

MINISTRY OF AGRICULTURAL AND RURAL DEVELOPMENT (MAR)

**VIETNAM: Sustainable Agriculture Transformation Project
(VnSAT)**



**Environmental & Social Management
Framework
(ESMF)**

Volume 2 – Financing through Commercial Banks and PFI

DRAFT for Consultation

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ABBREVIATIONS

CPMU	Central Project Management Unit
CPC	Commune People Committee
CSB	Community Supervision Board
DARD	Department of Agriculture and Rural Development
DONRE	Department of Natural Resources and Environment
DPC	District People Committee
ECOP	Environmental Code of Practices
EMPF	Ethnic Minority Policy Framework
EMP	Environment Management Plan
ESMF	Environment and Social Management Framework
GOV	Government of Vietnam
HH	Household
IPM	Integrated Pest Management
IPMP	Integrated Pest Management Plan
LEP	Law on Environmental Protection
MARD	Ministry of Agriculture and Rural Development
OP/BP	Operational Policy/Bank Procedures
PPC	Provincial People's Committee
PPMU	Provincial Project Management Unit
QCVN	National Technical Regulations
RPF	Resettlement Policy Framework
RAP	Resettlement Action Plan
REA	Regional Environment Assessment
RPF	Resettlement Policy Framework
SP	Sub-Project
TCVN	National Environmental Standards
VDIC	Vietnam Development Information Center
WB	World Bank

1. INTRODUCTION

In June 2013, the Prime Minister of Vietnam approved the Agricultural Restructuring Plan (ARP) prepared by the Ministry of Agriculture and Development (MARD). The Plan calls for a shift in sectoral goals beyond physical targets to include a broader set of indicators of sustainable development. Particular reference was given to addressing adverse environmental impacts of certain agricultural expansion processes and the need to mainstream effective environmental management practices into agricultural sector. The Plan also called for the broad application of collaborative arrangements among government agencies, the private sector, farmer/ community organizations, and the scientific community – the so-called ‘4 houses’.

The strategic orientation of the Vietnam Sustainable Agricultural Transformation Project (vnSAT) is to support the implementation of the Government's ARP. It will do so with a combination of assistance to policy and institutional reform that supports the reorientation of the central line ministry, MARD, and associated public agencies as well as key private sector stakeholders, and targeted support to two critical sectors where conditions are most suited to the rapid implementation of the new approach embodied in the ARP. A combination of policy and institutional reform and results in two key sectors will deliver real results for beneficiary farmers, and will demonstrate the merits of this new orientation thereby building support for the continued implementation of the strategy. VnSAT comprises of four components:

- Component A: Institutional Strengthening to Support Agricultural Transformation.
- Component B: Supporting Sustainable Rice-Based Systems.
- Component C: Supporting Sustainable Coffee Production and Rejuvenation
- Component D: Project Management, Monitoring and Evaluation

The Project will be implemented in five provinces in the Central Highland and the eight provinces in the Mekong Delta of Vietnam.

The total budget of the Project was estimated at 518 millions USD co-financed by IDA, the Government of Vietnam and private sector. Part of this budget will be lent to the Bank of Investment and Development of Vietnam (BIDV), who then will on-lent that money to the accredited Participating Financial Institutions (PFI). The PFI will then use that financial resource to provide commercial loans to small agribusiness for investments in source and process paddy (Component B) and for investments for coffee rejuvenation among small holder farmers (Component C).

The Project has been classified as Environmental Category B by the World Bank. To comply with the World Bank Safeguard Policies and environmental management requirements of the Government of Vietnam, an Environmental and Social Management Framework (ESMF) has been prepared to guide project stake holders on environmental screening, assessment, mitigation of impacts, monitoring during project implementation. The ESMF includes two volumes, Volume 1 is a safeguard framework that covers the investments directly financed under VnSAT. Volume 2 is applicable to investments financed by VnSAT but through Commercial Bank. Volume 1 will be adopted by MARD and Volume 2 will be adopted by BIDV and other PFI.

Volume 2 of the ESMF included the following sections:

Section 1: Introduction

Section 2: Project Description

Section 3: Policy, Legal and Administration Framework

2. PROJECT DESCRIPTION

2. Project Development Objective(s)

The project development objective is to improve farming practices and value chains in the targeted project areas, and promote institutional strengthening of relevant public agencies in effective support to implementation of the Agricultural Restructuring Plan.

3. Project Description

The strategic orientation of the vnSAT is to support the implementation of the Government's ARP. It is designed to combine assistance to policy and institutional reform that supports the reorientation of the central line ministry (MARD) and associated public agencies as well as key private sector stakeholders, and targeted support to two critical sectors where conditions are most suited to the rapid implementation of the new approach embodied in the ARP. The combination of supported policy and institutional reform and results in two key sectors of rice (in MKD) and coffee (in the Central Highlands) aim to deliver development impacts for beneficiary farmers, and will demonstrate the merits of this new orientation thereby building support for the continued and broader implementation of the strategy. The rice and coffee sectors were selected because: (i) they are large and project impacts would therefore be to scale and transformative; (ii) there are existing private sector agribusiness keen to collaborate; and (iii) previous analytical work has already clearly identified current unsustainable practices and the improved practices suitable for scale-up.

Alternative approaches were considered and rejected. A project that delivered only technical assistance (TA) to MARD and key agencies would be unlikely to generate sufficient support amongst sector practitioners (including private sector agribusinesses) and would lack the instruments to change on-farm practices. Conversely, a project focused exclusively on support to farmers (and agribusinesses) would deliver results for project beneficiaries but would likely remain an 'island of excellence' within a public administration wedded to old practices and unable to address future challenges.

VnSAT comprises the following four components: (A) Institutional Strengthening to Support Agricultural Transformation; (B) Supporting Sustainable Rice-Based Systems; (C) Supporting Sustainable Coffee Production and Rejuvenation; and (D) Project Management.

Component A: Institutional Strengthening to Support Agricultural Transformation (\$10.0 million, of which \$9.7 million IDA) aims to provide capacity building (CB) and organizational development (OD) to MARD, selected provincial DARDs, other public sector agencies and value chain actors to implement the new roles prescribed in the ARP. This component will support the transition of MARD departments (including DARDs) from a 'product organization' to a 'service organization'. This component is anchored in the sectoral and organizational restructuring plans. Functional and organizational analysis in the first year of the project will determine a set of CB and OD requirements to be supported in subsequent years. This will include CB in a series of priority cross-cutting agendas (green growth, project analysis, sector monitoring, budgeting and planning, etc.). Subcomponent A1 provides this CB and OD to central level departments, based on their departmental restructuring plans and the diagnostic functional analysis. This subcomponent aims to support TA needs for priority reform agendas such as the Government's program of equitization of agriculture-sector SOEs and other policy areas. Subcomponent A2 provides essentially the same diagnostic and remedial activities for project provinces (plus possibly additional provinces) and, as such, focuses on the service delivery capabilities of the DARDs with regard to local farmer needs – with a natural focus on rice (in the MKD) and coffee (in the Central Highlands). Subcomponent A3 will support a range of value chain actors and networks and PPPs. The rice and coffee sectors are to be prioritized but others may be

considered. This would include support to the national PPP Secretariat established under the auspices of the World Economic Forum (WEF) and the newly launched Vietnam Coffee Coordination Board (VCCB). It could include support to the related rice-sector bodies such as the Vietnam Food Association (VFA).

Component B: Supporting Sustainable Rice-Based Systems (\$224.1 million, of which \$167.2 million IDA) would support activities in the eight MKD provinces of Kien Giang, An Giang, Hau Giang, Tien Giang, Can Tho, Soc Trang, Dong Thap, and Long An. It will adopt a cluster approach, focused on around 30 districts and around 200,000 small-holder rice farmers and approximately 15 private sector agribusinesses. Subcomponent B1 aims to support improved on-farm practices of rice farmers through provision of technical training and demonstration on the basis of establishment and capacity building of farmer organizations (FO). Matching grants would be provided to FOs to support them in (a) certified seed multiplication, (b) leverage their investments in collective harvesting and processing equipment and postharvest facilities to reduce post-harvest losses and improve their marketing position, and (b) improve selected collective infrastructure (i.e. feeder roads, connecting electricity, pumps and irrigation, etc.) to maximize FO production system efficiency including crop rotations and by-products recycling. Advanced FOs will be further assisted to link with agribusinesses (AB) (whom are supported under B2) to improve further marketing aspects (i.e. contract farming, products branding, etc.). Subcomponent B2 aims to support private sector investments in upgrading rice processing technology and facilities for high value and quality rice through provision of medium- and long-term loans via commercial banks on a commercial basis. Selected ABs would directly source paddy from FOs (whom are supported under B1) to re-position themselves into the quality and specialty rice market segments. Subcomponent B3 aims to support technical departments and concerned agencies of MARD and DARDs in the project provinces to improve their extension skills, capacity and quality, enhance capacity of foundation seed production and certification, and monitor GHG emissions and measurements from the systems that will be adopted with improved agronomic practices. A technical collaboration program between MARD and the IRRI that were already initiated under ACP would be supported by the project to provide overall technical support to MARD and project provinces. This would include research on nutritional aspects of rice production.

