TERMINAL REPORT

GINGER COMPETITIVENESS PROJECT:

ENHANCING SANITARY AND PHYTOSANITARY CAPACITY OF NEPALESE

GINGER EXPORTS THROUGH PUBLIC PRIVATE PARTNERSHIPS

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

MTF/NEP/068/STF/OPS

UN House, Lalitpur, Nepal

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Ginger Competitiveness Project (MTF/NEP/068/STF/OPS)

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ABBREVIATIONS AND ACRONYMS

ABPSD	Agriculture Business Promotion and Statistics Division
AEC	Agro Enterprises Centre
AESA	Agro-Ecological System Analyses
APP	Agriculture Perspective Plan
ASC	Agriculture Service Centre
CaO	Calcium Oxide
COC	Copper Oxy Chloride
CPF	Country Programming Framework
DADO	District Agriculture Development Office
DFID	Department for International Development
DFTQC	Department of Food Technology and Quality Control
EIF	Enhanced Integrated Framework
ES	Executive Secretariat
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field School
F-FS	Follow-up Farmers' Field School
FMC	Facility Management Committee
FNCCI	Federation of Nepalese Chambers of Commerce and Industries
GAP	Good Agricultural Practices
GMP	Good Manufacture Practice
IEE	Initial Environmental Evaluation
IPM	Integrated pest management
JT	Junior Technician
MDG	Millennium Development Goals
MoAD	Ministry of Agricultural Development
MoCS	Ministry of Commerce and Supply
NASABIKE	Namsaling Community Development Centre
NASDP	National Agriculture Sector Development Priority
NGO	Non-Government Organization
NGPTA	Nepal Ginger Producers and Traders Association
NIU	National Implementation Unit
NMDP	Nepal Market Development Programme
NMTPF	National Medium Term Priority Framework
NPC	National Project Coordinator
NPPO	National Plant Protection Office
NSC	National steering Committee
NTIS	Nepal Trade Integration Strategy
PH	Post-harvest
PPG	Project Preparation Grant
PSC	Project Steering Committee
PSC	Project Steering Committee
PTWG	Project Technical Working Group
RAP	Regional Agricultural Programme (FAO)
SMS	Subject Matter Specialist
SPS	Sanitary and Phytosanitary
STDF	Standards and Trade Development Facility
TF	Trust Fund
TFM	Trust Fund Manager
TYIPs	Three-Year Interim Plans
UAE	United Arab Emirates
UNDAF	United Nations Development Assistance Framework
UNOPS	United Nations Office for Project Services
VAT	Value Added Tax
WAE	When Actually Employed Basis

A. TERMINAL REPORT OVERVIEW

1. Project Profile

Country	Nepal
Project Symbol	MTF /NEP/068/STF (STDF 329) – STDF contribution, MTF /NEP/068/OPS - EIF contribution
Project Title	Ginger Competitiveness Project: Enhancing Sanitary and Phytosanitary Capacity of Nepalese Ginger Exports through Public Private Partnerships
Resource Partners	MTF/NEP/068/STF - 462,144 MTF /NEP/068/OPS - 711,550 NGPTA - 140,000 MoAD - 60,000
Actual EOD	07 June 2012
Actual NTE	06 September 2015 (MTF/NEP/068/STF), and 31 December 2015 (MTF/NEP/068/OPS)
Participating organizations:	STDF; EIF/UNOPS; MoCS; MoAD; FAO; FNCCI/AEC/NGPTA Farmers' groups and cooperatives

Implementing Partners (List):

Name	Type (NGO/Community Based Organization/Govt.)	Total Funds Transferred
Ministry of Agricultural Development (MoAD)	Government	NPR 8,659,147 (USD 98 576)
AEC/ FNCCI with NGPTA	NGO (Private business alliances)	NPR 7,603,200 (USD 87 307)

Contribution to FAO's Strategic Framework ***Indicate the title of each higher level result to which the project contributes***	
Organizational Outcome (s)	Agribusiness and agri-food chains that are more inclusive and efficient are developed and implemented by the public and private sectors
Regional Priority Area/Initiative	Fostering agricultural production and rural development
Country Programming Framework Outcome(s)	CPF outcome 3.1 : Strengthened and reoriented technical and Institutional capacities at national and decentralized levels to provide support to promote market-oriented production and value addition
UNDAF Outcome(s)	Outcome 10: Nepal's institutions are strengthened for more effective integration of policy and the economy into intergovernmental economic and normative processes, and international policy and legal regimes. Output 10.2: National institutions have enhanced capacity to better comply with the international policy regulatory framework, recommendations and standards.

2. Financial Data in USD as of 31 December 2015[1]

Budget	1174 687: (EIF Contrib.: 711 550+993 interest earned, and STDF Contrib.:462 144)
Cash received	1173 694

Delivery	1144 162 (EIF- 682 139, and STDF- 462 023)

[1] Data source: FPMIS/ Data Warehouse

3. Executive Summary

Ginger is a major cash crop of Nepalese smallholder-farmers with high potentialities of export earnings. Despite lucrative export market opportunities visible for ginger, Nepalese stakeholders in ginger value-chain system were identified to have limited knowledge and insufficient capacity to comply with export requirements. The project envisioned 'increased income level of ginger farmers through improvements in SPS arrangements and value addition for exports' in general, and specifically 'increased market opportunities for Nepalese ginger through a series of SPS related and quality improvement interventions. Five outputs were planned with eleven activities for intervention.

- Ginger washing/processing facility designed, constructed and operationalized, and producer organizations strengthened
- Materials development and training on Good Agricultural Practices (GAPs), post-harvest handling and SPS requirements
- Supply of quality ginger rhizomes available
- Study on markets (SPS) for fresh and processed Nepalese ginger
- Improved capacity of Nepalese Government to negotiate and demonstrate compliance with import requirements (SPS) of trading partners

The project involved MoCS and MoAD from government sector, and AEC and NGPTA comprising ginger farmers and traders from private sector as stakeholders and ultimate beneficiaries. 3500 to 4000 farm households and approximately 200 traders were visualized to benefit from the operation of ginger washing facility, market study and group-based seasonal trainings and demonstrations linked to increasing production, value addition, additional job creation and post-harvest cost reduction. Other effects such as 2,000 farmers (>60% women) trained in season long trainings on GAPs for ginger, 200 seasonal jobs created, marketing and post-harvest cost reduced, farm-gate price for ginger increased, NGPTA capacitated to operate the facilities, training curriculum/manual developed and superior cultivars introduced were also visualized from the project implementation. An enhanced export opportunity for Nepalese ginger with improvements in quality of fresh ginger supplies specifically in sanitary and phytosanitory (SPS) standards was envisaged through implementation of eleven different activities.

As per the project strategy, the activities were implemented guided to mitigating possible risks in SPS management and ginger exports through developing a ginger washing facility, strengthening NGPTA to manage the facility and achieving rhizome-rot management and promotion in supply of quality planting materials, and ultimately achieving farm welfare from the ginger production, processing and trade promotions. Activities carried out and major achievements are summarized hereunder.

- A public-private agreement formed among stakeholders that set avenues toward establishment and operation of the ginger washing facility, ginger processing facilities and fabricators in India visited by the project team, land for the facilities construction availed, complete design and business plan of the facility formed, an IEE of the facility carried out, and processes of the procurements accomplished as parts of preparatory assessments;
- a six metric ton per hour capacity ginger washing facility established at Duwagadhi-9 of Jhapa district in Nepal, commissioned in its operation and handed over to NGPTA with the project envisaged facility management and operation modality instituted as described by the public-private agreement and thereafter by the NGPTA Ginger Washing and Processing Facilities Management and Operation Procedure 2015 (in Nepali) and the NGPTA Nepalese Ginger Promotion Trust Fund Establishment, Management and Operation Procedure 2015 (in Nepali). When considered an average per household ginger production of three 3 metric ton and double shift operation of the facility, the facility can provide ginger washing service to above 8000 farm households with creation of above 200 new jobs in association with the washing operation and along ginger value chain to carryout various production and transmission functions.
- NGPTA is made accountable in management and operation of the facility with its capabilities enhanced with physical facilities, trainings, operation modality, the trust fund, a business plan of the facility with detail analysis of financial parameters and market studies recommending avenues

to enter into export markets ever guiding NGPTA in preparation of ginger export strategies and work plans.

- Financial outcome of the facility operation is channelized into the trust fund for its assured transfer to the welfare of farmers and other actors in the ginger value chain.
- Training materials consist mainly of Ginger Farmers' Field School Manual, Ginger Cultivation Handbook and Farmers' Record Book prepared taking consideration of good agricultural practices. The materials are shared to ginger farmers in the target area, FFS-facilitators, stakeholders, extension workers and ginger related projects.
- Season long trainings delivered to ginger farmers through 54 FFSs trained 1891 (60% women) farmers during two consecutive ginger-seasons with major focus on improvement of product quality through introduction of good practices.
- Fifty-nine farmers trained as FFS-facilitators (master trainers) facilitated in the season long trainings. The facilitators, following the project, are engaged with DADOs or other projects (such as DANIDA supported UNNATI) in operation of FFSs.
- Short-term trainings on 'ginger seed production' and 'SPS and post-harvest loss' implemented in target districts trained respectively 80 and 75 leader farmers and those, in respective FFSs, trained group members. Likewise, location based ginger training trained 101 additional farmers in Panchthar.
- Among other trainings are JT-training to DADO field staffs, bookkeeping and leadership development trainings to group leaders, ginger pit-storage trainings cum demonstration to ginger groups and safe handling and transportation training to ginger traders. Besides, AEC organized traders' training cum workshop to the traders and hands on training on operation of the facilities to the persons provided by NGPTA.
- Each of the field schools necessarily established a common plot, where the group members for learning by doing carried out demonstrations and problem based studies. Effectiveness of *trichoderma* and alternative options in rhizome rot management, comparison of available cultivars and cultivation practices for better performance, demonstration and seed production were major scopes of common plot activities. Surplus amount due to sale of common plot produce was saved in group-fund.
- The FFSs in 2013 season, at minimum, carried out a comparative study between farm practices and project introduced practices in ginger cultivation. The FFSs were operated with 'follow up programs' during 2014 season. They primarily included activities on group strengthening, scaling up of the learned practices and, depending on the groups' interest and capacity, some comparative and/or replicated studies on ginger technologies, due to which, the farmers are confident in diseases and pest management as well as other production level approaches of ginger quality improvements.
- Supply management of quality ginger basically required management of cultivar, healthy seed source and crop diseases and pests. Such was addressed during the project implementation through season long trainings, demonstrations and introduction of a system of farm inventory management and product certification in the field schools; subject specific short-term trainings, and the facility establishment. Twenty-seven metric ton of seed-rhizome of the cultivars such as *Kapurkot 1* and *Makawanpure* are introduced to ginger groups for comparison with indigenous cultivars and seed multiplication of the ones performing well in the locality. Farmers in the groups are trained in ginger seed selection and its farm based production and storage.
- Market studies in Bangladesh, India, Japan, the UAE and the Netherlands have analysed situations of ginger industry in local, regional and global dimensions; seen into the demands and trade requirements of specific markets; analysed in-country settings of logistical realities in the context of the market demands; identified major constraints and possible avenues to enter into the export markets, and come up with way forward recommendations. The studies have brought forth relevant suggestions to state policy makers to identify way forward interventions, and to export promoters to contrive on avenues in entering appropriate markets through products preparation.
- Development of state capacities to negotiate and demonstrate compliance with SPS requirements associated with multiple deliveries. Activities in relation to reduced farm-consumptions of pesticides, farm inventory management, crop inspection, process supervision/monitoring and

product certification were contained in scope of FFS operation. In efforts to render farm products traceable in the value chain, ginger farmers are trained in maintaining farm inventory of agricultural practices and producing a genuine group-based certificate for their produce.

- The first Nepal-India NPPO level meeting, held on 03 February 2015 in New Delhi, reviewed on Nepalese ginger export to India, bilateral trade scenarios, existing problems and proposed solutions. The meeting agreed on having bilateral NPPO meetings annually, and an invitation to NPPO India to have consecutive meeting in Nepal is accepted.

The project delivered interventions had effects in 'promoting market orientation and trade competitiveness' and in increasing income level of ginger farmers summarized below.

- Increased farm production of ginger (from 731kg/HH in base year to 2993kg/HH in end year) attributed to increases in yield (459 to 477kg/ ropanee) and cultivated area (1.59 to 7.88 ropanee/HH) due mainly to successful crop and disease management interventions.
- Farm income for ginger increased by 62.21 % (NPR 25,991/HH compared to 16023/HH) in 2015 due to increased crop productivity and area.
- Farm net income for ginger increased by 25.31% (NPR 25.31/kg compared to 22/kg in base year) due to reduced costs of cultivation.
- Fresh ginger farm-gate prices fluctuated much in response to external price factors.
- Improvement in post-harvest loss of ginger rhizome by 30 percent due to afield rhizome-rot management and farm learning on post-harvest safe handling and storage.
- New jobs created due to training of FFS-facilitators and added ginger area and production
- A ginger washing facility established and commissioned, which is to start operation. Above 8,000 farm households are seen to have access to washing services. The facility, upon its full fledge operation, is foreseen to add further to the aforementioned effects due to demand pull and price incentive effects, and create additional jobs (>200) in association with its operation and seasonal jobs along ginger value chain to carryout added production and transmission functions.

Inevitable delays in complete implementation of the project activities beyond timeframe are attributed to reasons associated with limited capacities of project partners collaborating in the project implementation that resulted in delays in initial kicking up of the project implementation and finalization of agreement on the public-private partnership, hurdles in availability of land for construction of the facilities and non-clarities in the design of the facilities to establish that required several revisions. Moreover, diverse interests of multiple stakeholders in the project related matters, activities required completion in order and hurdles in construction of the facility due to non-availability of construction materials, frequent political strikes and blockades and earthquake devastations also disturbed pace of project implementation significantly. Despite an extension in the project period, all of the activities are implemented within planned budget. Involvement of local consultants for major parts of the project activities and inflation in the local currency supported to compensate possible budgetary deficit.

Project speculated risks related to SPS matters and ginger exports to India are still not matters of complications. Since commissioning the ginger washing facility is completed recently, possibilities of such occurrences in ginger export to India in future would be ignored on ground of the first Indo-Nepal NPPO level meeting minutes that stated India's willingness to support Nepal technically in meeting SPS requirements and building food safety and plant quarantine capacities. Despite frequent food safety tests required by India, Nepal has not come up with proposal for revision of such requirement in view of relaxations exercised on ginger imports from Nepal. Some of the medium and low probability risks foreseen by the project were managed through implementation of project envisaged strategies such as farmers leaders trained and mobilized in operation of ginger field schools, DADO staffs engaged in technical support and regular supervision and monitoring in the FFSs, expert services hired on WAE basis where necessary and intensive awareness building activities delivered to farmers' groups. It is known in due course of project implementation that ginger cultivation in the region was in decreasing trend due to rhizome rot problem that deteriorated rhizome quality and produced no marketable rhizome. Successful management of the problem is demonstrated, and high level of confidence is restored in ginger farmers and traders to continue with ginger businesses. Farm selection, production and storage of seed ginger

rhizome is promoted through awareness building, trainings and demonstrations in view of non-availability of quality planting material. A few of the risks not visualized during project planning that evolved to hamper project effects and its operation were managed through frequent discussion with stakeholders and decision processes in PTWG and PSC.

The project's achievements are foreseen to sustain in the communities further continued by Nepal Trade Integration Strategy 2010 and periodic state strategies on promotion of agribusinesses and commercialized agriculture that covered ginger as an important sub-sector and well capacitated private sectors. National agriculture support systems under MoAD and NGPTA would be taking care of further continuation of relevant interventions. A sustained operation of the facility by NGPTA is assured on ground of overarching public-private agreement overseen by MoAD. Moreover, necessary guidelines in management and operation of the facility and ginger promotion trust fund are set in place. Partnerships and alliances fostered among MoCS, MoAD, AEC and NGPTA during the project formulation and implementation as well as project inbuilt exit strategies such as handing over the facilities to NGPTA for operation, farmers' group registration with DADOs, active participation by DADOs in implementation of the project and intensive training of leader farmers in the group for their sustenance would also be contributing to sustainability of the project outcome. Technologies the project introduced in production and supply of quality ginger rhizome including its washing are adopted within limit of GAP and GMP, and they are evaluated from human, animal and environmental health perspectives. As ginger farmers are guided in independent learning process, they are expected to continue their learning in groups. In addition, the FFS approach of farmers' training has been much contributing to institutional development and capacity building of ginger farmers' groups with knowledge as well as financial generation. However, the project is implemented in communities with low level of literacy. Technological dynamics and ever changing environments of ginger production and trade would not be well perceived and managed merely by the farmer and business groups. MoAD in public sector and AEC and NGPTA in private sectors, as active partners in the project implementation, have capacities to facilitate the beneficiaries. Furthermore, an increased performance of ginger trade due to quality improvement interventions will produce revenues as incentives to develop on the achievements of the project.

B. RELEVANCE

1. The Problem

Following Nepal Trade Integration Strategy (NTIS) 2010, ginger is recognized as one of the priority export sectors with needs to put in place support activities (technologies and infrastructure) to build state capacities in meeting Sanitary and Phytosanitary (SPS) standards. Ginger is a major cash crop of Nepalese smallholder-farmers with high potentialities of export earnings. Despite lucrative export market opportunities visible for ginger, Nepalese stakeholders in ginger value-chain system were identified to have limited knowledge and insufficient capacity to comply with export requirements (including SPS) in the market. Absence of comparable income-generating opportunities, non-availability of conducive cultivars (in terms of disease tolerance, yield, colour and contents of fibre, oleoresin and other oils), limited experience to produce value-added products, rudimentary marketing system and weak institutional capacity of ginger business groups (cooperatives and associations) to organize ginger trade were other problems compounding to prevent the stakeholders from realizing the opportunities. Therefore, needs to supporting ginger farmers and traders to improve quality of fresh ginger supply for export markets enabling them to benefit from higher prices in the main export market (India) and to enter more profitable export markets were realized, and improvements in ginger production and storage practices, addressing SPS-issues and establishing a ginger washing/processing facility were envisaged through collaboration across public and private sectors.

The project was designed in synergy to *'Strengthening the Capacity of Government Officials Responsible for Food Safety, Animal and Plant Health and Agricultural Trade in Nepal (MTF/NEP/060/STF)'* that supported MoAD to effectively implement SPS measures and help reduce food safety risks for domestic consumers, and enhance the protection of animals and plants, 'Nepal Trade Integration Strategy (NTIS) 2010' that identified a number of areas for intervention in the ginger export sector following EIF Tier 1 project and 'priority areas' identified by NASDP. FAO was designated as the executing agency to implement the project in close collaboration with MoAD and AEC. The project became operational following its inception on 29-30 October in 2012. As a result of subsequent project revisions, the duration of the project was extended to 39 months with no additional provision in the budget.

2. The Project Impact, Outputs and Planned Activities

The project envisioned 'increased income level of ginger farmers through improvements in SPS arrangements and value addition for exports' as its general objective (impact), and specifically 'increased market opportunities for Nepalese ginger through a series of SPS related and value-addition interventions (outcome)'. Following outputs and activities were planned.

1. Ginger washing/processing facility designed, constructed and operationalized, and producer organizations strengthened (EIF- component)
   - Activity 1.1 Design ginger washing / processing facilities, carry out preparatory environmental impact (IEE) and other assessments as needed, obtain permits and produce business plan for the establishment and operation of ginger washing/ processing facilities with auction yard for the Jhapa corridor
   - Activity 1.2 Build ginger washing / processing facilities for the Jhapa corridor
   - Activity 1.3 Deliver hands-on training (including financial and business management, record-keeping, etc.) and set up systems required for the effective management and operation of the facilities

2. Materials development and training on Good Agricultural Practices (GAPs), post-harvest handling and SPS requirements (STDF- component)
   - Activity 2.1 Develop ginger growing manual and other training materials (print, video, etc.) on GAPs for ginger cultivation, post-harvest handling of ginger, SPS requirements, etc. suitable for target audiences
   - Activity 2.2 Train trainers, and deliver trainings for farmers and other value chain actors (on GAPs, post-harvest management, grading and control of post-harvest rots, etc.)
   - Activity 2.3 Establish ginger demonstration / multiplication plots at Jhapa hubs, and use these plots for field training courses in GAPs and post-harvest management

3. Supply of quality ginger rhizomes available (in support of both STDF and EIF components)
   - Activity 3.1 Devise and implement system for provision of post-harvest control measures (inputs)
   - Activity 3.2 Obtain improved (marketable) cultivars from other parts of Nepal and further afield

4. Study on markets (SPS) for fresh and processed Nepalese ginger (STDF- component)
   Activity 4.1 Prepare a detailed study on regional and international markets for fresh and processed Nepalese ginger and market (SPS) requirements

5. Improved capacity of Nepalese Government to negotiate and demonstrate compliance with import requirements (SPS) of trading partners (STDF- component)
   Activity 5.1 Traceability and reducing frequency of pesticide residue testing
   Activity 5.2 Bilateral meetings and contacts between the Nepalese and Indian NPPOs to discuss sanitary and phytosanitary issues related to fresh ginger exports from Nepal to India, and reach agreement on SPS import requirements

3. The Beneficiaries

The project involved MoCS and MoAD (including Department of Food Technology and Quality Control, Department of Agriculture in specific to Plant Protection Directorate, Directorate of Agricultural Engineering, National Spices Crop Development Program and District Agriculture Development Offices (DADO) in the project target districts) from government sector and AEC (FNCCI) and NGPTA (comprising ginger farmers, traders and processors) from private sector as stakeholders and beneficiaries of the project. It covered Morang, Jhapa, Ilam and Panchthar districts in Eastern Nepal as the project's target area.

Fig.1: Map of Nepal showing target districts

The private sector comprising of 3500–4000 farm households and approximately 200 collectors, processors and traders were visualized to benefit from the operation of ginger washing/processing facility, market (SPS) study, and group-based seasonal trainings and demonstrations linked to increasing production, value addition, additional job creation and post-harvest cost reduction. Other effects of the project implementation included 2,000 farmers (>60% women) trained in season long trainings on GAPs for ginger, 200 seasonal jobs created, marketing and post-harvest cost reduced with (30% reduction in post-harvest losses) and farm-gate price for ginger increased (25% increment in farm margin for ginger production), NGPTA (an NGO focused on supporting its member farmers and traders on ginger production, marketing and trade) capacitated to operate the facilities, training curriculum/ manual developed and the information disseminated and superior cultivars introduced. The government sector is visualized to benefit through its increased capacity to negotiate effectively on SPS requirements with importing countries and, through quality and effectiveness of its extension services in GAPs and SPS issues, to comply with SPS requirements of trading partners.

4. The Project Implementation Framework

Considering sustainability of the project outcomes, implementation of the activities was strategically guided to mitigating possible risks in SPS management and ginger exports, farm welfare from ginger production/ marketing promotion and development of the washing facility, achieving rhizome rot management in ginger, promoting quality ginger planting materials, developing resource person for training of farmers/other stakeholders and strengthening NGPTA to manage the facilities. Major implementation strategies adopted by the project included -

1. demonstrate trading partners (Indian authority) that ginger products in Nepal comply with SPS requirements and Indian Food Safety and Standards Act, 2006, No. 34 through bilateral meetings and invitation for visits
2. enable key actors in the value chain system to adopt GAPs and address critical SPS issues within their control (scope) improving quality during production and post-harvest handling and putting in place traceability and due diligence
3. train cooperative leaders and leader farmers to disseminate information and increase awareness among producers
4. on-site demonstration of improved cultivation and post harvest management practices
5. support ginger producers with healthy and quality planting materials and necessary inputs on such achievement
6. training of trainers and pool of resource persons from implementing partners
7. institutional building and practical training of NGPTA personnel

With flexibility to address unforeseen issues during implementation, the project anticipated genuine engagement of the target beneficiaries and collaboration across public and private sector stakeholders in recognition of the fact that both the public and private sectors have essential and complementary roles to play in promoting ginger exports. In carrying out the strategies, the project identified eleven major activities discussed earlier. Major implementation features are enlisted as follows.

