0	21.9	21.9	0.0	1,368.0	1,368.0	1.3
b. At PPMUs Level	0.0	18.4	18.4	0.0	1,152.0	1,152.0	1.1
<b>Subtotal (B3)</b>	0.0	40.3	40.3	0.0	2,520.0	2,520.0	2.4
<b>Subtotal (B)</b>	0.0	88.8	88.8	0.0	5,550.0	5,550.0	5.3
<b>Total Base Costs</b>	369.4	1,307.3	1,676.7	23,087.1	81,707.9	104,795.1	100.0
<b>C. Contingencies</b>							
1. Physical Contingencies	5.6	4.3	9.8	349.5	266.1	615.6	0.6
2. Price Contingencies	22.3	30.7	52.9	1,391.6	1,915.6	3,307.3	3.2
<b>Total (C)</b>	27.9	34.9	62.8	1,741.2	2,181.7	3,922.9	3.7
<b>D. Interest During Implementation</b>	26.8	0.0	26.8	1,675.9	0.0	1,675.9	1.6
<b>Total Project Costs (A+B+C+D)</b>	424.1	1,342.2	1,766.3	26,504.2	83,889.6	110,393.8	105.3

CPMU = central project management unit, M&E = monitoring and evaluation, PPMU = provincial project management unit.

\* The amount of duties and taxes is exclusive of contingencies.

Source: Asian Development Bank estimates.

**Table A5.2: Detailed Cost Estimates by Financiers**  
(\$'000)

Item	The Government		PPCs		Partner FIs		Beneficiaries		ADB		Total		Duties & Taxes	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%		
<b>A. Investment Costs</b>														
<b>1. Materials</b>	0.0	0.0	1,221.3	10.0	0.0	0.0	0.0	0.0	10,991.6	90.0	12,212.8	11.1	1,221.3	
<b>2. Civil Works</b>														
a. Quality and Safety Enhancement	0.0	0.0	2,976.2	10.0	0.0	0.0	0.0	0.0	26,785.4	90.0	29,761.5	27.0	2,976.2	
b. Biogas Development Support	0.0	0.0	496.0	10.0	0.0	0.0	0.0	0.0	4,464.0	90.0	4,960.0	4.5	496.0	
c. Credit Line for Biogas Digester Construction	0.0	0.0	0.0	0.0	1,350.0	10.0	0.0	0.0	12,150.0	90.0	13,500.0	12.2	0.0	
d. Financial Assistance for Biogas Digester Construction	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,300.0	100.0	1,300.0	1.2	0.0	
e. Household Contribution to the Credit Line	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,350.0	100.0	0.0	0.0	1,350.0	1.2	0.0
<b>Subtotal (A2)</b>	0.0	0.0	3,472.2	6.8	1,350.0	2.7	1,350.0	2.7	44,699.4	87.9	50,871.5	46.1	3,472.2	
<b>3. Research and Development</b>														
a. For Quality and Safety Enhancement	224.9	10.0	0.0	0.0	0.0	0.0	0.0	0.0	2,024.0	90.0	2,248.9	2.0	224.9	
b. For Biogas Development	134.9	10.0	0.0	0.0	0.0	0.0	0.0	0.0	1,214.1	90.0	1,349.0	1.2	134.9	
<b>Subtotal (A3)</b>	359.8	10.0	0.0	0.0	0.0	0.0	0.0	0.0	3,238.1	90.0	3,597.9	3.3	359.8	
<b>4. Training, Workshops, and Overseas Study Tours</b>														
a. Training and Workshops	772.4	10.0	0.0	0.0	0.0	0.0	0.0	0.0	6,951.7	90.0	7,724.1	7.0	772.4	
b. Overseas Study Tours	62.9	10.0	0.0	0.0	0.0	0.0	0.0	0.0	566.5	90.0	629.5	0.6	62.9	
<b>Subtotal (A4)</b>	835.4	10.0	0.0	0.0	0.0	0.0	0.0	0.0	7,518.2	90.0	8,353.5	7.6	835.4	
<b>5. Equipment, Vehicles, and Furniture</b>														
a. Equipment	1,797.5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	16,177.6	90.0	17,975.1	16.3	1,797.5	
b. Vehicles	6.1	10.0	0.0	0.0	0.0	0.0	0.0	0.0	55.1	90.0	61.2	0.1	6.1	
c. Furniture	12.5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	112.6	90.0	125.1	0.1	12.5	
<b>Subtotal (A5)</b>	1,816.1	10.0	0.0	0.0	0.0	0.0	0.0	0.0	16,345.2	90.0	18,161.3	16.5	1,816.1	
<b>6. Consulting Services for Implementation</b>														
a. International Consulting Services	126.8	10.0	0.0	0.0	0.0	0.0	0.0	0.0	1,140.8	90.0	1,267.6	1.1	126.8	
b. National Consulting Services	83.3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	750.0	90.0	833.3	0.8	83.3	
<b>Subtotal (A6)</b>	210.1	10.0	0.0	0.0	0.0	0.0	0.0	0.0	1,890.8	90.0	2,100.9	1.9	210.1	
<b>7. Design and Supervision, M&amp;E, and Certification</b>														
a. Baseline Surveys	208.5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	1,876.2	90.0	2,084.6	1.9	208.5	
b. Design and Supervision	181.9	10.0	0.0	0.0	0.0	0.0	0.0	0.0	1,637.3	90.0	1,819.3	1.6	181.9	
c. Certification	229.4	10.0	0.0	0.0	0.0	0.0	0.0	0.0	2,064.2	90.0	2,293.6	2.1	229.4	
d. Monitoring and Evaluation (M&E)	87.8	10.0	0.0	0.0	0.0	0.0	0.0	0.0	790.1	90.0	877.9	0.8	87.8	
<b>Subtotal (A7)</b>	707.5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	6,367.9	90.0	7,075.4	6.4	707.5	
<b>8. Project Auditing</b>	51.9	10.0	0.0	0.0	0.0	0.0	0.0	0.0	467.2	90.0	519.2	0.5	51.9	
<b>Subtotal (A)</b>	3,980.8	3.9	4,693.4	4.6	1,350.0	1.3	1,350.0	1.3	91,518.3	88.9	102,892.5	93.2	8,674.3	
<b>B. Recurrent Costs</b>														
<b>1. Incremental Staff Remuneration for Institutional and Regulatory Development at Central Level</b>	587.5	69.0	0.0	0.0	0.0	0.0	0.0	0.0	264.0	31.0	851.5	0.8	0.0	
<b>2. Incremental Staff Remuneration for Project Management</b>														
a. At CPMU Level	670.2	69.0	0.0	0.0	0.0	0.0	0.0	0.0	301.1	31.0	971.3	0.9	0.0	
b. At PPMUs Level	0.0	0.0	800.8	69.0	0.0	0.0	0.0	0.0	359.8	31.0	1,160.5	1.1	0.0	
c. District Operation Support	0.0	0.0	139.3	69.0	0.0	0.0	0.0	0.0	62.6	31.0	201.8	0.2	0.0	
<b>Subtotal (B2)</b>	670.2	28.7	940.0	40.3	0.0	0.0	0.0	0.0	723.4	31.0	2,333.7	2.1	0.0	
<b>3. Operations and Maintenance</b>														
3.1. At CPMU Level	986.1	69.0	0.0	0.0	0.0	0.0	0.0	0.0	443.1	31.0	1,429.2	1.3	0.0	
3.2. At PPMUs Level	0.0	0.0	835.6	69.0	0.0	0.0	0.0	0.0	375.4	31.0	1,211.0	1.1	0.0	
<b>Subtotal (B3)</b>	986.1	37.4	835.6	31.6	0.0	0.0	0.0	0.0	818.5	31.0	2,640.2	2.4	0.0	
<b>Subtotal (B)</b>	2,243.9	38.5	1,775.6	30.5	0.0	0.0	0.0	0.0	1,805.9	31.0	5,825.4	5.3	0.0	
<b>Total Base Costs</b>	6,224.7	5.7	6,469.1	6.0	1,350.0	1.2	1,350.0	1.2	93,324.2	85.8	108,717.9	98.5	8,674.3	
<b>C. Interest During Implementation</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1,675.9	100.0	1,675.9	1.5	0.0	
<b>Total Project Costs (A+B+C)</b>	6,224.7		6,469.1		1,350.0		1,350.0		95,000.0		110,393.8	100.0	8,674.3	
<b>% Total Project Costs</b>		5.64%		5.86%		1.22%		1.22%		86.06%				

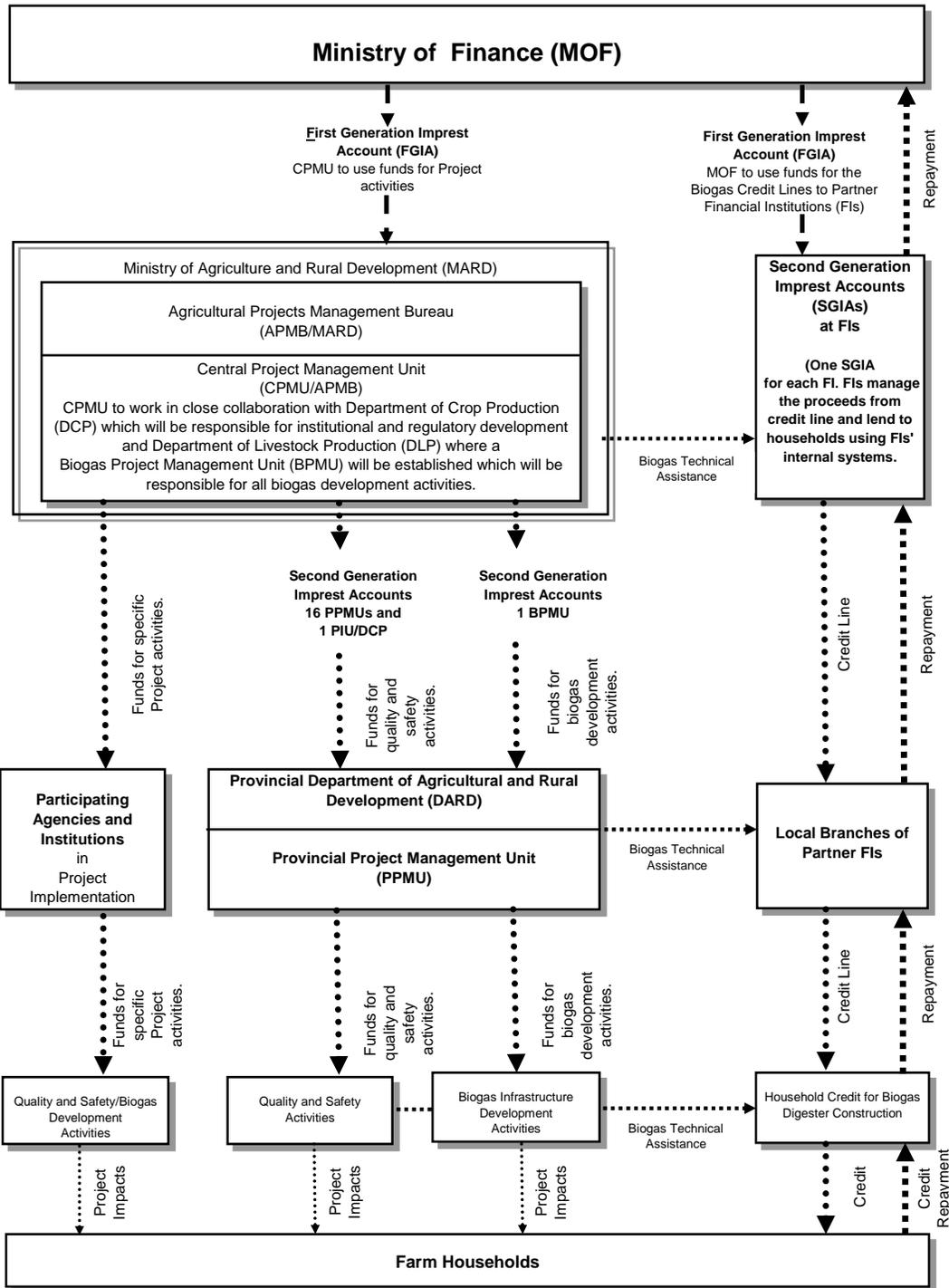
ADB = Asian Development Bank, CPMU = Central Project Management Unit, FI = financial institution, M&E = monitoring and evaluation, PPC = provincial people's committee, PPMU = provincial project management unit, R&D = research and development.