Component C: Supporting Sustainable Coffee Production and Rejuvenation (\$100.9 million, of which \$88.7 million IDA) would support the transformation of a substantial portion of Vietnam's coffee sector to sustainable practices. The project would focus in the five major robusta coffee-producing provinces. The project would adopt a phased approach, with Lam Dong, Dak Lak and Dak Nong provinces moving to full implementation immediately after project effectiveness. For Gia Lai and Kom Tum, the project would focus initially on strengthening landscape planning with direct investments at the farm level to follow. This reflects the different level of preparedness for the project in the two clusters. This component would consist of three sub-components. Subcomponent C1 would support sustainable production practices among targeted coffee farmers via farmer field school training and the provision of matching grants for farmers to adopt one or another of the existing irrigation water saving technologies. Subcomponent C2 would support coffee rejuvenation/ replanting by a sub-set of farmers participating in the farmer field schools. Support would be provided to strengthen the existing system of plant nursery inspection/certification. Long-term finance would be provided, via a line of credit (LoC) administered by commercial banks, to cost-share coffee replanting investments, with this disbursement contingent on the application of critical sustainable production practices. Subcomponent C3 would support pilots, at community or district levels, to apply an integrated landscape management approach in coffee-based ecosystems. Support would be provided for awareness raising and for participatory assessment and planning processes and for selective community-level investments in landscape restoration.

Component D: Project Management (\$13.0 million, of which \$9.4 million IDA). This component would provide equipment and incremental operating costs for project monitoring, financial management, and procurement activities, support short and long-term technical assistance to the

project management team in selected areas, and support analysis and dissemination of findings related to the effectiveness and challenges associated with the different institutional and technical models being applied or piloted under the project.

The project incorporates a Line of Credit (LoC) for on-lending through a wholesale bank to eligible commercial banks and subsequently to rice export agribusiness in the MKD and farmers investing in coffee rejuvenation in the Central Highlands. The key factors determining the appropriate institutional arrangement for the management of the LoC regarding coffee replantation include: (a) the lending product must be attractive to potential financial institutions – this requires that the pass-on interest rate at which they will access the LoC is sufficiently low to allow them to apply a margin to cover cost, risk and acceptable profit; (b) the interest rate to be paid by the end-borrower should be sufficiently affordable to farmer households based on the actual cash flow projection for the coffee replantation during first several years when there will be no income; (c) the LoC is a response to market failure by providing much needed medium and long term loans for coffee replantation and agribusiness' need to expand their capital investment on fixed asset, the LoC arrangement shall create level playing field by encouraging participating from private sector players i.e. the commercial banks to sustain the long term agriculture financing in Vietnam; (d) GoVN through SBV is launching a subsidy loan scheme to support coffee replantation and rice export agribusiness, this project will demonstrate a model which can create competition and support long term sustainability of mobilizing local resources; and (e) the institutional arrangements need to provide efficient oversight of several PFIs and the proper fiduciary management and safeguard arrangement at reasonable cost. The IDA Credit would be made to the GoVN for on-lending to a wholesale institution who would be responsible to accredit the interested PFIs based on the agreed accreditation criteria.

The project would establish and support linkages with on-going and future interventions by the IFC. For instance, vnSAT partner agribusinesses would be well positioned to 'graduate' to more tailored advisory services (provided with a cost-sharing element reflecting the greater private-good element). Similarly, coordination between vnSAT and the IFC would facilitate linkages between sustainable small-holder coffee producers and commercial trading companies.

The project implementing agencies will be MARD and the Provincial People's Committees (PPCs) of the thirteen project provinces.

3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1 The World Bank Safeguard Policies

Environmental Assessment OP/BP 4.01. This policy is applied to all elements of a World Bank-financed operations. This policy requires that environmental assessments must be carried out at early stage of project preparation so as safeguard tools (such as Environmental and Social Management Framework, Environmental Impacts Assessment, Environmental Management Plan) can be determined and prepared in a timely manner to avoid or address potential negative environmental impacts. The Bank would not finance projects that, in the Bank's opinion, would cause adverse impacts to the environment in biologically important areas.

VnSAT has been classified as Environmental Category B by the World Bank. The project's overall socio-environmental impacts are expected to be positive. Civil works on some small-scale infrastructures such as storage facilities, dryer, irrigation canals would cause some small impacts such as dust, noise, waste and wastewater generation and safety concerns during construction phase. Most of the negative impacts are short term, temporary, localised and immitigable through the implementation of Environmental Codes of Practices (ECOP) which is readily available. Ass the Project has subprojects that will be identified during project implementation, the Bank required the Borrower (represented by MARD) to prepare an Environmental and Social Management Framework (ESMF) to guide the screening of potential impacts for subprojects.

OP4.01 also requires that public consultations must be conducted during the preparation of the safeguard documents. The final draft of these documents should be disclosed locally and at the Bank for public access.

Natural Habitats OP4.04. This policy requires project siting should avoid impacts on environmental sensitive areas. Where project siting could not be avoided, weighting between positive and negative impacts would be considered, and mitigation measures must be proposed and implemented.

VnSAT project will provide support towards good farming practices in existing farm land and will not acquire new land for farm expansion. Therefore, the project is unlikely to result in adverse impacts on environmentally sensitive areas such as protected areas, national parks, forests or special areas for biodiversity conservation. As the locations of small-scale infrastructure are not yet known at project appraisal, environmental screening will exclude subprojects that might cause adverse impacts on environmental sensitive areas.

Pest Management OP 4.09. This policy requires projects involving procurement of pesticide to prepare and implement a Pest Management Plan to ensure that the handling, transportation, usage, disposal of pesticide be safe for both human and the environment.

VnSAT project will not finance the procurement of any chemical pesticides or herbicides. The project is designed to promote the reduction in chemical pesticide use in existing farm land by enhancing sustainable farming practices. As national Integrated Pest Management Programs has been being implemented by MARD and DARDs for many years in project provinces, these will substitute a standalone Pest Management Plan for the project. The ESMF will include a detailed description/annex on the national IPM which is proposed to be adopted to comply with OP 4.09 instead of a standalone IMP

Physical Cultural Resources OP/BP 4.11. This policy requires that siting of subprojects should avoid impacts on any known physical cultural resources. Mitigation measures must be proposed and implemented if a physical cultural resource be affected. Chance find procedures should be developed as preventive measures for projects involving earthworks.

The siting of small infrastructure under VnSAT will avoid relocation of any known existing physical cultural resources. As subprojects also may involve limited earth work, a "chance finds procedures has been developed and included in ECOP and construction contracts as preventive measures.

Forest. OP4.36. This policy requires impacts on forests should be avoided or mitigated.

All activities will be screened through the project ESMF to exclude activities that have potential negative impact on existing forest lands.

Indigenous Peoples OP/BP 4.10. This policy address issues related to ethnic minorities and indigenous people affected or benefited by the World Bank-financed projects

Ethnic minorities present in some of VnSAT project area. Since location and detailed design of all project activities are not known at project preparation, an EMPF will be prepared. During implementation, where there is a presence of ethnic minorities (i.e. districts or communes), a quick social assessment will be carried out to identify specific impacts on ethnic minorities and other vulnerable groups. Consultations will be conducted to (a) receive inputs/feedback of local beneficiaries to design of investment activities, including addressing their concerns and recommendations; (b) ensure free prior consultations with ethnic minorities and provide them with culturally appropriate benefits; (c) address issues of concern by other stockholders; (d) identify specific actions to mitigate negative impacts. During project implementation, specific impacts and related actions for specific ethnic groups will be detailed in an appropriate EMDP and will be updated annually.

Involuntary Resettlement OP/BP 4.12

This is triggered due to the need for land for project activities. Since the exact location of small scale infrastructure schemes are not known at project preparation, the project will develop a RPF in case there is a need for private land acquisitions. During implementation, a Resettlement Plan will be prepared for each infrastructure scheme and reviewed by the Bank prior to implementation.

3.2 Vietnam sectoral and Environmental Legislations

- *The Law of Environmental Protection (LEP)(2005)*: sets out regulations on strategic environmental assessment, environmental impact assessment and environmental protection commitment of development activities. Environmental Impact Assessment report is developed at the same time as investment project preparation (feasibility study).

Decree No. 29/2011/ND-CP dated 18/04/2011, provide regulations on the preparation, appraisal and approval of Environmental Assessment reports and Environmental Protection Commitment (EPC) (Clause 29-36). At the time of formulation, appraisal and approval of reports detailed in Clause 2, Article 13 of Decree No. 21/2011/ND-CP, the screening environment (type of environmental assessment for the investment project) shall comply with the list of projects in Annex 1 and Annex 2 of the Decree 29/2011/ND-CP. *Environment Impacts Assessment (EIA)*. According to this Decree, none of the investments under VnSAT are required to prepare EIA. Only EPCs are required as part of investment procedures.

- Circular No.26/2011/TT-BTNMT, dated 18/07/2011 issued by MONRE provides guidelines to implement Decree No. 29/2011/ND-CP. This Circular gives detail guidelines to formulate EPC;
- Circular No. 16/2009/TT-BTNMT issued on 07/10/2009 of Ministry of Natural Resources and Environment on regulations, national technical criteria on environment, air quality and toxic substances in the air ambient;

- Decision No.22/2006/QĐ-BTNMT dated 25/12/2006 issued by MONRE on forcing to apply Environmental Standards of Vietnam.

3.3 Regulations on land use and land acquisition in investment projects

- Law of Land Use No.13/2003/QH11 issued on 26/11/2003 by the Vietnam National Assembly (VNA); and the Revised Land Use Law no. 45/2013/QH13 passed by the VNA on 29 November 2013
- Decree No. 181/2004/ND-CP on guidance to implement Land Law, year 2003.
- Decree No. 188/2004/ND-CP on methods to determine land price and frame of land prices.
- Decree No.69/2009/NĐ-CP on additional Regulation on land use planning, land acquisition, compensation, assistance, and resettlement.

