

KOSEM GROUP PROJECT (CFP 112)

Environmental and Social Management Plan (ESMP)

Project Description

The main goal of this project is to revive and rehabilitate 146.3 hectares of coffee gardens owned by 317 farmers in the WSCG Group and bringing production from 300kg green bean per hectare to about 700kg green bean per hectare. The growers will also produce premium quality coffee and receive better prices. Through higher financial returns it will help both economically and socially through higher financial returns and better knowledge and skills.

Kosem Ltd would like to, in the next 3 years, work with its co-partner group to;

- i. Improve coffee husbandry practices in an environmentally friendly manner.
- ii. Rehabilitate coffee plots to increase coffee production
- iii. Establish Central Nurseries and Wet Processing Facilities to improve quality of coffee produced.
- iv. Increase participation and revenue sharing with females.
- v. Improve management of finances through proper training.
- vi. Certification for all co-partners making them eligible to enter into niche markets.

A. Potentially adverse Environmental impacts and mitigation measures

The 'Social and Environmental Impacts' section of the proposal describes positive impacts of the project: It notes that: *"The coffee plots available for immediate rehabilitation do not pose any significant environmental problems as the coffee farms are scantily spread over the total land area and are not large enough to cause any problems of that nature, if any. Most of the inputs proposed under the PPAP are small amounts and all of them are environmentally friendly."* However, following are descriptions of possible adverse environmental impacts identified and mitigation measures;

1. The use of small amounts of chemicals is intended during the initial phase of project implementation. Spot spraying of Glyphosate is intended to be used for weed control in farms where sufficient shade cover is lacking and during establishment of new shade. Fungicides will be used to inhibit the spread of 'Coffee Leaf Rust' during the initial major pruning phase and thereafter only where serious infestations are identified. These chemicals (herbicides and fungicides) have the potential to be toxic to the farmers and workers via direct contact to their skin or ingestion or to aquatic organisms within nearby waterways and creeks if not handled properly and allowed to spill. Following are measures to correct and manage these situations;

Storage: Kosem Ltd has identified an existing dry, well aerated storage facility. Within this large storage shed an area measuring 6m x 6m will be enclosed and separately secured for the limited amount of chemicals needed. All containers will be properly labelled and stored on pallets. Records will be maintained for all incoming and outgoing chemicals, technical data and application rates and a list of farms on which the sprays will be applied.

Transport: Movement of chemicals from the store to the farmers' field will be undertaken by Kosem's Field Officers, who will also maintain the store records and supervise application.

Training: Field staff will be fully trained in the handling and use of all chemicals, a service generally provided by the authorized dealers. However, the project will arrange additional training where suppliers' services are lacking. Spray teams will then be fully trained and supervised by Kosem's Field Officers.

Application: Spray Teams will be fully trained and equipped to provide 'spot spraying'. Each operator will be trained in maintenance of the sprayer to ensure correct application rates and droplets size. Each will be provided with all necessary safety clothing (overalls, hat, gum boots, etc.,) and accessories (gloves, face masks, goggles, etc.,)

Spills, Leaks & Disposal of Containers: A supply of sawdust and coffee husks will be maintained at all sites where chemicals are being stored and/or transferred between containers and/or sprayers. The use of water for clean-up spills will be strictly forbidden.

All used containers will be decontaminated using detergents while those deemed unusable (plus cardboard boxes) will be buried in a suitable location free from leaching.

2. 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. Nurseries will be centrally located in the vicinity of Nondugl Station, remote from any river or stream. No chemicals will be used on the nursery.
3. Drainage: Drainage maintenance is not expected to be 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. Spoil taken from the bottom of drains will be spread over the inter-rows of the coffee plot. No new drains are envisaged.
4. Shade management: 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. Larger branches cut from shade trees will be used for fence maintenance and smaller wood is traditionally used for firewood (home cooking) while leaves are spread on the ground amongst the coffee.
5. Pulping: Coffee pulp and waste water from pulping could impact negatively on the terrestrial and aquatic environments if allowed into water ways. Smallholder farmers will process their coffee cherries to parchment stage on their own blocks. The hand pulpers used are generally operated in the vicinity of the coffee block; therefore, the coffee pulp is easy to return to the coffee block or food garden as mulch. Water used is minimal and seeps into the ground. Farmers will be instructed and trained in the pulping of their coffee.