<sup>a</sup> The Government financing total is \$6,224,700 of which (i) \$3,980,800 is for duties and taxes and (ii) \$2,243,900 is for recurrent costs.

<sup>b</sup> The PPCs financing total is \$6,469,100 of which (i) \$4,693,400 is for duties and taxes and (ii) \$1,775,600 is for recurrent costs.

Source: Asian Development Bank estimates.

**PROJECT ORGANIZATIONAL STRUCTURE AND FUND FLOW**



APMB = Agricultural Project Management Board, BPMU = biogas project management unit, DARD = (provincial) department of agriculture and rural development, PIU = project implementation unit .  
 Source: Asian Development Bank.

### PROJECT IMPLEMENTATION SCHEDULE

ACTIVITY	2009		2010				2011				2012				2013				2014				2015			
	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	
<b>A. Development of regulatory framework and quality and safety system</b>																										
A.1 Improvement of regulatory framework and coordination for state management of quality and safety																										
A.2 Strengthening of State agencies and certification bodies																										
A.3 Establishment of crop food safety management system																										
<b>B. Development of infrastructure and facilities for quality and safety</b>																										
B.1 Planning of safe agricultural zones (SAZs).																										
B.2 Development of support infrastructure in SAZs.																										
B.3 Certification of agro-products and strengthening provincial capacity for monitoring and assessment.																										
B.4 Training on GAP, HACCP, and other farm food safety standards-based practices for farmers, primary processors, and traders.																										
B.5 Replacement of pest- and disease-susceptible varieties with tolerant varieties to improve quality and safety.																										
B.6 Provision of support services to project provinces.																										
<b>C. Reduction of safety and health hazard from livestock waste</b>																										
C.1 Investment in biogas infrastructure.																										
C.2 Provision of credit for biogas.																										
C.2 Support for applied research services.																										
<b>D. Project management</b>																										
D.1 Establishment of CPMU and appointment of project director																										
D.2 Establishment of PPMUs																										
D.3 Project start-up																										
D.4 Training of PMO/PIU staff on financial management																										
D.5 Renovation of office facilities and hiring of staff																										
D.6 Preparation of work and financial plan																										
D.7 Selection and engagement of project consultants																										
D.8 Design and installation of project management information system (including PPMS), financial management system, and reporting system																										
D.9 Development of detailed terms of reference, approaches, procedures, and guidelines for various Project activities																										
D.10 Procurement of vehicles and equipment																										
D.11 Selection of contractors for Project facilities and services, including NGOs, IEC firm, civil works contractors																										
D.12 Preparation of quarterly progress reports																										
D.13 Preparation of annual reports																										
D.14 Conduct of midterm review																										
D.15 Preparation of project completion report																										
D.16 Project closing																										

CPMU = central project management unit; GAP = good agricultural practices; HACCP = hazard analysis critical control point; IEC = information, education, and communication; PPMU = provincial project management unit; SAZ = safe agricultural zone. Source: Asian Development Bank.

## PROCUREMENT PLAN

### Basic Data

<b>Project Name:</b> Quality and Safety Enhancement in Agricultural Products and Biogas Development Project <b>Loan Amount :</b> \$95.0 million <b>Date of first Procurement Plan:</b> ..... 2008	<b>Loan (grant) Number:</b> 39421 <b>Executing Agency:</b> Ministry of Agriculture and Rural Development (MARD) <b>Date of this Procurement Plan:</b> ..... 2008
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### A. Process Thresholds, Review, and 18 Month Procurement Plan

#### 1. Project Procurement Thresholds

1. Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works	
Method	Threshold
International Competitive Bidding for Works	Above \$2,000,000
International Competitive Bidding for Goods	Above \$1,000,000
National Competitive Bidding for Works	Below \$2,000,000 and above \$100,000
National Competitive Bidding for Goods	Below \$1,000,000 and above \$100,000
Shopping for Works	Below \$ 100,000
Shopping for Goods	Below \$ 100,000
Direct Purchase	—

#### 2. ADB Prior or Post Review

2. Except as ADB may otherwise agree, the following prior- or post-review requirements apply to the various procurement and consultant recruitment methods used for the project. (See *Procurement Guidelines* (2007, as amended from time to time), Appendix 1 and *Guidelines on the Use of Consultants* (2007, as amended from time to time), para. 1.16.)

Procurement Method	Prior or Post	Comments
<b>Procurement of Goods and Works</b>		
ICB Works	Prior	
ICB Goods	Prior	
NCB Works	Prior	
NCB Goods	Prior	
Shopping for Works	Post	
Shopping for Goods	Post	
Direct Purchase	Prior	
Direct Contracting	—	
<b>Recruitment of Consulting Firms</b>		
Quality- and cost-based selection (QCBS)	Prior	
Quality-based selection (QBS)	Prior	
Other selection methods: Consultants qualifications (CQS), least-cost selection (LCS), fixed-budget selection (FBS), and single-source selection (SSS)	Prior	
<b>Recruitment of Individual Consultants</b>		
Individual Consultants	Prior	

### 3. Goods and Works Contracts Estimated to Cost More Than \$1 Million

3. The following table lists goods and works contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value (\$ million, cumulative)	Procurement Method	Pre-qualification of Bidders (Yes/No)	Advertisement Date (quarter/year)	Comments
Materials <sup>a</sup>	12.213	Direct Purchase	Yes		
Equipment	17.975 (at least 18 contracts with an average contract value of \$0.99 million)	NCB	Yes	To be determined	
Civil Works for Quality and Safety Enhancement	29.761 (at least 16 contracts with an average contract value of \$1.86 million)	NCB	No	To be determined	
Civil Works for Biogas Development	4.960 (at least 6 contracts with an average contract value of \$0.83 million)	NCB	No	To be determined	

NCB = national competitive bidding.

<sup>a</sup> Purchase of tolerant varieties to replace pest- and disease-susceptible varieties. Various types of seeds to be procured from sole specialized institutes.

### 4. Consulting Services Contracts Estimated to Cost More Than \$100,000

4. The following table lists consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value (\$ million, cumulative)	Recruitment Method <sup>a</sup>	Advertisement Date (quarter/year)	International or National Assignment	Comments
Consulting Services for Institutional and Regulatory Development and Project Management	2.101	QCBS Cost Ratio 80:20	To be determined	International and national	
<b>Others</b>					
R&D for Quality and Safety Enhancement	2.249	QCBS Cost Ratio 80:20	To be determined	National	
R&D for Biogas Development	1.349	QCBS Cost Ratio 80:20	To be determined	National	
Baseline Surveys	2.084	QCBS Cost Ratio 80:20	To be determined	National	
Design and Supervision <sup>b</sup>	1.819	QCBS Cost Ratio 80:20 (Through Provincial Consulting Firms)	To be determined	National	
Monitoring and Evaluation	0.878	QCBS Cost Ratio 80:20	To be determined	National	
Project Auditing	0.519	Least Cost Selection (LCS)	To be determined	National	

LCS = least-cost selection, QCBS = quality- and cost-based selection, R&D = research and development.

<sup>a</sup> Including establishment of bidding documents for civil works in 16 provinces.

<sup>b</sup> Certification services will be procured from sole specialized agencies.

## 5. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000

5. The following table groups smaller-value goods, works and consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Value of Contracts (\$, cumulative)	Number of Contracts	Procurement / Recruitment Method	Comments
Vehicles	61,200	1	Shopping	
Furniture	125,100	3	Shopping	

### B. Project Procurement Plan

#### 1. Indicative List of Packages Required Under the Project

6. The following table provides an indicative list of all procurement (goods, works and consulting services) over the life of the project. Contracts financed by the Borrower and others should also be indicated, with an appropriate notation in the comments section.

General Description	Estimated Value (\$ million, cumulative)	Estimated Number of Contracts	Procurement Method	Domestic Preference Applicable	Comments
<b>Goods</b>					
Materials	12.213	16	Direct Contracting		
Equipment	17.975	18	NCB		
Vehicles	0.061	1	Shopping		
Furniture	0.125	3	Shopping		
<b>Works</b>					
Civil Works for Quality and Safety Enhancement	29.761	At least 16	NCB		
Civil Works for Biogas Development	4.960	At least 3	NCB		
General Description	Estimated Value (\$ million, cumulative)	Estimated Number of Contracts	Recruitment Method	Type of Proposal	Comments
<b>Consulting Services</b>					
Consulting Services for Institutional and Regulatory Development and Project Management	2.101	1	QCBS Cost Ratio 80:20	Full	
<b>Others</b>					
R&D for Quality and Safety Enhancement	2.249	At least 3	QCBS Cost Ratio 80:20	Simplified Technical Proposal (STP)	
R&D for Biogas Development	1.349	At least 3	QCBS Cost Ratio 80:20	STP	
Baseline Surveys	2.084	1	QCBS Cost Ratio 80:20	STP	
Design and Supervision	1.819	At least 3	QCBS Cost Ratio 80:20 (Through Provincial Consulting Firms)	STP	
Monitoring and Evaluation	0.878	At least 3	QCBS Cost Ratio 80:20	STP	

Project Auditing	0.519	6	Least Cost Selection (LCS)	STP	
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LCS = least cost selection, NCB = national competitive bidding, QCBS = quality- and cost-based selection, R&D = research and development, STP = simplified technical proposal.