3.4 Regulations on Construction Management in investment projects

- Law on Construction No. 16/2003/QH11 issued on 26/11/2003 the National Assembly Republic Socialist of Vietnam.
- Decree No No.12/2009/ND-CP dated 10/02/2009 on construction projects management and investment,

3.5 Regulations on integrated Water Exploitation, Forest Protection, Cultural Heritage and Bio diversity

- Law on Water Resources issued on 21/06/2012 by the National Assembly;
- Law on Forest Development and Protection No. 29/2004/QH11 issued on 03/12/2004 by the National Assembly Republic Socialist of Vietnam;
- Decree No. 23/2006/NĐ-CP issued on 03/03/2006 of the Government on guidance to implement Law on Forest Development and Protection;
- Law on Cultural Heritage No.28/2001/QH10 issued on 07/12/2001 by the National Assembly. Article 13 - prohibitions : possession cultural heritage; destroy or risk destruction of cultural heritage; unauthorized excavation of archaeological sites, illegal construction, encroachment occupied land of historical - cultural, scenic;

3.6 Vietnamese Standard and Criteria related to environment protection

- Water resources:
 - QCVN08:2008/BTNMT: National technical regulations on quality of surface water;
 - QCVN09:2008/BTNMT: National technical regulations on quality of groundwater;
 - QCVN14:2008/BTNMT: National technical regulations on quality of domestic wastewater;
- Air and land ambient management:
 - QCVN 05:2008/BTNMT: Air quality – Standards for ambient air quality;
- Solid waste management:
 - QCVN 03:2008/BTNMT: National technical regulations on limitation of heavy metal concentration in the soil;
 - TCVN 6696:2009: solid waste – general environment protection;
- Vibration and Noise:
 - QCVN 27:2010/BTNMT- national technical regulations on vibration – limitation of vibration in the community and residence;
- Health and Safety:

- Decision 3733/2002/QĐ-BYT issued on 10/10/2002 by the Ministry of Health on the application of the 21 health standards and labor safety related micro-climate, noise, vibration and chemicals - the threshold in the workplace.

3.7 Administration Framework

The Ministry of Agriculture and Rural Development (MARD) is the central Line Agency responsible for overall project implementation. One of MARD responsibilities is to report to the government on implementation progress and effectiveness which may include environmental and safeguard issues;

The Central Steering Committee will assist the implementing agencies in solving problems or constraints faced during project implementation. The CSC will report to the MARD.

The Central Project Management Unit (CPMU) established within MARD, is the key project agency at the central level, responsible for the implementation of Components B and C at the central level and across provinces. CPMU also takes part in project supervision. Some of CPMU specific responsibilities are (a) providing guidance and support to the DARDs in project implementation, including preparing and implementing safeguard documents such as EMP, EMDPs, RPs, etc.; (b) monitoring the quality of implementation including safeguards compliance to report to MARD and IDA;

The Department of Planning of MARD will be responsible for the implementation of Component A which is to support the ARP.

The Provincial People's Committee (PPC) is responsible for project implementation in the respective provinces. The PCC is responsible for reporting to the government/MARD on implementation progress and effectiveness, including safeguard issues, if any;

The Department of Agriculture and Rural Development (DARD) is the key project implementing agency at the provincial level, responsible for overall implementation of all project activities in the province, including procurement and financial management, project supervision, as well as results monitoring and evaluation.

The Project Implementation Unit (PIU) will be established under the DARD to assist in managing day-to-day project implementation, including monitoring the quality of implementation and safeguards compliance in the province; DARD Director will ensure the necessary mobilization of human and financial resources from its technical sub-departments, divisions, and centers and the additional recruitment of contracted staff, when necessary, to support project implementation and manage the quality of project implementation.

The Wholesale Bank and Participating Financial Institutions, selected by SBV in consultation with the Bank, will manage the Lines of Credit to provide commercial loans for: (a) agribusiness investments in increased capacity to source and process paddy from surrounding small-holders (Component B); and (b) investment costs of coffee rejuvenation among small-holder farmers (Component C). BIDV has been proposed to be the wholesale Bank and it would be responsible to select and accredit the interested PFIs based on the agreed accreditation criteria. The IDA Credit would be lent to BIDV, then it would be on-lent to the accredited PFIs in accordance with the subsidiary loan agreements between BIDV and the PFIs. The PFIs would in turn extend sub-loans

to eligible rice export agribusinesses and coffee Rejuvenation farmers.

Technical, Advisory and Supporting Agencies

- **The Departments of Crop, Plant Protection, Cooperatives and Rural Development, Agricultural Planning, IPSARD, WASI and other technical agencies of MARD** will be available to assist the CPMU in implementing technical matters related to sustainable rice- and coffee-based systems including coffee rejuvenation according to their technical and management mandate assigned by MARD.
- **The Agricultural Project Management Board** is one of the project owners to which the CPMU will directly report to. The APMB will directly support the CPMU related to internal procedures and liaise with MARD and concerned ministries to help the CPMU address problems in project implementation.
- **Sub-Departments of Crop, Plant Protection, Cooperatives and Rural Development, Agricultural Planning, and other technical agencies of DARD** will be available to assist DARD in implementing technical matters according to their technical and management mandate assigned by DARD.
- **The Department of Natural Resources and Environment** will be available to assist the DARD in implementing activities related to environmental monitoring and supervision, as and when required.
- **Local governments, consisting of District and Commune People's Committees of the Project Districts and Communes**, will be available to assist the DARD in implementing and monitoring project activities in their locations according to their administrative and management functions.
- **Rice and Coffee Farmer Cooperatives/ Organizations** will be established on a voluntary basis through the facilitation of the project to implement participate in the sustainable rice and coffee initiatives supported by the project.

4. IMPACTS, RISKS AND MANAGEMENT PROCEDURES

There are two main types of investments through the LOC: small scale facilities for agribusiness and coffee rejuvenation. The main potential socio-environmental Impacts and Risks related to VnSAT proposed investments as discussed in detail in Volume 1 include:

- Construction impacts related to processing facilities: dust, noise, safety issues, waste and wastewater generation, disruptions to local drainage, community disturbance etc.
- Coffee rejuvenation: Concerns about overuse and improper disposal of agrochemicals including fertiliser, pesticide and their packaging materials in existing farming practices; pollution caused by improper disposal of these packaging materials, health and safety risks for farmers related to chemical use, water and other natural resources used for farming etc.

The Potential Social and environmental Impacts and risks of the investments financed through the LOC will be managed by the procedures described below:

4.1 Screening for eligibility of the Proposed Investments:

The first step of safeguard management will be **Eligibility Screening** for subproject. Loans sourced from VnSAT financing are only accessible by eligible subprojects and NOT accessible to ineligible subprojects.

Eligibility Screening will be carried out by completing Form 1, Annex 1 of this ESMF. The Borrower will fill in this form with assistance and/or verification by BIDV or PFI officer. A subproject will NOT be eligible if AT LEAST one of the following is TRUE in that subproject:

1. Purchase or use any pesticide in the banned list issued by the Ministry of Agricultural and Rural Development at Decision no.49/2008/QD-BNN
2. Disturb to land areas located within or 5 kilometers from any primary forest, protected areas, specialised forest, areas biologically importance
3. Disturb or lead to conversion of wetland, mangrove forest, specialised forests, protected areas, nature reserve, areas biologically importance.
4. Use land own by army, police force, the Church or any other religious organisation
5. Cause increased erosion or sedimentation risk in an area, or cause surface or groundwater pollution risk, or cause adverse environmental impacts but refuse to apply mitigation measures.
6. Disturb or lead to clearance of planted forest that have landscape values
7. Cause damages, removal or relocation of any known physical cultural resources covered by the Bank Safeguard Policy OP4.11 such as temples, pagodas, churches, statues, monuments, any existing cultural/historical sites, trees or objects having spiritual values to local communities, etc.

4.2 Safeguard Management Procedures for Physical Investments

4.2.1 Safeguard Documentation Requirements

According to Annex 2 of Decree 29/2011/ND-CP dated 18 April 2014, the following projects that may be relevant to VnSAT will be required to prepare Environmental Impacts Assessment:

1. Rice grinding and processing projects having design capacity from 20,000 tons of products per year.
2. Coffee processing projects having design capacity from 5,000 tons of products per year for wet processing method or from 10,000 tons of products per year for processing powder and instant coffee.
3. Projects producing organic fertiliser and compost having design capacity from 1,000 tons of products per year or more.

Therefore, eligible subprojects will be screened for EIA requirements based on Decree no 29/2011/CP dated 18 April.

- If EIA is required, then the Borrower will be responsible for having an Environmental Impacts Assessment (EIA) report and an Environmental Management Plan (EMP) prepared by a consultant. The EIA report will be compliance with Government Decree no. 29/2011/ND-CP

and Circular 26/2011/TT-BTNMT. Relevant Vietnamese environmental authority will review and approve the EIA before the first disbursement can be made. EMP report will be consulted with affected and/or benefited communities before finalisation. The EMP will be reviewed and cleared by the Bank. The format of the EMP is included in Annex 2.

- If EIA is not required but Construction permit or Investment Report is required for a proposed investment in the loan, the Borrower will be responsible for having an Environmental Protection Commitment (EPC) be prepared, then get approval from the District People's Committee. The format of EPC will follow Circular 26/2011/TT-BTNMT.

The EMP, EPC, Bidding document and construction contracts of the above subprojects include the Environmental Codes of Practices (ECOP) and Worker's Codes of Conducts. Standard ECOP has been attached to Annex 3 of this ESMF.