1. FAO-Nepal received, disbursed and managed the funds and hired necessary staffs and consultants to work for the project implementation. The project was implemented in close collaboration with MoAD and AEC, and normal FAO rules and procedures applied. FAO implemented activities formally sub-contracting specific part of responsibilities to MoAD, AEC, consulting firms, professional organizations and individual expert as relevant and thus supported in local capacity development. A public-private agreement among major project stakeholders was formed (Appendix 4a-iii) to set avenues toward establishment and operation of the ginger washing and processing facilities and formal link of such establishment and operation with the welfare of grass root beneficiaries.
2. TORs, agreements, periodic project decisions and progress reports governing project implementation and sub-contracted activities shared with the STDF, ES and TFM of EIF for review prior to signature and release of funds, where applicable.
3. EIF-NIU and EIF-NSC closely associated with the project implementation with their involvement in the PSC and specified roles in the project supervision and monitoring. The NIU Coordinator, member in the PSC, reported the project implementation to the EIF-NSC regularly.

Fig.2: Implementation of the project activities supervised and monitored on regular basis

4. The Project Steering Committee (PSC) provided oversight and supervision on the project operation and budget. The PSC comprised of members from EIF-NIU, FAO, MoAD (including its relevant subordinates namely WTO-section of Agribusiness Promotion and Statistics Division, Department of Food Technology and Quality Control, and Plant Protection Directorate, National Plant Quarantine Program, National Spices Crops Development Programme and Directorate of Agriculture Engineering in Department of Agriculture), MoCS and AEC and some need based invitees. The PSC, chaired by the secretary in MoAD, oversaw and supervised project implementation through field visits and regular meeting. The PSC nominated a National Project Coordinator (NPC) and, following its first meeting, formed Project Technical Working Group (PTWG) chaired by the NPC to ensure central level coordination of the activities being carried out. The PSC met bi-annually to review on the project target and achievements, identify gaps and respond to possible problems proactively ensuring inter-agency coordination, policy supports and that the project benefits reached target groups.
5. FAO Lead Technical Officer (RAP, Bangkok) provided needful technical backstopping.
6. In line with recommendation by EIF-Executive Secretariat, a participatory approach of monitoring and evaluation was adopted that involved formation of baselines and project-end evaluation across set of key indicators and targets.

5. Donor Contribution

The project, developed with Project Preparation Grant (PPG) from STDF and public (MoAD and MoCS) and private (AEC in FNCCI) sectors involvement, was co-financed by STDF with support of US$

462,144 focused on SPS capacity building, EIF (Tier II funds) with support of US$ 711,550 focussed on material supports and establishment and operation of a ginger washing facility. State public and private sectors partnered for US$ 60,000 in kind and US$ 140,000 for the land to establish the facility and linking road and electricity to the facility respectively.

6. Critical Gaps

Design *(equipment, operation and capacity)* ***of the facilities*** to establish was not clear in the project document that, with an investment of considerable length of project time, required hiring a consultant. A facility of 20mt/hour washing capacity was demanded during the design preparation. The consultant through wider consultation with the project stakeholders proposed two lines of washing machines each washing 6mt ginger rhizome per hour with provision for surface drying, sorting the rhizomes in four grades and powdering smallest grade ginger rhizome 4mt a day. Available budget would not support the design. As a budget expansion possibility foreseen by the project stakeholders during the design preparation did not happen, the facility was redesigned and reduced to six metric ton per hour capacity washing with two grade sorting of rhizome and the powdering plan dropped out.

Secondly, ***stakeholders' capacities and interests*** to collaborate and participate in the project implementation were not accurately assessed during project planning resulting in much of efforts required in coordination and organization of program implementations. For examples, considerable time lapsed on settlement of land availability hurdle, finalization of the public-private agreement on establishment of the ginger washing facilities, the facilities designs preparation and completion of the facilities construction works as described earlier. Some other problems were also observed in association with linking electricity line and road access to the facilities construction site and capacitating local stakeholders. ***Diverse project related interests*** among stakeholders and individuals involved in the project implementation also added in time required for coordination among implementing partners, and prolonged decision processes. In this connection, ***provision of support staffs*** in the project also turned out meagre with expectation of major roles to play by independent stakeholders. Likewise, operating 80 farmers' field schools (FFS) in the target area, as envisaged by the project, was also impractical due mainly to limited support staffs and field level resource persons, which was adjusted with implementation of follow up farmers field school (F-FS) and provision for FFS-facilitators' travel to distant villages.

Despite a few of the gaps mentioned earlier, the project was much relevant in addressing the problems with several interventions. The NTIS (2010) priority in ginger sector to support with technologies and infrastructure in building state's SPS capacity is complemented with season long intensive training of ginger farmers on GAP, training materials development, training of local resource persons, introduction of traceability, initiation of Indo-Nepal NPPO meeting and establishment of the washing facilities. Introduction of new cultivars, integrated pest management, farmers' training in FFS learning process, ginger group strengthening and linking them with DADO and NGPTA network were implemented in line to addressing other problems. The project has fully contributed in eliminating the problems and generated valuable experiences as elucidated in the following sections. Moreover, the project has complemented in building capacity of government staffs responsible for agriculture extension, food safety, plant and animal health and agricultural trade as well as ginger farmers and traders responsible for production and supply of ginger rhizome in meeting export requirements. Developed on the already available materials (such as that produced by US supported NEAT and FAO supported IPM program), the project has produced valuable training materials and shared widely for their use by government extension workers, NGOs and projects, and introduced for the first time GAP and traceability mechanism in agriculture sector in building competitiveness in agricultural trade. Some of the project trained FFS-facilitators are engaged with DADOs, NGOs and DANIDA supported UNNATI project and the farmers' groups with World Bank supported PACT Project. The project outputs and activities were consistent with the objective and the project envisaged effects and impacts, and the market orientation and competitiveness development objective of the project is still valid to continue in the project area as well as replicate to other regions of the country.

C. ACHIEVEMENT OF RESULTS

The project with implementation of eleven activities envisaged achieving five major outputs that in combination was seen to contribute to an enhanced trade opportunities of Nepalese ginger with improvements in quality (SPS) of fresh ginger supplies. Cleanliness of ginger rhizomes i.e. free of soil/ extraneous materials and agrochemicals/pesticides residue and free of quarantined weed seed have been major quality requirements in ginger export. Deliveries of the outputs and activities including their effects and trade-related results are discussed hereunder.

1. Output 1- Ginger Washing/Processing Facility Designed, Constructed and Operationalized, and Producer Organizations Strengthened

Despite several reasons encountered in due course of design and construction described elsewhere, establishment of a ginger washing facility with six metric ton per hour capacity is completed (fig.3 and Appendix 4a). The output contained three major activities (section B.2). Following actions are completed in succession in their deliveries.

- Draft preparation (in Nepali and English) and ratification of the public-private agreement on the construction and management of the facilities (Appendix 4a-iv).
- Visit to some ginger washing and processing facilities and the facility fabricators in India by representatives of AEC, NGPTA, MOAD, MOCS and FAO.
- Design preparation of the facilities that included in detail working out of individual machine specifications, ancillary equipment and costs of construction and operation. Such required longer investment of time due mainly to service procurement processes, intensive consultation among the project stakeholders and reworks suggested on the final design.
- Separated actions were planned and processes carried out for procurement of expert services on
  - designing the ginger washing line and equipment (BSK Agri Food Initiative Pvt. Ltd.)
  - conducting Initial Environmental Examination (IEE) of the facility establishment/operation,
  - designing civil constructions and supervise and monitor overall construction works.
  - form a business plan of the facility with detail working out of financial parameters (BSK Agri Food Initiative Pvt. Ltd.).
- Likewise, separate plan of actions and processes were undertaken regarding procurement and establishment of the facility.
  - site boundary (Jatteshwor Nirban Sewa Pvt. Ltd.),
  - major civil constructions (Ramechhap Sherpa Construction Pvt. Ltd.),
  - commissioned equipment (Bajaj Processpack Ltd., India)
- With a system instituted for sustained management and operation of the facility, NGPTA is made accountable for, and is supported in its capacity building in various dimensions. The public-private agreement endorsed by MoAD and MoCS on behalf of government, and AEC and NGPTA on behalf of private sector has established NGPTA as a major stakeholder in the project and an ultimate owner of the facility. The facility is established, commissioned in its operation and handed over to the NGPTA as stipulated. The project envisaged facility management and operation modality is in place, described by the *public-private agreement* and thereafter by the *NGPTA Ginger Washing and Processing Facilities Management and Operation Procedure 2015 (in Nepali)* and the *NGPTA Nepalese Ginger Promotion Trust Fund Establishment, Management and Operation Procedure 2015 (in Nepali)*. A Facility Management Committee (FMC) chaired by Joint Secretary in the Agribusiness Promotion and Statistics Division of MoAD with members from MoCS, AEC and NGPTA oversees the facility operation and operation of the modality. NGPTA is made responsible for overall management of the facility and the facility trust fund, and for operating the facility in contract with a facility operation entity selected on tender basis. Separate guidelines and independent committees are formed on operation and management of the trust fund and the facility including the process of taking the facility operation entity aboard. NGPTA's coordinating roles between independent operations by the committees are well defined. Total financial outcome of the facility operation is channelized into the trust fund for high transparency in operation of the facility and an assured transfer of the facility outcomes to the welfare of the farmers and other actors in the ginger value chain. Further to capacity development in part of the NGPTA, a business plan of the facility (simulated to various financial situations with detail

analysis of financial parameters) and expert-reports on ginger market studies (recommending avenues to enter into export ginger markets) would ever be guiding NGPTA in its preparation of further strategies and work plans. Likewise, during the total period of the project implementation, NGPTA personnel held in the project team have been perceiving implementation of various project activities related to

- ° farmers' group formation/ mobilization/ strengthening,
- ° season long and short term trainings,
- ° technology supports via FFS approach, demonstrations and regular extension system,
- ° field level introduction of farm record keeping and group certification as a base to traceability of ginger products along the value chain,
- ° facility construction and operation. A team of NGPTA personnel supposed to take on board as routine workers in management and operation of the facility (8-9 persons) has witnessed complete installation of the machineries thus oriented to general maintenance of the machines. Moreover, the team has attended the facility operation trainings organized by the service provider and hands-on training by AEC.
- ° during the course of the project implementation, NGPTA has frequently come across all of the project-operated farmers' groups and other actors in ginger value chain, and has widened its organizational network internalizing the farmers' groups and traders as member in NGPTA and forming its district chapters.

Fig.6: Ginger washing facility established at Duwagadhi-9 of Jhapa district in Nepal.

2. Output 2- Materials Development and Training on Good Agricultural Practices (GAPs), Post-Harvest Handling and SPS Requirements

- The materials developed as training tools consist mainly of
  - ° Ginger Farmers' Field School Manual in Nepali (fig.2),
  - ° Ginger Cultivation Handbook in Nepali and English (fig.3), and
  - ° Farmers' Record Book in Nepali (fig.4)

  The documents are prepared taking consideration of GAP; published; shared to relevant agencies, project stakeholders and training participants, and used in season long and short-term trainings.

  Others such as-
  - ° Ginger GAP-FFS guide in Nepali,
  - ° Training curricula and session plans for various trainings in English, and
  - ° Some dramas, success stories, newsprints, photographs and video-clips, developed/ collected in course of the project implementation can also be shared for use as training aids.

Fig.3: Ginger FFS manual

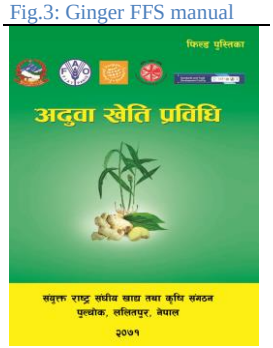


Fig.4: Ginger cultivation handbook

- Trainings delivered, their distribution in the project area and participation are detailed in Appendix 4b. The training programs as well as the materials such as curriculum, guidelines, session-plan, FFS-manual, ginger cultivation handbook and inventory of farm practices (farm record book) were developed in consultation with FFS-specialist hired as Training Material Development Expert. Following trainings were implemented in collaboration with DADOs in the target districts, AEC and NGPTA.
  - ° Master trainers' trainings conducted in two parts (refreshers' training for those already trained in facilitation of IPM field school and ToT for leader farmers) trained 59 farmer-facilitators,
  - ° Season long trainings to ginger farmers were delivered through FFS-approach during two consecutive ginger seasons distributed in 43 Village Development

Fig.5: Farm record book

Committees and Municipalities facilitated by farmer-facilitators and necessary technical sessions in the FFSs delivered by DADO staffs. Where necessary, the project also hired relevant experts on short-term basis. With special sessions given to technical issues such as disease/pest management, soil management, seed production and management, storage, post-harvest handling, field trials, SPS matters, farm record keeping and product's group certification, major focus in the trainings was improvement in quality of ginger products through introduction of good practices. Fifty FFSs were operated in 2013. They were continued with follow-up programs (F-FS) in 2014 with four new FFSs added in Panchthar. The trainings trained in total 1891 (60% women) farmers. Majority of the FFSs continued their operations in the season (2015) following termination of the project support. Almost all of the farmers groups are registered in respective DADOs. The groups are also linked to NGPTA through formation of district chapters and issuance of membership certificate (fig.5).

In addition, need based short-term trainings were also organized to train ginger farmers.

- Four location based short-term trainings on ginger in Panchthar in 2014 trained 101 (60% women) farmers.
- District level trainings on 'ginger seed production' and 'SPS and post-harvest loss' trained respectively 80 and 75 leader farmers, those when going back to respective FFSs trained all members in their groups.
- Bookkeeping and leadership development trainings, participated by farmer-facilitators and group leaders, were organized as part of group strengthening. Following the trainings, the trainees were guided to organize prototype trainings for their group members with distribution of saving passbooks (for members) and ledger-books (for groups).
- Ginger pit-storage trainings cum demonstrations were organized in Panchthar and Ilam in collaboration with Mercy Corps participated by famer-facilitators and group leaders. The facilitators subsequently placed demos of the storage technology in the respective F-FSs.
- Field staffs (JT) training conducted for DADO/ASC personnel working with the farmer- groups to orient them with SPS and GAP in ginger cultivation and marketing.
- 'Safe handling and transportation of ginger' conducted in each of the districts trained 81 ginger traders.
- Likewise, series of FFS-program planning sessions were held in the project districts that one way helped farmers' group in formulation of their action plan and group activities and on the other, as a formal training, capacitated the farmers in group-mobilization, planning and reporting.
- Implementations of traders' training cum workshop (#2) that envisioned inviting ginger traders from India and Bangladesh and a ginger processors' training, both under AEC scope, are postponed to conduct following full-fledged operation of the facilities in view of demonstrating recent quality improvements in Nepalese ginger with the facilities operation and other interventions in the value chain. AEC in association with NGPTA is committed to implementing the trainings following complete commissioning of the facilities even after termination of the project period. Necessary budget for the same is disbursed on disposal of AEC.

Fig.7: Glimpse of FFS activities

- Each of the field schools necessarily established a common plot ranging from 500 to 1500 m2 in area, where the members planned and operated demonstrations, group-studies and problem based trials (Appendix 4b). Effectiveness of trichoderma and alternative options in rhizome-rot management, comparison of available cultivars and cultivation practices for better performance and effective measures of rhizome-fly and white grub management were major concerns of the ginger farmers and, therefore, the scopes of common plot activities. Depending on common plot activities and size of the plot, half to two-third of the plot was planted with replicated or comparative trials, and the rest with ginger cultivars for demonstration cum seed production, where the farmers applied learned practices. Ginger harvest from the plot was stored, part of the produce saved as seed rhizome for the common plot and the rest shared among members as following season seed material. Some of the FFSs shared common-plot ginger harvest as quality seed material with non-member neighbours and newly operated FFSs. The FFSs on average harvested above 150kg/ropanee brunee (mother) rhizome and above 1200kg/ropanee baby (main crop) rhizome from the demonstration plot. The amounts due to the sale of brunee and surplus baby ginger are added to respective group fund.
- The FFSs in 2013 season, at minimum, carried out a comparative study between farm practices and project introduced practices in ginger cultivation. 'Project introduced practice' covered rhizome treatment with *Trichoderma viridae*, 40 to 60 gram size of seed rhizome for planting and the seed rhizome placement at 60cm X 30cm in raised beds (ridges). Farm-practice inferred to traditional ways of ginger plantation that covered full or half size of seed rhizome, flat bed plantation and no treatment with trichoderma. Majority of the FFSs also carried out an interactive study to compare Makawanpure and local cultivars with the farm and the project introduced cultivation practices that gave out four treatments namely - *introduced cultivar (Makawanpure) with improved practice, local cultivar with improved practice, local cultivar with farm practice and introduced cultivar with farm practice.*

Fig.8: Certification of ginger groups and traders as member to NGPTA

- The FFSs, operated with follow up programs during 2014 season, primarily included activities on group strengthening, scaling up of the learned practices and, depending on the groups' interest and capacity, some comparative and/or replicated studies. The FFSs decided on the programs to hold in the season through program planning meetings during December 2014 at FFS level facilitated by farmer facilitators and at district level represented by the facilitators and group-leaders. Each of the F-FSs planned to undertake private level seed production with application of learned technologies and, at minimum, a cultivar (comparative or replicated) and a disease or pest management (comparative or replicated) tests. The FFSs reported ginger seed production at private plots and field trials at common plots are summarized in Appendix 4d.
- The farmers, during management of the studies and seed production, variably introduced their additional interventions regarding use of fertilizers, manures, mulches, post germination application of fungicides/ bactericides such as trichoderma, COC, Metco, krinoxylgold, sprint, Kcycline, Seathmar, velidamycine, mencozeb, Carbendazim and some insecticides (where the crop produces were meant for seed use) depending on group situation, interest and decision. Such reduced comparability of the studies in different locations. The studies were meant for group learning that the farmers ended with observation in field and interpretation and summarization of the outcomes through discussions in their learning sessions. The ideas they perceived out of the treatments and reported in terms of crop behaviour (such as tillering, disease/pest severity and tolerance, level of control, rhizome size/ quality and overall performance) in majority of the studies are consistent to established facts. The studies and demonstrations carried out in the FFSs and reporting thereof confirms following learning by the ginger farmers.
  - Planting small size ginger rhizome (40 to 60g) treated with *Trichoderma viridae* at spacing of 30cm X 30cm in 60 cm wide raised beds (followed by drainage furrow) produced good quality and large size ginger rhizome and added to disease (rhizome-rot) tolerance in contrast to

traditional practice that planted full or half size rhizome at narrow space in flat bed. Moreover, planting 40 to 60g size seed rhizome at 30cm X 30cm (wider) space also reduced seed cost and increased production. Farmers have conceptualized that planting small size rhizomes without post-germination (July-August) harvesting of mother rhizome would help in reducing rhizome rot infection in the main ginger crop. However, such is not practiced in scale for that the farmers planted full size rhizome as an alternative option to ginger storage and they usually fetched better price for mother rhizome (brunee).

° Introduced cultivar (Makawanpure) in majority of the FFSs produced better quality and large size rhizome and showed higher tolerance to rhizome rot compared to local cultivars.

Fig.9: Makawanpure ginger cultivar collected and supplied in the project target area

° Compared to 'no seed treatment' in ginger cultivation, ginger seed rhizome treated with bio-fungicide *Trichoderma viridae* or chemical fungicide such as carbendazim + mencozeb (sprint), provided better control of rhizome rot in majority of the FFSs. Small number of FFSs also reported 'no control' of rhizome rot by treating seed rhizomes with *Trichoderma viridae* due possibly to its viability loss during storage and transportation or some error introduced during seed or manure treatments. The same FFSs also produced no effect of ginger seed treatment with other fungicides as well.

° Soil application of cartaphydrochloride 4GR[1] and NASABIKE (local herbal preparation) are reported effective in controlling ginger rhizome-fly.

° Soil application of cartaphydrochloride 4GR[1] as well as bio-pesticide *Metarhizium annesopia* and neem-cake are reported to reduce white grub infestation in ginger rhizome.

° Farmers in the target area have understood ginger as a high cash generating option to them, and realized rhizome rot and rhizome fly as major harassments. In this regard and during the course of FFS operation and observation of common plot trials and demonstrations, they have learned regarding quality improvement of ginger that farm promotion of seed production and storage is urgent, pit storage of ginger seed rhizome as demonstrated in the FFSs is viable and cultivars and seed replacement efforts should be continued.

° Moreover, the farmers are confident in diseases and pest management. They learned rhizome rot in ginger is manageable through cultural practices such as proper land selection, management of drainage and shade, seed treatment and soil drench with bio-fungicide/ chemical fungicide/ bactericide, discouraged mother-rhizome harvesting with proper seed size and use of fertilizers replaced with organic manure. The farmers have understood that second half of July to first half of September is critical period of rhizome rot and fly attacks. Through practice, they have observed that organic mulching with broom grass, raised bed and seed placement above normal ground level helped planted ginger rhizome escape from water stagnation and wide-spaced maize and sesbania intercropping in furrow-space performed good to provide partial shading in ginger field reducing severity of rhizome rot. Some of the farmers also observed that broom-grass stalk used as mulch and buried into soil while making ridges helped in reducing excess water saturation of ginger bed and thereby rhizome rot infection.

[1] Cartaphydrochloride 4GR would be permitted only in ginger seed production considering possible pesticide residue in ginger rhizome

3. Output 3- Supply of Quality Ginger Rhizomes Available

Supply management of quality ginger rhizome basically required management of cultivars, healthy seed source and crop diseases/ pests that resulted in pre- and postharvest deterioration of rhizomes. Such requirements are carefully addressed during the project implementation through season long trainings, demonstrations and introduction of a system of group-based farm inventory management and product certification in the field schools; subject specific short-term trainings, and establishment of ginger washing and processing facilities described earlier. Major deliveries of the output are related to supports to obtain and distribute 'marketable cultivars from other parts of the country' and 'inputs and materials' as needed by field learning, technology verifications, demonstrations and scale up activities (Appendix 4c).

Seed rhizome of *Kapurkot 1*(the only cultivar recommended officially for high quality rhizome and obtained from Ginger Research Program in Salyan -650 kg), *Makawanpure* (the cultivar collected from ginger producing groups in Makawanpur district locally prominent in fetching higher price -15mt, fig.7) and locally collected *indigenous cultivars* (10mt) were distributed to the FFSs for comparison and seed multiplication of the ones performing well in the local situations. Three hundred kilogram of Makawanpure and two hundred kilogram of local cultivars were availed to each of the fifty FFSs in 2013. Two FFSs in Ilam and one FFS in Panchthar in addition received the Kapurkot 1. High majority of the farmers, upon testing the cultivars in comparative studies and demonstrations in the common plots and observation of disease tolerance, tillering, plant growth habit and size and quality of rhizome, preferred Makawanpure for its short stature, high tillering, faster growth, broader leaves, shorter internodes, bigger size of rhizome and ultimately higher yield and low fiber content, when compared to locally available cultivars. The farmers receiving Kapurkot 1 showed little preference on it.

Fig.10: Farm level ginger seed production as scale up program (Farmer-Chudamani Kaphle, Samdin, Phidim Panchthar 2014)

Self production and storage of ginger seed rhizome at private farms is very urgent in view of no quality seed supply system available in the country and rhizome-rot that spread widely with infected seed materials. Therefore, farmers in the groups were suggested to save healthy ginger rhizome as seed material for next season planting, and they were trained in ginger seed production and farm level storage. In addition, as a part of seed multiplication strategy and scaling up of the lessons learned in the FFSs, individual members in the groups were guided in the follow-up program (2014) to cultivate ginger privately by using the group preferred cultivars and new skills learned in the FFS (fig.8). Every F-FS included scale up program in their 2014 work plan, and individual members cultivated in private plots on average 1.5 ropanee of ginger including the cultivars-seed shared from common plot. Per member size of the plantation was small in Morang and Jhapa that ranged from 0.2 to 0.5 ropanee, and large in Ilam and Panchthar that ranged from 1.0 to 5.0 ropanee. Major part of the ginger harvest from the area is saved and shared as seed material for the following season plantation. On such ground, a total area nearly 160 hectares brought under seed production produced about 3300mt ginger rhizome in 2014 to sustain seed rhizome supply locally.

Inputs and materials as required by introduction of cultivars, subject specific short-term trainings, season long trainings and demonstrations in the FFSs, introduction of a system of group-based farm inventory management and product certification and group strengthening are delivered as detailed in Appendix 4c. Major input support included stationeries, ginger seed (27mt), biological pesticides (*Trichoderma viridae* and Metarrhizium *annesopia* 250kg), chemical pesticides (153kg), set of plant protection tools (54), and printed and published materials.