Monitoring program and responsibilities

- Staff of the CIC 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 the use of chemicals, the application of rehabilitation activities (drainage & shade management) and coffee processing.

B. Potentially adverse Social impacts and mitigation measures

The social impact is a positive one of increased income to the household. However, it requires more time to be spent in the coffee gardens as opposed to other social activities. The high income from these farming activities will assist in the reduction of HIV/AIDS and other anti-social behaviours by the farming population.

Following are descriptions of possible adverse social impacts identified 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 in order to target the established coffee markets of Kosem Coffee Ltd. This has resulted from intensive consultation and awareness. There is broad community support for the project.
2. Involuntary resettlement policy: All the lands to be utilized for the partnership activities are owned by the beneficiaries themselves. There will be no land donated to the project by members of the community.
3. Negative social impacts: To avoid misuse of income from coffee sales, members of participating households will be trained in planning expenses / budgeting and 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	
A. ENVIRONMENTAL MANAGEMENT PLAN (EMP)										
1. Nursery Establishment	Site Preparation	Grass Cutting and shrub removal and clearing	During Site Preparation	Clearing only within the area to be utilized within existing smallholder garden	Farmers	During Site Preparation	Nursery Site cleared	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 field	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
2. Rehabilitation	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 and planting posts / sticks						

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	Weed Control	Slashing / hand weeding		Slashing and uprooting weeds	Farmers		Weeds under control			
		Herbicide (Glyphosate) Spraying	Initial shade establishment stage	Safe transportation, storage and application practices including training of sprayers	Special Spray team and Co-Partners	During Coffee rehabilitation and shade establishment period	Weeds under control, chemical storage shed and spray equipment and safety gear usage / availability	Lead Partner, PMU	Quarterly Reports and	
	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

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3. Maintenance	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
		Chemical Control - Glyphosate	First 1 – 2 years	Chemical storage, handling, applying and waste disposal will be done under environmentally safe conditions including the use of safety gear for workers. Training of workers / farmers in the safe handling and usage of chemicals at the correct dosage	Lead Partner, Co - partners	During the shade establishment period	Weeds under control, Specifically constructed chemical and safety gear storage shed, availability and utilization of safety gear, evidence of training in safe handling and use of chemicals	Lead Partner / PMU	Quarterly Reports, farm visits by EOs and random verification visits by the PMU	As per project budget
	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	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	
								Officer		
	Pest Control	Spraying of copper based fungicides against Coffee Leaf Rust (CLR)	After recycle pruning when new suckers are selected	Chemical storage, handling, applying and waste disposal will be done under environmentally safe conditions including the use of safety gear for workers. Training of workers / farmers in the safe handling and usage of chemicals at the correct dosage	Lead Partner, Co-Partners,	After recycle pruning after sucker selection and where CLR infestation is serious	CLR under control, Specifically constructed chemical and safety gear storage shed, availability and utilization of safety gear, evidence of training in safe handling and use of chemicals	Lead Partner / PMU	Quarterly Reports, farm visits by EOs and random verification visits by the PMU	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	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	
				gradient and depth and spread debris under coffee in garden						
	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
4. Processing	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. SOCIAL IMPACT / ISSUES : SOCIAL MANAGEMENT PLAN (SMP)										
1. Indigenous Peoples Policy	<i>All Co-Partners have signed up voluntarily following free, prior and informed consultations</i>									
2. Involuntary Resettlement Policy	<i>All land used are existing coffee gardens owned by beneficiaries and no land will be used collectively by Co-Partner Groups</i>									
3. Negative Social Impacts	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.	Lead Partner	During Farm Management Training for households & Capacity Building Training for	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	
				Farmer Group adopts a policy of income expenditure record keeping		farmer groups				
	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 could worsen existing problems of alcohol abuse and domestic violence	When income potential increases as a result of more income for the household	If alcohol abuse is rampant, ensure that partnership activities include awareness and counselling	Lead Partner	During training sessions	List of proposed training materials should 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 prevention seminars	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

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				Mitigation Measure	Who	When to be applied	Indicator	Who	When	
	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 (b) Grievance boxes installed	Lead Partner (PMU)	Quarterly (review reports & random verification inspections)	Negligible