

# **PNG COFFEE EXPORTS (PNGCE) CFP 059**

## **Environmental and Social Management Plan (ESMP)**

### **Project Description**

The aim of this intended long term partnership is to help smallholder farmers increase productivity, improve quality and attain minimum sustainability. This will lead to improved farmer income and hopefully make coffee farming more attractive to future generations of coffee growers. In turn this will provide PNGCE and its clients a consistent and reliable supply chain of traceable and stable quality coffee.

The projects we have targeted are designed to directly improve the livelihood of the farmer. Through revolving credit schemes and training/education on finance management we will encourage farmers to invest in betterment of their human environment.

Through the introduction of Good Agricultural Practices certain projects will improve the environment by better waste management. In addition the introduction of various forms of natural fertilizers in the form of compost and liquid manure will have a positive impact on the environment.

PNGCE with its' Co-Partner Groups (Apo, Angra & Kange (AAK)) that are spread across Eastern Highlands, Chimbu, Jiwaka and Western Highlands Provinces constituting of a total of 1852 smallholder farmers organized into cluster groups expects to accomplish the following during the course of implementing the partnership program;

- i. Improve productivity – Currently yields are very low due poor plant husbandry and an ageing tree population. Through pruning, composting and nursery programs involving replanting we will improve productivity.
- ii. Quality Improvement – The vast majority of our Y grade production is basically a sound cupping coffee. In conjunction with the improved productivity and with minimal effort/discipline in post-harvest practices quality improvement and therefore better prices can be achieved.
- iii. Improve access to market – In many rural communities access to market is inefficient and expensive. The partnership objective to improve this can be achieved in 2 ways (1) through basic storage facilities and organized transport systems for the efficient movement of physical coffee. (2) With constant dialogue between coordinator and exporter access to daily prices.
- iv. Training in sustainable farming – A multi-faceted training program promoting efficient/sustainable farming practices, conservation, crop integration, economic viability and community development.

### **Description of the activities that will be initiated or scaled-up under the Partnership.**

The initial activity will be to employ 6 additional agronomists (currently 3 employed). These employees will attend a training program (train the trainers), this will enable them to train and provide assistance relating to the various activities planned for the cluster groups. The training sessions will take place at the lead partners Lahamenegu mill and will be run by the Extension services personnel.

Specific activities to be carried out under the partnership;

- Pruning – correct running techniques promoting multiple 4 stem system and the removal non-producing trees in readiness of new plantings.

- Establishment of Nurseries – Initially 10 cluster group nurseries will be established in each province. Cluster group members will provide the land and some of the materials. Seeds will be purchased from CRI, quality seedlings will assist in production and quality improvement.
- Harvesting – majority of the harvesting is done by women in the community. In each cluster group a female representative will be elected to represent the pickers. The regional agronomist will train the representative in correct harvesting techniques. The elected member will in turn reinforce this to the women pickers in the cluster group. In conjunction with this we will use this platform to set up health meetings and where possible have discussions with qualified guests on various health issues i.e. aids, infant care, breast and cervical cancer issues.
- Pulping – Already in place is a revolving credit scheme whereby cluster group members take loans to buy pulpers. To date this has worked well and we have provided 30 pulpers all of which have been repaid. With additional support from the partnership we can provide additional pulpers and various essential items to farmers.
- Raised drying Beds – in line with the quality improvement objective we will encourage cluster groups to build raised drying beds. Cluster members will provide land, labor and various materials in support of this activity. Raised drying beds will enhance quality as this increases airflow around the beans and limits the risk of tainting.
- Warehouses – Eleven areas that produce high volumes of coffee have been identified and a storage warehouse will be built in each using communal labour and some materials from Cooperative members and will involve many of the youths in assisting in the building of the facilities.
- Training – In addition to training in sustainable coffee farming cluster groups will receive training and information on various lively hood practices. The coffee cluster group/community provides an ideal platform for education. Accordingly skilled visitors i.e., health departments, aids speakers, women’s issue groups will be invited to give presentations with the aim of improving the lively hood of the community members.

