Document No.:

Receiving Date:

Asia-Pacific Network for Sustainable Forest Management

and Rehabilitation

PROJECT PROPOSAL

Rehabilitation of arid ecosystems and barren lands through agroforestry systems in the southern coast of Peru

COSTA VERDE NGO - INITIATIVE20X20

PERU

February, 2022

Project title	**Rehabilitation of arid ecosystems and wastelands through agroforestry systems in the southern coast of Peru**
Supervisory agency (if any)	**National Forest and Wildlife Service (SERFOR)**
Executing agency	**COSTA VERDE NGO**
Implementing partners (if any)	**FUNDACION PARA EL DESARROLLO AGRARIO (FDA), TO BE CHARGED OF THE BUDGET ADMINISTRATION AND LOGISTICAL SUPPORT**

Expected project duration: 24 months

Expected start time: March 2022

Target area

The project covers 05 sites, all of them located in arid ecosystems of the southern coastal region of Peru (in the provinces of Chala, Camana and La Joya in the department of Arequipa, and in the province of Locumba in the department of Moquegua), with huge areas of highly degraded land and important fog oasis ecosystems (lomas), where large impoverished human settlements are established, despite of the acute water scarcity and degraded ecosystems. However, there is a good potential for developing agroforestry and reforestation systems covering thousands of hectares and incorporating these into the productive and income generation circuit whilst improving the livelihoods of the rural people.

Total budget (USD)[1]	**Expected APFNet grant (USD)**	**Counterpart contribution (USD)**
520,294 .00	**348,540.00**	**171,754.00**

. 348,540.00 171,754.00 520,294.00

Project summary:

In Peru, there are more than 10 million hectares of degraded land. Even though on the coast there are only 0.6 million hectares of these, more than 60% of economy's population lives in this region. Therefore, social and ecological benefits for transforming degraded lands into healthy and productive agroforestry areas become relevant. Current threats from communities that keep on exacerbating the degradation trend may put at risk the whole ecosystems, species, and people's quality of life, increasing the pressure on nearby landscapes.

The project envisions the improvement of the economy of the arid zones and its rural population in the southern region of Peru. Its goal is to contribute towards the rehabilitation of degraded ecosystems and recuperation of barren land to improve the environmental conditions and livelihoods of the population on southern coast of Peru, to mitigate the negative climate change effects and strengthen the availability of food, water, and energy. The main objective of the project is to propose and develop, in a participatory way, an experimental productive agroforestry system in degraded/barren lands, for the improvement of the economy of poor rural families and mitigation of negative climate change effects. The project aims to connect strategic stakeholders and partners in production and value chains that not only perform reforestation and agroforestry actions, but also contribute substantially to reactivate local economies and promote wellbeing across the communities involved. Such connections are currently not in place, as only rather small and isolated production systems exist trying to benefit from arid and degraded ecosystems.

The strategy is based on developing small scale production systems, engaging local communities and local governments, in close collaboration and coordination with the regional governments, and National Public Institutions like SERFOR. These agroforestry systems will rely on species that have proven to be key drivers of ecosystem services recovery, as well as being adaptable to the extreme arid conditions across the sites. There are 4 expected outputs: **(i)** establishment of a pilot trial of 20 units of 5 ha each (total up to 100 ha) for conservation, reforestation, and agroforestry plots in degraded lands, **(ii**) design of a production chain from the cultivation/cropping to the final consumer, **(iii**) establishment of a small experimental unit for added value of non-timber products, and **(iv**) elaboration of a large project proposal for the rehabilitation/recuperation of degraded ecosystems and barren lands. Stakeholders will be engaged as well, considering that local governments and rural associations are potential beneficiaries who will profit from this experience, and will receive technical and institutional support. Schools will also benefit, as they will be involved in some key activities.

Some of the key activities involve information gathering and systematization, organizing and training beneficiaries, the implementation of experimental trials, and the organization of a production system, including its marketing structure and strategy. These activities will involve and target rural families from local communities in 5 selected sites of Arequipa and Moquegua. Some methodologies that will be used include the selection of adequate sites and beneficiaries, under strict environmental, technical and social considerations; implementation of a bottom-up process for participation and decision-making ; close coordination with the local, regional and national authorities and organizations related to the project objective; development of an integrated production chain; intensive training of the stakeholders; and production of added value products

competitive on the national and international markets. The following approaches and frameworks will drive the management and execution of the project: ecosystem-based adaptation to climate change, designing interventions considering ecosystem services provisions at the sites; human-centred design, adjusting the project to target group's needs accordingly and "on the go", and a gender approach for securing the participation of women. The entire process will be systematized and disseminated, and a large project will be formulated for the restoration of 10,000 ha upon project completion.

The project expects to set the foundations for long-term relationships towards restoration and sustainability at the sites, implementing a participatory governance that enables the communities to increase their resilience and adaptability in a climate change context.

Project Proponent：COSTA VERDE (NGO)

Contact organization/entity：Non-Governmental Organization

Authority agency：National Forest and Wildlife Service (SERFOR)

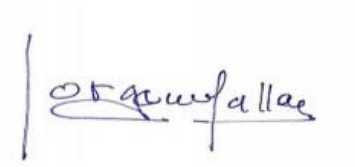
Project contact person：Jorge Malleux, President of COSTA VERDE NGO

Tel: +51 997211899 Email: jmalleux@gmail.com

Mail address: José Nicolas Rodrigo 654 102 Surco Lima Perú

Prepared and submitted by

COSTA VERDE INICIATIVA 20X20 - NGO



Jorge Malleux

President

COSTA VERDE

Project Proponent Signature on behalf of EA

Date:

SERFOR

Firmado digitalmente por MURO VENTURA Jose Alberto FAU 20562836927 soft

Motivo: Soy el autor del documento Fecha: 23.01.2021 22:49:57 -05:00

José Alberto Muro Ventura – Deputy Executive Director SERFOR

Council Representative Signature

Date:

TABLE OF CONTENTS

Abbreviations and acronyms

APFNet	: Asia-Pacific Network for Sustainable Forest Management and Rehabilitation
ATTFS	: Forestry and Wildlife Technical Administrator (SERFOR)
C&I	: Criteria and indicators
CBD	: Convention on Biological Diversity
COP20	: the UNFCCC's 20th Conference of the Parties
COVID-19	: Coronavirus
EA	: Executing agency
FDA	: Foundation for Agrarian Development
ITTO	: International Tropical Timber Organization

MINAGRI	: Ministry of Agriculture
NGO	: Non-Governmental Organization
PPTs	: Power Point Presentations
RAD	: Regional Committee for the Restoration of Regraded Land
RRA	: Rapid Rural Appraisal
SD	: Supreme Decree
SDM-IGES	: Sustainable Development Management-
SERFOR	: National Forest and Wildlife Service
UNALM	: National Agrarian University
UNFCCC	: United Nations Framework Convention on Climate Change
WRI	: World Resources Institute

Project details

1. Background

Concerns about the destruction of the world's forests and land degradation have increased considerably over the last two decades, leading to several initiatives[2] aimed at reverting this trend and establishing sustainable forest management strategies and actions. Dry and sub-humid lands cover approximately 47% of the land area of the planet, and include dry and semidry regions, meadows, savannahs, and Mediterranean landscapes. These fragile environments, which are home to many endemic species, warrant priority attention to avoid the irreversible loss of biological diversity.