4. Output 4- Study on Export Markets (SPS) for Fresh and Processed Nepalese Ginger

In view of potential demands in the regional and international markets and in search of export-markets and the markets entering avenues conducive to Nepalese fresh and processed ginger products, the project envisaged carrying out market studies concentrated on demand and SPS requirements of possible importing countries to suggest policy guidance and necessary interventions in ginger value-chain-development.

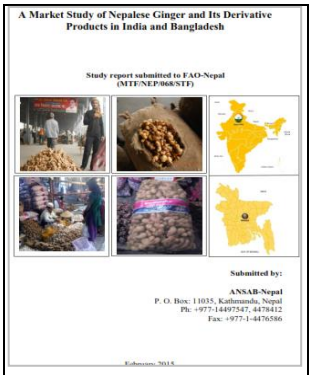


Fig.11: Market study report- India and Bangladesh

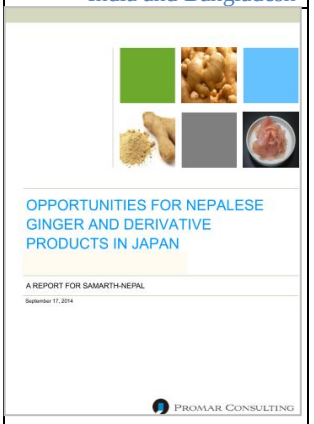


Fig.12: Market study report- Japan

In consideration of scope of the studies and availability of resources, the activity was organized in collaboration with SAMARTH-NMDP[2] in such a way that SAMARTH-NMDP undertook the study first in Japan (fig.9) and then in the UAE and the Netherlands, and FAO concentrated in regional market consisting of India and Bangladesh (fig.10). A common study framework was planned and followed by both the counterparts for synergy, complementarity and comparability of the studies. Promar Consulting-Japan undertook the studies on behalf of SAMARTH-NMDP. FAO contracted ANSAB-Nepal with different experts designated for the study in India and Bangladesh. The studies worked within the following scopes.

- General review on global markets from the perspective of Nepalese ginger (fresh and processed) in terms of quality, SPS requirements in possible export-markets and the state capacity to meet the SPS requirements and other logistics.
- Make comprehensive study of the specified market situations for Nepalese ginger and in-country setting of logistical realities in the context of market demand. Identify major importers of Nepalese ginger and their requirements.
- Examine supply and demand situations in Nepal in the light of market requirements, and make recommendations in line to needed improvements in terms of policies and product-management, how Nepalese exporters could link up with export markets, necessary efforts to attract buyers to Nepalese ginger-products and long-term investments in the value chains of oleoresins, dried-ginger, paste, powder, slice, candy and beer.

FAO component summarized that ginger cultivation in the country in 19,376 hectares of land produced 235,033 mt rhizome in 2012/13, and the production increased with an average growth rate of 12 per cent. It exported 35,907 mt with a value of USD 8.78 million (96% fresh) in 2013. Major export is to India (99%). Nepal also imported some ginger during off-seasons from China (71%), India (17%), Thailand, Ethiopia, Hongkong and Canada. Ginger marketing channel consisted of farmers- road head traders-district traders – exporters with the produce delivered to Indian commission agents. The agents worked for 6-7 percent sales commission. Informal trade of ginger is popular due to porous Indo-Nepal border and growing inaccuracies during export invoicing. When considered domestic consumption and general trade practices, total volume of ginger export is estimated to be more than double of the official figure. Informal trade is sustained due to non-tariff barriers, which include various difficulties and added costs in obtaining import permits and a certificate of test or analysis of food sample issued by regional food labs in India, value limitations in clearing the consignments and the overall cost reducing attitudes of traders. Other barriers included lack of formal banking channels used in transactions while exporting to India as well as multiple taxation and other informal fees. Poor quality of the produce reducing trade competitiveness, local multiple taxation and extra-legal payment during transportation, difficulties in

[2] A DFID supported project on overseas market opportunity assessment for Nepalese ginger

meeting sanitary and phytosanitary standards, high cost of custom clearance, low visibility and transit issues are major constraints reported. Assurance in quality of the produce through cultivar replacement, GAP in production, postharvest management, and supports in branding and market penetration (distribution channel, auction markets, collective branding, participation in business meetings/ trade fairs/ exhibitions, contact office, accredited laboratory) are recommended.

SAMARTH/ NMDP studies corroborated with Nepal's ginger production and trade statistics. They identified inferior cultivars, rhizome-rot problem, unavailability of quality planting material, systems to ensure quality control and SPS requirements, accredited laboratory, traceability, post harvest facilities, processing technology (value addition), fluctuating farm prices and farm scale of production as major challenges of Nepalese ginger export. For overseas market penetration, the studies have broadly recommended to go for export of dried products through formation of a minimum five-year ginger promotion plan, exporters' capacity building and information supports.

Reports of the studies are shared to wider communities including policy makers, relevant development agencies and the project's stakeholders and ultimate beneficiaries. The reports in combination are observed to produce high level of complementarities in the task. The reports have analysed situations of ginger industry in local (Nepal), regional (target countries) and global dimensions; seen into the demands and trade requirements of the specific markets; analysed in-country settings of logistical realities in the context of the market demands; identified major constraints and possible avenues for Nepal to enter into the export markets, and come up with way forward recommendations.

5. Output 5- Improved Capacity of Nepalese Government to Negotiate and Demonstrate Compliance with Import Requirements (SPS) of Trading Partners

The output contained two major activities associated with multiple deliveries.

Activities that related with reduced farm-consumptions of pesticides, and farm inventory management, crop inspection, process supervision/monitoring and product certification through group participatory approach for product traceability introduction were delivered contained in the scope of FFS operation. In efforts to render farm products traceable in the value chain, individual members in the farmers' group (FFS) were provided with farm record book on ginger GAP. They are briefed on value of farm record keeping, trained in regular filling up of farm information in the record book, and a system is institutionalized in the groups to produce group certificate of their products through regular inspection of individual farm practices by a technical sub-committee. Overseen by DADO focal persons, ASC staffs and FFS-facilitators were independently supervising and monitoring the overall process with reports produced to DADOs. As an outcome, ginger farmers in the project area now know the urgency of demonstrating the product's compliance with SPS standards for its export, and they are demonstrated about product certification and traceability management.

The project also supported Nepal NPPO to organize its meeting with Indian counterpart to discuss on SPS issues related to fresh ginger exports to India. A task force coordinated by Program Director in the Directorate of Plant Protection (DOA) was made operative to organize the meetings (#2) with preparation of meeting agenda and necessary coordination. The NPPOs held the first meeting on the 3rd of February in 2015 at Krishi Bhavan in New Delhi. Nepalese delegation consisted of Dr. Dinesh P. Parajuli, Joint Secretary in Ministry of Agricultural Development, Mr. Dilli Ram Sharma, Programme Director in PPD (NPPO) and Ms. Shradha Chalise, Section Officer in Ministry of Commerce and Supplies. Indian delegation led by Mr. U. K. Singh, Joint Secretary in Department of Agriculture and Cooperation consisted of six members including Plant Protection Adviser in Department of Agriculture and Cooperation and General Manager in Agricultural and Processed Food Products Export Development Authority (APEDA). The meeting reviewed on Nepalese ginger export to India and related bilateral trade scenarios, existing trade problems and proposed solutions. During the meeting, Indian counterpart was informed of the ginger washing and processing facilities being established and ginger product traceability mechanism introduced in Nepal. India has agreed to avail Nepal with necessary technical supports in meeting India required SPS standards and capacitating Nepalese plant quarantine services upon Nepal's request. The meeting also agreed on having bilateral NPPO meetings annually. An invitation to NPPO India to have consecutive meeting in Nepal with observation of plant quarantine check-post facilities, GAP based ginger production system and the ginger washing facilities in Nepal is accepted. Nepal NPPO would endeavour organizing its second meeting with Indian counterpart in Nepal following full operation of the ginger washing and processing facilities.

6. Project Outcome and Effects

'Product quality enhancement to increase market opportunities for Nepalese ginger' had been major concentration of the project implementation through the total deliveries. The efforts were exclusively concentrated on improving quality of exportable ginger product in view of meeting import requirements of the importing partners. As a summery to outputs deliveries, following interventions are made along ginger value chain from production, through product collection and transfer, to export preparation.

- Ginger farmers (as well as traders), responsible to maintain quality of supplies, are trained in ginger production, post-harvest handling, SPS management, product traceability, product certification and problem-based group learning through GAP-based FFS activities, short term trainings and demonstrations,
- Training materials developed, published and shared for wider use,
- The farmers supported in product quality enhancement through seed supply management, cultivar replacement and disease and pest management,
- Market studies for Nepalese ginger in major ginger importing countries have brought forth relevant suggestions to state policy makers to identify way forward interventions, and to value chain actors including export promoters to contrive on avenues in entering appropriate markets through products preparation,
- All of the above interventions have , in different ways, capacitated state agencies and entrepreneurs in venturing on ginger businesses,
- A culture of Indo-Nepal NPPO level bilateral meetings is initiated. The first meeting has added to the capacity of Nepalese government agencies to negotiate on SPS related issues, and
- A 6mt/hour capacity facility is near to its operation.

Envisaged by the project at outcome level were increased ginger rhizome production, washing facilities introduced with access to above 3500 farm households, trade on washed ginger initiated, new markets entered and higher price fetched for the washed ginger. An increased farm-level ginger production is observed from 731 kg/HH in the base year to 2993 kg/HH following project. Such an increase in production is attributed to increases in ginger yield (on average from 459 kg in base year to 477 kg/ ropanee depending on districts at project end) and an increase in area brought under ginger cultivation (on average from 1.59 ropanee to 7.88 ropanee /HH). Ginger yields at farm level increased due mainly to crop and disease management interventions, and farm households brought larger area under ginger cultivation as a result of successful management of rhizome-rot and confidence built in them. As discussed elsewhere in this document, the ginger farmers in the area were much harassed by rhizome-rot. Major part of ginger rhizomes rotted in field before harvesting. As a result of crop failure, the farmers either quit ginger cultivation or reduced their size of cultivation. Following the project, the farmers understood about the problem and learned management techniques through trainings, demonstration and group learning in FFS.

Fresh ginger (unwashed) farm gate price available to farmers in the year 2012 was much harassing to ginger farmers that drastically increased (NPR 60/kg) in the project base year (early 2013), as a result of external price factors such as low production in India. The price decreased (NPR 56.80/kg) during early 2015 (project end period) as a result of high production in India. Despite that the farmers with project fetched higher net income for a kilogram of ginger produce (NPR 25.31/kg compared to 22/kg) due to reduced costs of cultivation with improved crop management practices and total cultivation cost shared to increased rhizome yield, and a high household income from ginger (NPR 25,991/HH compared to 16023/HH) in 2015 due to increased crop productivity, reduced losses of rhizome and increased area brought under ginger. The cost of cultivation reduced significantly due to quality seed selection, safer storage of seed rhizome, reduced seed quantity with wide space and smaller size rhizome plantation and safer harvesting of brunee (mother rhizome) due to trichoderma treatment. There is improvement in post harvest losses of ginger rhizome as well by 30 percent with afield rhizome-rot management effects and farm learning on post harvest safe handling and storage. Some farmers practiced premature harvesting of ginger rhizome as the ginger clumps collapsed due to rhizome-rot and rhizome-fly infestation that deteriorated very soon. Moreover, matured but partly infected rhizome also rotted, dried and shrunk very soon even on short storage. When reduced the severity of rhizome-rot in field, post harvest deterioration of rhizome is reduced greatly.

Above estimates of farm gate price and farm income from ginger are before operationalization of the ginger washing facility, which will be further enhanced upon full fledge working of the facility due to demand pull and price incentive effects. Commissioning of the ginger washing line is near to completion with potentiality of washing 24,000mt ginger (120mt/day * 200 working days) in a season that, at a rate of 3mt/HH ginger supply, can provide full access to above 8000 households for ginger washing with creation of new jobs in association with the washing facilities operation and seasonal jobs along the ginger value chain to carryout various production and transmission functions.

Therefore, the project has delivered multi-prong interventions along ginger value chain with effects in promoting market orientation and trade competitiveness. Such covered establishment of ginger washing facilities with development of its operation model; farmers and traders' training in production and supply of quality ginger including seed and cultivar management, good agricultural practices and post harvest management; capacity development of ginger trade related stakeholders such as farmers and traders' group and state agencies, and market studies to identify avenues to enter into export markets with product diversification. Every effort to achieving trade competitiveness is ultimately guided to improving farm income.

D. IMPLEMENTATION OF WORK PLAN AND BUDGET

1. Work Plan and Budget

Total activities are implemented with extension of the project period for a year and three months for STDF component and a year and six months for EIF component. Construction of the ginger washing and processing facilities is completed on its commissioning. Owing to lack of ginger supply management in the season (September to December in 2015), the facility is awaited for its full fledge operation. Supply of ginger in the facility for washing was meagre as ginger farmers postponed ginger harvesting due to decreased farm gate price and no breakage in the traditional legacy of local suppliers selling collected ginger to Naxalbari (India) based washers and exporter commission agents. Feasibly the facility operations start commercially by end of 2015.

Inevitable delays in the project implementation beyond timeframe are attributed to -

1. Project partners/ stakeholders' capacities to collaborate and participate in the project implementation were not appropriately assessed during project planning.
2. Initial delays in kicking up of the project implementation
3. Significant delays in finalization of the public-private partnership agreement
4. Hurdles in the land availed by NGPTA for the construction of the facilities, and in the facilities construction due to earthquake devastations and non-availability of construction materials as a matter of state decree. Moreover, frequent strikes and blockades due to state political matters also intermittently disturbed pace of implementation and significantly delayed the project completion.
5. Non-clarities in the design of the ginger washing and processing facilities desired to establish, and revisions required on the finalized design due to budgetary reasons that resulted in delays in the procurement process.
6. Multi-stakeholders involvement in the project with their diversities in the project related interests that added in time required for coordination and negotiations among implementing partners.
7. High level of transparency exercised in the implementation of the project. Such combined with multi-stakeholders presence and their interest diversities prolonged decision processes.
8. The project could only be approved for two years at maximum despite time-consuming nature of the project as envisaged during its formulation.
9. Overall nature of the planned activities that could only be implemented in succession meaning that complete progress in one part was necessary for initiation of others.

Fig.13: Location of the land for ginger washing facility establishment procured by NGPTA (Source: Google Earth)

Some of the activities such as hands-on-training (#1), traders' training cum workshop (#2) and the second NPPO level meeting between India and Nepal are, as targeted by the project, planned to implement following full fledge operation of the facilities. Instead of eighty, fifty-four FFSs were operated with training of 1891 farmers due to limitation of field technicians, geographical austerity of the target area and project decision to continue the existing FFSs with follow-up program for the reason of group empowerment and sustainability. Such discrepancies are described in detail in the section C2.

Despite an extension in the project period, the project activities are implemented within planned budget. Involvement of local consultants for major parts of the project activities and inflation in the local currency supported to compensate in the possible budgetary deficit due to the extension. Details of the budget availed from STDF and EIF and expenditures in the project implementation are produced in Appendix 5. NGPTA procured 22 *katthas* (0.73 ha) of land for the facility establishment and operation out of the budget (USD 140,000) it shared to the project (fig.13). The site is linked to central grids of electricity supply, road transportation and communication. MoAD shared for USD 60,000 in kinds for its supports on the implementation of the project activities.

2. Risk Management

Part of the risks and hurdles encountered during the project implementation were in line to those identified in the project document. A few of them to affect speediness and effectiveness of the project implementation were not foreseen during project formulation. The impediments that occurred from time to time were managed effectively in line to project established strategies with their adverse effects in achievement of the project outcome and goal minimized.

Project identified risks related to SPS issues and ginger exports to India such as 'India possibly not accepting Nepalese washed ginger or imposing new measures, Nepal and India not reaching agreement on new phytosanitary import requirements for Nepalese fresh ginger and weaker capacities of Nepalese food safety and plant health institutions' have not been a matter of complications to Nepalese ginger export to India. Commissioning of the ginger washing facility is completed lately, and Nepal has just built its capacity to export washed ginger. Possibilities of such occurrences in ginger export to India as a matter of trade and political reasons would not be ignored. However, the problems would not be expected in near future depending on minutes of the first Indo-Nepal NPPO level meeting that showed India eager to see successful operation of the facilities and willing to support Nepal technically in meeting SPS requirements and building food safety and plant quarantine capacities. The situation of Indian border state not adhering to phytosanitary import requirements agreed between Indian and Nepalese NPPO also does not prevail. Despite frequent food safety tests required, Nepal has also not come up with proposal for revision of any of the import (SPS) requirements in view of visible relaxations exercised by traders in export of Nepalese ginger as a result of ginger demands in Indian local markets and dominating informal practices in the trade channel. Such would be solved upon operation of the facilities and initiation with export of washed ginger. Moreover, demonstrating traceability management in the ginger production area and the facilities operation to Indian official is planned to take place during the second NPPO level meeting to take place in Nepal.

The project also envisioned some medium probability risks related to occurrence of rhizome rot, NGPTA's capacity and availability of resource persons and quality planting material as well as low probability risks such that farmers would decide moving out of ginger production and/or making no use of ginger washing facility. In view of the risks, project envisaged strategies were fully applied such that i) farmers leaders trained and mobilized in operation of ginger field schools and ii) DADO staffs (SMS and ASC) engaged in technical support and regular supervision and monitoring and, where necessary, expert services (training management, SPS, crop management, ginger storage, etc) hired on WAE basis, iii) awareness building activities delivered to the group members through FFS operation in active collaboration of MoAD, AEC, NGPTA and FAO, iv) on-site demonstrations established for training purposes to showcase improved cultivation techniques and post-harvest management, and v) intensive works performed in rhizome rot management through trainings, demonstrations, field studies and on-farm seed production promotion with provision of ginger seed and other inputs. It is known from farmers (as discussed in section I) that ginger cultivation was in decreasing trend in the region due to harassment by rhizome rot that deteriorated rhizome quality and reduced yield tremendously. Occurrence of rhizome rot was also much harassing in the project operated FFSs in the year 2013. However, the problem is demonstrated well managed in 2014 season through careful crop management efforts linked to seed and

soil treatments, land management, selection of disease free planting materials and safe storage of ginger seed rhizome. Thereafter, a high level of confidence emerged in ginger farmers and traders to continue with ginger businesses. Non-availability of quality (in major disease free) planting material is a widely felt problem due to lack of reliable ginger seed sources in the country. Therefore, farm production, selection and storage of seed ginger rhizome is promoted through awareness building, trainings and demonstrations. As a result, majority of the groups have continued the common plot technique of field school to produce ginger seed, and some of them have initiated working as resource centres locally to ensure a sustainable supply of quality ginger planting materials.

As described in section C.1, NGPTA's capacity is improved in operating the facility and linking such operation with the welfare of ginger traders and producers. The facility management and operation modality is in place; a facility management committee (FMC) represented by MoAD, MoCS, AEC and NGPTA would be overseeing its operation, and outcome of the facility operation is channelized through institutionalization of trust fund to benefit ginger farmers.

Likewise, a few of the risks not visualized during project planning evolved to hamper project effects and its operation within stipulated timeframe. They were in major associated with i) project stakeholders and service providers' capacities to collaborate and participate in the project implementation, ii) out of scope interests and aspirations of the stakeholders , iii) no concrete vision on the facility design and in advance estimation of its establishment costs and iv) state policy matter and regulation; such included, for some examples, the hurdles observed in the land availed by NGPTA for construction of the facilities, the expert finalized design of the facilities and availability of materials during construction of the facility. They were identified during the course of project implementation, and managed well through frequent discussions with stakeholders and decision processes in PTWG and PSC meetings

E. SUSTAINABILITY

1. Capacity Development

NTIS 2010 and state strategies on promotion of agribusinesses and commercialized agriculture would be supporting the sustainability of the project outcomes. NTIS programs and other projects in MoAD that covered ginger sub-sector and well-capacitated NGPTA would be taking care of further continuation of relevant interventions. Relevant interventions to continue includes supports in technical knowledge and skill, establishment of national GAP standards for ginger, producers' group strengthening, continuation in the product certification and product traceability management through establishment of improvised farm recording and supervision system.

The NGPTA is capacitated in different ways.

- A sustained operation of the facilities by the NGPTA is foreseen empowered by formation of overarching public-private agreement in the facilities operation; with-guidelines, establishment of Facilities Management Committee overseen by MoAD; Nepalese Ginger Promotion Trust Fund formed in NGPTA out of the facilities income, and Facilities Operation Committee formed in NGPTA to take intensive care of the facilities operation and management. Ultimate ownership of the facility is destined to the NGPTA. It is made responsible to operate the facility in contract with Facilities Operation Entity (private agency) on competitive basis. Implementation of the public-private agreement, endorsed by MoAD, MoCS, AEC/FNCCI and NGPTA, is led by MoAD. The Facilities Management Committee formed out of the agreement to oversee the facility operation is chaired by Joint Secretary in Agri Business Promotion and Statistics Division of MoAD with members from MoCS, AEC and NGPTA. Nepalese Ginger Promotion Trust Fund and Facilities Operation Committee are formed in NGPTA supported by its bylaws.
- Organizational structure of NGPTA is expanded with formation of its District Chapters in the project districts and internalization of farmers' group/cooperatives (FFS) operational during project phase in the target districts as institutional members and ginger traders as general members. Therefore, its networking and membership have expanded. With central office established in FNCCI (Kathmandu) and working with the project, it has become a stronger voice advocating on behalf of ginger producers and traders.
- Moreover, as described in section C.1, the design and business plan of the facility, expert-reports on ginger market studies, trust fund and the facility operation guidelines and the NGPTA personnel taken in board during the total period of project implementation have contributed to building its institutional capacity.

Partnerships and alliances established among MoCS, MoAD, AEC and NGPTA during the project formulation and implementation, and exit strategies that the project implemented such as handing over the facilities to NGPTA, farmers' group registration, active participation by DADOs and intensive training of leader farmers in the group would also be contributing to the sustainability of the project. DADOs were actively involved in organizing FFSs and training farmers in quality ginger production through adoption of GAPs, traceability introduction and group based product certification; they can continue regular extension supports to the farmers and business groups. The farmers' groups (FFS) are registered in the respective DADOs as well as allied with cooperatives and NGPTA. Thus, the organizations would work in association(s) to scale up the project results in future programs. NGPTA in collaboration with AEC would be taking over business support responsibilities to ginger traders and producers; independently operating the facilities with its benefits dribbled to the farmers and other ginger business groups, and organizing trade promotion activities.

2. Gender Equality

Level of women participation (60%) in the field trainings and demonstrations is met as envisaged in the project. Efforts were made during selection of members in farmers' group and participants in various short-term trainings to encourage higher participation of women with a view of gender integration in the productive spheres and women empowerment. Majority of the project operated farmers' group were women led and dominated in number. Participation by women farmers in the groups empowered them with income generation, technical knowledge and skill in ginger farming, leadership strength and decision making opportunities.

3. Environmental Sustainability

The project is not considered much sensitive to environmental parameters. However, its impacts to the environment in the project area is seen positive as it, as a part of GAPs, promoted use of biological pesticides and favoured only optimum use of chemical pesticides. An IEE of the facility construction is carried out that has formed an environmental management plan to facilitate the facility operation with due care of environmental health.

4. Human Rights-based Approach (HRBA) – in Particular Right to Food and Decent Work

The project is less sensitive of human rights-based approach of food insecurity management. However, as food insecurity is integrally associated with poverty, the project outcome is contributing to reducing economic poverty in the society through an increase in the income level of ginger farmers capacitating them for their access to sufficient, safe and nutritious food.

5. Technological Sustainability

The technologies introduced by the project in production and supply of quality ginger rhizome including its washing are adopted within limit of GAP and GMP, and they are evaluated from human, animal and environmental health perspectives. Reduced pesticides residues in the ginger products and other improvement in their SPS standard and commercial quality were major thrusts of the technological interventions. Most of the interventions in ginger production were introduced with their tests and demonstrations in the FFS-common field. Moreover, ginger farmers are guided through FFS in independent learning process. Majority of the FFSs are seen to continue in self-learning with their own resource following the project supports. Likewise, the ginger washing facility is also designed through participatory approach with MOAD, AEC and NGPTA fully engaged in the design and construction process. The agencies are some ways made responsible for operation and management of the facilities. In addition, the FFS approach of farmers' training has been much contributing to institutional development and capacity building of ginger farmers' groups with knowledge as well as financial generation. Trainings on participatory adult learning, ginger production, post harvest handling, leadership development, book-keeping, farm inventory keeping and group certification have expanded farmers' knowledge and awareness.