## C. National Competitive Bidding

### 1. General

7. The laws to be followed for national competitive bidding shall be those set forth in the Law on Procurement No. 61/2005/QH11 of 29 November 2005 and the Construction Law No. 16/2003/QH11 of 26 November 2003, and with the processes described in Decree No. 111/20006/DD-CP of 29 September 2006, with the clarifications and modifications described in the following paragraphs required for compliance with the provisions of ADB's *Procurement Guidelines*.

### 2. Registration

- (i) Bidding shall not be restricted to pre-registered firms and such registration shall not be a condition for participation in the bidding process.
- (ii) Where registration is required prior to award of contract, bidders: (a) shall be allowed a reasonable time to complete the registration process; and (b) shall not be denied registration for reasons unrelated to their capability and resources to successfully perform the contract, which shall be verified through post-qualification.
- (iii) Foreign bidders shall not be required to register as a condition for submitting bids.
- (iv) Bidder's qualification shall be verified through the post-qualification process.

### 3. Eligibility

- (i) National sanction lists may only be applied with ADB approval.<sup>1</sup>
- (ii) A firm declared ineligible by ADB cannot participate in bidding for an ADB-financed contract during the period of time determined by ADB.

### 4. Prequalification and Post Qualification

- (i) Post qualification shall be used unless prequalification is explicitly provided for in the loan agreement and/or procurement plan. Irrespective of whether post qualification or prequalification is used, eligible bidders (both national and foreign) shall be allowed to participate.
- (ii) When prequalification is required, the evaluation methodology shall be based on pass/fail criteria relating to the firm's experience, and technical and financial capacity.

<sup>1</sup> Section 52 of ADB's integrity principles and guidelines (ADB. 2006. *Integrity Principles and Guidelines*. Manila) allows ADB to sanction parties who fail to meet ADB's high ethical standards based on the decisions of third parties; such a decision can only be made by the integrity oversight committee on the basis of ADB's own independent examination of the evidence. As such, the process should follow the normal assessment and investigative processes prescribed by the guidelines. Available: <http://www.adb.org/Documents/Guidelines/Integrity-Guidelines-Procedures/integrity-guidelines-procedures-2006.pdf>

- (iii) Qualification criteria shall be clearly specified in the bidding documents. All specified criteria (and only specified criteria) shall be used to determine whether a bidder is qualified. The evaluation of the bidder's qualifications should be conducted separately from the technical and commercial evaluation of the bid.
- (iv) In carrying out the post-qualification assessment, the employer and/or purchaser shall exercise reasonable judgment in requesting from a bidder, in writing, missing factual or historical supporting information related to the bidder's qualifications, and shall provide a reasonable amount of time (minimum of 7 days) for the bidder to respond.

## **5. Preferences**

- (i) No preference shall be given to domestic bidders or domestically manufactured goods.
- (ii) Regulations issued by a sectoral ministry, and provincial and local regulations that restrict national competitive bidding procedures to a class of contractors or a class of suppliers shall not be applicable.
- (iii) Foreign bidders shall be eligible to participate in bidding under the same conditions as local bidders, and local bidders shall be given no preference (either in the bidding process or in bid evaluation) over foreign bidders. Similarly, bidders located in the same province or city as the procuring entity shall not be given preference over bidders located outside that city or province

## **6. Advertising**

- (i) Invitations to bid (or prequalify, where prequalification is used) shall be advertised in the Government Public Procurement Bulletin. In addition, the procuring agency should publish the advertisement in at least one widely circulated national daily newspaper or freely accessible, nationally known website, allowing a minimum of 28 days for the preparation and submission of bids and allowing potential bidders to purchase bidding documents up to at least 24 hours prior to the bid submission deadline. Bidding of national competitive bidding (NCB) contracts estimated at \$500,000 or more for goods and related services or \$1,000,000 or more for civil works shall be advertised on ADB's website via the posting of the procurement plan.
- (ii) Bidding documents shall be made available by mail, or in person, to all who are willing to pay the required fee, if any.
- (iii) The fee for the bidding documents should be reasonable and consist only of the cost of printing (or photocopying) the documents and delivering them to the bidder. (Currently set at D1 million, increase subject to ADB approval).

## **7. Standard Bidding Documents**

- (i) The Borrower's standard bidding documents, acceptable to ADB, shall be used. The bidding documents shall provide clear instructions on how bids should be submitted, how prices should be offered, and the place and time for submission and opening of bids.
- (ii) Bidders shall be allowed to submit bids by hand or by mail and/or courier.

**8. Bid Opening**

- (i) A copy of the bid opening record shall be promptly provided to all bidders who submitted bids.

**9. Bid Evaluation**

- (i) Merit points shall not be used in bid evaluation.
- (ii) Bidders shall not be eliminated from detailed evaluation on the basis of minor, non-substantial deviations.<sup>2</sup>
- (iii) Except with the prior approval of ADB, no negotiations shall take place with any bidder prior to the award, even when all bids exceed the cost estimates.
- (iv) A bidder shall not be required, as a condition for award of contract, to undertake obligations not specified in the bidding documents or to otherwise modify the bid as originally submitted.
- (v) Bids shall not be rejected on account of arithmetic corrections of any amount. However, if the Bidder that submitted the lowest evaluated bid does not accept the arithmetical corrections made by the evaluating committee during the evaluation stage, its bid shall be disqualified and its bid security shall be forfeited.

**10. Rejection of All Bids and Rebidding**

- (i) No bid shall be rejected on the basis of a comparison with the owner's estimate or budget ceiling without ADB's prior concurrence.
- (ii) Bids shall not be rejected and new bids solicited without ADB's prior concurrence.

**11. Participation by Government-owned Enterprises**

8. Government-owned enterprises shall be eligible to participate as bidders only if they can establish that they are legally and financially autonomous, operate under the Enterprise Law and are not a dependent agency of the contracting entity. Furthermore, they will be subject to the same bid and performance security requirements as other bidders.

**12. Non-eligibility of Military or Security Units**

9. Military or security units or enterprises belonging to the Ministry of Defense or the Ministry of Public Security shall not be permitted to bid.

**13. Participation by Foreign Contractors and Suppliers, Joint Ventures and Associations**

- (i) Foreign suppliers and contractors from eligible countries shall, if they are interested, be allowed to participate without being required to associate or form joint ventures with local suppliers or contractors, or to subcontract part of their contract to a local bidder.

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<sup>2</sup> A minor, non-substantial deviation is one that, (i) if accepted, would not (a) affect in any substantial way the scope, quality, or performance specified in the contract; or (b) limit in any substantial way, the rights of the contracting entity or the obligations of the bidder under the proposed contract; or (ii) if rectified, would not unfairly affect the competitive position of other bidders presenting substantially responsive bids.

- (ii) A bidder declared the lowest evaluated responsive bidder shall not be required to form a joint venture or to sub-contract part of the supply of goods as a condition of award of the contract.
- (iii) Licenses allowing foreign contractors to operate in Viet Nam would be provided in a timely manner and will not be arbitrarily withheld.

#### **14. Publication of the Award of Contract Debriefing**

- (i) For contracts subject to prior review, within 2 weeks of receiving ADB's "No-objection" to the recommendation of contract award, the borrower shall publish in the Government Public Procurement Bulletin, or a well-known and freely accessible website, the results of the bid evaluation, identifying the bid and lot numbers, and providing the (a) name of each bidder who submitted a bid; (b) bid prices as read out at bid opening; (c) name and evaluated prices of each bid that was evaluated; (d) names of bidders whose bids were rejected and the reasons for their rejection; and (e) name of the winning bidder, the price offered, and the duration and summary scope of the contract awarded.
- (ii) For contracts subject to post review, the procuring entity shall publish the bid evaluation results no later than the date of contract award.
- (iii) In the publication of the bid evaluation results, the borrower shall specify that any bidder who wishes to ascertain the grounds on which its bid was not selected should request an explanation from the procuring entity. The procuring entity shall promptly provide an explanation regarding why the bid was not selected, either in writing and/or in a debriefing meeting, at the option of the borrower. The requesting bidder shall bear all costs of attending such a debriefing. The discussion will address only the bidder's bid, and not the bids of competitors.

#### **15. Handling of Complaints**

10. The national competitive bidding documents shall contain provisions acceptable to ADB describing the handling of complaints in accordance with Article 47 of Decree No. 111/20006/DD-CP, read with Articles 72 and 73 of Law on Procurement No. 61/2005/QH11.

#### **16. ADB Member Country Restrictions**

11. Bidders must be nationals of ADB member countries, and offered goods, works, and services must be produced in and supplied from ADB member countries.

#### **17. Fraud and Corruption**

12. ADB will sanction a party or its successor, including declaring them ineligible, either indefinitely or for a stated period of time, to participate in ADB-financed activities if it at any time determines that the firm has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for, or in executing, an ADB-financed contract.

#### **18. Right to Inspect and/or Audit**

13. Each bidding document and contract financed by ADB shall include a provision requiring bidders, suppliers, and contractors to permit ADB or its representative to inspect and have audited (by ADB-appointed auditors) their accounts and records relating to the bid submission and contract performance.

## **TECHNICAL ASSISTANCE FOR STRENGTHENING PROJECT MANAGEMENT AND DEVELOPING STRATEGIES AND OPTIONS FOR BIOGAS DEVELOPMENT PROGRAM EXPANSION**

### **A. Impact, Outcome, and Outputs**

1. The impact of the proposed technical assistance (TA) is sustainable and equitable growth of the agriculture sector through increased livelihood opportunities and improved human health. The expected outcome is integration of livestock waste management with clean energy production and increased agro-product safety and reduced health hazards. The main output of the TA will be the design of the investment program for expansion of biogas development in Viet Nam that responds to clients' needs and fulfills Asian Development Bank (ADB) requirements and safeguard policies.