#### **A. Potentially adverse Environmental impacts and mitigation measures.**

As stated in the Project description under ‘Social and Environmental Impacts’ the inputs proposed will generally promote positive social and environmental impacts. However, following are minor concerns that may impact negatively;

1. Nurseries: Nurseries will be constructed using materials from the surrounding bushes such as materials for constructing the shade collecting soil and sand for preparing the medium for germinating and growing the seedlings which could be potentially destructive to the environment if excessive amounts are removed. Also if chemicals and fertilizers are involved and not used properly could lead to leakage and spillage into nearby waterways thereby being toxic to aquatic life forms. To better manage these situations, only required materials will be taken and used to construct the nursery shade and to fill the polybags in addition to locating the nurseries in growers’ blocks, at safe distances from any river or stream, while discouraging the use of chemicals on the nursery.
2. Drainage: Smallholder drainage practices are not normally adverse to the environment but to avoid minor spoil damage thereby promoting water-logging in coffee blocks and within drains, farmers will be required to ensure that existing drains are maintained / de-silted. Material taken from the bottom of drains will be spread in the inter-rows of the coffee plot. Material extracted from any new drain will be similarly spread in the inter-rows.
3. Shade Management: The removal and cutting down of larger branches from shade trees could be destructive in nature by falling on existing coffee bushes and younger shade trees and also be obstructive to the farmers’ movements within the coffee gardens. This will be managed by cutting the larger branches using ropes and tying the branches to the shade trees themselves and cutting them to size. The timber is

normally used for fence maintenance; smaller wood is traditionally used for firewood (home cooking) while leaves and small branches are spread on the ground amongst the coffee.

4. Pulping: Coffee pulp and waste water from pulping could impact negatively on the terrestrial and aquatic environments if allowed into water ways. The AAK Cooperative farmers will process the cherry coffee in their own coffee gardens and put the coffee pulp back into their gardens as mulch and will only sell the parchment to the Lead Partner. In the event that some of the farmers do supply cherry coffee, the Lahamenegu wet mill complies with all CIC requirements for waste water and coffee skin treatment and disposal. In addition, coffee pulp is decomposed directly by the involvement of worms and the solid and liquid waste / manure produced is used as organic fertilizer.

#### **Implementation Schedule and Monitoring program**

- Staff on the PMU will routinely undertake field inspection of the activities of the Lead partner and the smallholder farmers included in the Co-Partnership Agreements to verify the Quarterly reports provided by the Lead Partner.
- The Lead partner will maintain records of the application of rehabilitation activities (drainage & shade management) and coffee processing.

#### **B. Potentially adverse Social impacts and mitigation measures**

1. Indigenous peoples policy: The partnership has been established based on the co-partners' need to improve the productivity of their existing coffee gardens and improve the quality of the produce and then to bulk their coffee together prior to processing and marketing their coffee. Group processing and marketing will be advantageous to negotiating better prices. The partnership is an up-scaling of the existing relationship between the AAK Cooperative and PNGCE after intensive consultation and awareness. There is broad community support for the project.
2. Involuntary resettlement policy: All partnership activities will be conducted on land owned by the beneficiaries. Eleven warehouses will be constructed for bulk storage of coffee in various locations on land offered voluntarily and the owners will sign a certificate of voluntary offer respectively.
3. Negative social impacts: To avoid misuse of income from coffee sales, members of participating households will be trained in planning expenses / budgeting and encouraged to continue record keeping. Awareness and information sessions will also be provided to reduce alcohol abuse and HIV/ AIDS prevention. Women will participate fully in all activities and parents of school aged children will be discouraged from involving school children in farm activities during school hours. The availability of a grievance mechanism has been made known to the beneficiaries including the locations of the grievance boxes.