The project was implemented in communities with low level of literacy. Technological dynamics and ever changing environments of ginger production and trade would not be well perceived and managed merely by the farmer and business groups. MoAD in public sector and AEC and NGPTA in private sectors, as active partners in the project implementation, have capacities to facilitate the beneficiaries to continue with the project outcomes. Further supports on infrastructure development, strengthening ginger producers and traders' network, technology generation and dissemination, post harvest management, improvement in product certification and traceability and export market penetration would be necessary.

6. Economic Sustainability

Product quality improvements through production and supply related interventions and supply of washed ginger following operation of the high capacity washing facilities would increase performance of ginger trade, the product's competitiveness in markets and price available to the products. Such an increase in trade efficiency would be producing additional revenues to the project beneficiaries and stakeholders. In addition, regular extension and NTIS program implemented by the government and Nepalese Ginger Promotion Trust Fund instituted in NGPTA out of the income from the facility have provisions for mobilization of resources to the sub-sector. However, such would not be sufficient to meet the resource needs for the supports further needed in the sub-sector.

F. LESSONS LEARNED

1. Lessons Learned – Elements of Success

- Rhizome-rot(s) in standing ginger crop resulted in tremendous pre-harvest deterioration of ginger rhizomes. Moreover, infected rhizomes upon harvesting, storage and transfer dried and shrunk rendering them non-marketable. Such discouraged farmers on scale production of ginger.
- Second half of July to first half of September is critical period of rhizome-rot infection in standing ginger crop in the project area. Selection of well-drained soils for ginger plantation and healthy rhizomes for seed use, and its plantation in raised beds above normal land surface with provision of good drainage, partial shed and sufficiently loose organic mulches reduced rhizome-rot effectively.
- In addition, the seed rhizomes treated with bio-fungicide Trichoderma viridae or alternatively with carbendazim and mencozeb containing chemical fungicides added to effective control of rhizome-rot. Farmers, for their easiness, generally practiced dipping ginger seed rhizome for about 30 minutes in Trichoderma viridae suspension prepared at a rate of 8 g/l water followed by drying of the rhizome in shade before plantation. However, as observed in the cases of some farmer, mixing Trichoderma viridae culture in well-rotten farm-yard-manure 15 days prior to its application followed by intermittent turnings produced better result. Supply of fresh culture of Trichoderma viridae to farmers in time of use is much urgent as it could easily loose viability on long transportation and storage. Likewise, soil applications of NASABIKE (extract from mixture of a number of natural herbs) and JIBAMRIT (locally prepared fermented mixture of lime (CaO), forest soil and cow dung and urine) are reported to reduce soil pests and rots deteriorating rhizome.
- Pit storage of ginger rhizomes is economically viable and would be promoted at farm level at least for safe storage of ginger seed rhizomes.
- Designing and establishing a modern automated washing and processing line was a completely new business to the state policy makers, ginger entrepreneurs as well as fabricators. Moreover, the facility now established cannot fully cater the state ginger-washing requirement. Establishment of the washing line has generated much valuable information and experiences to be used in its further replications. With reworks and necessary improvements in the design, the effort can be replicated with high level of confidence and minimum investment.
- Baseline and project end information collection from individual farmers in the project-operated groups was effective in assessment of project impact. Acquisition of the information from farmers was easier due to necessary facilitation by farmer-facilitators. The same with traders was not much effective due to their reserved nature in producing accurate information. The project adopted participatory approach of project implementation monitoring that involved representation from different stakeholders was seen effective. However, the modality worked out in detail during project formulation to cover stakeholders' roles and responsibilities and to render it result based would be much relevant.

2. Lessons Learned – Impediments/Constraints

- In view of impediments/ constraints described in section D.1, major parts of the practical impediments would not have been possible to speculate during the project formulation. They were encountered during the course of implementation; frequently discussed in the stakeholders, PTWG and PSC meetings, and managed through the project decision processes with incorporation of necessary amendments.
- However, such required considerable input of time and other resources to bring the situations in coordination and right tract.
- Among the impediments/ constraints, involvement of multiple stakeholders with diverse interests (sometimes with tendency detracting from the project visualized goal, achievements and strategies merely for sake of their individual or organizational benefit) is much critical to be analysed and appropriate control points adjusted in the formulation of similar projects. In other words, rigorous analysis of actors' strengths, weaknesses, roles and responsibilities is very important in a multiple stakeholders involved public-private development endeavour.
- Multi-prongs interventions such as cultivar replacement, quality seed supply, GAP based production technology, product traceability and group based certification, good practice in post harvest handling and ginger washing are implemented along ginger value chain. The efforts are

exclusively concentrated on improving quality of exportable ginger product in view of meeting import requirements (food safety and SPS) of importing partners, and they are ultimately guided to improving farm level income. The project put its major efforts to washing preparation and improving farm production as urgent to preparation of quality supplies of ginger, and limited efforts in development of transfer channel (such as auction yard) due to budgetary and time limitations.

G. FOLLOW-UP ACTIONS

Impacts of the project as envisaged by the project in terms of an increase in farm level income, farm-gate price/ net income, farm HH using washing facilities, ginger rhizome production, trade on washed ginger and washed ginger price; reduction in post-harvest losses, and ultimate entry to new export markets are not attainable immediately after introduction of limited project desired interventions. Remarkable improvements in the quality and productivity of farm-produced ginger due to interventions during the short project period are the matter of facts witnessed by ginger farmer and business groups in the project districts. The above effects will also be attained in time following full-fledged operation of the ginger washing facilities recently completed in its construction and commissioning. A successful operation of the facility will have multiplier effects on the indicators. Construction of the ginger washing facility is recently completed to start its operation from the coming season of ginger supply. Important following termination of the project is an intensive follow up action to be taken by MoAD and AEC with NGPTA regarding technical supports to the farmers and business groups and the groups and the facilities' sustained operations. Oversight by the agencies and arrangement of necessary facilitations to the business groups and the facility operation would be urgent. The facility is established with its operation modality in place. Necessary guidelines, committees and trust fund to operate the facility are formed as envisaged by the project. Moreover, the producers' groups are registered to respective DADOs in MoAD and also linked to NGPTA Network. Working by the modality and its fitness in operation of the facility would be monitored and revisions incorporated as appropriate and necessary.

Training materials developed during the project would be reproduced, shared widely and necessary revisions and updates incorporated. Farm inventory book on GAP would be revised in line to GAP-standards to come, and necessary steps towards further development of project piloted 'group-based certification' approach taken for a sustenance of efforts on product traceability introduction. 'Demonstration' as common plot activity in the FFSs is sustained by some of the ginger groups and used as 'local seed resource center' following termination of the project support. The same would be followed up and, in view of 'lack of ginger seed resource centers' in the country, necessary steps taken to their sustenance and improvement. The project partners would also be taking timely steps towards implementation of the market study's findings and ginger trade promotional recommendations, and MoAD towards continuation of NPPO level meetings between Nepal and India.

H. GOVERNMENT ATTENTION

As inferred to market study report of the project, competitiveness of traditionally cultivated ginger in Nepal is low in export market mainly for its colour, rhizome size, disease and pest tolerance and productivity. Moreover, major parts of price-risks in ginger value chain including costs due to extra-legal payments along ginger trade-channel are transferred to farmers through reduced payment. Therefore, efforts should be continued to introduce/ develop quality varieties through selection and testing for their adaptability (agro-ecological growth habits and diseases and pest tolerance) and marketability (colour, size and fibre and biochemical contents). All sorts of other improvements for competitiveness of ginger (primarily at farmers' and secondarily at traders' and support level) should help to increase prices available to farmers. Considering possible hurdles in regional and distant exports of fresh ginger, ultimate efforts should also be made to reach export markets especially for dried ginger. Moreover, traceability of ginger product along supply chains is important from product quality management point of view. The project piloted introduction of 'individual farm record keeping on agricultural practices' and based on that 'certification of the product' through group participatory approach in all of the project operated FFSs. The concept is new to ginger farmers and traders. State supports continued on the product certification and traceability development is recommended.

Considering over all successes in the project and state needs, the project, with minimum reworks to introduce valuable experiences in interventions and modalities, would be replicated to other regions.

I. HUMAN INTEREST STORY

A few of the stories and voices observed in the project beneficiaries and some published in newsletter, newspaper and public media are included hereunder.

Trade, Building Sustainable Livelihoods and Fostering Greater Competition

Hem Maya Pradhan, ginger farmer as well as President of Women's Ginger Group in Janaekata Agriculture Cooperative and Vice-president of the cooperative, Ramite Village, Illam:

Hem Maya and her 25 colleagues from her women's group take a break from the day's farming business to hold a meeting on their ginger business prospects and the stiff market competition they face with India's value-added ginger. Hem confidently chips in,*"We may even be able to compete with Indian traders. Our main problem is the absence of necessary things, such as washing and processing plants. If we can have all these facilities at our own place, we will be happy."* Thanks to development partners, help has been given to Hem and the rest of the ginger farmers' communities through a joint EIF, Standards and Trade Development Facility project implemented by the Food and Agriculture Organization. Unwashed ginger could not be exported due to the lack of compliance to required sanitary and phytosanitary standards and yet, washing a large quantity of ginger for export requires a lot of water that was not sufficiently available in the mountain region in Eastern Nepal, where this ginger is produced. The project supported the construction of a centralized washing system in participation with wider communities. It has now been established in the plain at Duwagadhi of Jhapa district where extraction of water and management of drains is well justified economically, socially and environmentally. The process involves bringing deep water to the surface, removing sediments from effluent, recycling de-silted water and again recharging ground water. The facility has just been completed and will create over 200 seasonal jobs, reduce marketing costs and post-harvest losses by 30% and improve prices attainable for the exported ginger/ginger products, thereby creating gross margins of 25% for ginger farmers. All cheered up with good ginger harvest in the season, Hem Maya and her colleagues emphasize the benefits of ginger farming to their community. Chandra explains: *"Ginger farming has supported us to educate our children, provide for our food and clothing. We need to make a little bit of saving. All these things are necessary for the future of our children.*

Fig.14: Ginger washing facilities established in Jhapa district

Fig.15: Hem and her colleagues in their FFS learning plot


झापामा अदुवा प्रशोधन केन्द्र

Fig.16: News print entitled 'ginger processing center in Jhapa

FFS Makes a Headway in Rural Development

Toya Nath Bhattarai, news reporter in Ilam, writes to his news agency-

"We did not know earlier that ginger would ever be treated against rhizome-rot diseases and the crop saved from the notorious problem" said Saroj Gadtaula, a ginger farmer at Yang village of Phikkal in Ilam. He added *"only after the FAO implemented* ***Ginger Competitiveness Project*** *that initiated field school program, we are aware of".*

Saroj, a member in good agriculture practices (GAP) based Biring Ginger Farmers' Field School (FFS) at Yang village, doubled his ginger cultivation area. *"This year, I have planted 10 mann (400 kg) of ginger seed"* Saroj briefly informed. Not only Saroj, other local farmers as members in the school namely Yama Rai, Som Bahadur Rai and Noran Rai have also doubled acreage of ginger cultivation compared to previous years. Khem Raj Bhattarai, farmer facilitator in the school, says: *"some of the village people, who hesitated to join the school as member last year, have now joined it and been participating with much curiosity in the school program this year".*

"Previously, we experienced crop failure due to the diseases" Jiwan Gadtaula explained *"been hardly able to harvest 80kg of ginger out of 40kg seed used"*. He was a bit excited saying *"Using new techniques, we produced 240kg of ginger from 40kg seed used in the school plot"*. Sabitra Gadtaula added, *"We are also warned of hazards due to haphazard pesticides use"*. *"On such ground"*, she explained *"we composed a drama on pesticide effects and played on farmer's day"*. The drama was later awarded as 'first' in the regional level competition.

Saroj and his neighbours know that ginger would be successfully treated against rhizome rot problems. Twenty- eight farm households in the Yang village have acquired knowledge and skills regarding safe production of ginger right from its plantation in field to its disposal in market.

Fig.17: The Yang farmers' group in FFS learning session

As the project in association with local DADO started its support to operate the FFS in March of 2013, they started learning about management of problems in ginger cultivation and marketing through field trials, demonstrations and fortnightly sessions. Now the farmers themselves can identify diseases and insect pests of ginger as well as beneficial bio-species to be taken care of during the diseases/pests management.

"We have enlisted there what the GAP FFS has helped us to learn about" Radhika Neupane, member in the FFS, pointed to a hand written poster stuck in a corner of the school room that in Nepali read out -

1. Select seed rhizomes from the disease (rot) free area; 2. Use clean, healthy and bold rhizomes as ginger seed; 3. Reject diseased rhizome from seed use; 4. Seed rhizomes would be split to 40-60 g size; 5.Treat ginger seeds with trichoderma (8g/l); 6.Use well rotten FYM/ compost to avoid white grubs; 7. Plant ginger seeds in ridges; 8. Plantation in ridges should not go deeper; 9. Forget not covering the ridges with dry mulches; 10. Drench soil with trichoderma following brunee extraction; 11. Follow a three years' crop rotation; 12. Contact DADO whenever new problem arises.

"Members in the FFS have concluded that a well-drained ginger plot is key to the problem management. In addition, any kind of fungicidal treatments given to seed-rhizome before plantation either with trichoderma or copperoxychloride (COC) or krinoxylgold or metalaxyl controls rhizome rot" said the facilitator Bhattarai supported by Jivan Gadtaula with his head nodded. "*Moreover, we have learned a lot from the school*", added Yama Rai, "*we have worked together in the school plot; learned differences between pestering and helpful bio-agents, hazards of pesticides and their safe usage*". Further she added, "*we are informed of good practices regarding seed selection, plantation, earthing up, extraction of brunee and care to be taken while extracting it, soil drenching following brunee extraction and ginger rhizome harvesting, packaging and marketing*".

Ginger farmers of Yang, previously frustrated of ginger cultivation due to complete crop failure, have again started its cultivation with full of enthusiasm and confidence restored.

Ginger Cultivation Started Again

Mrs. Parbati Magar, Kerabari Morang.

Parbati previously practiced cultivation of ginger on her land as a cash crop, and she was then able to manage her cash requirement. "*How comes! I have no knowledge of*" she exclaimed, and added "a problem arose that did not let producing any marketable rhizome". Harassed by rhizome rot problem in her ginger crop and lack of knowledge on its management, she stopped its cultivation and started to work as wage labour in nearby area to meet the cash requirements.

Fig.18: Field staffs with Parbati Magar

When she heard about the project's coming to her village to support on ginger production, she participated in the farmers' field school. Earlier she did not believe learning in the school would help her to escape from the problem. In contrast she said, "as we applied in field the seed treatment learned in the group, the problem was not sever as previous. The introduced cultivar also produced good rhizome" Parbati is decided to go back to ginger cultivation for a sustenance of her earning and better livelihood of her family with five children.

Lakpa Reider Bhotiya Saincha, JT, Belbari, Morang also wrote "Ginger farmers in Morang were since long harassed by rhizome rot disease and price uncertainties. The farmers as well as extension workers did not know about the disease that resulted in 20 to 90% crop loss. Based on average farm gate price ranging from 50 to 130/kg, the loss ranged from 100 thousand to a million rupees per hectare. Management of the problem was beyond farmers' capacity. As a result, farmers in Morang reduced ginger cultivation or shifted to newer business. The farmers are now benefitted from the ginger competitiveness project that operating farmers' field schools in ten different locations has trained ginger producers to have the problem managed effectively. The farmers are optimistic for an optimum and stabilized farm price upon operation of the ginger washing facilities established in the adjoining district near to export point".

Mahesh Timsina, farmer-facilitator and representative of pesticide dealer in Jhapa district.

Mahesh explained in his report "ginger farmers in Jhapa never practiced seed and soil treatment against rhizome rot that spread in field by means of seed and soil infection. Despite a very high potentiality of ginger to produce good earning to farmers, they eventually shifted to newer businesses as a result of frequent crop failures. Working with

ginger competitiveness project in ten different groups, ginger farmers in Jhapa learned about rhizome rot and rhizome fly problems in ginger those harassed them since long. They tested possible techniques in the common plot and observed that seed and soil treatment with trichoderma (bio-agent) and carbendazem and mencozeb containing chemical fungicides as well as *Bijamrit* (preparation with cow dung and urine) and good cultural practices were effective in the disease and pest management. The farmers and their neighbours have overcome their affliction, and previously known ginger pockets in Jhapa namely Bahundangi, Mechinagar, Shantinagar and Khudnabari have again revived in ginger production."

The Project Taught to Find a Path on Crisis

Ganesh Pokharel, Farmer-facilitator, Panchthar.
Included in report of FFS operations, Mr. Pokharel writes in his story, " Panchthar, a mountain district in eastern Nepal possessed relatively non-irrigated agricultural land (51062ha out of 60257ha) with little options to agricultural commercialization. Farmers in the district cultivated dominantly ginger, large cardamom, citrus and vegetables for their earnings. Despair of sever disease and pest damages in the crops, they were always in search of new business options suitable to their locality. Ginger competitiveness project that came to our villages with its FFS programme and a package of training was welcome by villagers as a ritual process of development, but not much optimistic of soothing in their desperations. Operation of school activities started on ginger delivering sessions on overall crop management including soil, seed, crop nutrition, diseases, pests, harmful and helpful insects, pesticides and their safer use, environmental health and product disposal in market including good agricultural practices, farm record keeping and group certification of product in SPS management. The program guided us to test our problems in a common plot with some changes incorporated in our usual practices. Ultimately, the project helped us to open eyes and placed new innovations in our hands. It taught an art to find a path on crisis, that we can apply in future as well."

Fig.19: Facilitation in the FFSs

The Project Came with Benefits to People

Rita Jabegu, Chair in the Thangnapa FFS at Yangnam of Panchthar
"Two hundred fifty kilogram seed rhizome, each of Makawanpure and local cultivar, tested in two ropanee (1000m^2) land of Thangnapa Farmers' Field School at Yangnam village of Panchthar district showed tremendous benefit to ginger producers. Four hundred fifteen kilogram of mother rhizome (brine) extracted out of 500 kg plantation and sold to local market at 95 rupees per kilogram earned Rs. 39,500.00, and total harvest in the main season produced 3600 kg ginger rhizome (36 t/ha) sold in Rs. 247,500.00 (Rs. 68.75/kg) as income to the group in a period of eight months. As reported by DADO, Panchthar, we on average produced 1250 kg ginger rhizome per ropanee. With innovations brought to the village, we are much enthusiastic to an extended ginger cultivation."

Shekhar Nath Ghimire (Panchthar) and Khem Raj Bhattarai (Ilam), farmer-facilitators
"Subsistent farmers in the villages are recently oriented to crop production for sale in markets due mainly to traders' coming in villages to collect and transfer their products to road-head and distant markets. Farmers in our villages were previously desperate in ginger cultivation due to not only disease and pest harassments, but also meagre price paid by traders. As a result, farmers had no motivations to produce ginger and avail the traders with clean, sorted and graded ginger supplies. Ginger competitiveness project has, one-way by bringing ginger traders and producers together in a common forum (i.e. NGPTA's district chapter) and the other-way through farmers' field school approach, facilitated local farmers to learn about quality production of ginger and understand such requisite to fetch a higher price in market. Knowing about a high capacity ginger washing facility being established in Jhapa near to ginger export point in initiation of the project, ginger farmers and traders in the districts are much optimistic in their businesses."

Statements and Voices

'Cooperation among farmers, traders and the ministry of Agricultural Development is highly valued in promotion of trade on agricultural products.'

Mr. Nangindra Prasad Upadhyaya, Secretary in MoCS

'Appraising proactive roles by NGPTA to bring the project to its height, I enumerate - successful operation of the facility, channelizing value added ginger to export market, minimizing trade cost and establishing a trade mark for Nepalese ginger - as urgent responsibilities in its part.'

Mr. Toya Narayan Gyawali, Joint Secretary in MoCS

'Having high level of cleaning and production to meet sanitary and phytosanitary and food safety standards required by ginger importers is very important in the ginger industry.' *-Dr. Binod Saha, AFAOR*

'I am inspired seeing high morale in part of farmers and traders in improving the ginger business.' *-Mr. Udaya Chandra Thakur, Joint Secretary, MoAD*

'The project is an opportunity to NGPTA to organize washing in ginger and proceed for broader export market.' *-Mr. Pradeep Maharjon AEC/ FNCCI*

'I am encouraged with the project, which has opened doors for new investments in the ginger sub-sectors.' *-Mr. Narendra Khadka, Chairperson, NGPTA.*

Fig.20: Monitoring visit, 21 Jul 2015

'Appreciating the jobs produced by DADOs, I suggest the government and private sectors in ginger to develop some type of buffer to price fluctuations such as storage. Sustained operation by the farmer's groups with internalization of ginger processing and marketing in their program would contribute to solve the problem.'

- Dr. Somsak Pippopinyo, FAOR

'The project has done good job to improve Nepalese ginger's competitiveness in world market.'

- Dr. Dinesh Parajuli. Joint Secretary in MoAD

'Ginger will certainly increase its share in the pie of agricultural trade.'

- Dr. Pradumna Pandey and Mr. Arun GC, MoAD

'Problem of rhizome rot is reduced in ginger through the project introduced farmers' training on GAP.' *- Mr. Rajendra Uprety DADO Morang*

'By participating in the FFS-based farmers' trainings organized by FAO project, I have realized that supporting only grass roots is not sufficient, but equally necessary sensitizing district stakeholders on GAP. On behalf of DADO, I promise mainstreaming GAP in agriculture development through necessary coordination among all stakeholders in the district.'

- Mr. Prakash Kumar Dangi DADO Ilam

'Our capacity in providing technical services to farmers is enhanced through involvement in the GAP-based trainings of ginger farmers.'

- Mr. Lakpa Reider Bhotiya Saincha, ,JT, Belbari, Morang

Fig.21: Monitoring visit by FAOR

Fig.22: Dr. Dinesh Parajuli NPC and Joint Secretary in MoAD in a monitoring visit.

APPENDICES

APPENDIX 1 LOGFRAME MATRIX - ACHIEVEMENT OF INDICATORS

Results chain	Indicators				If not achieved, explain why	If applicable/ follow-up action to be taken (by MoAD/AEC)
	Indicators	Baseline (2013)	End target (*expected value at project completion*)	Achieved (2015)		
Impact Promoting Market orientation and trade competitiveness of ginger' with a view to increasing income level of ginger farmers	Farm level income (NPR/HH/year) Post harvest loss (% of farm sale) Farm-gate price (NPR/kg ginger) Farm net income (NPR/kg ginger)	16023.00 (ginger) 10% 60.00 22.00	Increase by 25% Decreased by 30% Inccreased Inccreased	25991.00 (ginger)* 7%* 56.80* 25.31*	Construction of the ginger washing facilities recently completed. Multiplier effects on the indicators foreseen following its full flaged operation.	Follow up action by MoAD and AEC with NGPTA foreseen and required specially on technical supports to farmers and business groups and the groups and the facilities' sustained operations.
Project Outcome Increased market opportunities for Nepalese ginger through product quality enhancement	Farm HH using washing Ginger rhizome production Trade on washed ginger rhizome Washed ginger price New market entered	0 459kg/ropanee 0 - India (unwashed)	Washing-introduced Increased Increased Higher than unwashed India (washed)	Washing not initiated* 477 kg/ropanee Washing not initiated* Washing not initiated* Washing not initiated*	Such will be enhanced remarkably upon operationalization of the facilities.	Oversight and facilitation
Output (1) Ginger washing / processing facility designed, constructed and operationalized, and producer organizations strengthened	Operation modality in place NGPTA capacitated	- Registration	Op.modality in place Faciity established NGPTA ownership Operation guidelines Facilities business plan The FMC for operation The facility TF	Op.mod. prepared Operated/handed over NGPTA owns facility The guidelines formed The plan formed The FMC instituted The TF instituted		Oversight, facilitation and revisions
Output (2) Training materials development and training on GAPs for ginger cultivation, post-harvest handling and SPS requirements	Training materials		The materials for FFS developed, published and shared	FFS guide, manual, curricula, handbook, record-book, pass-book, video clips, news prints, drama	-	Revision, addition and reproduction such as GAP standard, farm inventory book, product certification, seed and cultivars, disease management
	The trainings conducted	-	Farmers (GAP based) Seed producer Farmer master trainer Field staff PH loss to farmers Safe handling (trader) Book keeping/ lead. dev. Ginger storage FFS program planning	#1891(60% women) # 80 # 59 # 20 # 4 (> 1500 farmers) # 4 (81 traders) #4 (103 farmers) #2 (districts) #4 (districts)	Processors' training (#1), hands-on training to the facilities operator (#1) and traders' workshop cum training (#2) under AEC scope being held following the facilities	Follow up of the post facilities operation organization of the training
	Establish ginger demonstration / multiplication plots	-	#80 demo plots	#50 in 2013 and #54 in 2014 (each of 1000 to 1500 m^2)		The common plots sustained by group mobilization for technology verification and cultivar selection
Output (3) Supply of quality ginger rhizomes available	Improved cultivar obtained (seed supply)	Local	Improved	>50% replaced Quality seed supply The supply sustained		Variety selection/ introduction
	Control measure devised (inputs)	Sever crop damage by	Rhizome rot	Inputs delivered		Pest risk assessment

Results chain	Indicators				If not achieved, explain why	If applicable/ follow-up action to be taken (by MoAD/AEC)
	Indicators	Baseline (2013)	End target (*expected value at project completion*)	Achieved (2015)		
		rhizome rot	management	The problem managed		
Output (1) Study on regional and international markets for fresh and processed Nepalese ginger, and market (SPS) requirements	Export opportunity/ constraints identified	-	The study conducted	The study report (FAO study in India and Bangladesh and that by SAMARTH/ NMDP in Japan, UAE and the Netherlands		Implementation of the findings, trade promotional interventions
Output (2) Nepalese government departments (DFTQC and NPPO) have improved capacity to negotiate import requirements for ginger, and demonstrate compliance with SPS requirements of importing countries	Product traceability introduced	-	Group certification	Training in 54 groups Farm record keeping		The effort continued
	Indo-Nepal bilateral meetings and contact	-	Meetings organized	The first NPPO meeting held Decided to sustain the meeting annually	The second meeting to be held following the facilities operation	The meeting continued

* Commissioning of the ginger washing and processing facility is recently completed. Therefore, outcomes of such operation are still not added to the income, job and profit creation.