4.2.2 Safeguard Instruments Review and clearance

The following procedures are applicable to LOC investments

- Environmental and Social Management Framework (ESMF) will be submitted to WB for review and clearance. BIDV and other participating financial institutions will review and adopt these documents.
- EIA will be reviewed and approved by DONRE. EMPs will be reviewed and cleared by the Bank Task Team.
- EPC will be submitted to Division of Natural and Environment Resources at District level for review and District People Committee (DPC) for approval.
- Subproject eligibility screening, Environmental agreements will be reviewed by the Safeguard Officer of BIDV or PFI.
- BIDV and PFI will prepare periodical Safeguard monitoring reports and submit to the WB before or during supervision missions

4.2.3 Implementation, Monitoring and Reporting Arrangements

BIDV will be responsible to appoint staff responsible for safeguard aspects of loans with sourced from VnSAT. Similarly, VBARD and other participating financial institutions will also be responsible for staff allocation for safeguard management. Safeguard staff in both BIDV and PFIs will be responsible to ensure that the loans sourced from VnSAT follows VnSAT safeguard procedures. These procedures includes but not limited to screening, impacts assessment, commitments, implementation, monitoring and reporting. BIDV and PFIs safeguard staff will also be responsible to ensure that Project Owners and relevant stakeholders are informed and trained about project safeguard requirements. Annexes 5 and 6 introduced the forms for monitoring EIA/EMP preparation, approval, clearance, post EIA/EMP/EPC monitoring and compliance.

The *Project Owners* and *Design Engineers* are responsible for conducting public consultations about the proposed project technical proposals and draft EA/EMP. They will then be responsible for incorporating environmental solutions and/or relevant mitigation measures into engineering design of subprojects based on the recommendations in the EIA, EMP and relevant inputs from public consultations. The Design Engineers will also be responsible for incorporating ECOPs, Workers Codes of Practices and sub-project specific mitigation measures into the bidding documents, construction and construction supervision contracts.

The **Contractors** will be responsible to comply with subproject environmental management requirements of the Project including ECOP, Workers Codes of Conducts, Subproject specific mitigation measures. He will also be responsible for implementing corrective actions when there are complaints, pollution or failure. The Contractor will be monitored and supervised by the Environmental Consultant, a member of the Construction Supervision team.

The **Construction Supervisors**, beside his responsibilities to supervise engineering aspects, will also be responsible to supervise the contractors on environmental, health and safety aspects as specified in Construction Supervision Contracts.

The **Benefited Communities** will be informed about project the project and are encouraged to participate in environmental compliance monitoring during construction and operation phase. They can make suggestions or complaints to the contractors, Project Owner, or relevant local authorities.

Households Borrowers will be responsible to comply with environmental commitments made to BIDV or PFIs.

The **local authorities** will be responsible for post-EIA monitoring (by DONRE) or enforcing, coordinating in addressing complaints.

4.3 Coffee rejuvenication (subcomponent 3a)

Sup-project component also support sustainable coffee rejuvenation where suitable (i.e. providing medium term credits via commercial banks), and upgarding of private nurseries. As coffee rejuvenation will take place in existing farm land, it is expected that there would be no incremental environmental impacts in such existing farming areas. Furthermore, as supports are given toward sustainable farming practices, the use of chemicals and water for replanted coffee plantation are expected to be reduced compared to existing farming practices.

To ensure that the coffee farmers follows proper farming practice and make the efforts to reduce environmental impacts from their farming activities, an Environmental Protection Agreement (EPA) between the Borrower and BIDV or PFI will be signed during loan processing. EPA form is attached in Annex 4 of this ESMF. Annex 8 provides information about IMP in Vietnam in general and IMP for Coffee in particular. The Coffee households as Borrowers will also be required to follow IMP practices to the extend possible. They are also required not to use the banned pesticide listed in Annex 7.

Impacts on income and livelihood from disrupted crops would be mitigated by phasing of rejuvenation as described in detail project description (PAD) and Project's RPF.

5. CAPACITY BUILDING, TRAINING

5.1 Safeguard Management Capacity of Implementing Agency

Need a few paras here about the capacity of BIDV on managing Safeguard – from AM of RF3

RF3 applied Decree 21/2008/ND-CP which have the following gaps:

- + Public consultation
- + Post EIA monitoring

These gaps were addressed in Decree 29//2011/ND-CP regarding environmental assessment, environmetnal commitment etc.

Under RF3, no safeguard staff in PFI other than BIDV

5.2 Capacity building, training in VnSAT

As safeguard management procedures applicable to loans sourced from VnSAT were built based on the strengthening of the safeguard procedures in RF3, safeguard capacity of the participating PFI will be strengthened through:

- Allocation of staff responsible for safeguard: During implementation phase, BIDV and each PFI will appoint at least one Officer (SO) to be responsible for social and environmental safeguard in the LOC of the Project.
- The Project will provide “Train the trainers” Training for BIDV and PFI Safeguard staff on the Project’s safeguard procedures and subproject requirements. This training should be conducted within the first six months of the project implementation phase. The Training will be delivered by the World Bank Safeguard staff or its consultants. Refresh training will be conducted annually in the following years
- The trained safeguard staff of these financial institutions will carry out training to staff who work directly with the Borrowers.
- IPM will be arranged through the components managed by MARD but farmers borrowing money from VnSAT through PFI would also be required to participate and follow IPM practice..

ANNEX 1 – FORM 1: SAFEGUARD ELIGIBILITY SCREENING FOR SUBPROJECT**PART 1: BASIC INFORMATION**

1	Subproject name	
2	Type of Investment	Infrastructure (specify.....) <input checked="" type="checkbox"/> Coffee rejuvenation <input type="checkbox"/>
3	Project location:	Communes Districts Province
4	List of proposed investments	
5	Total investment budget	- Loan: Ower: - Total

(Move to Part 2 after filling in all information in the table above)

PART 2: ELIGIBILITY SCREENING

No.	Screening Questions	Yes	No
	<i>Would the investments under the loan....?</i>		
1.	located or disturb a land area located within 5 kilometers from any primary forest, protected areas, national parks, nature reserve, specialised forest, areas biologically importance?		
2	Located or disturb areas of critical natural habitats, breeding ground of known rare/endangered species?		
3	Acquire, disturb or lead to conversion of wetland, mangrove forest, specialised forests, protected areas, nature reserve, areas biologically importance.		
4	Disturb areas having landscape or historical values		
5	Require relocation of any known physical cultural resources such as		
	a temples, pagodas, churches		
	b graveyards		
	c statues, monuments, historical sites,		
	d community cultural centre		
	e buildings, sacred trees or objects having spiritual values to local communities		
6	Purchase or use any pesticide in the banned list issued by the Ministry of Agricultural and Rural Development at Decision no.49/2008/QD-BNN		
	Cause increased erosion or sedimentation risk in an area, or cause surface or groundwater pollution risk, or cause adverse environmental impacts but refuse to apply mitigation measures.		
7	Acquire land owned by the army, police force, the Church or any other religious organisation		

* If all answers are “No”, subproject is eligible

* If at least one question answered as “yes”, the Subproject is ineligible and will not be accessible to the loan. Project owner can reselect the site of subproject and do screening again

If the project is eligible, which safeguard tool will be required (determined by PFI Officer)

EIA and EMP

EPC

Environmental Agreement

Date:

Prepared by (Project Owner)

Date:

Verified by (PFI Officer)

ANNEX 2- RECOMMENDED OUTLINE OF AN EMP

An EMP should include the following:

- Definition of the environmental management objectives to be realized during the life of a project (i.e. pre-construction, construction, operation phases) in order to enhance benefits and minimize adverse environmental impacts.
- Description of the detailed actions needed to achieve these objectives, including how they will be achieved, by whom, by when, with what resources, with what monitoring/verification, and to what target or performance level. Mechanisms must also be provided to address changes in the project implementation, emergencies or unexpected events, and the associated approval processes.
- Clarification of institutional structures, roles, communication and reporting processes required as part of the implementation of the EMP.
- Description of the link between the EMP and associated legislated requirements.
- Description of requirements for record keeping, reporting, review, auditing and updating of the EMP.

Common Elements of an EMP and its Contents

Introduction: This should provide brief but concise information on

- (i) *the EMP context:* describe how the EMP fits into the overall planning process of the sub project, listing project/subproject environmental studies such as EPC.
- (ii) *the EMP's connection with the ESMF (if relevant) and the project.*
- (iii) *the objectives of the EMP:* describe what the EMP is trying to achieve. The objective should be project specific, not broad policy statements. The project-specific EMP shall form part of the project contract specifications.

Policy, legal and administrative framework

- GOV's regulations: provide brief description of GoV regulations related to EIA and technical regulations and standards applied to the subproject.
- World Bank's safeguard policy: list World Bank safeguard policies triggered.

Project description

The project/subproject objective and description should be provided in sufficient detail to define the nature and scope of the project. These should include:

- (i) *project location:* site location should be described with location of the activities provided including location maps showing location in the project area
- (ii) *construction/operation activities:* the description may include a brief description of construction and operation processes;; employment numbers and type; the plant and equipment to be used; the location and site facilities and worker camps; bill of quantities for civil works.

- (iii) *timing and scheduling*: anticipated commencement and completion dates should be indicated. If the project is to be completed in stages then separate dates for each stage should be provided.

Baseline data

This should provide key information on the environmental background of the subproject as well as its connection with the project area, including maps. Focus should be given to provide clear data on topography, major land use and water uses, soil types, flow of water, and water quality/pollution. Brief description on socioeconomic condition and EM (if relevant) should also be provided. Photos showing existing conditions of project sites should be included.