#### **Monitoring program and responsibilities**

- Staff of the PMU will routinely undertake field inspection of the activities of the Lead Partner and the smallholder farmers included in Co-Partnership agreement to verify the Quarterly reports provided by the Lead Partner.
- The Lead Partners will maintain records of training provided and awareness/information sessions

#### **Cost Estimates and Source of Funds**

Funds to implement the ESMP will be part of the Partnership budget. These are specified for the initial sub project investment.

| Project Stage                                 | Project Activity                           | Impacts  | When Impact Occurs                | Mitigation Plan   |         |  | Monitoring Plan                                  |   |   | Costs                       |
|---|--|--|-----------------------------------|---|---------|--|--|---|---|-----------------------------|
|   |  |  |                                   | Mitigation Measure  | Who     | When to be applied                                     | Indicator  | Who   | When                                    |                             |
| <b>A. ENVIRONMENTAL MANAGEMENT PLAN (EMP)</b> |  |  |                                   |   |         |  |  |   |   |                             |
| <b>1. Nursery Establishment</b>               | Site Preparation                           | No impact : To be located on old garden area                                     | During Site Preparation           | Clearing only within the area to be utilized within existing smallholder garden | Farmers | During Site Preparation                                | Nursery site prepared                            | Village Extension Officer or Extension Officer (EO) | During nursery establishment            | As per activity budget      |
|   | Shade/Shelter Construction                 | Collecting materials such as posts, bush twines and kunai grass                  | During Shade/shelter construction | Only collect materials that will be required for this purpose                   | Farmers | During Shade/shelter construction                      | Shelter constructed                              | Village Extension Officer or EO                     |   | As per activity plan/budget |
|   | Soil mixture/Seed bed/poly bag preparation | Taking top soil and sand for potting mixture                                     | Soil mixture preparation          | Only collect top soil and sand that will be required                            | Farmers | During soil mixture preparation                        | Poly bags / or seed bed prepared                 | Village Extension Officer or EO                     |   | As per project budget       |
|   | Seedling development                       | Fetching water from nearby creek / water source                                  | During seedling development       | Fetch enough water to be utilized   | Farmers | During Seedling Development                            | Healthy seedlings                                | Village Extension Officer or EO                     |   | As per project budget       |
|   | Seedling planting in field                 | In-filling missing spaces or replacing old unproductive trees with new seedlings | Seedling Planting in filed        | Making a hole in the garden and planting the seedlings                          | Farmers | During Seedling Planting in the field / coffee gardens | Fully planted coffee garden with no empty spaces | Village Extension Officer or EO                     |   | During farm Visits          |
| <b>2. Rehabilitation</b>                      | Fencing                                    | Post preparation   | During coffee rehabilitation      | Prepare fencing posts / sticks  | Farmers | Coffee rehabilitation period                           | Fence completed                                  | Village Extension Officer or EO                     | Farm visit during rehabilitation period | As per project budget       |
|   |  | Post Planting  |                                   | Making holes  |         |  |  |   |   |                             |

| Project Stage         | Project Activity | Impacts                              | When Impact Occurs  | Mitigation Plan   |         |                                    | Monitoring Plan  |                                 |   | Costs                 |
|-----------------------|------------------|--------------------------------------|---|---|---------|------------------------------------|--|---------------------------------|---|-----------------------|
|                       |                  |                                      |   | Mitigation Measure  | Who     | When to be applied                 | Indicator  | Who                             | When                                    |                       |
|                       |                  |                                      |   | and planting posts / sticks   |         |                                    |  |                                 |   |                       |
|                       | Weed Control     | Slashing / hand weeding              |   | Slashing and uprooting weeds  | Farmers |                                    | Weeds under control  |                                 |   |                       |
|                       | Shade Management | Thinning                             | Rehabilitation period (after weed control and drain maintenance)                                    | Some shade trees are cut-down   | Farmer  | Rehabilitation period              | Adequate shade cover   | Village Extension Officer or EO | Farm Visit during rehabilitation period | As per project budget |
|                       |                  | Shade Lifting                        |   | Lower branches are removed  | Farmer  |                                    | At least 5 – 6m space between top of coffee trees' canopy and lower branches / leaves of shade trees |                                 |   |                       |
|                       | Pruning          | Recycle Pruning                      | First pruning during project implementation if pruning is over-due or after harvesting every season | Old/mature stems of unproductive coffee removed                                     | Farmer  | After main harvesting period       | Only healthy bearing heads and young suckers   | Village Extension Officer or EO | Farm Visit during rehabilitation period | As per project budget |
|                       |                  | Maintenance Pruning                  | After harvesting and every 2 to 4 months thereafter   | Sucker selection, de-suckering, and skirting  | Farmer  | Every 2 – 4 months                 | 2 – 4 stems of coffee per stump / main stem  | Village Extension Officer or EO | Farm Visit during rehabilitation period | As per project budget |
|                       | Drainage         | Removal of debris and soil in drains | After harvesting and  | Cleaning drains of matter that filled up drains and spreading this under the coffee | Farmer  | Rehabilitation period              | Clean drains and removed matter spread under coffee  | Village Extension Officer or EO |   | As per project budget |
| <b>3. Maintenance</b> | Weed Control     | Manual                               | As necessary on a regular basis   | Slashing and uprooting weeds  | Farmer  | When weeds grow and before seeding | Weed under control   | Village Extension Officer or EO | Farm visit                              | As per project budget |