APPENDIX 2 WHAT IS A PERFORMANCE ASSESSMENT QUESTIONNAIRE

The Performance Assessment Questionnaire has been designed to support you, the formulator of the Terminal Report, in completing the different sections of the report, which directly correspond to the FAO corporate performance assessment criteria of ***Relevance, Achievement of Results, Implementation of Work Plan and Budget, and Sustainability.***

The Questionnaire will not be included in the report.

Complete the questionnaire prior to writing the Terminal Report and provide a rating in response to each question. The content you provide in answering the questions is the basis for the main report structured around the performance assessment criteria.

Criteria	Subcriteria	Rating of subcriterion (1-3)	Overall rating of criteria
Relevance	Relevance of the project to the problem identified at project identification and formulation	3	3
	Alignment and strategic fit [1]	3	
Achievement of results	Contribution to impact	3	3
	Achievement of outcome	3	
	Achievement of outputs	3	
Implementation of work plan and budget	Timely implementation of activities	2	2.67
	Implementation of activities within planned budget	3	
	Application of risk management strategy	3	
Sustainability	Capacity development	3	2.75
	Environmental sustainability	3	
	Gender equality	2	
	HRBA	2.5	
	- Right to Food	*2*	
	- Decent Work	*3*	
	Technical sustainability	3	
	Economic sustainability	3	
			2.85

[1] Alignment/strategic fit with CPF outcome/UNDAF outcome/national priority/Organizational Result/other

APPENDIX 3 PERFORMANCE ASSESSMENT QUESTIONNAIRE

	Scorecard			
	1	2	3	NA[1]
1. Relevance (Will aid you in filling out Section C of the Report)				
1.1. Relevance to problem to be solved				
1.1.1. How adequately was the project design in ensuring effective management for results?		2		
Provide a small narrative text to support the score. Project design ensuring effective management for result was excellent on the philosophical ground such that there was common understanding of the project (goal, outputs, activities and implementation framework) among the project stakeholders and they would play their respective roles accordingly and full participation would be harnessed. However, the design did not foresee that such participation and partnership in a multi-stakeholders arrangement would be hampered by diversity of interests and interests based conflicts. Moreover, in advance assessments of minimally necessary staffs and possible risks in the project implementation due to local stakeholders and implementing partners' conduct and interests were not accurately foreseen.				
1.1.2. To what extent has the project provided solutions of a technical nature that are new and/or were not known by the beneficiaries/stakeholders and that only the technical expertise provided through the project could have brought?[2]			3	
Provide a small narrative text to support the score. Washing need of exportable ginger, cultivar selection in improving quality of the exportable product, production and use of quality seed rhizome, diseases and pest management, SPS requirements in ginger trade, ginger trade promotional needs identified through market studies, need of product traceability in ginger trade and the traceability management through group certification and adoption of good agricultural practices were new technical innovations imparted especially to ginger producers, traders and extension service providers by the project experts.				
1.2. Alignment and strategic fit (CPF outcome/UNDAF outcome/national priority/organizational result/other)				
1.2.1. To what extent has the project contributed to the relevant Country Programme Framework (CPF) outcome/ United Nations Development Assistance Framework (UNDAF) outcome/national priority/organizational result/other? (as relevant)			3	
Provide a small narrative text to support the score. Indicate whether or not the CPF exists, and if so, what period it covers and how the project contributes directly to its implementation. If the project is not included in the CPF, explain why. NMTPF/CPF (2010/11-2014/15) and UNDAF (2013-2017) existed. 'Promoting Market orientation and competitiveness' of some identified commodities including ginger has been a priority of NASDP and NTIS 2010 adopted by the NMTPF/CPF (2010/11-2014/15) and UNDAF (2013-2017). In addition the priorities such as 'enhancing food and nutrition security and safety, 'enhancing application of "getting-better" technologies and tools', 'sustaining natural resource conservation and utilization', 'promoting enabling environment', 'developing infrastructure support facilities', 'enhancing integration of gender in agriculture' and 'managing the effects of migration of agriculture labour' contained in the NASDP and development plans (APP, TYIPs and MDG) are also drawn in the NMTPF/CPF (2010/11-2014/15) as well as UNDAF (2013-2017) to which the project has identified its scopes of contribution. 'Ginger processing in a case of small project in Dang' is highlighted in achieving market orientation and competitiveness promotion, but the project is not contained in the CPF as the agreement on the project followed its formulation. The project regarding UNDAF (2013-2017) relates directly to its tenth outcomes (Nepal's institutions are strengthened for more effective integration of policy and the economy into intergovernmental economic and normative processes and international policy and legal regimes), specifically output 10.2 to strengthen state capacity in trade related dialogues, and in complying with trade standards. The project is described in the framework in its Annex I and II.				
OVERALL			**2.67**	
2. Achievement of results (Will aid you in filling out Section C of the Report)				
2.1.1. Extent to which a contribution to impact has been made			3	

1 NA = not applicable

2 Indicate which new technical skills were acquired by each group of beneficiaries (e.g. farmers; administrators/national services/policy-makers) and what type of expertise (e.g. FAO technical officer/international consultants) were used by the project to bring about this knowledge transfer.

	Scorecard			
	1	2	3	NA[1]
Provide a small narrative text to support the score. Contribution to 'promoting market orientation and trade competitiveness of ginger with a view to increasing income level of ginger farmers' is made through multi-prong interventions. Such covers a) establishment of ginger washing and processing facilities, b) Farmers and traders' training in production and supply of quality ginger including seed and cultivar management, good agricultural practices and post harvest management, c) capacity development of ginger trade related stakeholders such as farmers and traders' group and state agencies and d) market study to identify avenues to enter into export market with product diversification. Every effort to achieving trade competitiveness is guided ultimately to improving farm level income.				
2.1.2. Extent to which the expected Outcome has been achieved			3	
Provide a small narrative text to support the score. The multi-prongs efforts to achieving trade competitiveness are exclusively concentrated on improving quality of exportable ginger product in view of meeting import requirements (food safety and SPS) of the importing partners. The interventions are made along ginger value chain from production (cultivar replacement, quality seed supply, GAP based production technology and group based product certification) through product collection and transfer (GAP/GMP in post harvest handling) to export preparation.				
2.1.3. Extent to which the expected Outputs have been delivered			3	
Provide a small narrative text to support the score. 1. Establishment and operation of ginger washing/processing facility: 6mt/hour capacity facility designed, constructed and near to operation 2. Materials development and training of value chain actors through demonstration and farmers' field school approach on GAPs (production and post-harvest handling), SPS management, traceability introduction and product certification. 3. Supply of quality ginger rhizomes through seed supply management, cultivar performance study and selection and disease and pest management 4. Study on regional and international markets (SPS requirements) for Nepalese ginger (fresh and processed) to identify avenues of product diversifications and market penetrations 5. Improved capacity of Nepalese Government to negotiate and demonstrate compliance with import requirements (SPS) of trading partners.				
OVERALL			3	
3. Implementation of work plan and budget (Will aid you in filling out Section D of the Report)				
3.1. Work plan and budget				
3.1.1. To what extent were activities implemented on time?		2		
Provide a small narrative text to support the score describing the challenges encountered, if any (procurement, distribution, selection, Letters of Agreement (LoAs)/contracts) Almost all of the activities are implemented with extension of the project period for a year and three months. Construction of the ginger washing and processing facilities continues for commissioning of the washing line; feasibly their operations start by end of August 2015. Some of the activities such as hands-on-training (#1), traders' training cum workshop (#2) and the second NPPO level meeting between India and Nepal are planned to implement following operation of the facilities. Inevitable delays in the project implementation beyond timeframe are attributed to - 1. Project partners/ stakeholders' capacities to collaborate and participate in the project implementation were not appropriately assessed during project planning. 2. Initial delays in kicking up of the project implementation 3. Hurdles in the land availed by NGPTA for the construction of the facilities, and in the facilities construction due to non-availability of construction materials and earthquake devastations. 4. Delays in finalization of the public-private partnership agreement 5. Non-clarities in the design of the ginger washing and processing facilities desired to establish and revisions on the design required due to budgetary reasons that resulted in delays in the procurement process. 6. Multi-stakeholder involvement with diversities of project related interests among the stakeholders that added in time required for coordination among implementing partners. 7. High level of transparency exercised in the implementation of the project. Such combined with multi-stakeholders presence and their interest diversities prolonged decision processes. 8. Reason in part of the donors that the project could at maximum approved for two years despite the project's time-consuming nature envisaged during its formulation. 9. Overall nature of the planned activities that could only be implemented in succession (that needed progress in one part for initiation of others)				
3.1.2. To what extent were activities implemented within planned budget?			3	
Provide a small narrative text to support the score. Despite an extension in the project period, the project activities are implemented within planned budget. Involvement of local consultants and inflation in the local currency supported to compensate in the possible budgetary deficit due to the extension. MTF/NEP/068/STF- 462,144				

	Scorecard			
	1	2	3	NA[1]
MTF /NEP/068/OPS- 711,550 NGPTA- 140,000 MoAD - 60,000				
3.2. Risk management				
3.2.1. To what extent were the risks to the project actively managed (i.e. risk log updated regularly and progress on addressing key risks regularly reviewed)? (self-assessment)			3	
Provide a small narrative text to support the score. Major parts of the risks in the project implementation were not speculated during the project formulation. They were identified during the course of implementation; frequently discussed in the stakeholders, PTWG and PSC meetings, and actively managed through the project decision processes with incorporation of necessary amendments in the project implementation. Frequent meetings of the project stakeholders (EIF-NIU, PSC, PTWG, individual stakeholder and project-hob) and reporting of the progresses to the meeting helped such management.				
OVERALL			**2.67**	
4. Sustainability (Will aid you in filling out Section E of the Report)				
4.1. Capacity development				
4.1.1. To what extent do the relevant policies and legal framework in place or under development support the sustainability of the project outcome?			3	
Provide a small narrative text to support the score, indicating what policies and legislation are missing to ensure sustainability. Describe how they are going to be developed, by when, by whom and through which technical and financial means. NTIS 2010 and state strategies on promotion of agribusinesses and commercialized agriculture would be supporting the sustainability of the project outcomes. NTIS programs and UNNATI (DANIDA) Project in MoAD (that covered ginger sub-sector as well) and well strengthened NGPTA would be taking care of further continuation of relevant interventions in the project districts. Such includes supports in technical knowledge and skill, establishment of national GAP standards for ginger, producers' group mobilization, continuation in the product certification and product traceability management through establishment of improvised farm recording and supervision system. A sustained operation of the facilities by the NGPTA is foreseen with formulation of overarching public-private agreement in the facilities operation and with-guidelines establishment of committees such as Facilities Management Committee overseen by MoAD, Nepalese Ginger Promotion Trust Fund formed in NGPTA out of the facilities income and Facilities Operation Committee formed in NGPTA to take intensive care of the facilities operation and management. NGPTA is made responsible to operate the facilities through contracting the facilities out to Facilities Operation Entity (private agency) on competitive basis.				
4.1.2. How far is the project embedded in organizational structures that are likely to survive beyond the project and that are committed to sustainability of results?			3	
Provide a small narrative text to support the score. The public-private agreement in the facilities operation is undersigned by MoAD, MoCS, AEC/FNCCI and NGPTA, implementation of which is led by MoAD. The Facilities Management Committee is chaired by Joint Secretary (ABPSD, MoAD) with members from MoCS, AEC and NGPTA. Nepalese Ginger Promotion Trust Fund and Facilities Operation Committee in NGPTA are formed in NGPTA supported by its bylaws. Organizational structure of NGPTA is expanded with formation of its District Chapters in the project districts and internalization of farmers' group/cooperatives (FFS) operational during project phase in the target districts as institutional members and ginger traders as general members.				
4.1.3. To what extent were partnerships and alliances created or strengthened that will contribute to the project's sustainability?			3	
Provide a small narrative text to support the score, listing partners[3] and describing alliances. Partnerships and alliances in the project formulation and implementation were established among MoCS, MoAD, FAO and AEC of FNCCI allied with NGPTA. MoCS as the project recipient and member in the PSC and PTWG engaged in major in coordination and monitoring work. MoAD, AEC and FAO partnered in the project implementation, where FAO being recipient of project budget implemented the project in close collaboration with MOAD and AEC. Secretary in MoAD and Joint Secretary in ABPSD, MoAD chaired respectively PSC and PTWG with members from MoCS, AEC, NGPTA, FAO and departmental agencies within MoAD. District Agriculture Development Offices (DADOs) of MoAD in the target districts were				

[3] When including CSOs, please describe which kind of CSO represented which constituency. Please see FAO CSO strategy: www.fao.org/docrep/meeting/027/MF999E.pdf and Guidelines for Balanced Representation for identification of constituencies. http://www.fao.org/fileadmin/user_upload/civil-society/docs/Balanced%20Representation.pdf Please also identify how CSOs collaborated based on the six areas of collaboration as outlined in the CSO strategy.

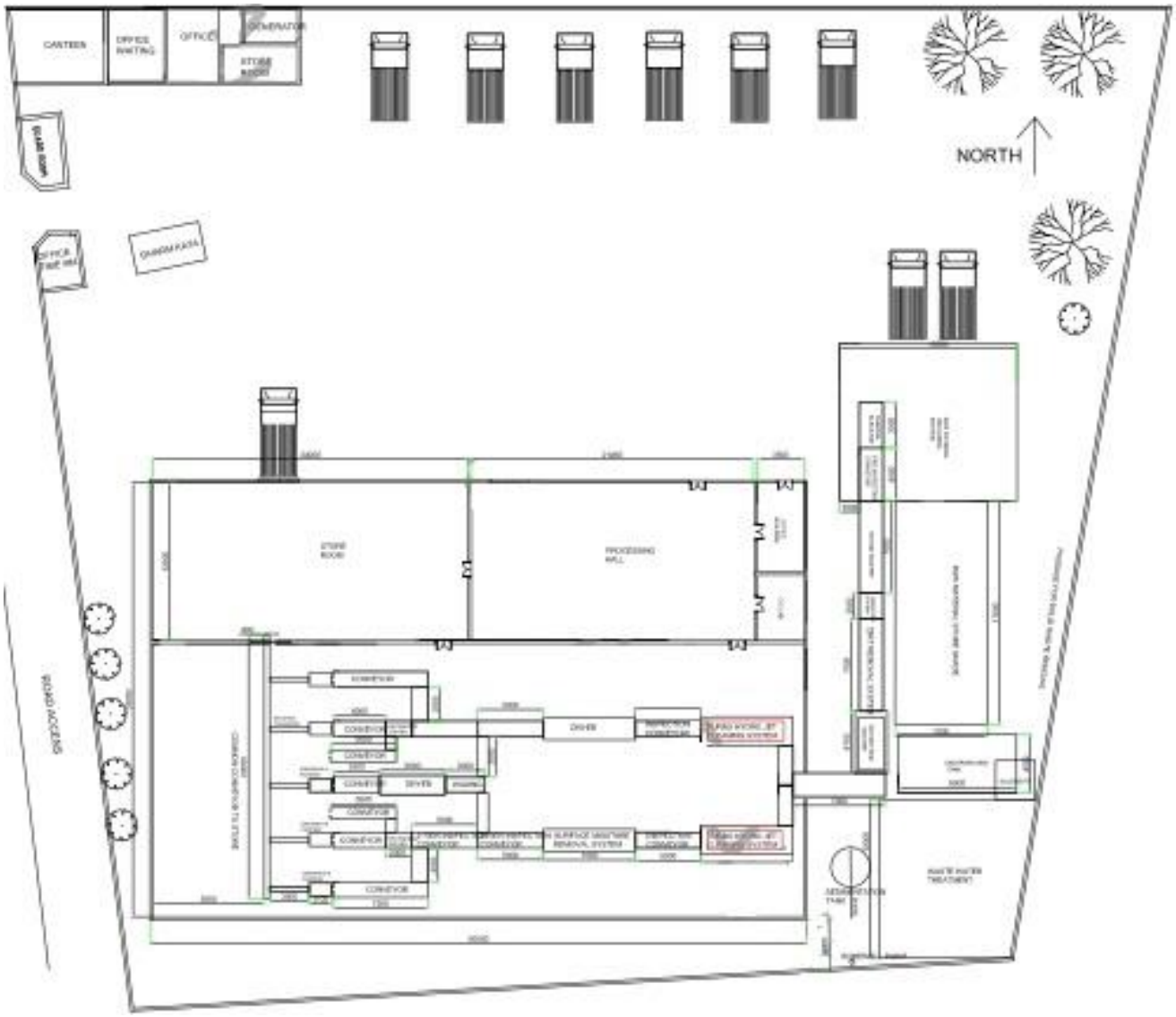
	Scorecard			
	1	2	3	NA[1]
coordinated with budgetary allocation to conduct farmers' field school (FFS) based activities to train farmers in quality ginger production through adoption of GAPs, traceability introduction and group based product certification. In contract, AEC/FNCCI, in collaboration with NGPTA (both private sector), carried out activities for ginger farmers' group mobilization/strengthening and traders' (business group) training and capacity building.				
4.1.4. To what extent did the project have a solid exit strategy and clearly defined follow-up actions?			3	
Provide a small narrative text to support the score, explaining the exit strategy and follow-up actions. The project has established a solid exit strategy with its implementation in collaboration with MoAD (public sector) and AEC and NGPTA (private sectors). DADOs in the target districts would continue regular extension supports to the farmers and business groups. Most of the project operated farmers' groups (FFS) are registered in the respective DADOs as well as allied with cooperatives and NGPTA. NGPTA, a ginger based business alliance registered as NGO, is capacitated with full ownership in the facilities being constructed, resource channelization, training(s), market studies and direct involvement in implementation of all activities. NGPTA in collaboration with AEC would be taking over business support responsibilities to ginger traders and producers; independently operating the facilities with its benefits dribbled to the farmers and other ginger business groups, and organizing trade promotion activities.				
4.2. Gender equality				
4.2.1. Have the activities met the needs and priorities of women and men beneficiaries/ stakeholders as identified at the design stage?			3	
Provide a small narrative text to support the score. The project is basically gender insensitive. Level of women participation (60%) in the field trainings and demonstrations is met as envisaged at the project design stage.				
4.2.2. Have women and men equitably benefited from the results achieved by the intervention? Particular attention should be given to whether the project contributed to the achievement of one or more objectives of the FAO Policy on Gender Equality (equitable participation in decision-making; access to and control over decent employment, income, land and other productive resources, goods, services and markets; and reduction in women's work burden).			3	
Provide a small narrative text to support the score. Efforts made in the project implementation (especially in the field programs such as member selection in farmers' group and participant selection in various short-term training) to benefit women and men equitably. As guided by the project design, higher participation of women in the groups was encouraged with a view of gender integration in the productive spheres and women empowerment.				
4.3. Environmental sustainability				
4.3.1. How would you rate the environmental benefits or impacts within the project area?			3	
4.3.2. How would you rate the project´s impact on the population within the project area?			3	
4.3.3. What is the extent of unanticipated environmental and social impacts within the project area?			3	
4.3.4. To what extent has the information and knowledge gained been documented and shared among all stakeholders?			3	
Provide a small narrative text to support the score. The project is not considered much sensitive to environmental parameters. However, its impacts to the environment in the project area is seen positive as it, as a part of GAPs, promoted use of biological pesticides and favoured only optimum use of chemical pesticides. An IEE of the facilities construction is carried out that has formed an environmental management plan to facilitate the facilities operation with due care of environmental health.				
4.4. Human Rights-based Approach (including Right to Food and Decent Work)				
4.4.1. To what extent did the project contribute to the achievement of human rights, how did it promote human rights principles (i.e. PANTHER: participation, accountability, non-discrimination, transparency, human dignity, empowerment, rule of law) in decision-making processes and to what extent has it strengthened the notions of rights and obligations?				NA
4.4.2. How did the project contribute to the implementation of the Right to Food Guidelines adopted by FAO in 2004?				NA
4.4.3. To what extent has the project contributed to the creation of gainful employment and entrepreneurship opportunities for rural				NA

	Scorecard			
	1	2	3	NA[1]
youth, women and other targeted groups in the project?				
4.4.4. To what extent has the project contributed to the improvement of labour conditions in rural areas (e.g. reducing child labour, improving occupational safety and health, reducing excessive hours of work)?				NA
Provide a small narrative text to support the score.				
4.5. Technological sustainability				
4.5.1. How appropriate/flexible is the technology used/introduced by the project?			3	
Provide a small narrative text to support the score. The technologies are introduced by the project both in production and supply of quality ginger rhizome and ginger washing with a high level of flexibility. Such technologies are adopted within limit of GAPs and afield evaluated from human, animal and environmental health perspectives. Reduced pesticides residues in the ginger products and improvised SPS standard and commercial quality of the ginger rhizome were major thrusts of the technological interventions. Most of the technological interventions in ginger production and supply were introduced with their test and demonstration in the FFS-common field. Through FFSs, ginger farmers are guided in independent learning process. Majority of the FFSs are seen to continue in self learning with their own resource following the project termination. Likewise, washing of ginger in the facilities is also designed through participatory approach. MOAD, AEC and NGPTA, the agencies made responsible to operate the facilities, are fully engaged in the design and construction process.				
4.5.2. To what extent has the project contributed to the development of local knowledge/capacity/resources/ good practices?			3	
Provide a small narrative text to support the score. In addition to the above statement (4.5.1), the FFS approach of farmers' training has been much contributing to institutional development and capacity building of ginger farmers groups with knowledge as well as financial generation. With trainings on participatory adult learning process, ginger production and post harvest handling, leadership development, book-keeping, farm inventory keeping and group certification, the project has contributed to the developments.				
4.5.3. How would you judge the capacity of stakeholders and beneficiaries to pursue the project activities without further technical assistance?		2		
Provide a small narrative text to support the score. The project was implemented in communities with low level of literacy. Technological dynamics and ever changing environments of ginger production and trade would not be well perceived and managed merely by the farmers and business group. MoAD in public sector and AEC and NGPTA in private sectors, as active partners in the project implementation, have capacities to facilitate the beneficiaries to continue with the project outcomes. Further supports on infrastructure development, strengthening ginger producers and traders' network, technology generation and dissemination, post harvest management, improvement in product certification and traceability and export market penetration would be necessary.				
4.6. Economic sustainability				
4.6.1. To what extent have additional financial resources been allocated/mobilized to the sector or subsector programme as a result of the project?		2		
Provide a small narrative text to support the score, indicating sources and level of funding. Regular extension and NTIS program implemented by the government and Nepalese Ginger Promotion Trust Fund instituted in NGPTA out of the income from the facilities have provisions for mobilization of resources to the sub-sector. Such would not be sufficient to meet the above supports in the sub-sector.				
4.6.2. To what extent are the products and services developed by the project affordable to beneficiaries and stakeholders?			3	
Provide a small narrative text to support the score, indicating if beneficiaries will have to resort to external funding (and if so, describe the mechanism and source). Product quality improvements through production and supply related interventions and supply of washed ginger following operation of the high capacity washing facilities would increase performance of ginger trade, the product's competitiveness in the export and domestic markets and price available to the products. Such an increase in trade efficiency would be producing additional revenues to the project beneficiaries and stakeholders.				
OVERALL			2.87	