Potential impacts and mitigation measures

For Vn Subproject, Form 1 should be used for identifying subproject potential impacts and ECOP (section B in this Annex) should be adopted to inclusion into this Section

Monitoring

Monitoring of EMP implementation would encompass environmental compliance monitoring and environmental monitoring during project implementation as described in details below:

- (i) Environmental compliance monitoring: this should be the responsibilities of CSC, PMU, and benefited communities

EMP Implementation arrangements: Institutional Arrangements should be in line with the ESMF. Discussions should cover the following aspects

- *Responsibility for EMP implementation:*
- *Incorporation of EMP into detailed technical design and bidding and contractual document:*
- *Environmental compliance framework:.*
- *Reporting procedures:.*

Estimated Budget for EMP Implementation

Normally the cost of implementing mitigation measures are incorporated in total sub-project costs. if a mitigation measure is incorporated into engineering design, it may be possible to estimate the cost of that work item

Consultation, Disclosure of the EMP

Described the consultation and disclosure activities carried out during subproject implementation as guided in the ESMF.

ANNEX 3 -ENVIRONMENTAL CODES OF PRACTICE (ECOP)

1. Objectives

The Environmental Codes of Practice (ECOP) is prepared to manage small environmental impacts during construction. The ECOPs will apply to manage small scale infrastructure investments subproject. ECOP will be a mandatory part of construction contract or bidding documents so that contractor complies with environmental covenants. PMU and construction supervisors will be responsible for monitoring of compliance with ECOP and preparing the required reports.

Part 1 – Contractor’s Responsibilities

Issues/Risks	Mitigation Measure
1) Dust generation/ Air pollution	<ul style="list-style-type: none"> • The Contractor implement dust control measures to ensure that the generation of dust is minimized and is not perceived as a nuisance by local residents, maintain a safe working environment, such as: <ul style="list-style-type: none"> - water dusty roads and construction sites; - covering of material stockpiles; - Material loads covered and secured during transportation to prevent the scattering of soil, sand, materials, or dust; - Exposed soil and material stockpiles shall be protected against wind erosion.
2) Noise and vibration	<ul style="list-style-type: none"> • All vehicles must have appropriate “<i>Certificate of conformity from inspection of quality, technical safety and environmental protection</i>” following Decision No. 35/2005/QD-BGTVT; to avoid exceeding noise emission from poorly maintained machines.
3) Water pollution	<ul style="list-style-type: none"> • Portable or constructed toilets must be provided on site for construction workers. Wastewater from toilets as well as kitchens, showers, sinks, etc. shall be discharged into a conservancy tank for removal from the site or discharged into municipal sewerage systems; there should be no direct discharges to any water body. • Wastewater over permissible values set by relevant Vietnam technical standards/regulations must be collected in a conservancy tank and removed from site by licensed waste collectors. • At completion of construction works, water collection tanks and septic tanks shall be covered and effectively sealed off.
4) Drainage and sedimentation	<ul style="list-style-type: none"> • The Contractor shall follow the detailed drainage design included in the construction plans, to ensure drainage system is always maintained cleared of mud and other obstructions. • Areas of the site not disturbed by construction activities shall be maintained in their existing conditions.
5) Solid waste	<ul style="list-style-type: none"> • At all places of work, the Contractor shall provide litter bins, containers and refuse collection facilities. • Solid waste may be temporarily stored on site in a designated area approved by the Construction Supervision Consultant and relevant local authorities prior to collection and disposal. • Waste storage containers shall be covered, tip-proof, weatherproof and scavenger proof. • No burning, on-site burying or dumping of solid waste shall occur. • Recyclable materials such as wooden plates for trench works, steel, scaffolding

Issues/Risks	Mitigation Measure
	<p>material, site holding, packaging material, etc. shall be collected and separated on-site from other waste sources for reuse, for use as fill, or for sale.</p> <ul style="list-style-type: none"> • If not removed off site, solid waste or construction debris shall be disposed of only at sites identified and approved by the Construction Supervision Consultant and included in the solid waste plan. Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas, such as in areas of natural habitat or in watercourses.
6) Chemical or hazardous wastes	<ul style="list-style-type: none"> • Used oil and grease shall be removed from site and sold to an approved used oil recycling company. • Used oil, lubricants, cleaning materials, etc. from the maintenance of vehicles and machinery shall be collected in holding tanks and removed from site by a specialized oil recycling company for disposal at an approved hazardous waste site. • Unused or rejected tar or bituminous products shall be returned to the supplier's production plant. • Store chemicals in safe manner, such as roofing, fenced and appropriate labelling.
7) Disruption of vegetative cover and ecological resources	<ul style="list-style-type: none"> • Areas to be cleared should be minimized as much as possible. • The Contractor shall remove topsoil from all areas where topsoil will be impacted on by rehabilitation activities, including temporary activities such as storage and stockpiling, etc.; the stripped topsoil shall be stockpiled in areas agreed with the Construction Supervision Consultant for later use in re-vegetation and shall be adequately protected. • The application of chemicals for vegetation clearing is not permitted. • Prohibit cutting of any tree unless explicitly authorized in the vegetation clearing plan. • When needed, erect temporary protective fencing to efficiently protect the preserved trees before commencement of any works within the site. • The Contractor shall ensure that no hunting, trapping shooting, poisoning of fauna takes place.
8) Traffic management	<ul style="list-style-type: none"> • Before construction, carry out consultations with local government and community and with traffic police. • Significant increases in number of vehicle trips must be covered in a construction plan previously approved. Routing, especially of heavy vehicles, needs to take into account sensitive sites such as schools, hospitals, and markets. • Installation of lighting at night must be done if this is necessary to ensure safe traffic circulation. • Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warning. • Employing safe traffic control measures, including road/rivers/canal signs and flag persons to warn of dangerous conditions. • Avoid material transportation for construction during rush hour. • Signpost shall be installed appropriately in both water-ways and roads where necessary.

Issues/Risks	Mitigation Measure
9) Interruption of utility services	<ul style="list-style-type: none"> • Provide information to affected households on working schedules as well as planned disruptions of water/power at least 2 days in advance. • Any damages to existing utility systems of cable shall be reported to authorities and repaired as soon as possible.
10) Restoration of affected areas	<ul style="list-style-type: none"> • Cleared areas such as disposal areas, site facilities, workers' camps, stockpiles areas, working platforms and any areas temporarily occupied during construction of the project works shall be restored using landscaping, adequate drainage and revegetation. • Trees shall be planted at exposed land and on slopes to prevent or reduce land collapse and keep stability of slopes. • Soil contaminated with chemicals or hazardous substances shall be removed and transported and buried in waste disposal areas.
11) Worker and public Safety	<ul style="list-style-type: none"> • Training workers on occupational safety regulations and provide sufficient protective clothing for workers in accordance with applicable Vietnamese laws. • Install fences, barriers, dangerous warning/prohibition site around the construction area which showing potential danger to public people. • The contractor shall provide safety measures as installation of fences, barriers warning signs, lighting system against traffic accidents as well as other risk to people and sensitive areas. • If previous assessments indicate there could be unexploded ordnance (UXO), clearance must be done by qualified personnel and as per detailed plans approved by the Construction Engineer.
12) Communication with local communities	<ul style="list-style-type: none"> • The contractor shall coordinate with local authorities (leaders of local communes, leader of villages) for agreed schedules of construction activities at areas nearby sensitive places or at sensitive times (e.g., religious festival days). • Copies in Vietnamese of these ECOPs and of other relevant environmental safeguard documents shall be made available to local communities and to workers at the site. • Disseminate project information to affected parties (for example local authority, enterprises and affected households, etc.) through community meetings before construction commencement. • Provide a community relations contact from whom interested parties can receive information on site activities, project status and project implementation results. • Inform local residents about construction and work schedules, interruption of services, traffic detour routes and provisional bus routes, blasting and demolition, as appropriate. • Notification boards shall be erected at all construction sites providing information about the project, as well as contact information about the site managers, environmental staff, health and safety staff, telephone numbers and other contact information so that any affected people can have the channel to voice their concerns and suggestions.
13) Chance find procedures	<ul style="list-style-type: none"> • If the Contractor discovers archaeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall: <ul style="list-style-type: none"> • Stop the construction activities in the area of the chance find; • Delineate the discovered site or area;

Issues/Risks	Mitigation Measure
	<ul style="list-style-type: none"> • Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Department of Culture and Information takes over; • Notify the Construction Supervision Consultant who in turn will notify responsible local or national authorities in charge of the Cultural Property of Viet Nam (within 24 hours or less); • Relevant local or national authorities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values; • Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage; • If the cultural sites and/or relics are of high value and site preservation is recommended by the professionals and required by the cultural relics authority, the Project’s Owner will need to make necessary design changes to accommodate the request and preserve the site; • Decisions concerning the management of the finding shall be communicated in writing by relevant authorities; • Construction works could resume only after permission is granted from the responsible local authorities concerning safeguard of the heritage.