| Project Stage | Project Activity | Impacts                                  | When Impact Occurs                          | Mitigation Plan  |        |  | Monitoring Plan   |  |            | Costs                 |
|---------------|------------------|--|---|--|--------|--|---|--|------------|-----------------------|
|               |                  |  |   | Mitigation Measure   | Who    | When to be applied                             | Indicator   | Who                                      | When       |                       |
|               | Shade Management | Removal of new shoots and lower branches | As required                                 | Lower twigs and leaves are removed   | Farmer | When required                                  | Adequate shade  | Village Extension Officer or EO          | Farm visit | As per project budget |
|               | Pruning          | Recycle Pruning                          | Annually and immediately after harvesting   | Removal of old unproductive stems  | Farmer | Immediately after harvesting                   | 2 – 4 stems of coffee per stump / main stem                           | Village Extension Officer or EO          | Farm visit | As per project budget |
|               |                  | Maintenance Pruning                      | After harvesting and 2 to 4 month intervals | Handling and de-suckering  | Farmer | Every 2 – 4 months                             | 2 – 4 stems of coffee per stump / main stem and selected suckers only | Model Farmer / Village Extension Officer | Farm Visit | AS per project budget |
|               | Drainage         | Removal of debris and soil in drains     | As required                                 | Cutting but not removal of grass along the sides and bottom of the channel together with the removal of accumulated silt and grass cuttings and clean base of drain to maintain original gradient and depth and spread debris under coffee in garden | Farmer | As and when required normally after harvesting | Well maintained drains  | Village Extension Officer or EO          | Farm visit | As per project budget |

| Project Stage   | Project Activity  | Impacts   | When Impact Occurs                      | Mitigation Plan  |              |   | Monitoring Plan  |                                 |  | Costs               |
|---|---|---|---|--|--------------|---|--|---------------------------------|--|---------------------|
|   |   |   |   | Mitigation Measure   | Who          | When to be applied  | Indicator  | Who                             | When   |                     |
|   | Manuring  | Organic   | When organic matter is applied & spread | Spread under coffee bushes   | Farmer       | After pulp decomposition and availability of organic matter                                   | Healthy coffee trees   | Village Extension Officer or EO | Farm visit   | Negligible          |
| <b>4. Processing</b>  | Pulping   | Hand-Pulping (by smallholder)   | Harvesting Period                       | Use of small amounts of water and recycle  | Farmer       | During coffee season  | Water source not polluted  | Village Extension Officer / EO  | Farm visit   | NIL                 |
|   |   |   |   | Decompose pulp and spread under coffee   | Farmer       | During and after coffee season  | Coffee pulp under coffee trees                                   | Village Extension Officer / EO  | Farm visit   | NIL                 |
| <b>B. SOCIAL IMPACT / ISSUES : SOCIAL MANAGEMENT PLAN (SMP)</b> |   |   |   |  |              |   |  |                                 |  |                     |
| <b>1. Indigenous Peoples Policy</b>                             | <i>All Co-Partners have signed up voluntarily following free, prior and informed consultations</i>  |   |   |  |              |   |  |                                 |  |                     |
| <b>2. Involuntary Resettlement Policy</b>                       | <i>All land used are existing coffee gardens owned by beneficiaries and the owners of the pieces of land on which warehouses will be constructed will sign a certificate of voluntary offer respectively.</i> |   |   |  |              |   |  |                                 |  |                     |
| <b>3. Negative Social Impacts</b>                               | Coffee Sales  | Increase in disposable income and spent on unnecessary things such as alcohol | Cash is received in payment for coffee  | Training on expenses planning and budgeting for both husbands and wives.<br><br>Farmer Group adopts a policy of income expenditure | Lead Partner | During Farm Management Training for households & Capacity Building Training for farmer groups | List of Training materials offered include training on budgeting | Lead Partner, (PMU)             | Quarterly (review reports & random verification inspections) | In line with budget |