In Peru, there are more than 10 million hectares of degraded lands. Considering the 20x20 Initiative, the country has committed to restore and rehabilitate a total of 3.2 million hectares of degraded lands, comprising 2.0 million hectares for reforestation and 1.2 million hectares for rehabilitation in the Coastal, Andean (highlands) and Amazon (rainforest) regions. The Southern coastal region of Peru contains approximately 0.6 million hectares of lands that have been degraded or are in the process of becoming severely degraded due to inappropriate land use and depletion of the original vegetation cover, particularly in fog oasis ecosystems formed on the hillsides of the Andean mountains, which have a predominantly semi-dry or sub-humid tropical climate. These ecosystems are degraded mainly due to the migratory population coming dawn from the Andean region to the amazon region, practicing shifting (subsistence) agriculture, illegal crops, fires, water erosion, overgrazing, infrastructure, illegal mining, and soil fragmentation, among others. As a result, local communities that rely on ecosystem services' provision capacities get affected negatively, becoming even more vulnerable to crisis like those triggered by climate change or COVID-19.

Nevertheless, evidence suggests a path for overcoming these challenges. Between 2008 and 2016, joint efforts were oriented to recuperate/rehabilitate the degraded ecosystems and barren lands in the southern coastal region of Peru. In Arequipa, species like *Caesalpinia spinosa*, *Moringa oleifera*, *Schinus molle*, *Olea europaea* or *Punica granatum* have proven to be promising crops for their adaptability to extreme arid conditions (saline soils and water scarcity). Moreover, it has been found that these species need 10 times less water than other crops in the surrounding lands. This research was led by Costa Verde NGO and involved over 30 small farmers, providing insights on how local communities should address land recovery processes. In addition

[2] The Convention on Biological Diversity (CBD) has a work programme for dry and sub-humid lands aimed at addressing knowledge gaps, supporting best management practices, and promoting relations between countries, institutions, and other conventions [Living in Harmony with Nature, www.cbd.int/drylands1]. The Initiative 20x20 was launched through the World Resources Institute (WRI) at the 20th Conference of the Parties (COP20) of the United Nations Framework Convention on Climate Change (UNFCCC). It is a country-led initiative to change land restoration dynamics in Latin America with the aim to contribute to global efforts in this field by undertaking a commitment to restore 20 million hectares of degraded land by 2020. The overall target will be achieved by fulfilling a combination of goals related to resilient and climatically sustainable agroforestry; agropastoral activities; agricultural improvement; and natural reforestation, among others. It also includes avoided deforestation and the implementation of land restoration programs, requiring an initial investment of $100 million from private sources.

to that, another research[3] in a private conservation area run by a peasant community, provided information about the viability and benefits of using these species as drivers for ecosystem restauration in a fog oasis ecosystem, fostering resilience capacities and maintaining high biodiversity and endemic rates.

More examples of how Peruvian southern ecosystems can be restored can be found in the locations of Moquegua and Tacna, confirming that the mentioned species are adequate for ecosystem services rehabilitation, and it also increases the value of land in a short time by over 500%.[4] Local communities have also proved to be eager to get involved, as initiatives like the recycling of residual waters when shortages arrive or establishing alliances with companies for water provision function well consistently through time. Despite these local efforts, insufficient knowledge on how to develop restoration projects is found across these sites. The context in Arequipa and Moquegua presents several opportunities for the development of an agroforestry and ecosystems restoration project, with a view towards improving the wellbeing of the local communities. Finally, the ecological value of species mentioned above, as well as the growing national and international markets for their derivatives, turn them into strategic assets for transitioning towards a more sustainable land management and local economy development.

2. Significance and Necessity

The Peruvian commitment for the 20x20 Initiative can be substantially addressed by restoring the southern coastal region. It is important to point out that approximately 60% of the national population is settled along the coastal region and that this region accounts for 30% of the national territory. Therefore, the social and ecological benefits for transforming degraded lands into healthy and productive agroforestry areas becomes relevant, especially in a context where arid regions are likely to get even dryer. If not managed on time, current threats from communities that keep on worsening the degradation trend may risk the whole ecosystems, species, and people's quality of life, and increase the pressure on nearby landscapes.

Agroforestry systems are very well suited for the family work of the small and medium farmer[5], as these have a high yield per hectare in marginal soils. These lands are important because over 80% of forest and agricultural soils comes from these micro-

[3] Research funded by National Agrarian University (UNALM) and the Foundation for Agrarian Development (FDA)

[4] https://www.itto.int/files/user/pdf/International%20Day%20of%20Forests/Restoration%20of%20Sub-humid%20Ecosystems%20through%20Reforestation%20in%20Peru.pdf

[5] Most of these families have extensions ranging from 0.1 to 2.0 ha.

agroforestry systems, and it is estimated[6] that over 100,000 families are directly or indirectly involved in the chain value of crops in Peru like the ones mentioned above. Thus, these key species provide an opportunity not only to recover degraded lands but also to reactivate the local economy which has been terribly affected. Such features also allow different levels of governance to meet their goals.

The development of conservation and protection activities are the most suitable alternatives for the restoration of degraded lands in the Lomas formation (fog oasis ecosystems), which is precisely one of the main Objectives of APFNet[7], which promotes activities related to climate change, food and energy security and clean development to improve sustainable forest management and rehabilitation in the APEC region. These ecosystems are very much appreciated by the urban population for tourism and educational purposes, as eco-tourism is one of the most popular weekend entertainments for the population settled in arid cities, bringing some extra income and revenue to the communities settled on the Lomas.

This commitment is adopted by restoration initiatives at platforms organized at the national and regional level e.g., the Regional Committee for the restoration of barren lands in the southern coastal of Peru. [8]In addition, the Peruvian forest policy, forest law and regulations are oriented towards achieving sustainable forest resources management. The national Forest Law and regulations command the conservation of dry forest, including the guidelines for its sustainable management, taking into consideration its great economic and environmental role for the wellbeing of the population. Over the last decade, the Government of Peru has given special priority to the sustainable management of tropical forests in consonance with ITTO's Objective 2000, the UN SDGs and the UNFF Sustainable Forest Goals , incorporating in its Agenda 21 and national policies the commitment to establish mechanisms aimed at ensuring the sustainable development of rural communities through forest concessions and permits for the integrated utilization of forest resources under management plans, as well as the promotion of afforestation and reforestation with timber and non-timber species for rehabilitation and land-use change in degraded areas, as established in SD No. 003-

[6] https://www.itto.int/files/itto_project_db_input/3097/Technical/PD724-13-TechRepOutput3-LINEAMIENTOS%20PARA%20EL%20MANEJO%20FORESTAL%20%20DE%20LAS%20PLANTACIONES%20DE%20TARA%20PARA%20LA%20RECUPERACION%20DE%20TIERRAS%20ARIDAS%20EN%20LA%20COSTA.pdf

[7] The strategic plan 2016-2016 establishes the following priorities: i.e., Rehabilitating degraded forests and increasing forest cover.