Part 2 – Contractor’s Workers Environmental Code of Conducts

Do:	Do not
<ul style="list-style-type: none"> ◆ Use the toilet facilities provided – report dirty or full facilities ◆ Clear your work areas of litter and building rubbish at the end of each day – use the waste bins provided and ensure that litter will not blow away. ◆ Report all fuel or oil spills immediately & stop the spill from continuing. ◆ Smoke in designated areas only and dispose of cigarettes and matches carefully. (littering is an offence.) ◆ Confine work and storage of equipment to within the immediate work area. 	<ul style="list-style-type: none"> ◆ Remove or damage vegetation without direct instruction. ◆ Make any fires. ◆ Poach, injure, trap, feed or harm any animals – this includes birds, frogs, snakes, etc. ◆ Enter any fenced off or marked area. ◆ Drive recklessly or above speed limit ◆ Allow waste, litter, oils or foreign materials into the stream ◆ Litter or leave food lying around. ◆ Cut trees for any reason outside the approved construction area ◆ Buy any wild animals for food; ◆ Use unapproved toxic materials, including lead-based paints, asbestos, etc.;

<ul style="list-style-type: none"> ◆ Use all safety equipment and comply with all safety procedures. ◆ Prevent contamination or pollution of streams and water channels. ◆ Ensure a working fire extinguisher is immediately at hand if any “hot work” is undertaken e.g. Welding, grinding, gas cutting etc. ◆ Report any injury of workers or animals. ◆ Drive on designated routes only. ◆ Prevent excessive dust and noise 	<ul style="list-style-type: none"> ◆ Disturb anything with architectural or historical value ◆ Use of firearms (except authorized security guards) ◆ Use of alcohol by workers during work hours ◆ Wash cars or machinery in streams or creek ◆ Do any maintenance (change of oils and filters) of cars and equipment outside authorized areas ◆ Dispose trash in unauthorized places ◆ Have caged wild animals (especially birds) in camps ◆ Work without safety equipment (including boots and helmets) ◆ Create nuisances and disturbances in or near communities ◆ Use rivers and streams for washing clothes ◆ Dispose indiscriminately rubbish or construction wastes or rubble ◆ Spill potential pollutants, such as petroleum products ◆ Collect firewood ◆ Do explosive and chemical fishing ◆ Use latrines outside the designated facilities; and - Burn wastes and/or cleared vegetation.
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ANNEX 4 – ENVIRONMENTAL PROTECTION AGREEMENT FORM

SOCIALIST REPUBLIC OF VIETNAM

Independence- Freedom – Happiness

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Location.....date.....month.....20.....

ENVIRONMENTAL PROTECTION AGREEMENT

To: (name of Lending Financial Institution)

Name of Borrower (organisation)

Address:

Part A: COMMITMENT OF BORROWER (Individual, Organisation)

We commit to comply with the Law on Environmental Protection, related underlaw legal regulations and other regulations issued by local government (if any). We also commit to undertake actions toward mitigating negative social and environmental impacts as advised by the Officer from lending agency.

PART B: ENVIRONMENTAL PROTECTION AGREEMENT

I. Agreement between the Borrower (Individual, Organisation) and Lending Financial Institution

- We hereby guarantee the accuracy of information and content provided in this Agreement and commit to fully undertake the measures specified below for mitigating subproject potential social and environmental impacts
- During the implementatio of the project, we commit to take full responsibilities for any breaching or violations to the Environmental Law.

II. Basic Information of the Project

1. Name of sub-project
2. Brief description on the proposed sub-project site
3. Type of investments (describe in details operational principles of the investments)
4. Total cost of sub-project
5. Loan amount:
- 6.

III. Specific Information on the potential environmental impacts of subproject activities on the environment and human health, and mitigation measures

1. Land area used for production by the subproject:

2. Summary description of production process.

3. List of materials used in the production each month
 water. fertiliser. pesticide.
 Power ... Others (specified)
4. Products and by-products generated per month:
 Type. Amount.
 Type. Amount.
 Type. Amount.
 Type. Amount.

5. Potential Socio-Environmental Impacts and Mitigation measures for Coffee

6. Mitigation and Monitoring Measures

Issues / Impacts	Mitigation Measures	Borrower Committed	
		Yes	No
Use of fertiliser and pesticide	- Do not use banned chemicals specified in Decision no.49/2008/QD-BNN issued by MARD		
	- use predators for pest controls where possible		
	- use organic fertiliser where possible		
	- Have fertilizer and herbicides applied individually with its correct dosage and frequency.		
	- Fertiliser will be covered with soil after being applied to minimise evaporation and being washed away by rainwater		
	- Ensure all fertilizers, pesticides and herbicides are stored in a closed area under a dry roof.		
	- Ensure packaging materials are disposed of in approved place, not left uncontrolled in		
	- Wear protective gears including protecting cloth, masks, gloves, boots etc. when handling pesticide		
	- Do not wash pesticide containers in water source. Discharge container washwater into coffee plantation instead.		
Use of water	- Water coffee in right amount at the right time		

<p>Apply environmental practice</p>	<ul style="list-style-type: none"> - Plant trees to provide shades for coffee plants in consultation with Plant protection or agricultural extension Officer (in order to reduce evapotranspiration from coffee leaves and the ground - Maintain adequate vegetation cover to reduce water evaporation from the ground/soil 		
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7.

8. Recommendations of Credit Officer

.....
.....
.....

PART C: TREATMENT

During the implementation of the sub-project, if PFI find any incompliance to environmental commitment, PFI will direct the Borrower to implement corrective actions within a defined time frame. After the deadline, the PFI will check again and if no corrective actions had been implemented, punishment such as put disbursement on hold or even cancel the loan before the day of maturity.

Representative of PFI

Borrower, or representative of Borrower

.....

.....

ANNEX 5 – SAFEGUARD INSTRUMENTS PREPARATION MONITORING FORM

(Name of Financial Institution)

Socialist republic of Vietnam

Independence – Freedom – Happiness

**REPORT ON ENVIRONMENTAL IMPACT ASSESSMENT OF SUB-PROJECTS
FINANCED IN QUARTER OF YEAR 20...**

<i>Content</i>	Coffee plantation	Storage facility	Processing facility	Others	Total	Remarks
- Number of subproject EIA and EMPs prepared						
- Number of subproject EIA and EMPs approved						
- Number of EIA approval pending						
- Number of EMP clearance pending						
- Number of post-EIA inspections carried out						
- Number of EPC prepared and approved						
- Number of post EPC Inspections						
- Number of sub-project has EPA						
- Number of safeguard inspections to coffee plantation						
Total						

....., date..... month year

Authorized representative

(sign and seal (if any))

ANNEX 6 – COMPLIANCE MONITORING FORM

REPORT ON ENVIRONMENTAL COMPLIANCE MONITORING

Quarter Year

Name of Financial Institution :

1. Number of monitored sub-projects in the quarter:.....
2. Number of sub-projects implemented environmental protection measures

Farms	storage	Processing facility	Others

3. Number of sub-projects have not implemented environmental protection measures:.....

Farms	storage	Processing facility	Others

4. Reasons for not implementing environmental mitigation measures
-
-
-

5. Number of sub-projects has been warned/ punished by local environmental management authority

Farms	storage	Processing facility	Others

6. PFI's handling measures:.....
-
-

place....., date..... month year

Authorized representative

(sign and seal (if any))

ANNEX 7 – LIST OF BANNED PESTICIDE IN VIETNAM

(issued by the Ministry of Agricultural and Rural Development at Decision no.49/2008/QĐ-BNN)

COMMON NAMES - TRADE NAMES	
Pesticides, preservatives forest	
1	Aldrin (Aldrex, Aldrite ...)
2	BHC, Lindane (Gamma - BHC, Gamma - HCH, Gamatox 15 EC, 20 EC, Lindafor, Carbadan 4/4G; Sevidol 4/4G ..)
3	Cadmium compound (Cd)
4	Chlordance (Chlorotox, Octachlor, Pentichlor ...)
5	DDT (Neocid, Pentachlorin, Chlorophenothane ...)
6	Dieldrin (Dieldrex, Dieldrite, Octalox ...)
7	Eldrin (Hexadrin ...)
8	Heptachlor (Drimex, Heptamul, Heptox ...)
9	Isobenzen
10	Isodrin
11	Lead compound (Pb)
12	Methamidophos: (Dynamite 50 SC, Filitox 70 SC, Master 50 EC, 70 SC, Monitor 50 EC, 60 SC, Isometha 50 DD, 60 DD, Isosuper 70 DD, Tamaron 50 EC ,...)
13	Methyl Parathion (Danacap M25, M40; Folidol - M50 EC; Isomethyl 50 ND; Metaphos 40 EC, 50 EC; (Methyl Parathion) 20 EC, 40 EC, 50 EC; Milion 50 EC; Proteon 50 EC; Romethyl 50 ND; Wofator 50 EC ...)
14	Monocrotophos: (Apadrin 50SL, Magic 50 SL, Nuvacron 40 SCW/DD, 50 SCW/DD, Thunder 515 DD, ...)
15	Parathion Ethyl (Alkexon, Orthophos, Thiopphos ...)
16	Sodium Pentachlorophenate monohydrate (Copas NAP 90 G, PDM 4 90 powder, P-NaF 90 bột, PBB 100 powder)
17	Pentachlorophenol (CMM 7 liquid oil, Oil eradicate termites M-4 1.2 liquid)
18	Phosphamidon (Dimeccron 50 SWC/DD)
19	Polychlorocamphene (Toxaphene, Camphechlor ...)
20	Stroban (Polychlorinate of camphene)
Crops Fungicides	
1	Arsenic compound (As) except Dinasin
2	Captan (Captane 75 WP, Merpan 75 WP,...)
3	Captafol (Difolatal 80 WP, Folcid 80 WP, ...)
4	Hexachlorobenzene (Anticaric, HCB...)
5	Mercury compound (Hg)
6	Selenium compound (Se)
Rodenticides	
1	Talium compound (TI);
2	2.4.5 T (Brochtox, Decamine, Veon ...)

ANNEX 8 - INTEGRATED PEST MANAGEMENT PLAN (IPM)

(national approach)

National Institutional Arrangements for IPM

Under the Ministry of Agricultural and Rural Development, the Department of Plant Protection and its branches in the provinces as well as the Agricultural Extension Centres at district level are the authorities coordinating and working on Integrated Pest Management issues.

IPM activities implemented by these authorities include field survey, prepare forecast, monitor and check the progress of main pest development in the field. Based on their forecast on the timing, scale and level of damages the main pest may cause, the provincial plant protection authorities will recommend policies, plan and measures for pest management.