### **B. Methodology and Key Activities**

2. The TA will comprise two parts. Part 1 will provide startup support for the Project, including oversight and capacity building. The oversight function will provide advisory support to the Government on how to effectively implement and monitor project activities on the quality and safety of agricultural products and biogas development. Part 2 will provide a design for an investment to expand biogas development, involving: (i) technical design of different sizes of biogas plants for farm households and medium- to large-scale commercial livestock farms based on field testing, demonstration, and applied research activities; (ii) determination of credit financing options for different socioeconomic groups; (iii) determination of a geographical expansion plan and strategy; (iv) design of a practical institutional and management structure for expansion; and (v) development of clean development mechanism (CDM) projects.

### **C. Costs and Financing**

3. It is estimated that the consulting services for advisory support and capacity development and project management will cost \$1.8 million, of which the associated TA will finance \$1.5 million, to be funded by the Technical Assistance Special Fund, and the Government will provide \$300,000 as part of the TA to cover incremental administrative expenses, office space, local travel and per diem for counterpart staff. Cost estimates and financing plan are provided in Table A9.1.

### **D. Implementation Arrangements**

4. The Ministry of Agriculture and Rural Development will be the TA executing agency (EA). The TA will be implemented over a period of 18 months from January 2009 to June 2010. The TA will require 103 person-months of consultant services, comprising 46 person-months of international consultant and 57 person-months of national consultant services. All consultants will be recruited by ADB in accordance with the *ADB Guidelines on the Use of Consultants* (2007, as amended from time to time). Individual consultants will be recruited for part 1: start-up (6 person-months of international and 20 person-months of national consultant services), while a firm will be recruited, using the quality- and cost-based selection procedure, for part 2: design (40 person-months of international and 37 person-months of national consultant services). In view of the specialized nature of inputs requiring high-level knowledge and technical expertise a 90:10 quality-cost ratio will be used for the consultant requirement under part 2. A tentative schedule of consultant expertise (in person-months) is provided in Table A.9.2. Equipment,

including computers and printers, will be procured in accordance with ADB's *Procurement Guidelines* (2007, as amended from time to time). Procured equipment will be transferred to the EA at the completion of the TA. Disbursements under the TA will be done in accordance with ADB's *Technical Assistance Disbursement Handbook*.<sup>1</sup>

**Table A9.1: Technical Assistance Cost Estimate**  
(\$'000)

Item	Total Costs (\$)
<b>A. Asian Development Bank Financing</b> <sup>a</sup>	
<b>1. Start-up</b>	
a. Remuneration and per diem	
i. International consultants	120.0
ii. National consultants	80.0
b. International and local travel	50.0
<b>Subtotal (A1)</b>	<b>250.0</b>
<b>2. Design</b>	
a. Remuneration and per diem	
i. International consultants	800.0
ii. National consultants	148.0
b. International and local travel	60.0
c. Reports and communications	25.0
d. Equipment <sup>b</sup>	20.0
e. Training, seminars and conferences	57.0
f. Miscellaneous administration and support costs	50.0
g. Contingencies	90.0
<b>Subtotal Design (A2)</b>	<b>1,250.0</b>
<b>Subtotal (A)</b>	<b>1,500.0</b>
<b>B. Government Financing</b>	
Incremental Administrative Expenses, Office Space, Local Travel and Per Diem for Counterpart Staff	300.0
<b>Subtotal (B)</b>	<b>300.0</b>
<b>Total (A+B)</b>	<b>1,800.0</b>

<sup>a</sup> Financed by the Technical Assistance Special Fund.

<sup>b</sup> Equipment include computers and printers.

Source: Asian Development Bank estimates.

<sup>1</sup> ADB. 2008. *Technical Assistance Disbursement Handbook*. Manila.

**Table A9.2: Consultant Services Requirements****Table 2: Consultant Services Requirements**

Expertise	Total Consultant Inputs (person-months)		
	Total	International	National
<b>A. Start-up</b>			
Project Implementation Specialists	26	6	20
<b>B. Design</b>			
Biogas Energy Specialists	20	12	8
Environmental Specialists	9	3	6
Biogas Technology Specialists	10	5	5
Clean Development Management Specialists	24	12	12
Economists/Financial Specialists	6	3	3
Social Development Specialist	3	0	3
Agriculture Sector Development Advisor	5	5	0
<b>Total</b>	<b>103</b>	<b>46</b>	<b>57</b>

Source: Asian Development Bank estimates.

## E. Outline Terms of References for Consultants

5. **General Requirements.** The international consultants should have (i) at least a master's degree or equivalent qualification, (ii) adequate relevant experience in implementing projects in Southeast Asia, (iii) sound knowledge and practical knowledge in relevant fields in Asia, and (iv) strong interpersonal and communication skills. The national consultants should have (i) a bachelor's degree or equivalent qualification; (ii) extensive knowledge and experience in relevant fields in Viet Nam; (iii) experience in working with government institutions, private sector, financial institutions, nongovernment organizations, community-based organizations, and international consultants; and (iv) be fluent in written and spoken English. All consultants will need to have a good working knowledge of ADB's plans, policies, and project development procedures.

1. **Part 1: Start-up** (6 person-months of international and 20 person-months of national individual consultant services)

6. **Project Implementation Specialists** (international, 6 person-months; national, 20 person-months). The consultants will provide assistance with (i) project start-up, including oversight and capacity building; (ii) preparation of implementation and procurement plans; (iii) drafting of consultant terms of reference (TOR); and (iv) preparation of requests for proposals.

2. **Part 2: Design** (40 person-months of international and 37 person-months of national consultant services; firm, quality- and cost-based selection)

7. **Biogas Energy Specialists** (team leader, international, 12 person-months; deputy team leader, national, 8 person-months). The team leader, together with the deputy team leader, will coordinate all consultant activities during TA implementation, including liaising with the EA and implementing agency. The team leader will periodically report progress to the EA and ADB, and submit high-quality consolidated reports as specified in the TORs. In addition, the following

technical responsibilities will be carried out: (i) finalize the approach for the TA, including a detailed work plan and implementation schedule, and assign the work to various team members; (ii) analyze the current situation, performance indicators, key problems, and opportunities in the sector; (iii) analyze strategies, policies, programs, plans, and previous activities relating to biogas development; (iv) analyze lessons from completed or ongoing projects; (v) together with the biogas technical expert and financial expert, assess the potential for medium- and large-scale biogas digesters, prepare selection criteria, and review and evaluate procedures for livestock farms (subprojects) to be considered during the investment project; (vi) develop a strategy and plan for nationwide expansion of the household biogas investment program; (vii) determine the institutional and management structure for a nationwide biogas program for both household and large-scale biogas; (viii) together with the financial structure specialist, determine the financing options (credit schemes) for different socioeconomic groups for household biogas digesters and commercial livestock farms; (ix) strengthen and finalize feasibility studies for the selected commercial livestock farms to be included in the project; (x) organize national and provincial-level workshops for active stakeholder consultation for project preparation; and (xi) formulate preliminary and final design and monitoring frameworks for the project and prepare the final report.

8. **Environment Specialists** (international, 3 person-months; national, 6 person-months). An international environment specialist, together with a national environment specialist, will: (i) assess the possible environmental impact of biogas plants of varying size for households and medium to large-scale commercial livestock farms; (ii) review national environmental regulations and standards related to livestock waste management, including national and provincial pollution management regulations, livestock farm water quality discharge standards, biogas digester design standards, land planning regulations, and international conventions; (iii) discuss with relevant Department of Natural Resources and Environment (DONRE) to determine environmental assessment requirements (Environmental Impact Assessment (EIA) or Initial Environmental Examination (IEE)/ Commitment on Environmental Protection (CEP); (iv) submit to ADB through CPMU the screening results of any biogas plants that would require an EIA; and (v) assist relevant PPMUs to prepare IEEs.

9. **Biogas Technology Specialists** (international, 5 person-months; national 5 person-months). The consultants will undertake the following: (i) review and assess national and international experience with medium- and large-scale biogas digester design technologies, and the implications for local provinces; (ii) survey potential livestock farms and estimate the potential for medium to large-scale biogas digesters; (iii) calculate and estimate the conversion efficiency and cost of various technologies, and assess how readily various potential technologies can be utilized for large-scale applications in the project provinces; (iv) develop biogas digester design guidelines for use by the provinces' livestock farms; (v) carry out a survey and analysis of manure types, local climates, and technology options in the project provinces, and provide recommendations regarding priority technologies, based on local conditions; (vi) appraise the technical and design soundness of the representative sample livestock farms, and develop criteria to assess the technical feasibility of nonsample projects; (vii) identify capacity strengthening needs relating to biogas digester design, construction, and operation for the project provinces; and (viii) provide any technical inputs needed to refine household biogas digesters.

10. **Clean Development Mechanism Specialists** (international, 12 person-months; national 12 person-months). The consultants will undertake the following: (i) assist in preparing the clean development mechanism (CDM) project for the national household biogas program; (ii) review the criteria set for selection of commercial livestock farms for CDM participation; (iii) review the

proposed institutional approaches and make recommendations for the institutional setup (including regarding legal issues) of the CDM bundling agencies for large-scale farms; (iv) provide inputs in the design of training and/or capacity building programs for implementing units, farm owners, and bundling agencies, and serve as the resource person to conduct the training; (v) develop the criteria for selection of farms for CDM projects; (vi) assess the farms based on the criteria and recommend farms suitable for CDM project/s; (vii) review (pre-) feasibility studies, environmental impact assessment reports, financial status, and other documents of potential livestock farms, and collect other data needed for CDM applications; (viii) prepare and review project design documents, and conduct stakeholders consultations; and (ix) assist the bundling agencies in securing designated national agency approvals, validation, and registration.

11. **Economists and/or Financial Specialists** (international, 3 person-months; national 3 person-months). The economists/financial specialists will undertake the following activities: (i) conduct an appropriate economic and financial analysis of the investment project; (ii) conduct sensitivity and risk analyses of possible pricing changes in factor inputs and output markets, including costs of water, fertilizers, energy, price of carbon credits, and labor; (iii) prepare the costing of project components and review the proposed investment project design and costs, including arrangements and costs of maintenance and options for cost recovery, where applicable; (iv) identify quantitative and qualitative economic and other benefits of each component, and justify the overall project proposal; (v) provide detailed analysis of the assumptions and methodology used for inclusion in the draft final report; (vi) appraise the financial analysis for revenue-generating commercial farms and nonproductive and/or support services with and without carbon revenue, and produce the financial analysis results required by ADB; and (vii) ensure that economic analyses are conducted in accordance with ADB's *Guidelines for the Economic Analysis of Projects* (1997) and *Guidelines for Financial Management and Analysis of Projects* (2005).