APPENDIX 4 SUPPORT DELIVERY AND ACHIEVEMENTS

a. Design and construction of Ginger washing and processing facility

i. The twelve metric ton per hour capacity washing line



ii. Revised six metric ton per hour capacity washing line

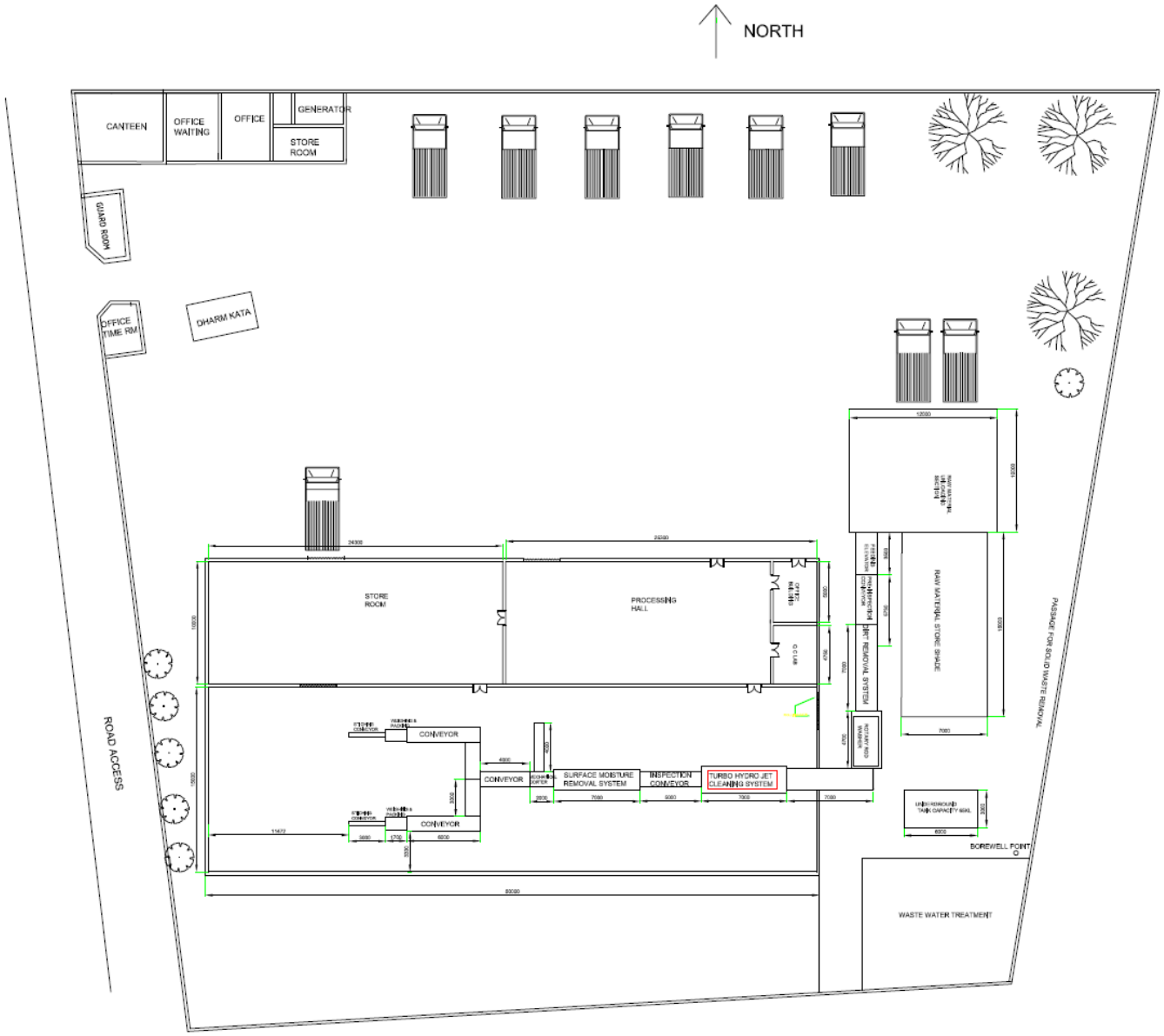


FIG. 7 LAYOUT PLAN OF THE FACILITY

iii.Equipment and material provided in the ginger washing facilities

Ginger washing and processing equipment and machine

Quantity	Description	Specifications
1	**Weighing Section** Electronic Lorry Weighbridge including Junction Box and Weight Indicator	• *Type*: Steel Structure • *Capacity*: 50 MT. • *Division*: 5kg. • *Platform size*: 9000 mm x 3000 mm. Rated load: 30 MT Sensitivity: 2.0 ± 0.002mv/v Creep(30min): _+0.02%FS Insulation Resistance: >5000 M Ohm Safe load limit: 150 % FS Overload limit: 300 % FS Recommended Excitation voltage: 10–12 VDC Protection Class: IP 68 Construction: Alloy Steel 40CRNIMOA Cable Length: 12 meter 6mm diameter Operating temperature range: -30°C to +70° C • *Junction box summing the load cells* • *Weight Indicator* Signal input: -15mV～+15mV Sensitive degree: 0.1μV/d Division: 150000 Full load temp. coefficient: ±1ppm／℃ TYP AD conversion rate: 6.5-100time/s Support load cell: Max 10 common load cell or 16 digital load cells. Execute voltage: AC 220V±10%,
1	**Washing Section** Feeding Elevator with Large Hopper	MOC: SS 304 Contact parts: SS 304 or other food graded material Conveyor length: 3500 mm Conveyor width: 1200mm Belt: UHMWPE mod. belt , PP mod. belt Cleat height: 100mm Cleat pitch: 400mm Powered By: Shall be 3 Phase Geared motor Head Drum: 100 mm dia, nickel or zinc coat Tail Drum: 100 mm dia, nickel or zinc coat • Belt with ultrasonic bonding of cleats • Belt with two side guide liners • The hopper is designed in such a way that all the load of the products gets centralized at the entrance of the belt. • The belt elevated the products to the required height. - PP modular belt.
1	Pre-Inspection Conveyor	MOC: SS 304 Contact parts: S S 304 or other food graded material Conveyor length: 4000 mm. Conveyor width: 1200 mm Belt: PVC Food grade with 2 mm thick Reject chute: 6 nos Powered By: 3.3kW, 3 Phase Geared motor Head Drum: 100 mm dia, nickel or zinc coat Tail Drum: 100 mm dia, nickel or zinc coat • Belt with two side guide liners
1	Dirt Removal System	MOC: S.S sheet (2.5 mm thickness) tank Contact parts: S.S 304 Length: 7000 mm Width: 1500 mm Elevator width: 1200 mm Water spray nozzles: 12 Nozzle type: Flat spray Spray pressure: 50% overlap Elevator belt: UHMWPE mod.belt, PP mod.belt Air Blower: Fitted with suitable air turbulence system Fan velocity (cfm): 2200 Water recirculation: Water recirculation system with filtration arrangement

Quantity	Description	Specifications
		Water filtration 11.5 kW, 3 Ph (belt 2.2 kW, blower 5.5kW, pump 3.75) powered by motor Power Elevator provided with VFD (60Hz)
1	Rotary Rod Washer	MOC S.S sheet (2.5 mm thickness) tank Contact parts S.S 304 Length 4700 mm Diameter 2000 mm Powered By 5.5 kW, 3 Phase motors Spacing b/w rod ½" Discharge conveyor SS 304 Rpm of the rod washer 30 rpm • Feed and Discharge chutes • Water spray arrangement • Water filtration and recirculation system • The material is guided through inner flights to the discharge chute. • Rods are distributed on the circumference of washer.
1	Bridge Conveyor	MOC S.S sheet Contact parts S.S 304 Length 7000 mm Width 1200 mm Elevator belt UHMWPE mod.belt, PP mod. belt Powered By 2.2 kW, 3 Ph Geared motor Head Drum 100 mm dia, nickel or zinc coat Tail Drum 100 mm dia, nickel or zinc coat Motor driven VFD 60 Hz • Belt with two side guide liners
1	Turbo Hydro Jet Cleaning System	MOC S.S sheet (2.5 mm thickness) tank Contact parts S.S 304 Length 7000 mm Width 1500 mm Elevator width 1200 mm Water spray nozzles 9 Nozzle type pinched pipe Spray pressure controlled with water pressure Fan vel.(cfm) 2200 Elevator belt SS netted / woven conveyor Air Blower Fitted with air blower and bubbling Jet washing Nozzles fitted from both side Water recirculation Water recirculation system with filtration arrangement Cleat height 80-100 mm Cleat pitch 300 mm Powered By 11.5 kW, 3 Ph (3 motors, 2.2 kW, 5.5kW, 3.75kW) Elevator motor VFD 60 Hz • Belt with two side guide liners
1	Inspection Conveyor	MOC SS 304 Contact parts SS 304 or other food graded material Conveyor length 5000 mm. Conveyor width 1200 mm. Belt PVC Food grade with 2 mm thick Reject chute 10nos Powered By 2.2 kW, 3 Ph Geared motor Head Drum 100 mm dia, nickel or zinc coat Tail Drum 100 mm dia, nickel or zinc coat • Belt with two side guide liners
1	Surface Moisture Removal System	Contact parts SS 304 or other food graded material Conveyor length 7000 mm. Conveyor width 1200 mm. Belt SS woven netted Belt With two side guide liners Inlet air fans 2 Nos. Burner Diesel Exhaust Chimney Powered By 15 kW, 3 Phase Geared motor Elevator Provided with VFD Moisture evaporation Surface water Capacity 6000 kg/hr

Quantity	Description	Specifications
		• Air Heat exchanger – Radiator type • Air blower with high capacity fans with air blown from top. • Total number of motors-3(2.2kW each) • The equipment fitted with burner, heat exchanger and hot air blow at controlled temp (70-80°C). • MOC– structure of MS, contact parts made up of SS- complete with hot air circulation fan, burner, temperature controller, thermostat, etc.
1	Mechanical sorter	• Suitable to grade small sized ginger with provision of rejection conveyor. The screening of ginger is done through vibratory mechanism. MOC SS 304 Contact parts SS 304 or other food graded material Length 2000mm Width 1200mm Powered By 3.5 KW, 3 Ph
1	Conveyor for small grade ginger	MOC SS 304 Contact parts SS 304 or other food graded material Conveyor length 4000 mm. Conveyor width 800 mm. Belt PVC Food grade with 2 mm thick Powered By 1.1 kW, 3 Ph Geared motor Head Drum 100 mm dia, nickel or zinc coat Tail Drum 100 mm dia, nickel or zinc coat • Belt with two side guide liners
2	Connecting Conveyor	MOC SS 304 Contact parts SS 304 or other food graded material Conveyor length 3000 mm. Conveyor width 1200 mm. Belt PVC Food grade with 2 mm thick Powered By 1.1 kW, 3 Ph Geared motor Head Drum 100 mm dia, nickel or zinc coat Tail Drum 100 mm dia, nickel or zinc coat • Belt with two side guide liners
1	Common conveyor	MOC SS 304 Contact parts SS 304 or other food graded material Conveyor length 4000 mm. Conveyor width 1200 mm. Belt PVC Food grade with 2 mm thick Powered By 2.2 kW, 3 Ph Geared motor Head Drum 100 mm dia, nickel or zinc coat Tail Drum 100 mm dia, nickel or zinc coat • Belt with two side guide liners
2	**Packing Section** Feeding Conveyor To Weighing Station	MOC SS 304 Contact parts SS 304 or other food graded material Conveyor length 6000 mm. (2 Nos) Conveyor width 1200 mm. Belt PVC Food grade with 2 mm thick Powered By 2.2 kW, 3 Ph Geared motor Head Drum 100 mm dia, nickel or zinc coat Tail Drum 100 mm dia, nickel or zinc coat • Belt with two side guide liners
2	Weighing Station with Stitching Machine Arrangement	• **Bag Filling and Packing Machine** With Control Panel, and Pneumatic, Electronics and accessories Weight range 20kg-50kg Speed 250 - 300 Bags/hour Accuracy ± 0.5% Construction SS and MS Application Ginger Method of filling By Vibrator and Gravity Feeder • **Conveyor System with Stitching Drum** Length 3000 mm Width 350 mm
	Utilities- Interconnecting MS Pipelines & Fittings	• The complete plant with duly interconnected pipeline and fittings.
		•

Spare parts

Equipment	Part	Quantity
1. Feeding Elevator with Large Hopper	Shaft Bearings	2 no.
	MCB, On/Off Push Button	2 set
2. Pre-Inspection Conveyor	Conveyor Belt	3 m.
	End Shaft Bearings	2 set
	MCB, Push Button	2 set
3. Dirt Removal System	Spray Nozzles	5 no.
	Water Pump Seal	5 no.
	Shaft Bearings	2 set
	Air Filter	1 no
	Push Button	2 no.
	MCB Push Button	2 no.
	Filter Sieve	2no.
4. Rotary Rod Washer	Bearings	1 set
	Filter System	1 set
	Spray Nozzles	5 no.
	MCB, On/Off Push Button	2 set
5. Bridge Conveyor	Bearings	2 set
	Conveyor Guides	2 set
	MCB, On/Off Push Button	2 set
6. Turbo Hydro Jet Cleaning System	Spray Nozzles	5 no.
	Air Filter for Shower	1 no.
	MCB, On/Off Push Button	2 set
	Pipe'O' Rings	5 no.

Equipment	Part	Quantity
7. Inspection Conveyor	Bearings	2 no.
	MCB, On/Off Push Button	2 set
8. Surface Moisture Removal System	Bearings	2 no.
	Air Blower Filter	1 set
	MCB, On/Off Push Button	2 set
9. Machinical Sorter	Shaft Bearings	2 set
	MCB, On/Off Push Button	1 set
10. Conveyor Small Grade Ginger	Bearings	2 set
	Conveyor Guides	2 set
11. Connecting Conveyor	Bearings	2 set
	Conveyor Guide	2 set
12. Common Conveyor	Bearing	2 set
	Conveyor Guides	2 set
13. Feeding Conveyor to Weighing Station	Bearing	2 set
	Conveyor Guides	2 set
14. Weighing Station/ Stitching Machine	MCB, On/Off Push Button	3 set
15. Spare SS Chain		5 m.
16. Moisture remover	Mesh	5 m.
17. Emergency Switch		10 no.
18. Taflon Stripe Piece		2 no.

Expendable and non- expendable field office equipment

Inventory Ledger No.	Year of Purchase	Qty.	Description	Value (Rs.)	Location	Utilization	Remarks	Purchase Order No.	Remarks
MTF/NEP/068/STF									
C426594	13/07/2009	1	Computer "Dell" Optiplex 960 DT Q9550 2.83GHZ 4GB RAM 320GB HD + 20" LCD MON. S.No. GSM574J	119,350.00 (USD 1,540)	Project Office, Jhapa	in use	Non-Expendable	P.O Number 228943	Handed over
	2/4/2013	1	HP 1536 DNF Printer with S. NO. CND9D64BF5	34,500.00	Project Office, Jhapa	In Use	Expendable	NPL/2013/8	Handed over
554534	2/26/2013	1	Yamaha Generator EF2600FW 2kva, S. No. 7PF0134136	70,109.95	Project Office, Jhapa	In Use	Non Expendable		Handed over
	3/5/2013	1	Dell Optiplex 3010 Desktop (IS) with 24" CPU S. No. FC97G2S, Monitor S. No. CN 054H4P-74261-2CM-3J1V	80,500.00	Project Office, Jhapa	In Use	Non Expendable	NPL/2013/19	Handed over
554533	3/6/2013	1	Inverter Brand: Luminous Ion 8/W UPS Exp 1500 Exide, Rating: 1500 VA, System: 24 Voltage System with 2 Battery: Brand - Exide, 12 volt, 12 Volt, 200 amp. Type-Inverter Battery1: FEIO-IN 2000PLUS #A3A3CO111433 A34, Battery2: FEIO-IN 2060PLUS #A3A3CO 070713 A34, S.No.12D 829N 1005596	53,982.00	Project Office, Jhapa	In Use	Expendable	NPL/2013/9	Handed over
	7/10/2013	1	UPS 850 EAST VA	5,280.00	Project Office, Jhapa	In Use	Expendable	Direct Purchase	Handed over
585279	4/15/2015	1	160 KVA Kirloskar Green/Koel Green Silent Type Generator Set - Serial No. 0134136	USD 15,300.00	Project Office, Jhapa	In Use	Non-Expendable	6501255	Handed over

Field Office Materials

Year of Purchase	Quantity	Description	Location	Utilization	Updation Remarks
2013	2	Plastic tables	Jhapa Office	In Use	Locally purchased
2013	12	Plastic chairs	Jhapa Office	In Use	Locally purchased
2013	2	Steel tables	Jhapa Office	In Use	Locally purchased
2013	2	Steel chairs	Jhapa Office	In Use	Locally purchased
2013	2	Table fans with stand	Jhapa Office	In Use	Locally purchased
2013	1	Router Tp-Link	Jhapa Office	In Use	Locally purchased
2013	1	Stapler machine	Jhapa Office	In Use	Locally purchased
2013	1	Punching machine	Jhapa Office	In Use	Locally purchased
	1	Telephone set	Jhapa Office	In Use	From FAO-Kathmandu
2013	1	Mechi LPG gas cylinder	Jhapa Office	In Use	Locally purchased
2015	1	Water filter	Jhapa Office	In Use	Locally purchased
2013	4	Electric Extension chords	Jhapa Office	In Use	Locally purchased
2013	1	Changeover switch	Jhapa Office	In Use	Locally purchased
2015	1	Fire Extinguisher cylinder	Jhapa Office	In Use	Locally purchased
	2	Cardboard tables	Jhapa Office	In Use	Disposed from FAO-Kathmandu
	3	Armed wooden chairs	Jhapa Office	In Use	Disposed from FAO-Kathmandu
	2	Open wooden chairs	Jhapa Office	In Use	Disposed from FAO-Kathmandu
	2	Open wooden chairs	Jhapa Office	In Use	Disposed from FAO-Kathmandu
	2	Wooden tea tables	Jhapa Office	In Use	Disposed from FAO-Kathmandu

iv. Civil construction including major structures and their contained non-expendables

SN	Description
1	***Main building block:*** 61m x 27m with RCC floor, HD-truss-structure with 26 gauge CGI roofing, partial wall of bricks and plane CGI, two major gates for access by heavy truck inside building with MS shutter, three emergency exits, and floor finish with partial RCC and punning in loading section.
2	***Unloading building block:*** 12m x 12m with RCC floor with punning in top, HD-truss-structure with 26 gauge CGI roofing, and fitted with ramp for feeding elevator.
3	***Drainage system***: Network of 190m open ditches with MS mesh covers.
4	***Waste Water treatment system***: The 190 m network of open ditches with iron rods coring collects waste water from entire floor (main block) and drains to sediment chambers (#4), and then clean water released to soak-pit.
5	***Services block:*** Separate toilets for male and female, the male section with two-pans, two-urinals, two-wash basins and a bath room, the female section with three-pans, two-wash basins and a bath room, and both the toilets have glazed-tile floor and wall with good water supply system and provision for sufficient light and ventilation.
6	***Water supply system:*** 4 inch diameter deep boring system, 78kl underground water tank and 15kl overhead water tank with electric motors fitted in connection pipes including one submerged in bore-well.
7	***Electricity:*** 11 kv 3-phase transmission line (800m), 160 kvA transformer (NEEK) with earthing provided, main and alternative electricity (power) supply and control system and cooling fans.
8	***Office:*** two-rooms with paints and modular false ceiling.
9	***Labor quarter:*** Temporary bamboo-based three-room labor quarter and one hexagonal resting place.
10	***Premise Boundary***: Stone filled gabion (east), RCC columns @ 10 feet C/C (around), 15 inch thick and 4 feet high brick wall (around) with addition of 10 inch thick and 4 feet high brick wall (only east and west side), barbed-wire fixed in the RCC columns (around) and MS gate at north-western corner of the premise.
11	***Premise area inside boundary:*** Gravel filled and leveled with heavy machine compaction
12	***Guard house:*** A generator-room, a guard-room and a weighbridge control room combined with 26 gauge CGI roofing and brick wall partition.
13	***Weighbridge platform:*** RCC platform with two ramps for heavy vehicles
14	All equipments in the washing and processing line interconnected in assembly with supply of water and electricity, protected against electricity hazards (earthing) with individual control system and connected to drainage system.
15	Heavy RCC-structure constructed to base rotary rod washer
16	Heavy MS observation platform (#4) with stairs for ginger sorting

v. Public-private agreement among major project stakeholders

AGREEMENT

BETWEEN

THE GOVERNMENT OF NEPAL, THE MINISTRY OF AGRICULTURAL DEVELOPMENT AND THE MINISTRY OF COMMERCE AND SUPPLIES

AND

THE AGRO ENTERPRISE CENTER OF THE FEDERATION OF NEPALESE CHAMBER OF COMMERCE AND INDUSTRY, AND THE NEPAL GINGER PRODUCERS AND TRADERS' ASSOCIATION

FOR

THE CONSTRUCTION, OPERATION AND MANAGEMENT OF THE GINGER WASHING AND PROCESSING FACILITIES UNDER THE GINGER COMPETITIVENESS PROJECT

WHEREAS, upon request from the Government of Nepal, the FAO has agreed to implement the project entitled "Enhancing Sanitary and Phytosanitary Capacity of Nepalese Ginger Exports through Public-Private Partnerships", hereinafter referred to as "**the Project**", and has signed separate agreements for this purpose with the Standards and Trade Development Facility (STDF) and the United Nations Office for Project Service (UNOPS), Trust Fund Manager (TFM) for the Enhanced Integrated Framework (EIF), which are co-financing the Project;

WHEREAS, the Project, as requested by the Government of Nepal, the Ministry of Agricultural Development (MOAD) in collaboration with the Ministry of Commerce and Supplies (MOCS), and the Agro-Enterprise Centre (AEC) of the Federation of Nepalese Chamber of Commerce and Industry (FNCCI) in association with Nepal Ginger Producers and Traders' Association (NGPTA), is to be implemented by FAO Nepal in close cooperation with MOAD and AEC in accordance with the Project document;

WHEREAS, FAO will receive, disburse and manage funds for the implementation of the Project activities in accordance with FAO rules and procedures and on behalf of the MOCS and the MOAD of the Government of Nepal;

WHEREAS, the project partners will work closely with the EIF National Implementation Unit in the MOCS that has a direct role in the Project monitoring and supervision;

WHEREAS, the Project Steering Committee described in the Project document is responsible for general oversight and supervision of the Project, including reviewing and approving project plans, budgets and progress reports; providing advice and guidance on implementation; reviewing project targets, criteria and arrangements; carrying out monitoring and evaluation; ensuring inter-agency coordination and policy support, and proactively identifying and responding to any possible problems that may arise in a timely and efficient manner;

WHEREAS, the Project has a provision to construct, equip and operationalize ginger washing and processing facilities (hereinafter referred to as "**the facilities**") to add value to and enhance the sanitary and phytosanitary capacity of Nepalese ginger exports as specified in this Agreement;

WHEREAS, the AEC as a partner in the implementation of the Project has agreed to provide support and guidance to support the oversight and management of the facilities by the Nepal Ginger Producers and Traders' Association, incorporated under the provisions of the Non-Governmental Organization Registration Act 2034 (1977), and having its registered office at Kathmandu, hereinafter referred to as "the **NGPTA**";

WHEREAS, the **NGPTA** has requested through the Government of Nepal support to create ginger washing and processing facilities in Mechi Municipalty-1, Dhulabari, Jhapa under the Project, and has committed to provide its own land for the construction and operationalization of these facilities;

WHEREAS, the Government of Nepal, Ministry of Agricultural Development, hereinafter referred to as "the **MOAD**" and Ministry of Commerce and Supply, hereinafter referred to as "the **MOCS**", and the Agro-Enterprise Centre of the Federation of Nepalese Chamber of Commerce and Industry, hereinafter referred to as the "the AEC", and the Nepal Ginger Producers and Traders' Association, hereinafter referred to as "the NGPTA" have agreed to sign this agreement within the framework of the Project.