They also conduct training to farmers to carry out sets of integrated measures such as seedling at the time time, seedling at the right density, apply the right amount of fertiliser, promote the application of biological measures for pest management, reduce chemicals and practice sustainable IPM. They also provide training for farmers on proper use of chemical pesticide to ensure high efficiency for pest management, safe for human beings, farm pests and the environment. These authorities also carry out communication campaigns on plant protections and quarantine legislations and advance IPM techniques to the farmers etc.

Running costs of these plant protection agency has been state fund allocations. Their staff also have also working in projects and programs financed from other sources for research and to conduct additional trainings for farmers annually.

INTEGRATED PEST MANAGEMENT (IPM)

1.1. Objectives

a, General objectives

Strengthening flora protection at local level, reducing pesticide use in the field, improving the efficiency of prevention, managing well pesticide and pesticide use process to reduce the risk of contamination pesticides on the environment and affect human health

b, Specific objectives

- Support of the Department of Plant Protection of project provinces in strengthening pest management and pesticide management in accordance with the national action plan on food hygiene and safety, food security, adaptation to climate change and the concerned international conventions that the Government has approved;
- Strengthening the capacity of IPM in Vietnam, including farmer groups to implement training IPM and research activities with farmers producing rice, vegetables ... to improve life, better and more sustainable crop production, minimizing the from pesticides.
- Strengthening environmental protection, food safety through strengthening the role of predators; reduce pesticide residues to ensure food hygiene and safety, reduce environmental pollution (water, land, air)
- Improving farmers' knowledge: distinguish the major pests, secondary; identify predators and their role in the field, clearly understand the effect of two colors of pesticides, property

use, know how to survey pest and use threshold control; understand and apply pest control measures in IPM to increase income for farmers.

1.2. The basic principles of IPM framework

The following principles will be applied to all sub-projects likely to increase the use of fertilizers and pesticides:

- a. "Prohibited list": The list of banned pesticides will be used and circulated
- b. IPM program: Detailed planning work will be completed through consultation close to farmers, local authority/PCP organization.
- c. The improvement of knowledge and experience in the use of fertilizers and chemicals through research surveys and training courses in the work as well as selecting safe use of non-chemicals, other techniques, has been being investigated and/or applied in Vietnam. National IPM Program has also summarized the results of the implementation and the lessons of experience.
- d. IPM Program can be set up to support the implementation of the Government's policy and objectives focusing on reducing the use of chemical fertilizers and pesticides.
- e. In normal conditions, if pesticide use is considered to be a necessary option, only pesticides registered with the government and the international recognition in use and project will also provide technical and economic information for chemicals use demand. It should consider the options in the management of not harmful chemicals and can also reduce reliance on the use of pesticides. The measures will be incorporated into the project design to reduce risks related to the handling and use of pesticides to allowed possible level and managed by users
- f. The planning and implementation of mitigation measures and other activities will be carried out closely with the authorities, powers and stakeholders, including suppliers of chemicals, to facilitate cooperation and understanding each other.

1.3. The approach of IPM

Focus more on the risks of abuse and excessive use chemical of plant protection products. The concerned plant are rice, vegetables, tea ... these plants tend to be sprayed more of pesticides.

Focus on community education, the initial survey will be incorporated into the task with the aim of clarifying the root cause of the abuse and excessive use of plant protection products and the associated risks. Support the capacity building of the instructor (trainer) IPM. The current program will need to be reviewed and new modules will be supplemented to increase the portion related to reducing the risk of plant protection products. The training program will be enriched with the integration of many activities such as System Rice Intensification (System Rice Intensification - SRI), minimum tillage (minimum tillage), production community and use of bio-products replacing plant protection chemicals ... the training activities, the application will be made in the wide area application of the model.

1.4. The contents of IPM model

(i) Collection of information and selection of solutions

Before implementing IPM program, consultants must have the original investigation to have the necessary information such as:

- Survey to collect data on: staple crops have economic significance in the project area: seeds, crop, growth characteristics, farming techniques,
- Survey to collect data on soil conditions, pedology, local climate
- Investigate the situation of the pest, harmful rule arises, their economic damage causing on the major crops in the project area
- Investigate the role of natural enemies parasitic of pests on the major crops in the project area
- Investigate the actual situation of pest control measures, pesticide use and their effect at the local
- Investigate the socio-economic conditions, income, technical knowledge, and practices ...

On the basis of these findings, a proposal to evaluate IPM measures will apply on specific crops in regions and localities implement the project through the following measures:

- Cultivation methods: Soil, field sanitation, crop rotation, intercropping, crop seasons, reasonable sowing and planting density, rational use of fertilizers; appropriate caring measures
- Using seed: the tradition seed and the proposed seed in use
- The biological measures: taking advantage of available natural enemies in the field, using probiotics...
- Determination of the level of harm and prevention threshold
- Chemical measures: safe using with natural enemies, the economic threshold; 4 correct use of medicines;

(ii) Develop of demonstration models IPM

This section done by the Department of Crop Production, based on soil characteristics, climate, farming skills ... Department of Crop Production will propose to the TDA of pilot field for agricultural development with the highly effective main crops. IPM activities in the pilot field will serve for sightseeing and guidance of practice.

Some of the main contents when building the IPM in the pilot field, as follows:

- Construction of demonstration models for applying IPM measures proposed above
- Building model involved by the people with the guidance of technical staff
- In the model, there need to build nuclear farmers, group leader
- In addition to technical assistance there should be support materials, ... for households participating in demonstration models
- Compiling IPM guiding documentation for major crops: rice, vegetables ...
- Scale of model: depending on crops,... specific economic conditions, models were constructed using different scales: 5-10 ha / model.

(iii) Coaching and training of IPM staff

TOT (Training of trainers) and Farmer Field School (FFS):

- Each sub-project will organize workshops and staff training of IPM. The content of the training includes:

- Distinguish the major and secondary pests
- Identify the natural enemies of pests and diseases in the field
- Investigate methods to detect worms and diseases
- Understand the impact of two pesticides, using appropriate pesticides
- The techniques pest control under IPM principles
- Advanced farming techniques
- The understanding must be trained in theory and practical application in the field. The contents above can be trained under thematic groups: farming thematic, identification thematic and detection methods of pests and their natural enemies, the thematic of IPM techniques in production ...
- Training object: The technical staff of the Department of Agriculture, Sub-department of plant protection, agricultural extension of districts, communes, and cooperatives. These students will train to the farmers in the project area, the implementing of models.
- The size of each class is from 20 to 30 students, held in each district. Learning time in each stage. According to the thematic training session, each session may last 3-5 days on both theory and practice.
- Lecturer: hire experts from University/Research institute/Agricultural Extension Center...

(iv) Coaching and training of farmers

Training of Farmers (TOF) follows Farmer Field School (FFS):

- Method: Combine theoretical training and base on practical fields of farmers and demonstration model on demonstration IMP in the pilot field;
- Contents are the same as IMP staff training;
- Participants: participating farmers, farmers who direct implement the models and farmers outside if interested;
- Classes are organized in each commune.
- Lecturer: staffs attended TOT classes

(v) Evaluate and visit the field based on of demonstration models and field applied of IPM following the models of farmers

Visit the coast conference, farmers performing the demonstration models are reporters. The farmers implement the model directly with the participants; visiting farmers will calculate, compare economic performance and identify lessons, limitations and the work being done and not being done

(vi) Scientific seminar, evaluation of result and exchange of experience and information, expand the model

Invite experts in related fields participating in the assessment, analysis and additional evaluation, perfecting the processes; the mass media, the propaganda extension organization, expansion and transfer the result, the technical advances to farmers, and production areas with similar conditions

1.5. Expected results

The project is expected to achieve the following results:

- The risk of food safety and the environment are minimized through the implementation of existing regulations in business management and use of plant protection products and other provisions in national policy and the implementation.
- The capacity of the provincial PPD, farmer trainers are enhanced meeting training work, IPM training and IPM practice advocacy are maintained.
- Support for farmer groups after learning IPM to continue experiment to determine the application technical advances more effectively in production and popular in the community.
- Support for strengthening commune locality, strengthening pesticide management including the implementation and enforcement of legislation controlling plant protection products. Construction and distribution of a short list of specific plant protection products proposed use for rice and safe vegetables production.

1.6 Implementation of IPM programs

- Sub-Department of Plant Protection (BVTV):
 - Provide policy and technical guidelines for the implementation of the IPM program.
 - Join in IPM model building
 - Join coaching and staff training IPM
- Plant Protection Station at district level
 - Coordinate with IPM staff to implement coaching and trained of farmers implemented IPM through the approach and provide of knowledge, support for of farmers on the safe use of pesticides when necessary.
 - Guide the list of banned pesticides
 - Examine the distribution facility providing pesticides to ensure the provision of safe pesticides for farmers
- People's committee at commune level

Organizing for farmers decided to maintain the routine IPM was formed from a training course by organizing IMP-clubs or groups of farmers with the different levels of organization and structure, along with many activities (including the integration of the contents of cattle, credit, market access, etc.,)

- Households in the project area:
 - Implementing IPM program has trained
 - The members of the IPM club support together to develop agricultural activities. They also play a central role in the task of organizing community IPM program and general agricultural planning of commune and district as well.

COFFEE CROPS, INTEGRATED PEST MANAGEMENT (IPM) IN THE PROJECT AREA

Gia Lai

By 2012, Gia Lai has 78,000 ha of coffee plantation. Field survey carried out under the Agricultural Competitiveness Project (ACP) shows that some coffee plantation did not follow agricultural plan, seedling lacks of selection. Although the province allocate funds for IMP training but the resources had been limited to bring about apparent changes related to the overuse of chemical fertiliser, reliance on chemicals for pest management.