12. **Social Development Specialist** (national, 3 person-months). The consultant will undertake the following: (i) prepare a poverty and social assessment of the beneficiaries and stakeholders, identifying any gender issues; (ii) identify any instances where proposed activities will trigger the need for land acquisition, changes in land use and/or restricted access to land that will entail involuntary resettlement, and prepare needed plans that meet ADB's *Involuntary Resettlement Policy* (1995) and other related safeguard requirements; (iii) assess the numbers and status of any ethnic minorities in the project area and prepare the appropriate ethnic minority development plans in line with ADB's safeguard policies, as needed; and (iv) establish the baseline against which the project impacts on welfare and gender may be monitored with appropriate monitoring indicators, help design the repeat households survey to be carried out during implementation, and support the team leader in designing a sound monitoring system to track project implementation and use of resources.

14. **Agriculture Sector Development Advisor** (international, 5 person-months). The agriculture sector development advisor will provide advisory support to the government and the TA team on: (i) developing a monitoring system for agricultural product safety and quality, (ii) establishing an institutional and organizational structure for effective implementation of the loan project, and (iii) help develop a strategy to promote biogas in livestock farms to increase the quality and safety of agricultural products.

## ECONOMIC ANALYSES

### A. Introduction

1. The Project has four components: (i) development of the country's regulatory framework and strengthening of institutional capacity relating to food safety; (ii) enhancement of the production and consumption of safe, quality agro-products and establishment of supporting infrastructure and facilities; (iii) development of biogas plants among small livestock farms to reduce livestock waste hazards in agricultural areas and improve public health, environmental quality and livelihoods through waste digestion and production of biogas energy; and (iv) capacity building of the central project management unit and provincial project management units in project management and replication of project impacts.

### B. Overall Project Benefits

2. The project area covers 16 provinces that are considered major centers of vegetable, fruit, and tea production in Viet Nam, including Ha Noi in the north, Da Nang in the center, and Ho Chi Minh City in the south. It covers about 3.9 million hectares (ha) of agricultural land with about 3.6 million rural households (or an equivalent of 18 million people) in these provinces. A large number of small farm households in these areas raise livestock for a living and are in urgent need of appropriate livestock waste management and disposal facilities. The poorly managed disposal of livestock waste has created serious environmental problems that have adversely impacted community health.

3. The Project is expected to yield major benefits, including:

- (i) incremental benefits from increased crop yields and productivity through adoption of high yield and tolerant seed varieties, integrated pest management (IPM), and good agricultural practices (GAPs). An estimated 6.5 million farmers will directly benefit from the project interventions. The Project is also expected to generate employment for about 1.4 million people involved in the post-production food chain for tea, fruits and vegetables. As a result, the Project will make significant contributions to rural poverty reduction in and outside the project provinces;<sup>1</sup>
- (ii) savings in health costs realized through safe agricultural products (tea, fruits, and vegetables) and improved livestock waste management. It is expected that a significant reduction in the occurrence of food- and waterborne diseases will directly improve human health in the project area, resulting in increased labor productivity and reduced treatment and hospital costs;
- (iii) cost savings from substitution of biogas-derived energy for firewood, kerosene, coal, and liquefied petroleum gas (LPG) used for cooking and lighting. The Project will contribute to energy savings among rural households as biogas produced by the digesters will serve as an alternative energy source for cooking and lighting. An estimated 40,000 households will benefit from this alternative energy source.
- (iv) the availability of bio-slurry, as a safer organic fertilizer than untreated manure.<sup>2</sup> While farmers are currently using manure for their crops, the untreated manure,

<sup>1</sup> The average poverty incidence in the project provinces was estimated to be 25.9%. The project interventions contribute significantly to reduction of the national poverty incidence (expected to reach about 15.0% by 2010).

<sup>2</sup> In traditional practice, domestic and livestock waste is collected and piled up. Pond mud is used to cover the pile for a month or so before it is used for crops as "organic fertilizer".

when used as an “organic fertilizer”, is considered unsafe for water, air, and soil. Although no empirical evidence is available on the incremental impact on crop yields in Viet Nam of bio-slurry versus manure that is otherwise treated, elsewhere bio-slurry has been claimed to be a better fertilizer than untreated manure;<sup>3</sup> and

- (v) reduced water, air, and soil pollution as a result of biogas digester installation and operations, because domestic and livestock wastes will be better managed and treated. It is estimated that the proposed biogas development operation will reduce CO<sub>2</sub> emissions by an equivalent of about 40,000–60,000 tons of CO<sub>2</sub> per annum.

## C. Economic Analyses

### 1. Methodology and Assumptions

4. The proposed Project will adopt the sector financing modality, where the entire scope of project activities is not known at the project preparatory technical assistance (PPTA) stage. Therefore, the economic analysis is conducted to evaluate the viability of the three sample subprojects selected for feasibility studies rather than for the whole Project. These sample subprojects include: (i) high-yield tea subproject in Lien Son district town of Yen Bai province; (ii) lychee fruits subproject in Hong Giang commune, in Luc Ngan district of Bac Giang province; and (iii) vegetable (tomatoes) subproject in Van Hoi commune, in Tam Duong district of Vinh Phuc province. The economic analysis of these sample subprojects serves both as a representative evaluation of the economic viability of the whole project, and more importantly, as a set of benchmarking criteria for the selection of subprojects eligible for Asian Development Bank (ADB) financing, as far as economic aspects are concerned. It should be noted that the analysis placed greater emphasis on the latter objective, because only by selecting appropriate subprojects will the Project as a whole be economically viable. Development of biogas operations was incorporated into the overall Project to enhance improvements in the quality and safety of agricultural products. In spite of the Project’s integrated nature, the financing of costs and benefit realization of the biogas operation is fairly independent of the other project components. The analysis of the economic viability of the biogas development is therefore conducted separately.

5. The economic analyses were consistent with relevant ADB guidelines, handbooks, and technical notes.<sup>4</sup> The Project has an implementation period of 6 years (2009–2015) and the economic life of the project interventions has been assumed to be 20 years. For the present analysis, the prevailing interbank exchange rate of D16,000 = \$1 has been used.<sup>5</sup> A discount rate of 12% has been used to estimate the net present value (NPV), and serves as a cutoff point for the economic internal rate of return (EIRR).

6. The economic analysis determined incremental benefits attributable to the project interventions. While a number of benefit streams are observed, the analysis includes only readily quantifiable benefits attributable to the project interventions. Financial revenue and costs

<sup>3</sup> The Netherlands Development Organization. 2007, "Report on Biogas Operation in Viet Nam", Ha Noi .

<sup>4</sup> These include, but are not limited to, the following: (i) ADB.1997. *Guidelines for the Economic Analysis of Projects*, Manila; (ii) ADB. 2002, *Guidelines for the Financial Governance and Management of Investment Projects Financed by ADB*. Manila; (iii) ADB. 2006, *Handbook for Borrowers on the Financial Governance and Management of Investment Projects Financed by ADB*. Manila; and (iv) ADB. 2002. *Handbook for Integrating Risk Analysis in the Economic Analysis of Projects*. Manila.

<sup>5</sup> According to the State Bank of Viet Nam (Viet Nam’s central bank), November 2008.

were estimated using constant 2008 prices. Financial farm-gate prices are based on findings and information collected during field trips by the PPTA consultant team and ADB fact-finding missions during August–September 2008 as well as information made available by national production associations (such as tea, fruit, and vegetable associations). The analyses use a world price numeraire where economic prices for traded crop inputs and outputs have been based on the World Bank commodity price projections. Labor costs have been shadow-priced at 0.85 of the wage rates, while other inputs have been adjusted by the standard conversion factor of 0.90 as applicable to Viet Nam. The economic viability of the Project is evaluated against standard benchmarks, i.e., EIRR >12%, benefit-cost ratio (BCR) >1.0, and economic net present value (ENPV) > 0.

7. The economic analyses of the three production subprojects are presented together, followed by the biogas development operation. Detailed assumptions, financial and economic farm budgets, economic price derivations, project capital and operating costs profiles, and benefit–cost and sensitivity analyses are presented in Supplementary Appendix K and four Excel-based models.

## 2. Tea, Lychee Fruits, and Vegetable Subprojects

### a. Subprojects Description

8. The three sample production subprojects include a: (i) high-yield tea subproject in Lien Son District Town of Yen Bai Province; (ii) lychee fruits subproject in Hong Giang commune, in Luc Ngan District of Bac Giang Province; and (iii) a vegetable (tomato) subproject in Van Hoi Commune, in Tam Duong District of Vinh Phuc Province. These subprojects were selected because they are representative of the Project’s proposed interventions in tea, fruit, and vegetable production in 16 provinces, and can be replicated in the other provinces. The Project aims to help improve crop yields, productivity, and the market value of existing production types by (i) enhancing required infrastructure such as irrigation and clean water supplies; (ii) replacing seed varieties susceptible to pests and diseases with more tolerant seed varieties; and (iii) adopting IPM and GAPs, technical extension support, and other supports. The investment costs of the three sample subprojects are outlined in Table A10.1.

**Table A10.1: Three Subprojects’ Investment Costs (Financial)**

Unit: \$

Cost Items/Activities	Tomato Subproject	Lychee Fruits Subproject	Tea Subproject
Design and layout	15,000	15,000	15,000
Upgrading road link with main road and in field road	30,000	55,000	45,000
Safe store for agro-chemicals	1,500	1,500	1,500
Compost housing, waste deposit treatment place	16,000	0	0
Net house (greenhouse)	50,000	0	0
Improvement of water quality (treatment)	10,000	10,000	0
Boreholes for water supply	2,000	2,000	2,000
Irrigation rehabilitation	45,000	45,000	30,000
Water supply- tanks in field	2,000	2,000	0
Store with safe water and cooling	6,000	6,000	0
Simple pre-market processing facilities	5,000	5,000	0
Electric power improvement	20,000	10,000	10,000
Farm retail outlet	500	500	0
Nursery for new varieties	6,000	10,000	0
Implementation of Integrated Pest Management and Vietnamese Good Agricultural Practices certification	70,000	70,000	70,000
Implementation Support	19,530	16,240	12,145
Production Support (seeds and technical extensions)	50,000	50,000	50,000
<b>Total</b>	<b>329,000</b>	<b>282,000</b>	<b>223,500</b>

Source: Asian Development Bank estimates.

9. The proposed interventions are based on existing production, and beneficiaries are farmer households that have been involved in the respective operations for over 10 years. While most household heads have had significant experience with existing production types, they have limited awareness and experience in IPM and GAPs, which are key factors in achieving higher crop yields and market values. Table A10.2. outlines basic information about the three subproject sites and selected socioeconomic characteristics of beneficiaries.