In May 2016 was created the Regional Committee of the southern region of Peru: as a platform for the restoration of degraded land file:///C:/Users/JORGE%20MALLEUX/Documents/Documents/COMITE%20REGIONAL%20RAD%20COSTA%20SUR/ACTA%2004.03.2016.pdf

2005-AG, stressing the importance of reforestation, and SR No. 002-2006-AG, approving the National Reforestation Plan.

In this sense, as stated before, the southern coast of Peru has been targeted for research and projects aimed at contributing towards the restoration of degraded lands. Based on the background described, innovative strategies will be introduced, becoming novelties for the sites as for the beneficiaries, such as:

- Selection of adequate sites and beneficiaries, under strict technical and social considerations
- Implementation of a bottom-up process for participation and decision-making
- Close coordination with the local, regional, and national authorities and organizations related to the project objective.
- Development of an integrated production chain
- Intensive training of the stakeholders
- Production of added value products, competitive on the national and international markets
- Communication strategies that will assure the engagement of beneficiaries and stakeholders.

3. Goal and Objectives

The project envisions the improvement of the economy of the arid zone and rural population of the southern region of Peru.

Supporting that vision, its goal is to contribute with the rehabilitation of degraded ecosystems and recuperation of barren land to improve the environmental conditions and livelihood of the population in the southern coast of Peru, to mitigate climate change negative effects and strengthen the availability of food, water, and energy.

The main objective of the project is to propose and develop, in a participatory manner, an experimental productive agroforestry system in degraded/barren lands, for the improvement of the local economy and the mitigation of the climate change effects.

The strategy is based on developing conservation and sustainable management of *the lomas formation* and small- scale production systems, engaging local communities and local governments, in close collaboration and coordination with the Regional Governments, and National Public Institutions like SERFOR.

At the end of the project, it is expected that the following outputs and impacts are achieved:

1. Establishment a conglomerate of 20 units (modules) pilot plots of 5 ha each for conservation, reforestation, and agroforestry, in degraded lands.
2. The design of a production chain from the cultivation/cropping to the final consumer.
3. Establishment of a small experimental unit for added value of non-timber products.
4. Elaboration of a large project proposal for the rehabilitation/recuperation of degraded ecosystems and barren lands.

4. Outputs and Strategic Activities

OUTPUTS AND ACTIVITIES	WAY OF IMPLEMENTATION (METHODS AND PLACES)	PARTCIPANTS (INVOLVEMENT OF STAKEHOLDERS)	INPUTS EQUIPMENT/ MATERIALS	RESPONSIBLE
Output 1.0 1. Establishment of a conglomerate pilot trial of 20 units (modules) pilot plots of 5 ha each for conservation, reforestation, and agroforestry in degraded lands.				
Activity 1.1 Systematization of all available information related to experiences about restoration of degraded land on arid and semi-arid zones for the area of influence of the project in the southern coast of Peru	Revision and analysis of previous experiences at the national and international level, in similar exosystemic conditions, systematizing the information collected for a more consistent background. **A "state of the art" paper** will be made based on all the evidence found on this matter.	The activity will be executed by the project coordinator, senior professionals involved in the project operation, and a local expert. Selected stakeholders will be interviewed and consulted, such as local farmers and governments.	Selected bibliography, project documents, research papers, personal and virtual interviews, periodical project status briefings, brochures, flyers, radio broadcasts and interviews.	Project Coordinator
Activity 1.2 Update an environmental and socioeconomic baseline for the area of influence of the project	The update of the environmental, biophysical, and socioeconomic base line of the demonstration sites will be done by revising and systematizing secondary information and reports, complemented by field visits, RRA procedures and contact/ with relevant persons and institutions. **An updated environmental baseline report and a socioeconomic baseline report** will be prepared based on the existing reports and new evidence.	A local expert will be hired to perform this task under the supervision of the project coordinators and the assistance of other project staff.	Plan of activities scheduled with the actors to be visited and interviewed, RRA forms and transportation facilities	Project coordinator, local expert
Activity 1.3. Stakeholder interviews to ensure participation and engagement, for the socialization of experiences and the dissemination of the project's objectives and	2 Periodical scheduled interviews per year with stakeholders and main actors related to the project activities using RRA methodology and broadcasted by radio and TV programs at the local and national level, as well as some technical report and personal	Selected stakeholders will be interviewed, consulted, and informed, amongst local farmers and government officials.	Prepared questionnaires and short technical reports between project coordinators and direct/indirect beneficiaries	Project coordinator, consultant

activities (socioeconomic investigation/survey).	testimonies. This aims to ensure participation and engagement, serves to introduce the project to local communities and adjust project details based on their feedback.			
Activity 1.4.1 Selection of specific sites for project implementation.	Two typical ecosystems of the southern coastal area of Peru are selected: a) the "lomas" formation and b) barren lands. The specific demonstration sites are to be selected in a participatory way in consultation with the stakeholders' using indicators on environmental and socio-economic aspects, giving special importance to accessibility and the participation of the stakeholders.	Stakeholders will be the main source of consultation, using RRA (rapid rural appraisal) method, The involvements of the local governments and commitments of the community responsible.	Interviews, *in situ* visits, technical meetings, RRA means.	Project coordinator, sites main contacts and responsible, local expert
Activity 1.4.2 Drafting of the agroforestry plot design (to be further validated by stakeholders on the regional workshops)	Development of a draft design of agroforestry experimental trials by Costa Verde experts, in a participatory manner together with the beneficiaries and SERFOR staff	The local expert and project coordinator will contact and consult with the site's representatives and other actors	Data/information from previous activities	Project coordinator and consultant
Activity 1.5 Organization of 3 regional workshops for stakeholder validation	Organization of 3 regional workshops to consult local stakeholders on the design, as the direct participants and stakeholders should be aware of the objective of the experimental trials to avoid future misunderstandings.	An agroforestry draft design (Activity 1.4.2) will be provided for consideration during the workshops and validated as the main output of the meeting, together with the direct beneficiary, considering the characteristics of the terrain, water supply and personal preferences. Specialists and experts from Costa Verde will be involved and an external consultant could be hired if needed.	Meeting room for 40-50 participants, PPTs, presentation equipment, writing material and brochures	Technical committee