Under the ACP project, the Plant Protection company in the province was engaged to carry out baseline survey and deliver IMP training for the farmers to help them overcome the mentioned issues. Below described the methodology and contents of a specific IPM training for Coffee farmers conducted under the ACP by the officers from the Plant Protection Company:

Comm diseases in coffee trees are rệp, bệnh rỉ sắt, bệnh nấm hồng và thán thư quả

Methodology:

- + training on demonstration model. The farmers worked in groups, discuss the issues by topics as facilitated by the trainers. The trainers prepare lectures for each stage of the crop, combine with explanations given on demonstrations in the field, and answer the questions
- + the training apply four principles of IMP: use strong and health seedling, use predators for pest management, regular visit to the garden, and the farmers become experts.

Contents:

Stage 1: From post-harvesting to fruit-forming

- + Biophysical characteristics of coffee plants
- + timing and technic for branch cutting
- + timing for first watering
- + pest management
- + fertiliser for dry season

Stage 2: The duration that the fruit to grow quickly

- + Biophysical characteristics of coffee plants
- + predators in coffee garden
- + pest, disease and weed management
- + fertiliser and application technic at the beginning of rainy season
- + working on branches, buds to prepare for next crop

Stage 3: The fruit became solid and ripe

- + Biophysical characteristics of coffee plants
- + fertiliser application
- + Pest management, predators for the coffee plants
- + harvesting, collection and processing technics to maintain the quality

Dak Lak

Coffee has been the main crop in the Central Highland. Dak Lak is located in the centre of the Central Highland with total land area of 1.3 millions ha, in which 422,000 ha is agricultural land. In 2011-2012, the total area of coffee plantation in Dak Lak was 191,000 ha, the largest coffee plantation area among all provinces of Vietnam and contributes 40% to the country's total coffee produce for export. Coffee plantations provide jobs and stable income for about 300,000 coffee farmers and about 200,000 people working in various businesses in the value chain.

Only about 10% of the coffee plantations have been owned by 18 state-owned corporations and the remaining 90% of coffee plantations are owned by 180,500 farmer households. Among the total of coffee farmer households, 35% or 63,000 households own less than 0.5 ha, 34% or 61,000 households own between 0.5 to 1 ha, 24% of the households own between 1 to 2 ha and only 7.2% or 13,000 households own more than 2 ha of coffee plantations.

The main challenges that coffee farmers have been facing include: (a) the impacts of climate change; drier dry seasons causing shortage of water for irrigation, floods in harvesting season affects the quantity and quality of the coffee; (b) aging of coffee gardens, every year about 10,000 ha of coffee plantations have been rejuvenated in Dak Lak; (c) increased production cost and lack of labours etc.

Survey on existing coffee farming practices of farmers carried out under the ACP in 2011-2012 indicated that coffee plantations have been heavily dependent on chemical fertiliser, each year chemical fertilisers have been applied 4 to 8 times, and the rate of households using organic fertiliser was very low. The farmers usually throw the fertiliser onto the bottom of the tree which is not very efficient as heavy rain would wash it away, and the chemical become vapour in high temperature under the sun. As part of IMP training, the farmers were instructed to make channels to put the fertiliser in, then refill the channels with soil. The use of pesticide has been still popular in Dak Lak, the farmers usually consult with pesticide agents on application. Under the same survey, it was found that the cost of pesticide usually accounts for around 2.5% of the production cost and the farmers had limited awareness about the harmful effects to human health and the environment. Water is also very important to coffee productivity. As availability of both surface and ground water resources has been less, the farmers have been applying various methods for water saving such as watering at the right time in the right amount as advised by technicians, plant bigger native trees at intervals to provide shade for coffee trees so as to reduce evapotranspiration from coffee leaves, plant trees for wind shielding, create and maintain vegetation cover in order to prevent evaporation from the soil etc.

The farmers also manage to keep their plantations tidy and clean. Activities carried out usually grass uprooting, collecting fallen leaves, trimming the trees planted interally with coffee etc. Most of these activities are carried out 4 to 6 times, mostly manually, in rainy season, these also contribute to reducing the sheilds of harmful pests and herbs.

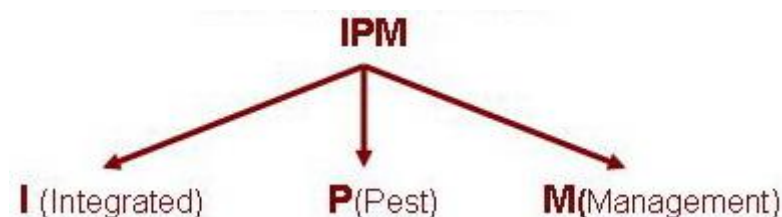
Under the ACP project, training on good farming practice delivered by the staff from the Plant Protection Department recorded the costs of watering, fertiliser, pesticide, farm cleaning etc. and compare between demonstration models and normal farms. The results showed that the most cost savings was related to watering, fertiliser, pest management and farm cleaning. Training report also indicated that through "Train the trainers (TOT)" and "Farmer Field Schools (FFS)", the participants are aware of the harmful impacts of chemical fertiliser, pesticide and water overuse on the environment and human health, and on the sustainability of coffee plantations.

INTEGRATED PEST MANAGEMENT IPM FOR THE RICE CROPS

1- Definition, basic principles of integrated pest management

1.1. What is Integrated Pest Management (IPM)?

According to the expert group of the Food and Agriculture Organization (FAO), "Integrated Pest Management" is a pest management system that in the specific the context of the environment and the population dynamics of the species causing damage, using all the techniques and appropriate measures can be, in order to maintain the density of the pest below cause economic damage.



1.2. Five basic principles of integrated pest management (IPM)

(i). Planting and health care of crops:

- Choose good seed, suitable for local conditions.
- Choose healthy and qualified crops.
- Planting, cared for properly techniques to grow good crops which are resistant and high yielding.

(ii) Check fields regularly, understand the progress of the growth and development of plants, pests, weather, land, water ... to take timely remedial measures.

(iii) Farmers become experts field: Farmers' technical knowledge, management skills need to advocacy field for many other farmers.

(iv) Pest prevention

- Using appropriate preventive measures, depending on the severity of disease, parasitic natural enemies in each stage.
- Using of chemical drugs has reasonable and proper technique.

(v) Protect natural enemies: Protecting the beneficial organisms to help farmers kill pests.

2- Contents of integrated pest management

2.1. Farming methods

(i) Early land preparation and field sanitation

- Land preparation and field sanitation soon after planting to kill many caterpillars and pupae live in the rice stem borer and rice stubble, loss of shelter and food source of the brown planthopper, green hoppers... Brokers are the transmission of viral diseases for rice as dangerous illness blighted gold, rice ragged stunt disease.
- Principles of impact of field sanitation measures and handling crop residues after harvest is cut off the ring cycle of pests from the crop to other crops and pests limited source accumulation, transmission spread at beginning of the crop.

(ii) Crop rotation

Rice rotation with other crops to avoid pathogen accumulation in rice from the crop to other crop.

(iii) Appropriate Planting

Planting rice to ensure appropriate growth and good development, achieve high productivity, avoids the risk of the weather. The determination of appropriate the crop having to rely on the characteristics of the damage incurred pests important to ensure that rice avoiding peak of the epidemic.

(iv) Use healthy seeds, pest resistant and short seeds

- Healthy seeds, free disease helps to rice facilitate development
- Using resistant rice seeds reduce drug use chemical pest control, reduce pollution, protect natural enemies; keep balance agricultural ecosystems.
- Rice seed with short growth period of about 100-110 days, plant earlier in the season could have been avoided borer, deep bite panicle. Rice seed with extremely short growing period is 80-90 days brown planthopper prevention measures effective for brown plant hopper could not accumulate in sufficient quantities to cause severe damage in extremely short day breeds.

(v) Cultivation density is reasonable

- The density and sowing techniques, depending on the rice seeds transplanting, crop, soil and nutrition, aged rice, rice quality, process agricultural intensification...
- The density is too thick or too little will affect productivity, while also affecting the generation and development of pests, weeds.
- The rice fields are often sown too thick closed up early, causing high humidity, creating conditions for sheath blight and brown plant hopper damage incurred at the end of the crop.

(vi) Using reasonable fertilizers

Fertilization excessive or unreasonable fertilizer will make plants grow normally and not prone to pest infestation. Rice fields fertilization are more susceptible to infectious diseases rice blast, sheath blight, leaf blight...

2.2. Manual methods

Light traps catch butterflies, break eggs, rub stripping foil fencing using leaf spray, dig down to catch mice ...

2.3. Biological methods

(i) Creating a favorable environment for beneficial organisms are natural enemies of pest development to contribute to kill pests:

- Protection of natural enemies to avoid toxic chemicals by using selective medication drugs, narrow-spectrum drugs, drugs used when absolutely necessary and should be based on economic thresholds...
- Create habitat for natural enemies after planting by intercropping, planting legumes on bunds, disintegrator for lurking natural enemies...
- Application of cultivation techniques facilitate reasonable development natural enemies.

(ii) Priority use drugs Biological Plant Protection;

The medicines is effective only biological pest control, non-toxic to beneficial organisms, safe to human health and the environment

ANNEX 9 – SIMILAR EXISTING WORKES SIMILAR TO POSSIBLE PHYSICAL INVESTMENTS



Spaning tree with yellow flower, a native plant specie, has been being planted at interval to provide shades for coffee plants



Inside a Drying facility using rice husk for fuel



Coffee garden mixed with peper, cashew nuts etc.



Chimmeney within the drying facility