**Table A10.2: Basic Information of Three Subproject Sites**

Items	Tomato Subproejct	Lychee Fruits Subproejct	Tea Subproject
1. Population in provinces of subprojects (Number)	2,500,000	1,800,000	1,200,000
2. People with income below poverty lines (Number)	500,000	342,000	270,000
3. Population in communes of subprojects (Number)	8,000	5,900	6,100
4. People with income below poverty lines (Number)	1,100	790	923
5. Subproject land coverage (ha)	35	40	29
6. Profile of suprojects' operators/owners			
(i) Number of people	264	252	138
(ii) Number of households	44	36	23
(iii) Average per capita Income (D)			
Annual (D)	8,400,000	9,000,000	9,480,000
Monthly (D)	700,000	750,000	790,000
Monthly Poverty Line -- National	300,000	300,000	300,000
(iv) Avg. Household Annual Income (D)	42,000,000	45,000,000	47,400,000
7. Average Experience with respective types of production (years)	10	11	18
8. Average Experience with integrated pest management (years)	5	3	2
9. Average Experience with good agricultural practices (years)	0	0	0

ha = hectare.

Source: Project Preparatory Technical Assistance.

## b. Subproject Benefits

10. **Quantified Benefits.** While a number of benefit streams are expected from the subproject interventions, the economic analyses include only those that can be readily quantified. In case of the three subprojects, the benefit streams include only incremental benefits from increased crop yields and productivity through adoption of high yield and tolerant seed varieties, IPM, and GAPs. For the high-yield tea subproject, incremental benefits are derived from two outputs: (i) green leaves and buds for export processing, and (ii) green leaves for grade 2 product processing for domestic consumption. The lychee subproject's incremental benefits are estimated from lychee fruits grown for export to Asian and European markets (30%) and lychee fruits for domestic market consumption (70%). For the vegetable (tomato) subproject, grade 1 and 2 tomatoes for supermarkets and grade 3 and others for city-center public markets are also estimated separately for benefit calculation purposes. Detailed estimations of costs and benefits of the three subprojects are presented in Supplementary Appendix K.

11. **Unquantified Benefits.** In addition to the quantifiable benefits mentioned earlier, there are a number of benefits that cannot be readily quantified. First, although progress has been made in recent years, poverty remains a critical problem in the project provinces. The Project will contribute significantly to easing the poverty of labor wage earners by increasing the employment availability and wages in local areas. This will reduce the social and financial costs otherwise incurred by family members who are forced to migrate to other provinces to earn a

living. While the benefits from poverty reduction can be quantified, these may be overestimated because they may also accrue to factors other than the project interventions.

12. Second, although not readily quantifiable, health benefits are expected to be significant, because the project interventions will contribute to reduced cases of food poisoning caused by vegetables, tea, and fruits.<sup>6</sup> These benefits can be divided into two categories, resource cost savings (i.e., a reduction in out-of-pocket expenses for health care), and productivity gains (i.e., a reduction in time lost to illness that would have otherwise have been utilized in income generating activities). Improvement of community health in the project area will significantly reduce the number of labor days lost due to illness (directly or through caretaking of relatives).

13. Third, the Project will help build capacity for local stakeholders, including provincial management agencies responsible for quality and safety, district people's committees, commune people's committees, and other public utility entities. Benefits will mainly come from project technical assistance in planning, management, operation and maintenance (O&M) of safe agricultural zones, and certification of marketable products as well as entities along the farm-to-market system. Improved planning and zoning will be essential to efficiency increases. If investment is not planned in an appropriate manner before implementation, waste may be very high. Improvement in management of O&M activities will also save annual O&M costs, whether they are borne by the Government or by farmers.

14. Fourth, in addition to pecuniary benefits, adopting IPM and GAPs will create a practical forum for farmers to exchange experiences, skills and techniques and assist them in adopting new, more efficient farming techniques. Such a forum will further promote production efficiency and productivity. Women, as a major source of on-farm labor, will be exposed to new farming practices and their roles and positions in society will be strengthened through the acquisition of knowledge and skills. In addition, the Project will contribute to increased awareness and change the mindsets of farmers regarding the adoption of cleaner production practices, waste management, and environmental protection.

### **c. Summary Economic Indicators**

15. The EIRRs were calculated for the three sample subprojects to determine their economic viability and serve as benchmarks for subproject selection during project implementation. The results of the economic analysis for the three sample subprojects are summarized in Table A10.3. Base-case EIRRs range between 24.8% and 28.9%, while economic net present values (ENPVs) are in the range of \$163,000 and \$206,000, and benefit-cost ratios (BCRs) are estimated to be 1.1–1.8. These indicators suggest that the three sample subprojects examined are economically viable, with base-case EIRRs well above the 12% cutoff rate. As indicated above (para. 4), the economic analysis of the three sample subprojects will serve as a representative evaluation of the whole Project. Therefore, the Project is considered economically viable, because the EIRRs exceed the economic opportunity cost of capital for the quantified benefits. In addition, there are other social, environmental, and capacity-building benefits that have not been quantified due to measurement difficulties and/or lack of data. Therefore, the analyses can be regarded as a conservative estimate of the overall benefits.

16. Sensitivity tests were undertaken to test the robustness of the analyses and examine the consequences of changes in variables, including an increase in capital and recurrent costs,

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<sup>6</sup> According to Dr. Tran Dang of Viet Nam Food Administration in his presentation to the food safety working group on 28 March 2008, poisoning from microbiological contamination and excessive pesticides in fruits, tea, and vegetable products accounts for about 30% of all food poisoning cases.

implementation delay, and potential output-related risks, including the probability that (i) producers may not be fully convinced of the need to comply with national and international quality standards, and (ii) incidences of food safety scares related to Vietnamese agro-products in major domestic and export markets may dampen the confidence of consumers.

**Table A10.3: Summary Economic Indicators for Three Production Subprojects**

Unit: \$

<b>Tea --- Cases</b>	<b>ENPV</b>	<b>BCR</b>	<b>EIRR</b>	<b>SI (ENPV)</b>	<b>SV(ENPV)</b>
0. Base case	163,016	1.8	28.9%		
1. Capital costs + 10%	150,237	1.7	26.4%	0.8	127.6%
2. Recurrent costs + 10%	158,525	1.8	28.6%	0.3	363.0%
3. Benefits decrease - 10%	126,200	1.6	25.2%	2.3	44.3%
4. Benefits decrease - 20%	89,385	1.4	21.5%	2.3	44.3%
5. Benefits decrease - 30%	52,569	1.3	17.7%	2.3	44.3%
6. Benefits delay - 2 years	80,124	1.4	18.0%	2.3 ENPV =	50.8% lower
<b>Lychee --- Cases</b>	<b>ENPV</b>	<b>BCR</b>	<b>EIRR</b>	<b>SI (ENPV)</b>	<b>SV(ENPV)</b>
0. Base case	206,299	1.7	24.8%		
1. Capital Costs + 10%	187,312	1.6	22.9%	0.9	108.7%
2. Recurrent costs + 10%	200,294	1.7	24.6%	0.3	343.5%
3. Benefits decrease - 10%	157,433	1.6	22.1%	2.4	42.2%
4. Benefits decrease - 20%	108,567	1.4	19.1%	2.4	42.2%
5. Benefits decrease - 30%	59,702	1.2	16.1%	2.4	42.2%
6. Benefits delay - 2 years	95,250	1.3	16.7%	2.4 ENPV =	53.8% lower
<b>Tomato --- Cases</b>	<b>ENPV</b>	<b>BCR</b>	<b>EIRR</b>	<b>SI (ENPV)</b>	<b>SV(ENPV)</b>
0. Base case	183,160	1.6	26.1%		
1. Capital Costs + 10%	162,611	1.5	23.4%	1.1	89.1%
2. Recurrent costs + 10%	175,938	1.5	25.6%	0.4	253.6%
3. Benefits decrease - 10%	133,468	1.4	22.3%	2.7	36.9%
4. Benefits decrease - 20%	83,776	1.3	18.5%	2.7	36.9%
5. Benefits decrease - 30%	34,084	1.1	14.7%	2.7	36.9%
6. Benefits delay - 2 years	71,675	1.2	15.9%	2.7 ENPV =	60.9% lower

BCR = benefit-cost ratio; EIRR = economic internal rate of return; ENPV = economic net present value; SI = sensitivity indicator, the ratio that compares percentage change in ENPV with percentage change in a variable; SV = switching value, the percentage change in a variable sufficient to reduce ENPV to zero.

Source: Asian Development Bank estimates.

17. The tests were undertaken with the following variables: (i) increase of 10% in the capital cost, (ii) increase of 10% in recurrent costs, (iii) decrease of 10% in benefits, (iv) decrease of 20% in benefits, (v) decrease of 30% in benefits, and (vi) 2-year delay in benefits. The sensitivity tests indicate that the subprojects are highly sensitive to reduced benefits due to lower market demand and delays in project implementation (and hence realization of benefits). The sensitivity analysis results for the three sample subprojects are outlined in Table A10.3.

### 3. Biogas Development Operation

#### a. Biogas Development Operation Description

18. The biogas development operation aims to reduce hazards associated with livestock waste in agricultural areas, thereby reducing negative environmental impacts (i.e., pollution of water, soil, and air) affecting the quality and safety of agricultural products as well as public health in the project area. The proposed operation will support the construction of biogas infrastructure, a credit facility for household construction of biogas digesters, and strengthening of applied biogas research services. The Project will finance the construction of about 40,000 household biogas digesters in 16 project provinces through subloans from partner financial intermediaries. Households with demand for biogas credit will be screened and selected by the financial intermediaries on terms and conditions agreed between the Government and ADB.

## b. Benefits of Biogas Operation

19. **Quantified Benefits.** The biogas operation has numerous benefits including energy cost savings, production of bio-slurry (a safe organic fertilizer), and reduced environmental pollution levels in water, air, and soil. However, only the cost savings from the substitution of biogas for firewood, kerosene, coal, and liquefied petroleum gas (LPG) for cooking and lighting are used to estimate the incremental benefits of the biogas operation. The Project will contribute to energy savings among rural households because the biogas from the digesters will serve as an alternative energy source for cooking and lighting. Detailed estimates of the costs and benefits (financial and economic) of the biogas operation are presented in Supplementary Appendix K.