Activity 1.6 4 Trainings and empowerment of 100 small farmers on reforestation, agroforestry, product processing and marketing.	This activity is oriented to provide the participants with basic and sufficient capacity for the management of their own experimental agroforestry units, which is to be managed with a standard of high efficiency., The beneficiaries will be regularly monitoring their plots and produce quarterly technical reports with the technical assistance of the project staff. 4 trainings will be organized, one in each province (Chala, Camana, La Joya, Locumba) for one or two full days (depending on the subjects to be covered), including theoretical and practical sessions in the field.	All participants taking part in the implementation of the experimental modules: community leaders, local authorities, small farmers, and the technical team of the project.	Meeting rooms for 25- 30 in each site, ppts, manual, brochures, etc.	Technical committee
Activity 1.7 Installation of 5 forest nurseries and composting units.	This activity is crucial for the whole implementation of the project. In total 5 nurseries will be installed two main nurseries will be installed in Camana and Pampa Sitana (50,000 seedlings each) and three small nurseries (20,000 seedlings/nursery/year) in (Atiquipa, La Joya and Taquehuay). Some temporary small nurseries can also be installed in specific sites, if needed. Prior to the planting program the installation of the forest nurseries should be done with the direct participation of the participants, who will be trained in growing seedlings. The beneficiaries will also contribute with labor, land, and water supply. All seedlings needed based on the species selected for the agroforestry trials will be produced in these nurseries. Some species likely to be used are *Caesalpinia spinosa*, *Moringa oleifera*, *Schinus molle*, *Olea europaea* or *Punica granatum.* Based on results	All participants will be trained and instructed in how to run a nursery. How to ensure phytosanitary control and replanting practices should be part of this activity, partially for learning process and partially for their own contribution with labor time and other contributions. They may assume the ownership of the product neighbors' products, and school students should be invited.	600 m2 for the main nursery and 250m2 for the small ones, irrigation water supply, seeds or sticks of selected species, plastic bags, sprinklers, power pumps, wood, thighs. Poles and means & mesh covering.	Technical committee, consultant

	from Activity 1.4, it is expected that local farmers get involved in the nursery management.			
Activity 1.8 Preparing the site for planting.	According to the planning results (Activity 1.4), the total area to be protected for natural regeneration and cropping management and the irrigation using drip irrigation, will be estimated for each site, considering the species, planting density, soil conditions. The same approach will be applied across all sites. Functions will be mixed.	Participant should accept and commit to the standards of the system, as well as display adequate capacities to work with other neighbors. School students should be invited.	5000 to 7,500 m of irrigation tubes of 16mm, 700 to 1200 drips, and 100 m of PVC tubes of 2" -3" per ha 40 hours of labors per ha Reservoir, water pump (6)	Technical committee, consultants, site responsible
Activity 1.9 Installation of drip irrigation systems and water catchment meshes.	The irrigation and water capture systems will be installed having in consideration the following: a) Degraded lomas formations; complementary water provision using a low (limited) density drip irrigation material/equipment and installing water capturing meshes. b) Full network of drip irrigation material/equipment according to the density and species to be planted but fog water capture in selected degraded areas.	This is a crucial key part of the project implementation which requires the participation of previously trained personnel among the beneficiaries that will take part in this activity, inviting neighbors, and school students. Aiming to sensibilize them on this methodology. Each site should be evaluated on its soil condition, species to be planted, water requirements the network of hoses and drippers to be used to provide adequate and timing irrigation plan.	A total of 100 ha should be registered as a part of the project operation, with formal agreements between owners and the project administration.	All project staff and actors related to the project's objectives in the area of influence
Activity 1.10	The planting will be done using the seedlings produced in the nurseries, according to a protocol prepared for each species. Native species adapted to each pre-selected site will be favored, e.g.: *Caesalpinea spinosa, Schinus mole,*	All direct beneficiaries must participate and contribute at least 30% of the labor cost. Neighboring people will be	Seedlings produced in the project nurseries, agricultural soil from neighboring farms, agricultural residues and	Project coordinator, site coordinators and local consultant

Planting seedlings on the prepared terrain sites and the drip irrigation system installed (only restoration area)	*Tamarix sp, Punuica granatum* and *Moringa oliefera, among others.* *The agroforestry system is a mosaic of forest and agriculture crops, in approximately 60% and 40% of the area, respectively* *The protocol is the technical guidelines elaborated by the project, with details about number of plants per ha, irrigation, fertilization, cultivation and harvesting rules* In the ecosystem of lomas, restoration of the degraded areas will be the main intervention, supported by enrichment planting using native species of the same ecosystem, if appropriate.	invited for their participation in the demonstration exercise.	natural fertilizers, and compost produced by the project	
Activity 1.11 Monitoring of 20 experimental plots, in modules of 5 ha each	An operational monitoring/evaluation process for the whole experimental trial (100 ha). A special monitoring and evaluation protocol will be prepared and used. Monitoring will be done monthly by beneficiaries and twice per year by project technical staff. Monitoring the whole trial of experimental modules, particularly activities related with weeding, watering, pruning, and fertilizing, which should be controlled monthly by the own beneficiaries using special forms.	All stakeholders already involved in the project implementation phase.	Trained personal, special forms and protocols. Processing data system.	Project coordinator and site coordinators

Activity 1.12 Maintenance of the experimental modules, seeking their highest productivity level	Maintenance of the experimental modules with the different design that each one requires in consideration to the biophysical condition is crucial for the achievement of the project objectives and goals. It consists of a detailed technical plan elaborated and adopted by the project, if necessary for each selected site and species to be planted, soil, water conditions etc. Maintenance of the experimental modules, seeking their high productivity level, to which it would be necessary to execute several activities like weekly watering (frequency and volume according to the season). Same as pruning (in different periods depending on each crop, fertilizing according to the seasons) and crop demands (3 to 4 times a year)	Project coordinator and site coordinators, Direct beneficiaries	Special formats /registers, and instructions Monitoring Protocol	Project sites coordinators
OUTPUT 2 2. Organization of a production chain from the cultivation/cropping to the final consumer is designed.				
Activity 2.1 Organization of the production and harvesting activities via the elaboration of technical manuals and guidelines, workshops, and field assistance ,	Once the experimental modules are installed, the next step is to organize production and harvesting activities, according to the methodology and protocols elaborated for each module, before, during and after harvest, transport, processing, and quality screening. Four workshops will be organized, one on each site and one special regional workshop, focusing on	All stakeholders, particularly the direct beneficiaries should comply with the procedures, rules, and goals developed by the project. The beneficiaries will be personally responsible for the outputs in their respective modules. Costa Verde's experts will collaborate closely with the stakeholders to	Meeting rooms for workshops, didactic material, PPTs, manuals	Technical committee

	income generation based on the technical manuals and guidelines to be elaborated. Educational visits of school's kids will also be foreseen to promote and disseminate the experiences and results of this project	oversee the learning process and the technical assistance to be provided The workshops will focus on agroforestry practices in order to provide additional and sustainable income via the restoration of degraded lands		
2.1.1 Training and demonstration of cropping practices	Cropping/cultivation practices will be developed during the project operations, as a continuous process with the stakeholders/beneficiaries of learning on how to manage the experimental plots will be ongoing, since the selection of sites and species, production of seedlings, cultivation, fertilizing, pruning etc. under the guidance of the project technical staff following the technical guidelines and protocols These demonstrative practices will be done through special field working days, short courses, and technical documentation	All direct participants, securing their active and commitment involvement A monitoring process will be implemented aiming to make a permanent assessment of their progress and practical results.	Technical guidelines, pamphlets, backstopping interactive activities between the technical staff and beneficiaries	Technical committee
2.1.2 Workshop on production process	During the production period, a technical workshop or a short technical but intensive course will be organized to teach beneficiaries how to conduct the production, harvesting and post harvesting activities. They will also be taught market knowledge, marketing and how to do sales.	All direct participants, securing their active and commitment involvement. A monitoring process will be implemented, aiming to make a permanent assessment of their progress and practical results.	A 3 to 4 full days including field and classroom lessons, using video means, technical articles, market information, contacts with sellers and buyers	Technical staff team