Now, therefore, the MOAD, MOCS, AEC and NGPTA agree as follows:

1. **Definition**: Unless the subject or context otherwise requires, in this agreement:
    a. **"Project"** means the Ginger Competitiveness Project, entitled Enhancing Sanitary and Phytosanitary Capacity through Public-Private Partnerships.
    b. **"Implementing Entity"** means the implementing entity as specified in the project document.
    c. **"The facilities"** mean the ginger washing and processing facilities as specified in the Project document.
    d. **"The operating entity"** means any business entity selected to operate the facilities as per the section 8 in this agreement.
    e. **"Trust Fund"** means a Trust Fund established for the benefit of ginger farmers and traders in Nepal, as per sections 12-13 of this Agreement.
    f. **"Facilities Management Committee"** means the Facilities Management Committee (FMC) constituted under sections 10-11 of this Agreement.
    g. **"Lease out"** means the act of renting the facilities under the provision of this Agreement.
    h. **"Project completion**" means the end of the Project within the Project duration as described in the Project document including its possible extension.

2. The Project shall cover the costs associated with the construction, infrastructure and equipment of the facilities, with due diligence and efficiency, as described in the Project document annexed to the agreement signed by the Government of Nepal and FAO on 18 July 2012.

3. MOAD, MOCS, AEC and NGPTA shall be fully committed to the establishment and operation of the facilities, as stated in the agreement signed by the FAO and the Government of Nepal on 18 July 2012.

4. The MOAD shall take lead role on behalf of the Government of Nepal for exercising the authority and fulfill the obligations of this Agreement.

5. The NGPTA shall provide land to the Project, comprising a total area of 7450.07 square meters contained in plot number 21 and 22 of cadastral map sheet Duwagadhi VDC Ward No-9, located in Jhapa District, to construct and operate the facilities as per the Project purpose as referred in Annex 3 and 4.

6. NGPTA shall fully commit to the establishment and operation of the facilities, and shall retain the facilities for the purpose intended by the Project. NGPTA shall not, by any means, dispose of the land and/or facilities contained therein for at least twenty years.

7. Upon completion of the Project, FAO shall handover the facilities on a turn-key basis (including a detailed inventory of the infrastructure and equipment contained therein) to the NGPTA, as authorized by the Government of Nepal to receive the facilities.

8. An operating entity shall be contracted by the NGPTA, through an open, competitive bidding process in accordance with prevailing laws of Nepal, to operate the facilities for a defined period of time with provision for renewal subject to periodic review and satisfactory performance. NGPTA shall develop complete Terms of Reference for the bidding including its process and detailed technical and financial criteria and weights to be used in the selection of the operating entity. The minimum criteria for the entities to be considered in the bidding process shall be as prescribed in the annex 5.

9. AEC and NGPTA shall facilitate any government or local body approvals required for the establishment, construction and operation of the facilities, as per relevant prevailing laws of Nepal.

10. A Facilities Management Committee (FMC), chaired by the Joint-Secretary of the Agri-Business Promotion and Statistics Division in MOAD, shall be constituted as prescribed herein under to oversee the overall management and performance of the facilities. This Committee will comprise:

a.	Joint Secretary, the Agri-Business Promotion and Statistics Division in the MOAD)	Chair
b.	Representative, MOCS	Member
c.	Chief Executive Office, AEC	Member
d.	Representative, Operating Entity	Member
e.	President, NGPTA	Member Secretary

Explanation: Membership of the Operating Entity Representative will only be valid upon concluding of the agreement between the operating entity and NGPTA. The FMC member (the Operating Entity Representative) shall not represent the FMC in evaluation process of the bids for selection of successive operating entity for contracting out the facilities by NGPTA.

11. The Secretariat of the FMC shall be located in the office of NGPTA. The Terms of Reference of the FMC shall be as prescribed in Annex 6.

12. A separate Trust Fund shall be established and managed by the NGPTA to be used for the benefit of farmers and other stakeholders involved in the ginger value chain in Nepal and the overall maintenance of the facilities. A part of this Trust Fund may also be used to strengthen NGPTA's capacity. The income of the Trust Fund may come from: (i) the rent from leasing the facilities; (ii) contributions received from the Government of Nepal; (iii) contributions received from donors; and (iv) any other contributions or funds received.

13. This Trust Fund shall be managed in a transparent manner by the NGPTA. NGPTA shall develop a clear and transparent operating procedure for the Trust Fund, including a plan for the utilization of funds. NGPTA shall maintain the accounts of the Trust Fund in accordance with standard accounting principles and systems. NGPTA shall have the Trust Fund audited annually by an auditor and shall provide this annual financial statement to the FMC to be approved by the FMC.

14. This Agreement shall be governed by the prevailing laws of Nepal.

15. Any dispute and claim arisen in the course of execution of this Agreement shall be settled amicably between the parties. In case the dispute and claim cannot be settled amicably, it shall be settled through arbitration as per the Arbitration Law of Nepal. The court /venue for the dispute settlement shall be in Nepal.

16. AEC/NGPTA shall be responsible to settle any possible third party dispute on the land provided by NGPTA to the project.

17. This Agreement shall become effective on the date on which it has been signed by all the parties hereto.

18. Any amendment to this Agreement or its Annexes shall be effected by mutual agreement of the parties through an exchange of letters. Any notice or request required or permitted to be given or made under this Agreement and any agreement between the parties contemplated by this Agreement shall be in writing. Such notice or request shall be deemed to have been duly given or made when it shall be delivered by hand or by mail or fax to the party to which it is required or permitted to be given or made at such party's address hereinafter specified or at such other address as such party shall have designated by notice to the party giving such notice or making such request. Following are the official address for such notice.

Mailing Address (MOAD): Joint Secretary / NPC of the project Ministry of Agricultural Development Agribusiness Promotion and Statistics Division, Singhadarbar, Kathmandu Phone: 01-4211687 e-mail: vijoy58@gmail.com; info@moadwto.gov.np	Mailing Address AEC: Chief Executive Officer Agro-Enterprise Centre (AEC) Federation of Nepalese Chamber of Commerce and Industry (FNCCI) Kathmandu Phone: 01-4262245 e-mail: pradip.maharjan@aec-fncci.org
Mailing Address (MOCS): Joint Secretary NIU-EIF Coordinator Ministry of Commerce and Supplies Singhadarbar, Kathmandu Phone: 01-4233217 e-mail: tngyawali@yahoo.com	Mailing Address NGPTA: President, Nepal Ginger Producers and Traders'Association (NGPTA) Mechi-1, Dhulabari, Jhapa Phone: 023-561280 e-mail: ngpta99@yahoo.com

19. To the extent that any provisions of this Agreement contradict with the agreement between the Government of Nepal and FAO (dated 18 July 2012), the provisions of the agreement 18 July, 2012 shall prevail.

IN WITNESS WHEREOF, the parties hereto, acting through their respective authorized representatives, have caused this Agreement to be signed in their respective names:

For the MOAD, MOCS, AEC, and NGPTA

On behalf of the Ministry of Agricultural Development-MOAD (signed) …… Name : Mr. Vijoy Kumar Mallick Title: Joint Secretary Date : 9 July 2013		On behalf of Agro-Enterprise Center (AEC) (signed) …….. Name: Mr. Pradip Maharjan Title: Chief Executive Officer Date: 9 July 2013
On behalf of the Ministry of Commerce and Supply-MOCS (signed) …….. Name: Ravi Bhattarai Title: Joint Secretary/ NIU Coordinator Date:		On behalf of the Nepal Ginger Producers and Traders' Association-NGPTA (signed) …… Name: Mr. Narendra Kumar Khadka Title: President Date:

Attachments:

ANNEX-1 Agreement between the Government of Nepal and FAO dated 18 July

ANNEX-2 Legal registration documents of Nepal Ginger Producers and Traders Association

ANNEX-3 Ownership certificate of the land transferred to facility development

ANNEX-4 Cadastral map of the land

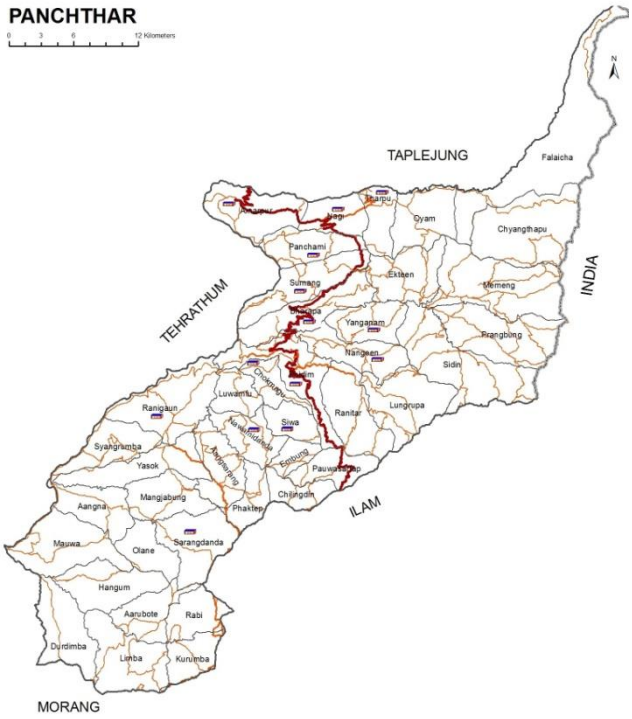
ANNEX-5 Minimum criteria to be met by any operating entity participating in the open, competitive bidding process

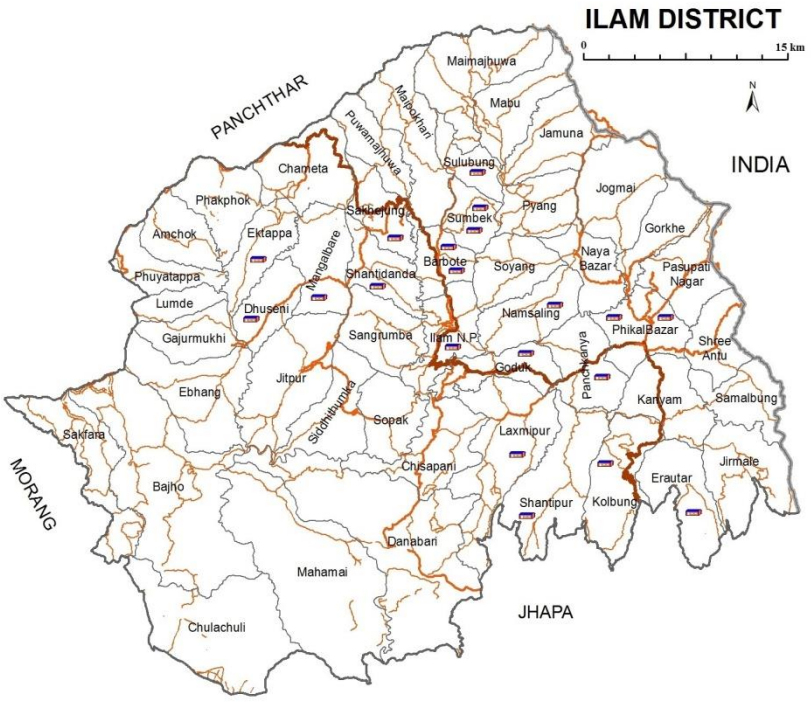
ANNEX-6 TORs for the Facilities and Management Committee

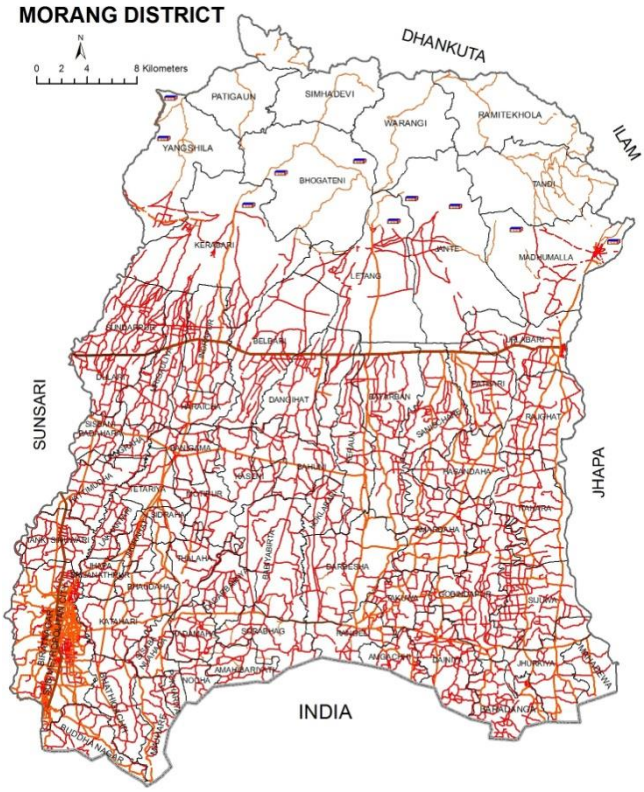
ANNEX-7 NGPTA's executive committee decision to provide the land for the ginger washing and processing facilities establishment

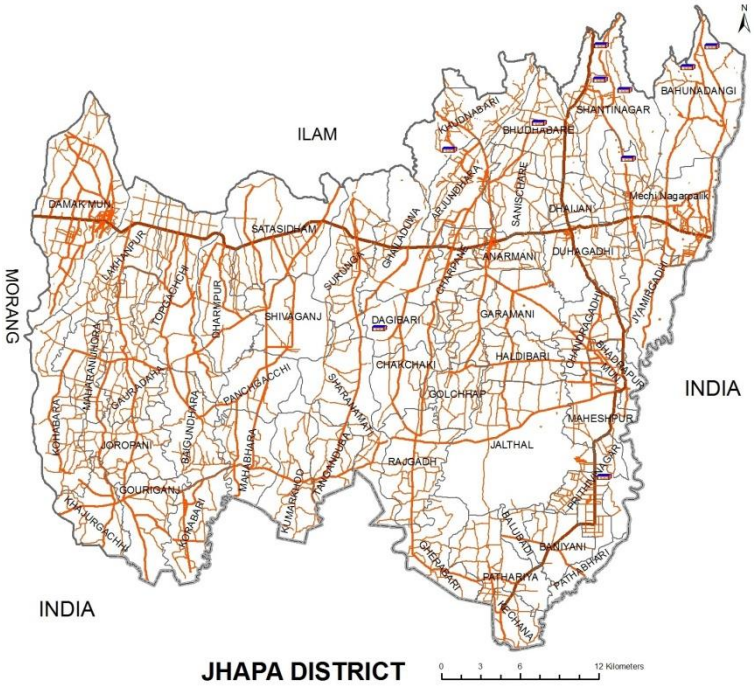
b. Organization of Trainings

i. Distribution of 54 Farmers' Field Schools in the project area









ii. Details of Farmers Field Schools (FFS/ F-FS) operated in the target districts

SN	Name of the FFS	Address	District
1	Sunrise FFS	Chowkmabu- 5, Maidane	Panchthar
2	Jagaruk FFS	Fidim-7, Samdin	Panchthar
3	Pragatisil (Anusaran) FFS	Tharpu-3, Bardandan	Panchthar
4	Suryadaya FFS	Bharapa-7, Kopili	Panchthar
5	Amarpur FFS	Amarpur-2, Bhaluchowk	Panchthar
6	Janachetana FFS	Nawamidanda-3, Narkate	Panchthar
7	Singha Devi FFS	Ranigaun-3, Hanthuwa	Panchthar
8	Namuna FFS	Nagi-6, Ganeshchowk	Panchthar
9	Srijanseel FFS	Sarangdanda-5,	Panchthar
10	Thannapa FFS	Yangnam-2, Thangnapa	Panchthar
11	Navakiran FFS	Panchami	Panchthar
12	Mehanati FFS	Suwang	Panchthar
13	Navajyoti FFS	Shiwa	Panchthar
14	Pragatisil FFS	Nangin	Panchthar
15	Bhorleni Mahila FFS	Barbote, 2 Bhorleni	Ilam
16	Bihani FFS	Barbote, Toribari	Ilam
17	Panchakanya FFS	Ilam Muncipality-5, Keureni	Ilam
18	Hatedada FFS	Namsaling-5, Hatedanda	Ilam
19	Jaubari FFS	Godak-7, Godak	Ilam
20	Lali Gurash FFS	Dhuseni-1, Boharibote	Ilam
21	Metalung Organic FFS	Eaktappa-1, Metalung	Ilam
22	Ramite FFS	Mangalbare-9, Kayabung	Ilam
23	Namuna FFS	Fikkal-3, Gairigaun	Ilam
24	Ramite FFS	Fikkal-6, Ramite	Ilam
25	Biring FFS	Fikkal-9, Yang	Ilam
26	Pragatisil FFS	Kanyam-7, Ambi	Ilam
27	Haspokari FFS	Erautar-4, Majuwa	Ilam
28	Surayamukhi FFS	Laxmipur-5 Chunmang	Ilam
29	Sirisetar FFS	Shantipur-5,	Ilam
30	Namuna FFS	Sulubung-8, Tari	Ilam
31	Suntalabari FFS	Sumbek-4, Malbase	Ilam
32	Sahasi Chitreni FFS	Sumbek-5, Chitre	Ilam
33	Navalagansil FFS	Sakhejung-2, Naulegaun	Ilam
34	Panchakanya FFS	Santi dada-9, Watru	Ilam
35	Samabeshi GAP FFS	Khudunabari-9, Jhapa	Jhapa
36	Hokse FFS	Budhabare-7, Hokse/Gidde	Jhapa
37	Kichhakbadha FFS	Prithwinagar-5	Jhapa
38	Hamro dangibari FFS	Dangibari-1	Jhapa
39	Thoplebiran FFS	Mechinagar-6	Jhapa
40	Gobindapur FFS	Bahundangi-5	Jhapa
41	Ninda FFS	Bahundangi-7	Jhapa
42	Sunmai FFS	Shantinagar-6, Sunmai	Jhapa
43	Santapur FFS	Shantinagar-2, Santapur	Jhapa
44	Gadhigaun FFS	Shantinagar-5, Gadhigaun	Jhapa
45	Janajyoti FFS	Kerabari-3 , Morang	Morang
46	Ratmate FFS	Bhogateni-1 Amadanda	Morang
47	Andheri FFS	Bhogateni 8- , Morang	Morang
48	Mousami FFS	Letang-9 , Guwabari	Morang
49	Thumki Danda FFS	Yangsila- 5, Morang	Morang
50	Top thumka FSS	Yangsila- 6, Dohar	Morang
51	Janjagriti FFS	Jante-5, Laljhoda	Morang
52	Eakta FFS	Jante-3 , Mathillo, Samling	Morang
53	Milijuli FFS	Madhumalla-5, Ratmate, Khakarbari	Morang
54	Namuna FFS	Madhumalla-1, Toribari	Morang

iii. Farmers' participation in the FFS-based season long training

Districts	Total		2013			2014			2014 (New entrants)			2014 (short-term)	
	Female	Male	# FFS	Female	Male	# FFS	Female	Male	# F-FS	Female	Male	Female	Male
Morang	184	126	10	153	102	-	-	-	10	31	24	-	-
Jhapa	243	160	10	162	125	-	-	-	10	81	35	-	-
Ilam	383	274	20	322	248	-	-	-	20	61	26	-	-
Panchthar	311	210	10	179	98	4	73	40	10	20	10	39	62
Total (1891 participants)	1121	770	50	816	573	4	73	40	50	193	95	39	62

FFS: Farmers' Field school

F-FS: Follow-up Farmers' Field School

iv. Short-term trainings of ginger value chain actors and participation

Trainings	No.	Duration	Locations	Participation			Remarks
				Female	Male	Total	
Refresher training of FFS facilitators (farmers)	1	8 days	Hob office	5	25	30	Master trainers in the FFS facilitation, 28 Feb-07 Mar. 2013
Training of FFS Facilitators (farmers)	1	14 days	Hob office	9	20	29	Master trainers in the FFS facilitation, 10-23 Mar. 2013
Seed producers' training to farmers	4	3 days	Project districts (#4)	45	35	80	FFS facilitators and leaders called on in district level training those in turn trained member farmers in respective FFSs
Field staffs (JT/JTA) training	1	4 days	Ilam	1	19	20	ASC staffs in the project area, 18-20 April 2014
SPS and Post harvest loss to ginger farmers	2	2 days	Project districts (#4)	35	40	75	FFS facilitators and leaders called on in district level training those in turn trained 1437 member farmers (one day) in respective FFSs
Safe handling and transportation to ginger trader	4	1 day	Project districts (#4)	-	-	81	Ginger traders in the target districts called on in district level training.
Book keeping and leadership development to FFS representatives	4	3 days	Project districts (#4)	45	40	85	FFS facilitators and leaders called on in district level training those in turn trained member farmers in respective FFSs
Ginger storage (to facilitatos and then FFS)	2	1 day	Panchthar and Ilam			19	FFS facilitators in turn trained member farmers in respective FFSs
Training on marketing of ginger	4	1 day	Project districts (#4)			886	Panchthar-195, Ilam-289, Jhapa-205, and Morang-197
FFS capacity building - registration in DADO and affiliation with NGPTA / Cooperatives	4	1 day	Project districts (#4)			1186	AEC in collaboration with NGPTA
FFS program planning	4	3 days	Project districts (#4)	40	56	96	FFS facilitators in turn trained member farmers in respective FFSs
Location based ginger training (farrmers)	4		Panchthar	39	62	101	DADO-Panchthar organized four trainings to farmers in Chyangthapu, Syabrumba, Rabi and Angsarang VDCs
Processors' training	1						AEC/ NGPTA organizing after operation of the facilities
Hands-on training on the facilities operation	1						AEC/ NGPTA organizing after operation of the facilities
Traders' workshop cum training	2						AEC/ NGPTA organizing after operation of the facilities

c. Inputs procurement, distribution and financial support in FFS operation.

i. Ginger seed rhizome distribution to farmers and production

Districts	Cultivars	2013 (Mt)	2014 (Mt) (Newly operated FFSs)	2014 (Mt) (follow-up FFS program)	2015 (Mt) (Seed production estimates in 2015
Morang	Makawanpure Local Kapurkot-1	3.00 2.00 0.00		• No additional seed support. • The cultivar-seeds from previous season demonstration plot (seed multiplication) used in the FFS follow up program (20 Mt) • The seeds from previous season demonstration plot (seed multiplication) also shared among FFS members (30 Mt) for scale-up programs. • Part of previous season FFS common plot production also shared to non-member neighbour farmers as seed material • The rest of the previous season FFS production disposed to market as group income (50 Mt)	31.00
Jhapa	Makawanpure Local Kapurkot-1	3.00 2.00 0.00			60.00
Ilam	Makawanpure Local Kapurkot-1	6.00 4.00 0.40			1971.00
Panchthar	Makawanpure Local Kapurkot-1	3.00 2.00 0.25	1.20 0.00 0.00		1260.00
Total	Makawanpure Local Kapurkot-1	15.00 10.00 0.65	1.20 0.00 0.00		3322.00

ii. Biological and chemical pesticides and support materials distribution

SN	Pesticides	2013 (In support of FFS- sessions)				In support of 2014 Follow up FFS- sessions				
		Panchthar	*Ilam*	*Jhap*	*Morang*	*Panchthar*	*Ilam*	*Jhapa*	*Morang*	Total
A	**Biopesticides**									
1	Trichoderma viridea (kg)	30	60	30	30	35	14	16	5	220
2	Metarhizium annesopia (kg)	Rest of the pesticides procured by FFSs with support for input cost				18	4	3	0	25
B	**Chemical pesticides**									
3	Carbendazim+Mencozeb (Sprint, kg)					3	10	4	3	20.0
4	Metalaxyl +Mencozeb (Metco, kg)					8.6	28	8.9	0	45.5
5	Metalaxyl +Mencozeb (Krinoxylgold, kg)					0	0	0.3	17.2	17.5
6	Copperoxychloride (COC,kg)					0	9.6	0.4	0	10
7	Velidamycin (strepto+ tetracycline, kg)					0	17.6	4.4	10	32
8	Chlorpyriphos(kg)					9	18.2	8.8	10	46
9	Chlorpyriphos (l)					0	0.4	0	0	0.4
10	Cypermethrin (l)					0	1.8	0.2	0	2
11	50 liter poly-drum (no.)					10	6	10	0	26
12	Neemcake (kg)					0	5.00	0	0	5
C	**Plant protection tools**									
13	Hand compression sprayer (no.)	10	20	10	10	4				54
14	Protective set (gloves, jacket, mask, guggle)	10	20	10	10					50
15	Insect net (no.)	10	20	10	10					50
16	Hand lens (no.)	10	20	10	10					50
D	**Printed/published materials**									
17	Ginger FFS Operation Manual (Nepali)					25	40	25	30	120
18	Ginger Cultivation handbook (Nepali)					500	700	400	400	2000
19	Farmers' Record Book (Nepali)	350	650	350	350	350	650	350	350	3400
20	Saving account passbook					300	600	300	300	1500
21	Saving account group ledger book					10	20	10	10	50
22	Farmers' Field School Report Format(50p)	20	40	20	20	28	40	20	20	208

iii. FFS operation financial support norms.