20. **Unquantified Benefits.** There are benefits that are not readily quantifiable. First, though no empirical, on-field evidence has been collected regarding the incremental impact on crop yields in Viet Nam of bio-slurry versus untreated manure, bio-slurry is considered to be a safer organic fertilizer than untreated manure. While farmers currently use manure for their crops, it is considered unsafe for water, air, and soil. Second, levels of water, air, and soil pollution will be reduced through the installation and operation of biogas digesters. The proposed biogas development operation will reduce CO<sub>2</sub> emissions by an equivalent of about 40,000–60,000 tons of CO<sub>2</sub> per annum.

## c. Summary Economic Indicators

21. The EIRR was estimated for the biogas development operation together with a schedule of sensitivity analyses, as summarized in Table A10.4. The base-case EIRR is estimated at 26.5% while the ENPV is D273 billion (equivalent to \$17 million), and the BCR is estimated at 1.6. These indicators suggest that, other things being equal, the biogas development operation is economically viable, since EIRRs in base cases are well above the cut-off rate of 12%. Therefore, the biogas development operation is considered economically viable since the EIRRs exceed the economic opportunity cost of capital for the benefits that have been quantified. Sensitivity tests were undertaken to test the robustness of the analyses and examine the consequences of changes in various variables, including increased capital and recurrent costs, and a delay in biogas digester construction. The tests indicate that the biogas operation is highly sensitive to delays in household construction of biogas digesters and hence realization of benefits. The results of the sensitivity analysis for the biogas operation are summarized in Table A10.4.

**Table A10.4: Summary Economic Indicators for Biogas Development Operation**

Biogas Development --- Cases	(Unit: D million)				
	ENPV	BCR	EIRR	SI (ENPV)	SV(ENPV)
0. Base case	273,915	1.6	26.5%		
1. Capital costs + 10%	251,300	1.5	24.3%	0.8	121.1%
2. Capital costs + 20%	228,685	1.4	22.5%	0.8	121.1%
3. Capital costs + 30%	206,071	1.4	20.9%	0.8	121.1%
4. Operation and maintenance costs + 10%	249,354	1.5	25.3%	0.9	111.5%
5. Operation and maintenance costs + 20%	224,794	1.4	24.2%	0.9	111.5%
6. Operation and maintenance costs + 30%	200,233	1.4	23.0%	0.9	111.5%
7. Construction delay - 1 year	178,856	1.4	20.1%	2.7 ENPV =	34.7% lower
8. Construction delay - 2 years	93,982	1.2	15.9%	2.7 ENPV =	65.7% lower
9. Construction delay - 3 years	-230,558	0.7	6.0%	5.4 ENPV =	184.2% lower

BCR = benefit-cost ratio; EIRR = economic internal rate of return; ENPV = economic net present value; SI = sensitivity indicator, the ratio that compares percentage change in ENPV with percentage change in a variable; SV = switching value, the percentage change in a variable sufficient to reduce ENPV to zero.

Source: Asian Development Bank estimates.

## SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

**Country/Project Title:** Viet Nam/Quality and Safety Enhancement of Agricultural Products and Biogas Development Project

Lending/Financing  
Modality:

Project Loan

Department/  
Division:

Southeast Asia Department/  
Agriculture, Environment, and Natural Resources Division

### I. POVERTY ANALYSIS AND STRATEGY

#### A. Linkages to the National Poverty Reduction Strategy and Country Partnership Strategy

The agriculture sector continues to play an important economic role in achieving sustainable and equitable growth and in the alleviation of rural poverty. In Viet Nam, the agriculture sector accounts for about 21% of the country's gross domestic product, and employs about 57% of the labor force, although these shares are expected to decrease due to relatively more rapid growth in the industry and service sectors. Viet Nam's Socio-Economic Development Plan 2006–2010 presents 15 tasks to sustain the rapid pace of economic development and large reductions in poverty. One task is to modernize agriculture, including improving product quality to attain more comprehensive rural development, through the review and development of standards for product quality to protect consumers, guarantee the prestige of Vietnamese farm products, and focus investment in irrigation, transport, clean water and adoption of improved varieties. Other tasks include enhancing the development of disadvantaged regions and areas with ethnic minorities, implementing disease prevention programs, promoting special policies in support of production, harmonizing development with environmental protection, and creating conditions favorable to women in from economic perspective.

#### B. Poverty Analysis

**Targeting Classification:** General intervention

##### Key Issues

The project will be implemented in 16 provinces. It covers a complete supply-and-demand chain: the provinces are mainly agricultural producers, while the three cities (Ha Noi, Ho Chi Minh and Da Nang) are the country's biggest consumers. The average poverty rate in the 14 provinces was 17.5% in 2006, above the national rate of 16.0%. The poverty rate in Son La was highest (39%). It is among the six project provinces with ethnic minority groups.

The Project is classified as a "general intervention" as it is intended to contribute to the county's sustainable, pro-poor agricultural growth by increasing the competitiveness of agriculture and agro-based products. However, the overall poverty reduction impact of the Project is considered positive, given the large proportion of the poor engaged in the agriculture sector. Incomes associated with crop growing are projected to increase as a result of higher product value, improved crop varieties, better infrastructure support, reduced need for chemical fertilizers and increased post-harvest employment opportunities. Those agriculturalists engaged in livestock raising will have reduced cooking fuel expenses and save time spent collecting firewood and disposing of animal waste. As consumers, beneficiaries will benefit from safer food and lower disease risks, which translate to reduced medical care and lost productive time.

### II. SOCIAL ANALYSIS AND STRATEGY

#### A. Findings of Social Analysis

##### Key Issues.

1. **Lack of capital.** Lack of capital for investment is often cited as an obstacle that has contributed to the difficulty faced by farmers in buying high quality agro-inputs, including seeds, fertilizers and pesticides, which are essential for safe agricultural production. In addition, safe production requires additional investments in infrastructure, such as provision of a clean water source and greenhouses. The Project, through its interventions to provide supporting infrastructure in SAZs, will ensure that such food quality and safety-related facilities are installed in the selected provinces.
2. **Low quality pesticides.** Farmers in Ha Tay reported that they fall victim during each crop season to low quality or counterfeit pesticides. After spraying pesticides with little or no effect, farmers frequently buy other types of pesticides and spray again. Such a process not only result in high levels of residual chemicals on foliage and/or fruits, it reduces the time period between the final application and harvesting. To enable farmers to comply with Viet Nam good agricultural practices, criteria for guaranteeing good-quality pesticides and other agro-inputs will be established.
3. **Lack of knowledge of and incentives to follow safe production processes and marketing.** Many farmers are familiar with IPM techniques, but lack understanding of the entire safe production process. Many believe that the use of pesticides is the sole source of food contamination. Lack of knowledge and experience regarding safe marketing is another constraint that needs to be addressed. Moreover, there is a common perception that safe production will require additional investments and/or expenses, such as additional investment in infrastructure, labor, and time required for each crop season. Therefore, farmers believe that the extra cost involved in producing safe food cannot be recovered, as they have to sell products at prices not significantly different from those of unsafe products. There is also a belief that safe agricultural products (especially vegetables) usually appear less attractive than do unsafe products. The project training

program will take into account and address their perceptions.

4. **Need to coordinate among farmers.** Farm households are presently estimated to have 0.3–0.5 hectares of land, composed of an average of seven different plots of land scattered in different places. This situation has resulted in poor work rate efficiency and made it impossible to improve economies of scale. The Project will promote consolidation of small agricultural plots, which will require organization and coordination to strengthen cooperation among farmers with small fragmented landholdings. The Government has a scheme to waive transfer fees for farm property aggregation, and the Project will ensure such an incentive scheme will be implemented in the project area. Support will also be provided for intra-community consultation and negotiation between farmers to ensure optimal social outcomes.
5. **Greater number of women involved in agricultural activities.** Numerous studies in Viet Nam indicate that agricultural work is undertaken primarily by women. The Project will help female farmers avoid production hazards associated with excessive use of pesticides and chemicals, and provide them with technical assistance to improve productivity and subsequently farm incomes. Project activities will also target women farm workers through extension, training and other types of technical support.
6. **Ethnic minorities in the Project area:** Ethnic minorities are present in all provinces and centrally run cities covered by the Project. They constitute an average of 16% of rural households in those provinces. Provinces with relatively higher proportions of ethnic minority groups are: Lam Dong (28%), Son La (88%), Thai Nguyen (29%), and Yen Bai (58%). In the six consultation meetings conducted among various minority groups, there was a unanimous expression of support for the Project. It was pointed out that the Project will resolve such issues as the high dependence on chemical fertilizers, inability to demand higher prices for agricultural products, and the inconvenience of using fuel wood for cooking. A large number of households tend to be involved mainly in subsistence production, with limited market interaction. Their unfamiliarity with the market and limited need for it may reduce the attraction of higher production and income as incentives to adopt new methods and technology. Project-related training will take this into account.

## B. Consultation and Participation

1. Provide a summary of the consultation and participation process during project preparation. Eleven consultation meetings were held, attended by a total of 81 people, or an average of 7 or 8 people per meeting. About 41% of the participants were women. Five of these meetings were conducted among ethnic minorities. One meeting was conducted among women.

2. What level of consultation and participation (C&P) is envisaged during the project implementation and monitoring?  
 Information sharing     Consultation     Collaborative decision making     Empowerment

3. Was a C&P plan prepared?  Yes     No

A C&P plan will be prepared with technical assistance at the beginning of project implementation. The social development specialist (3 person-months) will lead consultation and participatory activities in the planning of subprojects, among other tasks. The C&P plan will ensure that:

1. beneficiaries, including ethnic minorities and women, are represented in decision-making bodies;
2. information dissemination activities will be conducted among stakeholders for each subproject, detailing the benefits and schedule of implementation, and highlighting potential positive and adverse effects and impacts;
3. consultations will be carried out in the design, implementation and monitoring of the subprojects;
4. project personnel and contractors will receive orientation regarding participatory activities, gender awareness and ethnic minorities; and
5. women and ethnic minorities will form part of the groups who will undertake surveys and impact evaluations. Beneficiaries will be consulted during project monitoring to validate data and express their views and suggestions on implementation-related issues.

## C. Gender and Development

### 1. Key Issues.

Viet Nam has a long tradition of promoting gender equality, and one of the highest economic participation rates of women in the world (83%). Women are intended to be the main beneficiaries of the Project. About half of all workers in the agriculture sector are women; compared with men, women contribute more hours of labor to cultivation, agricultural processing and marketing of agricultural produce. Women will be targeted and included in the introduction of new technologies and in training. Tasks that fall largely within the domain of women include tending pigs, cleaning toilets, gathering firewood and cooking. Their participation in household decisions on adoption of biogas digesters is vital, as they are most affected. There are limited agricultural land use rights certificates issued to women, although the number of certificates issued to both spouses is increasing. Women who lack these certificates face difficulties in accessing credit from formal sources, which may be needed if farm and livestock operations have to be expanded to maximize benefits from project inputs.