2.1.3 Elaboration of technical manuals and guidelines	Development and production of communication tools/products at the beginning of each relevant activity Dissemination of tools/products before, during and after the training activities	Technical project staff in consultation and interaction with beneficiaries	Technical information gathered from the cultivation and producing process	Technical team staff
Activity 2.2 Market study and opportunities and a market evaluation report	A market study will be conducted to identify production trends, demands, and prices at the national and international level for the main products considered in the experimental trial. One important input for this study will be the results of the production chain. The study will provide insights on how the market is demanding the products from the production chain (presentation, package, etc.). It will be useful for increasing and delivering value to customers. This study will be based on entrepreneurs, surveys, bibliography and reports about market situation and trends of the main products in the trial survey. A market study report will be produced based on the study results.	Volume, quantities, and prices of products entering on the domestic market and exported, during the last 5 years and its trends will be assessed to evaluate the opportunities and possible revenues and benefits produced by the project, compared to other economic activities in the same socioeconomic context. Participants should collaborate with information and questionaries.	Statistics, consultations with specialist and entrepreneurs, surveys, bibliography and reports about market situation and trends of the main products in the trial surveys.	Consultant Project coordinator
Output 3 Establishment of a medium size (semi- industrial) processing unit for added value of non-timber products				
Activity 3.1 Designing, budgeting, and buying the experimental processing unit	Once the production chain (system) is designed and adopted, the design of the experimental processing module (unit) will take place. This is a small-scale mill for processing seeds, fruits and leaves coming from the experimental trial. However, processing material from other sources could be also considered to efficiently use the plant at max capacity. The size, model and specifications of the equipment, and its	It is important that all the participants are aware about the details, capacity, and functioning aspects of this equipment, which is not implemented for making good business, but to assess its performance, usefulness and obtaining data for future bigger plants.	At least three invoices CIF Lima, must be collected for each purchasing order above 500 USD	Technical committee Consultant

	performance should be evaluated in a cost-efficient rate.			
Activity 3.2 Installing and testing the unit	The processing unit for the raw material harvested from the agroforestry units will be brought to the processing unit (semi-industrial plant,) for milling (*tara, moringa* and *molle* fruits and *moringa* leaves) as a testing phase for quality and quantity controls operated by trained beneficiaries who can apply for it.	All beneficiaries will have the right to use the processing unit, particularly for processing the products resulting from the experimental trial, according to preestablished schedule and volumes. Users should pay the estimated net cost of the net service after the end of the project.	Rules and procedures manual, timetable	Project coordinator, and project sites coordinators
Output 4. Communication, Dissemination and Summary of best practices and lessons learned for this project				
Activity 4.1 Summarizing of technical and socioeconomic information on target areas, including lessons learned and best practices	Development of one technological package for the management of agroforestry systems in arid lands, and another one for the ecological restoration of natural lomas. This will be based on the systematization of technical and socioeconomic information, a technical and economic analysis. Output: two technical manuals. I) barren land recuperation, and ii) lomas ecosystem rehabilitation	Relevant actors and stakeholders: local and regional (sub-national) governments,	Reports, stakeholders Consultants	Project coordinator, project staff, consultants
Activity 4.2 Development of a policy briefing and a policy report on multifunctional rehabilitation of arid or semi-dry ecosystems in southern coastal region of Peru	Based on the technical guidelines, develop policy guidelines on the multifunctional rehabilitation of arid or semi-dry ecosystems in the southern coastal region of Peru.	Relevant actors and stakeholders: local and regional (sub-national) governments, SERFOR- ATFFS, MIDAGRI, MINAM;	National and regional legal and policy framework Consultations Project achievements and lesson learnt	Project coordinator, consultants Experimental site coordinators, local communities

Activity 4.3 Validation and dissemination of the guidelines and final report among the relevant national and regional stakeholders of the technological packages and guidelines in the southern coastal region of Peru.	Design and test a modular system of the technical manuals and guidelines for replication at the southern coastal region level. Evaluation of results will be conducted via review and 4 validation workshops in Camana, Arequipa, Lima, and Tacna, followed by provisions issued by forest authorities. In summary, it will cover the development of an outline for the guidelines, workshops to define the basis for the guidelines, the development of draft guidelines, and the regional validation of the guidelines, followed by mass dissemination and training of the policy briefing/guidelines via publications, radial and tv reporting and a final conference with the participation of regional, local, and communal authorities and forestry, agricultural and environmental specialists in the region.	Beneficiaries, relevant stakeholders, public and private institutions related to Forest, Agriculture, and environment	Workshops reports, interviews, training, studies: (1.5,1.6. 2.1, 2.2) Stakeholders	Project staff, consultants, Regional and local authorities, local communities
Activity 4.4 Elaboration of final report of the project	Recapitulate all inputs, outputs and outcomes produced by the project and encapsulate these in the project's final report.	All stakeholders and relevant actors of the public and private sector, civil sociate, main decision makers, international cooperation organizations, local communities	Virtual and printed material, Radio, TV Newspapers programs	Project staff, Public and private outreach programs

5. Budget, funding resources and financial management

The funds provided by the donor (APFNet) as well as the executing agency (EA) are the necessary amount needed to achieve the immediate objectives of the project. In 24 months, expenses are aligned to the budget lines established in the annex A-5 (Excel) according to the standard budgetary rules of this institutions.

According to the budget lines, in general the proportion of 70% (APFNet) and 30% for the EA is more or less constant, except for the activities 1.5 (conditioning the terrain) and 1.8 (maintenance of the experimental modules, where the EA contributes with the 60% and 50% respectively, as well as in the item 12 (general items) with the 100% coverage of the EA (land rental value).

On the side of APFNet, the highest lines, above 80% coverture are activities 1.4 (design of experimental trial), 1.6 (installation of nurseries), 1.7 (installation of drip irrigation system), design and production model, as well as the communication strategy, equipment required, meeting, training, and consultants (100%).

The main budget is allocated in field work activities: conditioning the terrain, installation of the drip irrigation modules, equipment, project staff and land rental rate. Details are provided in the annexes A and D.

The budget administration will be under the direct responsibility of the project coordinator and the administrative officer under the supervision of the technical committee a special bank account will be opened in the name of the project at one of the most prestigious banks in Peru. Financial and economic reports will be produced each month and two audit reports will be elaborated by an external audit company (one at the 12th month of operation and the other at the end of the project life).