Item No	Item	Qnt	Unit	Freq.	Unit	Rate	Item Total
A	**Field School Operation Cost**						
1	Preparatory Meeting (2 Days)						
1.1	Refreshment Day 1	40	person	1	day	50	2000
1.2	Refreshment Day 2	30	person	1	day	50	1500
1.3	Allowance: Farmer Facilitator	2	person	2	day	300	1200
1.4	Allowance: Master Facilitator	1	person	2	day	400	800
1.5	Stationeries for meetings	1	packs	1	time	1250	1250
1.6	Transport: Facilitators	3	person	4	time	100	1200
2	FFS Planning Meeting (1 Day)						
2.1	Refreshment	28	person	1	day	50	1400
2.2	Allowance: Farmer Facilitator	2	person	1	day	300	600
2.3	Allowance: Master Facilitator	1	person	1	day	400	400
2.4	Transportation: Facilitators	3	person	2	time	100	600
3	FFS Implementation (16 times)						
3.1	Refreshment	28	person	16	day	50	22400
3.2	Allowance: Farmer Facilitator	2	person	16	day	300	9600
3.3	Allowance: Special Class RP	1	person	6	day	900	covered in B
3.4	Transportation: Facilitator	2	person	32	time	100	6400
3.5	Transportation: RP	1	person	12	time	100	covered in B
3.6	Stationeries/ Materials for FFS	1	packs	1	time	10000	10000
3.7	Agro- Inputs (excluding seed)	1	packs	1	time	3000	3000
4	Field Day Celebration						
4.1	Refreshments	100	Person	1	day	50	5000
4.2	Program Management	1	packs	1	time	3500	3500
4.3	Allowance: Farmer Facilitator	2	person	1	day	300	600
4.4	Transportation: Facilitator	2	person	2	time	100	400
5	Report Preparation (2 copies)						
5.1	Technical Report Writing	1	time	1	time	1600	1600
B	**Technical support (10 FFS)**						
1	Allowance: Special class RP and Field day		person	30	day	900	27000
2	DSA/ Transport: Special class RP						variable with place
3	Technical and financial reporting	2	person	1	time	900	1800
C	**DADO supervision/Monitoring (10 FFS)**		Persons	60	days	900	54000
D	**Miscellaneous : Communication, stationary, reporting, fuel and maintenance**						variable with place
E	**DSA/ transport support to facilitators**						variable with place

iv. F-FS operation financial support norms.

Item No	Item	Qnt	Unit	Freq.	Unit	Rate	Item Total
A	**Follow-up Field School Operation Cost**						
1	F-FS Implementation (11 sessions)						
1.1	Refreshment	28	person	11	day	50	15400
1.2	Allowance: Farmer Facilitator	1	person	11	day	300	3300
1.3	Transport: Farmer Facilitator	1	person	22	time	100	2200
1.4	Stationeries			1	time	3000	3000
1.5	Agriculture inputs			1	time	3000	3000
1.6	Supervision/ Monitoring/ Reporting by Technical Sub-committee	3	person	3	time	200	1800
1.7	Communication (farmer-facilitator	1	person	1	time	2000	2000
2	Field Day Celebration (10 F-FS)						
2.1	Refreshments	100	Person	1	day	50	5000
2.2	Program Management	1	packs	1	time	3500	3500
2.3	Allowance: Farmer Facilitator	2	person	1	day	300	600
2.4	Transportation: Facilitator	2	person	2	time	100	400
3	Report Preparation (2 copies)						
3.1	Technical Report Writing	1	time	1	time	1600	1600
B	**Support Activities (10 F-FS)**						
1	DSA: Field School Day		person	10	day	900	9000
2	Transport: Field School Day		person	10	Time*2	350	7000
3	Technical and financial reporting	2	person	1	time	900	1800
C	**DADO Supervision/ Monitoring of FFS**		Persons	90	Day	900	**81000**
D	**Miscellaneous : Communication, stationeries, reporting, fuel and maintenance**						variable with place
E	**Supervision/ reporting of F_FS by ASC**	1	F-FS	3	times	-	7500
F	**DSA/ transport support to facilitators**						variable with place

d. Common plot studies/trials conducted in the Farmers' Field Schools in the project area

Districts	#F-FS	Cultivar performance study		Rhizome-rot management		Rhizome fly management		White grub management		Demo/ seed production
Panchthar	14	*Local* *Makawanpure* *Kapurkot-1*		*Trichoderma (suspension)* *Carbendazim+Mencozeb (Sprint) 2g/l* *Herbal* *No treatment*						✓
		Replicated	*Comparative*	*Replicated*	*Comparative*	*Replicated*	*Comparative*	*Replicated*	*Comparative*	
		4	10	4	10					
		Tharpu-3, Bardandan Nagi-6, Ganeshchowk Bharapa-7, Kopili Yangnam-2, Thangnapa	Amarpur-2 Ranigaun-3 Chokmagu-5 Nawamid-3 Phidim-7 Sarangd-5 Panchami Suwang Shiwa Nangin	Tharpu-3, Bardandan Nagi-6, Ganeshchowk Bharapa-7, Kopili Yangnam-2, Thangnapa	Amarpur-2 Ranigaun-3 Chokmagu-5 Nawamidanda-3 Phidim-7 Sarangdanda-5 Panchami Suwang Shiwa Nangin					
Ilam	20	*Local* *Makawanpure* *Kapurkot-1*		*Trichod 8g/kg manure* *Carbendazim+Mencozeb (Sprint) 2g/l* *COC 3g/l* *Water treatment*		*Cartap4GR* *NaSaBiKe (herbal)* *Cypermethrin* *Water*		*Cartap4GR* *Metarrhizium2kg* *Neem-cake 10kg* *Control*		✓
		Replicated	*Comparative*	*Replicated*	*Comparative*	*Replicated*	*Comparative*	*Replicated*	*Comparative*	
		-	20	4	8	2	2	2	-	
			All	Godak-7, Godak Mangalbare-9, Kayabung Laxmipur-5 Chunmang Sulubung-8, Tari	Barbote-2 Ilam Mu-5 Dhuseni-1 Fikkal-6 Erautar-4 Shantip-5 Sumbek-5 Sakhej-2	Fikkal-3, Gairigaun Barbote-3, Toribari	Kanyam-7, Ambi Fikkal-9, Yang Sumbek-4, Malbase Santidada-9, Watru	Namsaling-5, Hatedanda Eaktappa-1, Metalung		

Districts	#F-FS	Cultivar performance study		Rhizome-rot management		Rhizome fly management		White grub management		Demo/ seed production
Jhapa		*Local* *Makawanpure* *Farmers' practice* *Improved practice* cultivar x practice		*Trichoderma* *Carbendazim+Mencozeb (Sprint) 2g/l* *Herbal* *No treatment*						✓
	10	*Replicated* -	*Comparative* 10	*Replicated* 4	*Comparative* 6	*Replicated*	*Comparative*	*Replicated*	*Comparative*	
				Dangibari-1 Mechinagar-6 Bahundangi-7 Shantinagar-5	Budhabare-7 Prithwinagar-5 Bahundangi-5 Shantinagar-6 Shantinagar-2 Khudunabari-9					
Morang		*Local* *Makawanpure*		*Trichoderma* *Metalaxyl+Mecozeb (Krinoxylgold)* *Carbendazim+Mencozeb (sprint)* *No treatment*						✓
	10	*Replicated* 4	*Comparative* 6	*Replicated* 4	*Comparative* 6	*Replicated*	*Comparative*	*Replicated*	*Comparative*	
		Madhumalla-1, Bhogateni 8-, Yangsila- 6 Jante-3, Samling	Kerabari-3 Bhogateni-1 Letang-9 Yangsila- 5 Jante-5, Madhumalla-5	Madhumalla-1, Bhogateni 8-, Yangsila- 6 Jante-3, Samling	Kerabari-3 Bhogateni-1 Letang-9 Yangsila- 5 Jante-5, Madhumalla-5					

e. Project staffs involved in implementation of the project

National (full term):

- National Programme Manager-1;
  Dr. Deepak Mani Pokhrel; DeepakMani.Pokharel@fao.org; +9779841398829)
- Field Training Facilitator -1 *(recruited by AEC/NGPTA to coordinate field activities)*
  (Mr. Buddhi Kanta Pokharel succeeded by Mr. Hemant Bohora; ngpta99@fao.com; +9779851033704 following June 2014)

National Short-term Consultants-

- Training Material Development Expert -1
  (Dr. Ratna Kumar Jha; Ratnakumar.Jha@fao.org;+9779841236604)
- Legal Expert-1
  (Mr. Tanka Prasad Dulal; tp.dulal@gmail.com: +9779851096726)
- Architecture -1
  (Mr. Gyanendra Raj Devkota, +9779851040407, devkotagr@yahoo.com)
- Environment Evaluation Expert -1
  (Mr. Dinesh P. Bhatta; greencnepal@gmail.com; +9779851185085)
- Database specialist (Agri. Economist) -1
  (Mr. Kamal Raj Gautam; krishikrg@gmail.com; +9779851068759)
- Market Study Expert 1 - ANSAB-Nepal in contract that engaged experts.
  (Mr. Puspa Lal Ghimire; puspaghimire@ansab.org; +9779851051225,) and Mr. Kabir Sthapit; kabirsthapit@ansab.org; +9779849275909 engaged)

International Short-term Consultant

- Ginger Washing Facility Design and Business/Operation Planning Expert 1 - BSK Agri and Foods Initiative Pvt. Ltd., India in contract that engaged experts.
  (Mr. S. K. Sharma; Director; agrifoods2010@gmail.com; 0091-9958769993)

Technical Backstopping Officer:

- Project's Technical Backstopping Officer;
  Ms. Shashi Sareen (FAO-RAP, Bangkok); Shashi.sareen@fao.org)

f. Documents produced during the project.

- Training curricula/ session plan (ToF/ Refresher/ seed producer) (English)
- Ginger GAP-FFS guide (Nepali)
- Ginger Farmers' Field School Operation Manual (Nepali), 2014 (published and shared).
- Ginger Cultivation (GAP)-handbook (Nepali), 2014 (published and shared).
- Farmers' Record Book on Ginger GAP (Nepali), 2013 (reprinted and distributed).
- Agreement between the Government of Nepal (MoAD and MoCS) and the Agro Enterprise Center of the Federation of Nepalese Chamber of Commerce ad Industry and the Nepal Ginger Producers and Traders' Association for the Construction, Operation and Management of the Ginger Washing and Processing Facilities under the Ginger Competitiveness Project (Nepali and English, signed on 09 July 2013)
- Initial Environmental Examination (IEE) of Ginger Washing and Processing Facility Establishment in Duwagadhi of Jhapa District, 2014 (approved by MoAD on 12 June 2014).
- Project Report (machinery and equipment designs) on Ginger Washing and Processing Plant Establishment in Jhapa District of Nepal, 2014.
- Financial Evaluation and Business Plan of the Ginger Washing and Processing Plant Establishment in Jhapa District of Nepal, 2014.
- Civil Structure Construction in the Ginger Washing and Processing Facilities Establishment (technical proposal), 2014.
- Invitation to Bid for Boundary Construction in the Ginger Washing and Processing Facilities Establishment, 2014
- Invitation to Bid for Civil Structure Construction in the Ginger Washing and Processing Facilities Establishment, 2014
- Invitation to Bid for Machinery and Equipments for Ginger Washing and Processing Facilities Establishment, 2014
- Contract Agreement: Boundary Construction in the Ginger Washing and Processing Facilities Establishment, 2014
- Contract Agreement: Civil Structure Construction in the Ginger Washing and Processing Facilities Establishment, 2014
- Contract Agreement: Machinery and Equipments for Ginger Washing and Processing Facilities Establishment, 2014
- Contract agreements with other parties such as AEC, DADOs, ANSAB-Nepal, RSCPL (weighbridge) and EIPL (generator) in program implementation, machine supplies and civil construction-#12
- A Market Study of Nepalese Ginger and Its Derivative Products in India and Bangladesh, 2015.
- Nepal Ginger Producers and Traders' Association, Ginger Washing and Processing Facilities Management and Operation Procedure, 2015.
- Nepal Ginger Procedure and Trader's Association, Nepalese Ginger Promotion Trust Fund Establishment, Management and Operation Procedure, 2015.
- Ginger Competitiveness Project: Ginger Washing and Processing Facilities Handover Notes, 2015.
- Supervision and Monitoring- Back to Office Reports
- Periodic project reports
- Ginger Competitiveness Project Baselines, 2014:
- FFS operation annual reports (individual FFSs), 2015
- FFS operation DADO reports (district reports), 2015
- Farmer's day celebration CD (some FFSs in Panchthar and Ilam)
- Project end evaluation (draft), 2015

g. Target activities and progresses in the project period

S. No.	Activities	Target	Achievements	Progress and remarks
	General Project Activities			
	• Meetings:			
	EIF-Monitoring/EIF-NSC meeting	-	6	
	Project Steering Committee	6	7	
	NPC and Technical Working Group - as per need	12	28	
	Regional project orientation meeting-1	1	2	
	Meeting at Hub office – as per need	-	21	
	District level meeting at DADOs	16 (4x4)	31	
	• Hire short-term consultants:			
	Ginger Washing Facility Design Experts (months)	4.00	4.00	Design report available including business plan of the facility
	Business/Operation Planning Expert (months)	-	-	
	Training Material Development Expert (months)	4.00	4.00	
	Ginger Marketing and SPS Expert (month)	2	2	Report available
	Environment Evaluation Expert (months)	2	2	Report available including environment management plan
	Civil structure design expert (Architect Eng.)	2.5	2.5	Design report available
	Project Engineer (Supervision and monitoring of facility construction)	4.2	4.2	Activity on-going
	Agriculture Economist/ Database Expert	2	2	Baseline and project end evaluation reports available.
	• Oversight, monitoring and evaluation			
	Prepare base lines	1	1	
	Regular supervision (process) monitoring	-	-	Done on regular basis by FAO staffs with stakeholders' representation
	Supervision/monitoring by PSC members	4	7	Visit by PSC chair (Secretary in MoAD), Secretary in MoCS, NPCs, FAOR/AFAOR, PSC members/ project focal persons in MOAD and , MoCS and PTWG members.
	Technical backstopping/monitoring by LTO, FAO	4	4	
	Monitoring visit by EIF-NIU personnel	-	5	Facilities site visited by MoCS personnel
	• Reporting	4	7	The 6-monthly and terminal reports; beyond that some tri-monthly, monthly and quarterly also.
Activity1.1	Design facilities and carry out preparatory assessments			
	Design washing and processing lines	1	1	
	Design civil structures	1	1	
	Preparatory assessment (IEE)	1	1	
Activity 1.2	Build washing and processing facility, and set up systems required for the effective management and operation of the facilities	1	1	
Activity 1.3	Deliver hands-on training (including on financial and business management, record-keeping, etc.)	1	0	Postponed to carry out following commissioning of the facilities; AEC accountable for its completion
Activity 2.1	Develop ginger growing manual and other training materials on GAPs, post-harvest handling and SPS requirement of ginger suitable for target audiences (one time)	1	1	Different types of training materials in use
Activity 2.2	Train master trainers and deliver trainings to farmers and other value chain actors			
	Master trainers (farmer facilitators)	60	59	The farmer facilitators engaged in training of farmers through FFS approach.
	Farmers (Good Agricultural Practices)	2000	>2000	Farmers (60% women) trained in 50 follow-up and 4 new Farmers' Field Schools and some short-term trainings.
	Ginger seed producers' training/ Seed multiplication (# trainees)	80	80	20 farmers in each of the target districts trained.
	Farmers' training on pit storage of ginger rhizome	-	2	10 FFS in Panchthar and 20 in Ilam

S. No.	Activities	Target	Achievements	Progress and remarks
	(#districts)			trained
	Field staff (JT) training on GAP and GHP (#1)	1	1	Altogether 20 JT/JTAs from ASCs trained.
	Group empowerment training			
	Book keeping/accounting/ leadership development') to farmers ((#districts)	-	4	Altogether, 101 farmers (group key persons) from target districts trained under AEC scope.
	Group registration, affiliation with NGPTA, and cooperative development	-	4	One in each of the target district under AEC scope
	Marketing (ginger quality, grading, packaging and storage)	-	4	One in each of the target district, under AEC scope
	SPS/Post-harvest loss (#4 districts)	4	4	One in each of the target district. In total, 1496 farmers and 59 farmer facilitators trained under AEC scope
	Safe handling and Safe transportation (# 4 districts)	4	4	One in each of the target district. In total, 93 ginger traders trained under AEC scope
Activity 2.3	Establish ginger demonstration / multiplication plots and use these plots for field training courses in GAPs and post-harvest management	-	54	Each of the 54 FFSs operated demos for technology verification, seed multiplication and field training. Pit storage of ginger demonstrated in 10 FFS in Panchthar and 20 FFS in Ilam.
Activity 3.1	Devise/ implement system for provision of postharvest control measures (inputs in demo-plots)			Majority of the FFSs continue common plot learning in their own resources.
	Bio-pesticides test (54 FFS/F-FS)	1	1	Inputs provided as necessary (Appendix 4c)
	Other inputs (54 FFS/F-FS)	1	1	Inputs provided as necessary (Appendix 4c)
Activity 3.2	Obtain improved (marketable) cultivars from other parts of Nepal and further afield (# of cultivars)	-	3	new cultivars adopted by farmers; seed rhizome supply sustained locally; >160 ha area under seed production;
Activity 4.1	Prepare a detailed study on regional and international markets for fresh and processed Nepalese ginger, and market (SPS) requirements	1	1	ANSAB-Nepal carried out the study in India and Bangladesh and submitted final report.
Activity 5.1	Traceability and reducing frequency of pesticide residue testing			
	Introduction of farm level record keeping on GAP (one time)	1	1	Farm record-keeping book delivered to members in 54 FFSs. The farmers trained in farm record keeping and group based product certification.
	Formation of technical sub-committee (one time)	1	1	The committee formed in each of the farmers group (FFSs). The group working independently.
Activity 5.2	Bilateral meetings and contacts between Nepalese and Indian relevant regulatory authorities to discuss SPS issues related to fresh ginger exports from Nepal to India, and agreement on SPS requirements for ginger	1	1	The first Indo-Nepal NPPO level meeting held on 3rd February 2015. The meeting minutes formed. The second meeting planned to hold in Nepal following operation of the ginger washing facilities. Setting up of a tradition of holding such meeting annually alternately in India and Nepal is proposed in minute.

APPENDIX 5 PROJECT BUDGET AND EXPENDITURE

SN	Description	Project budget	Cash Received	Delivery
1	STDF contribution	462 144	462 144	462 023
2	EIF contribution	711 550	712 543 (with interest earned USD 993)	682 139
3	Government contribution (in-kind)	60 000		
	NGPTA contribution	140 000		

APPENDIX 6 MASTER TRAINERS MOBILIZED AS FFS-FACILITATORS

SN	Training of refreshers (TOR) - 28 Feb.-07 March 2013			Training of trainers (TOF) - 10-23 March 2013		
	Name	**Address**	**Phone No.**	**Name**	**Address**	**Phone No.**
1	Laxmi N. Sharma	DADO, Ilam	9842026630	Bimala Dhakal	Bahundangi-7, Jhapa	9807971759
2	Shatruhan Yadav	DADO, Ilam	9844074382	Prem P. Neupane	Shantinagar-2, Jhapa	9842791198
3	Binod Dewan	Sumbek-2, Ilam	9842636743	Takendra K. Tamang	Mechinagar-2, Jhapa	9804916116
4	Narad Lamsal	Sumbek-3 Ilam	9842735833	Harka Bdr. Rai	Shantinagar-2, Jhapa	9842702903
5	Gita Niraula	Sumbek-4, Ilam	9842766885	Chhabi Lal pokhrel	Tharpu-3, Panchthar	9844667213
6	Khem P Bhattarai	Kanyam, Ilam	9844631993	Kalpana Mabo	Tharpu-3, Panchthar	9844653141
7	Yuba Raj Subba	Barbote-2, Ilam	9842636922	Madan Rijal	Sidhdin-7, Panchthar	9742660723
8	Samrat Loktam	Sankhejung-1, Ilam	9815936452	Sita Jabegu	Ektin-8, Panchthar	9742611332
9	Khadga B. Lungeli	Godak-4, Ilam	9816068340	Mohan Raj Sharma	Phidim-7, Panchthar	9844621451
10	Toya N. Bhattarai	Panchakanya, Ilam	9752605529	Indira Adhikari	Chokmagu-8, Panchthar	9742656101
11	Krishna P. Dhungana	Phikkal-3, Ilam	9842644658	Shekhar N. Ghimire	Nawamidanda-3, Panchthar	9841500395
12	Medini P. Pokhrel	Kanyam-6, Ilam	9842725275	Nabin Chapagain	Phidim-5, Panchthar	9816941082
13	Dhaka Ghimire	Kanyam-3, Ilam	9842736718	Rhidri B. Angdambe	Sarandanda-5, Panchthar	9807949346
14	Ganesh P. Pokhrel	Bharapa-7, Panchthar	9862621527	Ashesh Yonghang	Nagi-6, Panchthar	9742610536
15	Birendra Kafle	Amarpur-1, Panchthar	9842672540	Sandesh Rai	Kurumba-5, Panchthar	9841860274
16	Devi Sigdel	Nagi-8, Panchthar	9742661484	Yagya B. Neupane	Nagin-4, Panchthar	9842664386
17	Salikram Bhattarai	DADO, Jhapa	9842637855	Bishnu Poudel	Hattimudha-4, Morang	9842102031
18	Hari Narayan Saha	DADO, Jhapa	9842927034	Ghuran Chaudhary	Indrapur-4, Morang	9842178984
19	Hom N. Rajbansi	Dangibari-9, Jhapa	9842676555	Lila khadka	Bahuni-9, Morang	9842191245
20	Mahesh Timsina	Mechinagar, jhapa	9842702103	Basanta Baral	Madhumalla, Morang	9811324221
21	Uday N. Dhungana	Budhabare-1, Jhapa	9842675063	Harka Bahadur Rana	Yangsila-5, Morang	9811065011
22	Kamala Sapkota	Rajgarh, Jhapa	9807053645	Geeta Dhakal	Jante-3, Morang	9811028109
23	Satyendra K. Karn	Jalthal-3, Jhapa	9814952918	Kumari Khatiwada	Jante-9, Morang	9849226240
24	Lakpa R. Bhote Saincha	DADO, Morang	9842166472	Jit Bahadur Magar	Letang-9, Morang	9841078124
25	Hari Narayan Yadav	DADO, Morang	9842756211	Tara Shrestha	Barbote-2, Ilam	9842656223
26	Phadindra P.Bhattarai	DADO, Morang	9842481970	Amrita Rai	Sumbek-1, Ilam	9842765943
27	Chandra Subba	Indrapur-6, Morang	9841609213	Dev Prakash Rai	Sankhejung-1, Ilam	9815937865
28	Suta Lal Majhi	Motipur-9, Morang	9818034983	Bhogendra Pokhrel	Sumbek-2, Ilam	9742608640
29	Bhupal Poudel	Dangraha-7, Morang	9842127991	Man Bdr. Loktam	Sankhejung-1, Ilam	9842769739
30				Geeta Bdr. Limbu	Barbote-2, Ilam	9742615666