**2. Key Actions.** Measures included in the design to promote gender equality and women’s empowerment—access to and use of relevant services, resources, assets, or opportunities and participation in decision-making process:

- Gender plan     Other actions/measures     No action/measure

The key features of the gender plan are as follows

1. participation of women in key subproject activities (particularly training) in planning, implementation and monitoring;
2. entitlement of women to project inputs and benefits on an equal footing with men;
3. consultation activities specifically for women, including ethnic minority women, on matters affecting their interests during project planning and implementation;
4. households headed by women who may be adversely affected will be identified and their condition separately studied and monitored for project impact;
5. inclusion of provisions in contractor contracts regarding equal opportunity employment for men and women and equal pay for equal work, regardless of gender; and
6. disaggregation by gender of data collected for planning and monitoring.

**III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS**

Issue	Significant/Limited/ No Impact	Strategy to Address Issue	Plan or Other Measures Included in Design
<b>Involuntary Resettlement</b>	No impact	Subprojects with potential resettlement impact will be screened. Individual or communities may make voluntary donations in exchange for benefits from infrastructure provided by the Project. However, this process will be facilitated by social development specialists.	<input type="checkbox"/> Full Plan <input type="checkbox"/> Short Plan <input type="checkbox"/> Resettlement Framework <input checked="" type="checkbox"/> No Action
<b>Indigenous Peoples</b>	Limited beneficial impact	Special attention will be given during planning and implementation of SAZs and training programs to ensure ethnic minorities derive maximum benefits from the Project. The Project will mobilize social development specialists to ensure the process and outcome.	<input type="checkbox"/> Plan <input checked="" type="checkbox"/> Other Action <input type="checkbox"/> Indigenous Peoples Framework <input type="checkbox"/> No Action
<b>Labor</b> <input type="checkbox"/> Employment opportunities <input type="checkbox"/> Labor retrenchment <input type="checkbox"/> Core labor standards	No impact		<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input checked="" type="checkbox"/> No Action
<b>Affordability</b>	No Impact		<input type="checkbox"/> Action <input checked="" type="checkbox"/> No Action
<b>Other Risks and/or Vulnerabilities</b> <input type="checkbox"/> HIV/AIDS <input type="checkbox"/> Human trafficking <input checked="" type="checkbox"/> Others (conflict, political instability, etc), please specify	Limited impact	Establishment of 48 SAZ model sites may result in consolidation of small agricultural plots (without altering current landownership structure) in order to achieve greater economic efficiency through adoption of specific crop production techniques. The Project’s social development specialist will facilitate consultation among landowners and stakeholders.	<input type="checkbox"/> Plan <input checked="" type="checkbox"/> Other Action <input type="checkbox"/> No Action

**IV. MONITORING AND EVALUATION**

Are social indicators included in the design and monitoring framework to facilitate monitoring of social development activities and/or social impacts during project implementation?  Yes     No

C&P = consultation and participation, IPM = integrated pest management, SAZ = safe agricultural zone.

## GENDER ACTION PLAN

1. Viet Nam has a long tradition of promoting gender equality and one of the world's highest participation by women in economic activities (83%). Women account for nearly 50% of the total agricultural workforce and for a large share of the total annual new jobs created in agriculture. Findings from the project-specific social and gender analyses carried out during the Project's preparatory stage indicate that women in the project area share a number of tasks with men in farming, livestock raising and waste management. However, selling of agricultural produce is done exclusively by women and routine maintenance and harvesting are done primarily by women. Physically demanding tasks such as plowing fields and hazardous tasks—such as pesticide application—are done by men.

2. Despite women's high contribution to household income, women have fewer opportunities to access technology, credit and training. Only 25% of the participants in livestock extension training courses and 10% of the participants in cultivation extension training courses are women. Women have fewer rights in family decision making and are paid less than men for the same work. The 2002 Comprehensive Poverty Reduction and Growth Strategy (CPRGA) recognizes connections between gender inequality and poverty, and highlighted gender equality and advancement of women among its sub-strategies for poverty reduction.

3. Following the National Strategy for Advancement of Women in Viet Nam to the year 2010, the Ministry of Agriculture and Rural Development (MARD), the executing agency of the Project, developed the Gender Strategy in Agriculture and Rural Development to the Year 2010 in 2003. The objectives include, that by 2010, women account for 50% of all participants of technical training, 50% of working people in rural areas will receive gender awareness information, and the representation of women is increased to 30% in management boards and agriculture and rural development projects.

4. This gender action plan has been prepared to ensure gender equality in the distribution of project benefits and to enable active engagement by women in subproject and/or subcomponent design and implementation. Gender responsive interventions will be selected to respond to the specific needs of women in the project area. The implementation arrangements and estimated costs of the gender action plan have been incorporated into the overall project design and costing. The gender action plan implementation schedule will be in line with the overall implementation of the project. The key principles underlining the gender action plan are:

- (i) active involvement of women, particularly poor women, female heads of households, and mothers with infants and young school children, as both implementers and beneficiaries at all stages of project implementation;
- (ii) engagement of female trainers and community facilitators;
- (iii) promotion of the hiring of women and equal pay for men and women for work of equal value;
- (iv) establishment of sex-disaggregated indicators and collection of sex-disaggregated data for the project performance monitoring and evaluation system;
- (v) awareness training for men on women's rights and the importance of gender equality; and
- (vi) encouragement of women's participation in training activities.

Table A12: Gender Action Plan

Activity	Targets	Responsibility
<b>Output 1: Regulatory Framework for Quality and Safety System for Agro-Products</b>		
Enhancing the regulatory framework on food quality and safety	<ul style="list-style-type: none"> <li>Women comprise 30% of those represented during the consultative process adopted for the review of existing decrees, policies, and strategies for ensuring agro-product safety and quality in Viet Nam</li> </ul>	MARD
Strengthening the institutional capacity of state agencies responsible for policy formulation, monitoring, accreditation and certification, inspection, laboratory analysis, review, and development of standards and communication	<ul style="list-style-type: none"> <li>Female and male staff of MARD, NAFEC (134), DARD (144, 16 provinces), certified organizations (100), and laboratories (20) will be given equal opportunity to participate in training</li> <li>Target of 30% representation by women in central, provincial, district, and commune training programs</li> </ul>	MARD and DARD
Establishment of a (pilot) crop food safety management system	<ul style="list-style-type: none"> <li>30%<sup>a</sup> representation by women in the crop food safety management system (including standing committee on food safety, units within NAFIQAD, DCP) from the central (i.e., MARD) to local (commune) level</li> <li>30%<sup>b</sup> representation by women in positions created for food safety specialists and facilitators</li> </ul>	MARD
<b>Output 2: Infrastructure and Facilities for Quality and Safe Agro-Products</b>		
Planning of safe agricultural zones (SAZs)	<ul style="list-style-type: none"> <li>Local communities will be consulted on the (proposed) establishment of three SAZ model sites and on the location of related basic public infrastructure (30% representation by women during consultations, with segregated focus groups).</li> <li>Women's representation in model sites will be encouraged (50% of project beneficiaries will be women).</li> <li>Women's participation in project-financed training activities (30% representation)</li> <li>Gender-sensitive training materials in local languages will be prepared in close consultation with beneficiaries.</li> <li>The Project will ensure that contractors' agreements contain (i) gender sensitization training(s) for construction workers, (ii) an appropriate clause promoting the hiring of women (30% of the unskilled laborers will be women), and (iii) equal pay for men and women for work of equal value.</li> </ul>	DARD (16 Provinces)
Development of support infrastructure in SAZs		
Certification of agro-products and strengthening of provincial capacity for monitoring and assessment		
Provision of training on farm food safety standards-based practices to farmers, primary processors, and traders		
Replacement of pest- and disease-susceptible varieties with tolerant varieties to improve quality and safety of agro-products		
Provision of support services to project provinces		MARD (central and regional level)
<b>Output 3: Improved Safety and Reduced Health Hazard from Livestock Waste</b>		
Biogas infrastructure investment	<ul style="list-style-type: none"> <li>Direct financial assistance provided for the construction of household biogas units (20,000) (target—50% of beneficiaries to be women)</li> </ul>	MARD
Credit for biogas	<ul style="list-style-type: none"> <li>Financial packages addressing the needs and constraints faced by</li> </ul>	

Activity	Targets	Responsibility
	women, including female heads of households, adopted by the financial intermediaries identified by MARD (target—50% of beneficiaries to be women)	
Applied research services	<ul style="list-style-type: none"> <li>Gender impacts from biogas plants will be studied to assess the impacts of the technology on women (e.g., effects of the program on the workloads of women and on the division of labor between men and women).</li> </ul>	
<b>Output 4: Project Management Support</b>		
	<ul style="list-style-type: none"> <li>The project director will be responsible for overseeing the implementation of this gender action plan and reporting on gender-related achievements in quarterly progress reports to ADB.</li> <li>The terms of reference of the consultant team leader will include responsibility for the timely and effective implementation of the gender action plan.</li> <li>The terms of reference of all consultants will include responsibilities to ensure implementation of the project gender action plan.</li> <li>Gender-sensitization training will be carried out for all staff, consultants, contractors, commune facilitators and commune councilors as part of the project orientation.</li> <li>Both female and male staff will be given equal opportunity to participate in training and capacity development programs.</li> <li>Sex-disaggregated indicators will be established for the project performance monitoring and evaluation system; monitoring will be ongoing to ensure that activities are effectively carried out and targets reached; progress reports will include gender-related achievements (e.g., level of participation of women in meetings and committee decisions) and constraints.</li> <li>The midterm review mission will assess gender-related achievements and constraints to gender action plan implementation and propose adjustments for better project performance.</li> </ul>	<ul style="list-style-type: none"> <li>MARD</li> <li>MARD committee for advancement of women</li> </ul>

ADB = Asian Development Bank, DARD = department of agriculture and rural development, DCP = Department of Crop Production, MARD = Ministry of Agriculture and Rural Development, NAFEC = National Agriculture and Fisheries Extension Center, NAFIQAD = National Agro-Forestry and Fisheries Quality Assurance Department, SAZ = safe agricultural zone.

<sup>a</sup> The target indicated here is recommended by ADB at the time of appraisal when availability of female technical experts is not yet known. Although MARD has shown their strong commitment to recruit female experts as committee members, committee members are selected/nominated on the basis of their technical capacity. Therefore, it was agreed that the number could be adjusted, if necessary, between MARD and ADB during the project implementation stage.

<sup>b</sup> As above.

Source: Asian Development Bank.