6. Monitoring and evaluation

To keep track of the project's implementation, a monitoring strategy will be established based on 3 main approaches:

1. Self-evaluation performed by staff members
2. 360° evaluation performed by local stakeholders
3. External evaluation by APFNet at the end of the project operation
4. Technical evaluation by the technical committee and stakeholders
5. Financial evaluation performed by audit company

As stated in the logic framework, indicators of achievement will reflect the implementation flow and execution of the goals, objectives and expected outputs. The measurement of these indicators will be part of the project's staff duties, matching them with the work plan deliverables. By doing this, no extra budget needs to be assigned for this in-house monitoring system. This information will be used for strategic decision-making processes, as well as to prevent conflicts and quickly act upon unexpected situations. The frequency of these measures will depend on the indicator, as well as the workplan per site, but they will be analyzed. This information will also be used to inform APFNet and allies about current progress of the project. It is expected that these results may be measured after the project period, relying on local community empowerment, to analyze mid-term and lasting results. This activity (post project monitoring) is no considered in the budget.

Since several stakeholders will be involved, additional information will be collected to analyze on what are the expectations and opinion about the progress of the project and staff performance. Considering the diversity of stakeholders, this approach will be matched with the communication strategy. While the communication strategy will look for the stakeholders to behave or to have an opinion in a specific sense, the 360° will be used to improve the way how project staff members are working on specific work packages. Since this information is sensitive, it will not be publicly disseminated, rather used for critical decisions for guarantying participation in the project. This information will be collected by the project staff through activities that will not affect the budget. Nevertheless, the communication strategy has a budget on its own (check following sections of this proposal). The frequency of the indicator's evaluation will depend on the agreement reached in workshops. These evaluations shall not be made more than 3 times per year.

Financial expenses are a key part of the monitoring and evaluation process. As mentioned in the budget section, an audit company will be hired 2 times during the implementation period: at the end of the first and the second year. Nevertheless, each month, project staff members will include financial information about their expenses and others in regular reports. Thus, this information will prevent the project from over expenses.

Also, at the beginning of the project, the coordinator will prepare an inception report to be submitted to the APFNet and the Technical Committee and will also submit a detailed progress report and financial statement within four months of project start-up. These reports will be submitted every four months in accordance the APFNet regulations for project formulation and implementation. A project completion report including the final document will be submitted at the end of the 24-month implementation period.

7. Dissemination and sustainability

7.1 Dissemination strategy

The issue of restoration and/ or rehabilitation of degraded forest lands and landscapes, on which this project is focused corresponds to the core strategic objectives of APFNet, and deserves to be fully disseminated, both during project execution and after its completion. The results and achievements obtained will be socialized at the national level, and if possible, at the international level, particularly as the lands in semi-dry or sub-humid ecosystems currently receive little support or interest in sustainable development planning. An emphasis will be given to these experiences in Peru and elsewhere, as they have an enormous potential that can open unlimited opportunities for small farmers and families living in poverty and extreme poverty.

The Rehabilitation of arid ecosystems and wastelands through agroforestry systems in the southern coast of Peru will include in its dissemination/Communication strategy (Annex A-6 of the project proposal) a strong dissemination approach, focusing also on policy development.

The project will use different means for the dissemination and mainstreaming of achievements and lessons learned, including the following:

i. Work meetings and workshops, with the participation of direct project stakeholders and beneficiaries but also other invited guests such as local governments, NGOs, official agencies, universities, etc.

ii. Printed outreach documents prepared in accordance with the training plan and technical brochures on specific topics, which will be widely distributed throughout the micro region and other adjacent and neighboring areas.

iii. Conferences and work meetings at different levels.

iv. The project consultative committee.

v. Participation in information-sharing meetings with small farmers from another micro region.

As for this, activities local stakeholders) and national stakeholders will consider policy briefing in addition to the press releases and stories of changed previously proposed. This policy briefing will collect lessons learnt from the implementation process, as well as use inputs coming from products and deliverables from the projects' activities. As the communication strategy broadens its approach, at this end, no further budget will be added rather it will be arranged more efficiently.

Costa Verde will try to actively participate in national and international theme events

and workshops organized by related stakeholders, so that the projects' results may be shared adequately. This dissemination will focus on the importance and impact of APFNet's support in arid ecosystems in the region, providing insights and evidence that will increase awareness of the strategic value of such cooperation arrangements.

Upon completion, the project is expected to achieve several outcomes and make desired changes as follows:

i. The Regional Plan for Restoration of Degraded Land (RDA) for the Peruvian southern coast, secured with government-endorsed integrated management policies and frameworks for conservation, community use and sustainable development. Integrated management involving local communities will have created awareness and brought about a positive change in perception and attitude on conservation and sustainable development, government recognition of forests for community use, and opportunities to engage in new economic activities. Other communities will have access to the knowledge gained by the project and thus enhancing their wellbeing.

ii. Community livelihood improved in line with government's rural transformation programmed (RTP) to eradicate poverty and reduce dependence on forests. Transformational growth will focus on agriculture, agroforestry, social forestry, and NTFP development. Enhanced infrastructure development will include the practical implementation and development of a full production chain, including a semi-industrial processing plant for NTFP and agricultural crops, which is an innovative contribution of the project, allowing the direct beneficiaries and other stakeholders obtain added value to their products, increasing the revenues to the benefit of their livelihoods. Land use management plans will be developed to increase productivity and value. To do this, opportunities for active community participation including women will be encouraged with training and capacity building. With increased productivity and new income opportunities, a value chain for product processing and marketing could be created, with government acting as the facilitator.

iii. The project's main demonstration site is in Pucchun, which has a comparative advantage due to its strategic location alongside the southern Pan-American highway, permitting easy accessibility and visibility.

iv. A platform based on the regional RAD committee[9] for integrated management, consultation and communication is established and functional. The developmental vision will also consider the complex multifunctional aspects of the restoration of community lands for the conservation of the lomas ecosystems, generating revenues via ecotourism and payment for environmental services. Appropriate terms of reference and operational mechanisms will be set up.

operational mechanisms will be set up. The forum will bring together stakeholders.

Demonstration plots & Costa Verde will continue to promote RDA, describe sustainability of pilot processing plant, also the development of a potential follow-

[9] A regional committee RAD (restoration degraded areas) established in July 2015 is to coordinate, promote, implement, and search for financial resources.

up project & its implications.

Finally, a potential exists for APFNet to organize a national and an international event (virtual or presential) in association with SERFOR and Costa Verde, aiming to socialize the project outputs and encourage other national and international institutions to be engage in such programs.

7.2 Sustainability

Project sustainability is guaranteed by the fact that the government has undertaken the commitment to promote and develop degraded land restoration programs throughout the country, as set out in the Initiative 20x20 international agreement. Furthermore, the project outputs i.e., the technological package and the SFM and land rehabilitation guidelines will be policy tools ready to be applied in the field, although they may be subject to future revisions and/or improvements to keep them up to date. Thus, the full model to be developed will be kept current, which will ensure project sustainability. However, all of this assumes that subsequent government administrations will continue to give the same or even g r e a t e r importance and political support to the rehabilitation of degraded lands and reforestation in the coastal region of Peru.