| Project Stage | Project Activity         | Impacts   | When Impact Occurs   | Mitigation Plan  |              |  | Monitoring Plan   |                     |  | Costs                       |
|---------------|--------------------------|---|--|--|--------------|--|---|---------------------|--|-----------------------------|
|               |                          |   |  | Mitigation Measure   | Who          | When to be applied   | Indicator   | Who                 | When   |                             |
|               |                          |   |  | record keeping   |              |  |   |                     |  |                             |
|               | All Activities           | If partnership caters only for men's interest resulting in further marginalization of women     | When project is implemented  | Ensure that women are involved and share all benefits from the project                                   | Lead Partner | When capacity building trainings are provided, when tools and farm implements are distributed, and encourage both men and women to be involved equally | List of proposed activities include the participation of women  | Lead Partner, (PMU) | Quarterly (review reports & random verification inspections) | In line with budget         |
|               | During Training sessions | Incremental income <b>could</b> worsen existing problems of alcohol abuse and domestic violence | When income potential increases as a result of more income for the household | <b>If</b> alcohol abuse is rampant, ensure that partnership activities include awareness and counselling | Lead Partner | During training sessions   | List of proposed training materials <b>should</b> include alcohol abuse prevention, counselling etc., | Lead Partner (PMU)  | Quarterly (review reports & random verification inspections) | In Line with Project Budget |
|               | HIV / AIDS Training      | Possible increase incidence of HIV/AIDS   | When income potential increases as a result of more income for the household | If HIV / AIDS is prevalent, ensure partnership activities include HIV / AIDS awareness and               | Lead Partner | HIV / AIDS awareness and prevention training   | List of proposed activities include HIV / AIDS awareness and prevention campaigns                     | Lead Partner (PMU)  | Quarterly (review reports & random verification inspections) | In Line with Project Budget |



| Project Stage | Project Activity                              | Impacts  | When Impact Occurs     | Mitigation Plan  |                             |                               | Monitoring Plan  |                    |  | Costs                       |
|---------------|---|--|------------------------|--|-----------------------------|-------------------------------|--|--------------------|--|-----------------------------|
|               |   |  |                        | Mitigation Measure   | Who                         | When to be applied            | Indicator  | Who                | When   |                             |
|               |   |  |                        | prevention seminars  |                             |                               |  |                    |  |                             |
|               | During training sessions / awareness sessions | Possible exploitation of children in the farms, preventing them from going to school | Project Implementation | Ensure farmers / groups adopt policy restricting employment of children during school days | Group Leaders, Lead Partner | During training sessions      | Resolution from farmer group adopting a policy on employment of children in the coffee farms (ensuring child schooling is not disrupted) | Lead Partner (PMU) | Quarterly (review reports & random verification inspections) | In Line with Project Budget |
|               | During training / awareness sessions          | Absence of grievance mechanism   | Project Implementation | Ensure that grievance mechanism is in place and the people are aware of it                 | Lead Partner, (PMU)         | During project implementation | (a) Information materials<br>(b) Grievance boxes installed   | Lead Partner (PMU) | Quarterly (review reports & random verification inspections) | Negligible                  |