Sustainability mechanisms:

1. Curbing of the expansion of the agricultural frontier and deforestation
2. Promotion of new sustainable development alternatives
3. Generation of employment based on gender-equality criteria, and poverty alleviation.
4. Reduction of migration to urban areas
5. Socioeconomic development of rural areas

Development of strategic partnerships and establishment of agreements as required for the restoration of the forest cover and for reducing the vulnerability of rural communities to climate change in the existing regional Committee for restoration of degraded land in the Southern Coastal Region of Peru (Committee RAD Costa Sur) created under the initiative and guidance of Costa Verde in 2016 (currently assuming the presidency) in close cooperation with SERFOR (Technical Secretariat), will play a coordination role between the stakeholders and direct beneficiaries will play a crucial role for the implementation and monitoring of project activities after the project completion.

To ensure the continuity of project activities, this committee will use project outputs to follow up project actions and results by incorporating them into its yearly plans of

operation, given that the project directly falls within the framework of its institutional strategic plan.

The strengthening of the technical capacity of the RAD Cost Sur Committee and other key stakeholders, inter- institutional coordination (SERFOR ATFFS, local communities, among others) and commercial partnerships established will guarantee the continuity of project actions.

7.3 Financial sustainability

The actions scheduled in this project have short-, medium- and long-term horizons, which ensures a second phase to realize and replicate the actions to be implemented in this project, to guarantee the continuity of field activities and the implementation of shared technical knowledge.

In addition to the budgetary support that could be provided by a large project as a second phase of the current one, the local communities will guarantee the continuity of project actions, as well as the forestry and climate change cooperation mechanisms at both the national and international levels. It could be also advisable to organize or to create a permanent regional institution to continue providing technical and, if possible, financial facilities for the continuation of the whole program, like an experimental center for promoting restoration of degraded land in the southern coastal region of Peru, founded over the long and very value experiences in this area

8. Guarantee System

81. Human resources

Costa Verde is an NGO conformed by leading professionals, which include recognized leaders in the private sector, public administration, and academia. That is why the steering committee will be established by Costa Verde's principal leaders, aiming to summon every six months and work as a high-level committee, responsible for deciding strategic decisions as well as evaluation assessments. Also, a technical committee will be established by the project manager and the five site coordinators. These positions will be covered by Costa Verde's staff, as well as local stakeholders' leadership as follow:

Site	Position	Responsibilities	Name	Experience
Lima – Camana elsewhere	Project DIRECTOR	General responsible and supervisor	Costa Verde President	Costa Verde's President, forest Engineer, Emeritus Professor - UNALM

		of the project operation: technical. financial and economic administration	Jorge Malleux	International consultant of FAO, OTCA, JICA
Camaná, operation sites of the project	Project coordinator	Monitoring and supervision of the project`s field activities according to the technical guidelines and working plans	TBD	Forest engineer, environmental engineer, or Biologist, 6 years professional experience in practical project management, good communications skills
San Camilo – La Joya (Arequipa)	Site coordinator	Monitoring and supervision of the site working plan	ATFFS SERFOR Arequipa	Costa Verde's Secretary of Economy and Administration, public accountant
Atiquipa Communal reserve (Arequipa)	Site coordinator	Monitoring and supervision of the site working plan	To be defined by the community	A leader chosen by a peasant community, in order to keep local governance relevance in the project administration. This leader will coordinate directly with the project staff.
Pampa Sitana (Moquegua)	Site coordinator	Monitoring and supervision of the site working plan	To be defined by SERFOR	The SERFOR regional office will assign this coordination to an experienced person, which will coordinate directly with the project staff.
Tacahuay Conservation area - Locumba (Tacna)	Site coordinator	Monitoring and supervision of the site	To be defined by the Local government	The SERFOR regional office will assign this coordination to an experienced person, which will coordinate directly with the project staff.

		working plan		

The local expert hired will be essential to most project activities and work on the project for most of the year. However, as expert fees are higher than staff fees, those fees have been listed separately in Annex 1-5-1.

Consultants will be hired on a demand basis. However, Costa Verde's expertise in the project's theme will guarantee that the best talent can be selected for successfully accomplish the goals.

8.2 Material Resources

The main equipment to be purchased for the project operation are:

- Three 250 to 400 cc Quadbikes/Motorized tricycles, one in each main site (Pucchun, Pampa Sitana and La Joya)
- One small farm tractor for soil movements, to be at disposal of the different sites, when needed according to a fixed schedule
- The semi-industrial processing unit (drying and milling leaves and seeds) (location to be determined)
- Irrigation equipment and material for approximately 50 ha (10 in Atiquipa, 20 in Pucchun, 10 in La Joya and 10 in Pampa Sitana)
- Water pumps and electrical generators (location to be determined)

The basic current equipment of the EA, at disposal of the project are:

- One motorcycle 250 cc
- One chipping machine
- Two small nurseries
- One small mill
- 25 ha of Tara and other trees and agricultural crops (belonging to different beneficiaries for comparative (witness) purposes)
- 5 submergible water pumps (4 years old)
- 10 water reservoirs

8.3 Policy and regulation of the executing agency

A brief description on policies correspondence is provided in section 1 and 2. Local policies that support the project are described in the box below:

Site	Local policies
Atiquipa Communal conservation area (Arequipa)	There is a Private (communal) Conservation Area that is strongly compatible with agroforestry systems and conservation for sustainable production, but also requires an intensive plan for the restoration of large areas which are under high anthroponomic pressure, for agriculture and grazing. Due to the local governance system, a leader selected by the community will g e t involved. But there is a general supervision from the Ministry of Environment, for the master plan.
Jawey- Pucchun (Arequipa)	Costa Verde, the local government, and the small subsistence farmers at the project sites are engaged in a joint proposal for the recuperation of degraded land and the enlargement of the agroforestry areas, and the improvement of the environmental and socio-economic conditions. This initiative has been led and supported by the NGO Costa Verde for more than 10 years now.
San Camilo - La Joya (Arequipa)	This area belonged to an association of small farmers owning approximately 5 ha per family, who attempted to recover land for agroforestry activities with an irrigation project. Nevertheless, they lacked technical and economic resources, yet they are ready to participate in a communal approach in the implementation of the APFNet project
Tacahuay Environnemental conservation area - Locumba (Tacna)	This area is also destinated for the conservation of an important and unique ecosystem of “lomas” and the protection of water sources. The area is administrated by the local government under a master plan supervised by the Ministry of Environment
Pampa Sitana (Moquegua)	In this district, an interesting initiative is under way as a joint venture between public (local government) and private (mining Co.) to incorporate more than 2,500 ha of barren land for an association of 500 poor landless families. The administration of the area and the experimental modules will be under a joint committee.

8.4 Organizational Capacity

Key organizations taking part of the project are described in the box below:

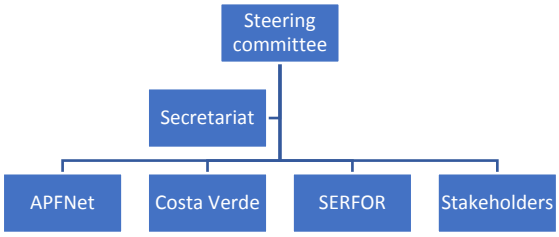
Site	Participation in the project
Atiquipa (Arequipa)	Peasant community, which is willing to support restoration activities and take an active role according to the objectives of the Private Conservation Area; Costa Verde is already involving local

	communities in restauration activities and some basic studies were executed to assess the current situation of the local biodiversity and its conservation.
Jawey - Pucchun (Arequipa)	Small farmers have been participating in Costa Verde's projects since the last 10 years, with consistent experience in restauration with Tara, moringa, molle and other forest trees and agricultural crops. They are enthusiastic and full of hope after the results of an initial pilot project.
San Camilo – La Joya (Arequipa)	Small farmers are dealing with water scarcity. They are a potential beneficiary for the project.
Tacahuay-Locumba (Tacna)	The Regional and local government of Locumba Is responsible for this conservation unit and are willing to work with local communities as well.
Pampa Sitana (Moquegua)	A mining company has provided with water for irrigation to local communities. These communities are now challenged by land management. They are a potential beneficiary for the project.

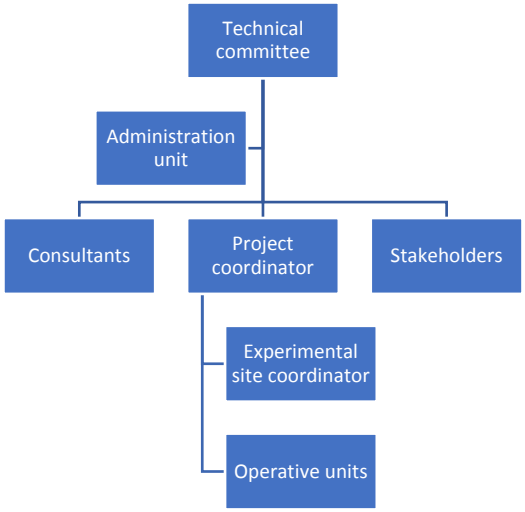
- **Detailed information about stakeholders is detailed in Annex G.**

The project will be conducted by a Steering Committee as its highest authority and administration structure and will be made up of one representative each from APFNet, Costa Verde, SERFOR (MIDAGRI) and a representative of the civil society. The committee will meet twice a year to assess project progress and provide guidance to improve project execution and have one last meeting upon project completion. The representatives of key stakeholders, including associated small producers, individuals, and families, will be consulted throughout the project development process. Similarly, community leaders and local government authorities will also participate in information and consultation activities.

The Executing agency (EA), Costa Verde will be the main responsible for the technical and administrative conduction of the project. SERFOR is the Peruvian public forestry agency which will exert a general supervision role along the project life. The Secretariat of the SC will be held by Costa Verde as EA of the project. The project will not be executed under RAD but will rely on it to increase the reach of the project and support current governance arrangements in the sites.



A technical committee will be also composed by headed by the Project Coordinator (manager), and the responsible of each of the selected sites, dealing with the technical execution of the project and it will be responsible for supervising, monitoring, and evaluating, proposing improvements or solutions, and making decisions on project implementation. This committee will also oversee preparing all technical and financial reports, managing project personnel, and other duties or activities as required. The SC will provide general guidelines and supervision. The TC will be the responsible for action and execution of the project in the field on daily bases work.



Administrative unit: budget control and execution, procurements, payments, invoicing, bank reports, monthly finance reports

Project coordinator: is the EOD of the project, responsible for all the operational, technical, and administrative operations.

Consultants: Short term hired professionals according to the project operation schedule

Stakeholders: direct beneficiaries represented by one members of each site

Experimental site coordinator: Responsible of technical and operational

activities, under direct supervision of the project coordinator

Operative units: experimental site with one or more experimental units of 5 ha

Currently regional Stakeholders interested or involved in land restoration/recuperation are gathered in a Regional Committee for the Restoration of Degraded Lands in Southern Peru (RAD), which was created with the participation of several public, private and community organizations, and NGOs[10], This regional committee was installed in July 2016, has a technical secretariat under the responsibility of SERFOR's Regional Office in Arequipa. However, the geographical area of this institution covers four departments: Ica, Arequipa, Moquegua, and Tacna.

The main objective of this regional committee is to coordinate, promote, implement, and search for financial resources, for the recuperation and restoration of degraded lands in the context of climate change mitigation strategies, incorporating forest areas, agroforestry lands and developing income generation activities for small agroforestry and agricultural farms. This regional governance was established prior to the project and will adequately be involved to serve as a platform for project communication and dissemination.

Finally, Costa Verde's staff has a long and rich national and international experience in this field. The vast research work, project formulation and implementation and other experiences that has been accumulated during the professional life of the steering board members and other participants, guarantees the solidity and efficacy of the EA, as well as their experience in the public service and international organizations related to food, agriculture, agroforestry, forest management, land use, land planning, restoration of degraded land, climate change, REDD+ and other related matters.

9. Risk assessment

The project has identified 2 major risks that may affect the outcomes expected. Those are stated as followed:

1. New COVID19 outbreaks: national authorities are not certain whether new outbreaks of COVID19 would drive the economy to new confinement measures. If a new outbreak takes place, beneficiaries will not be allowed to go outside or attend training sessions in presence. Under those circumstances, the project team will be trained so that off-line trainings can be made. Some strategies for that could be the design of a printed guide, trainings through radio channels or virtual meetings (when possible). Nevertheless, the project will be in close coordination with local authorities so that it can receive priority attention considering its relevance to local economies. For field activities, special

[10] SERFOR, AQO-RAC-ICA-MPQ- Costa Verde, Asociación Juntos al Futuro – AJAFUT solicita su incorporación, Municipalidad Distrital de Nicolás de Piérola solicita su incorporación, Municipalidad de Mariano Nicolás Valcárcel, Municipalidad distrital de Samuel Pastor, Municipalidad provincial de Camaná, Municipalidad distrital de Atico , Municipalidad distrital de Cocachacra, Municipalidad distrital de Cahuacho, Municipalidad distrital de Bella Unión, Municipalidad distrital de Mejía, Municipalidad provincial de Islay, Asociación Industrial Valle Encantado, AGROIDEAS, AUTODEMA, AGRORURAL, ANA

protocols will be elaborated and implemented, given priority to the communal and personal health but permitting a minimum of work to assure the generation of sufficient income for the beneficiaries and the accomplishment of the project objectives.

2. New presidential and congress elections in 2021: national authorities will change in 2021-2022 due to national elections scheduled for in 2021. This could affect the staff stability of public sector authorities to prevent political changes to impact negatively on the project, strong institutional agreements are being made between national institutions and COSTA VERDE NGO. Also, the communications are being handled by specialists nor political representation in the institutions involved. Moreover, the main outcomes rely on the local governance which will be strongly addressed to avoid difficult circumstances on this matter.