

Improving Climate Resilience of Vulnerable Communities and Ecosystems in the Gandaki River Basin, Nepal

Annex 21: Operations Manual and Maintenance Plan

Section A: Manual and Plan for Development of Capital Goods and Infrastructures Operations and Maintenance - Forest Restoration

The project will undertake forest restoration through plantations involving participatory community based approaches and through employing a number of techniques to ensure that there is focus on natural regeneration and use of native species and multi-purpose species. The focus would be on strengthening the capacity of communities in playing stewardship functions for restoration of the forests. In support of operations and maintenance of the plantations, the community members will be responsible for the operations and maintenance of the nurseries and plantation areas. It is recommended that GCF finance be used to develop O&M plans and related SOPs during the project implementation.

The Feasibility Study has documented acceptance of an operations and maintenance (O&M) system (based on community consultations as well as discussions with local government officials and community members).

Tier 1: Community Forest User Groups (CFUG)

Tier 2: Divisional Forest Office

Tier 3: Ministry of Industry, Tourism, Forests and Environment (Gandaki Province)

Tier 4: Department of Forests and Soil Conservation, GoN

The regular planned O&M will be led by the CFUGs (Tier 1). Each will be responsible to properly establish, operate and maintain the nurseries and plantation areas following the practices (SOPs) developed to ensure sustainability and climate resiliency. The project will initiate and facilitate, through capacity building and peer-to-peer learning activities and continued monitoring of the availability and quality of seeds for plantations using simple O&M needs.

The Divisional Forest Office (Tier 2), who are trained in proper operations and maintenance best practices are mandated as per the Constitution of Nepal to monitor and report the state of forests to the Rural Municipality Heads. The Rural Municipality Heads will be responsible to encourage and support proper maintenance, through supporting training and awareness programs, if CFUGs are found lagging. The CFUGs also have a number of other duties and will be the focal point for coordination to complete:

- Support and coordinate with Divisional Forest Office on obtaining seeds, establishing nurseries for forest plantations in a programmatic method following SOPs that relate to forest restoration plans.
- Become the expert in O/M of by operating and maintaining the plantations and perform awareness training for the community.
- Coordinate with other rural municipal official to address cross-sectoral problems.

Specific roles and responsibilities for O&M

Community Forest User Group (CFUG): The CFUG are community participatory groups responsible for maintaining restoration area and checking invasive species. They support collection of yearly costs for operations and maintenance from the community, report status of soil conditions, plantations, incidence of flooding and landslides, etc. and report to Divisional Forest Office etc.

Divisional Forest Office (DFO): The Divisional Forest Office will be responsible for maintaining the overall management of the restoration areas at the Rural Municipality level including addressing proliferation of invasive species. They will collate information collected from CFUGs

including reporting on year costs for operations and maintenance; updated status of soil conditions, plantations, incidence of flooding and landslides. The DFO will compile these annual reports and submit to the Ministry of Industry, Tourism, Forest and Environment, Gandaki Province.

Ministry of Industry, Tourism, Forest and Environment, Gandaki Province: The Ministry of Industry, Tourism, Forest and Environment, Gandaki province through its Divisional Forest Offices will be responsible for maintaining oversight on the overall operations and maintenance of the forest restoration areas across the Gandaki River Basin. It will maintain updated status of aspects related to O&M which it will then share with the federal level, Department of Forests and Soil Conservation, Government of Nepal. In case of natural disasters or cost escalations, it will seek help for additional funding to cover costs of operations and maintenance from the federal level for the DFOs and CFUGs.

Department of Forests and Soil Conservation, Government of Nepal: The federal level, Department of Forests and Soil Conservation, Government of Nepal is responsible for coordinating overall forest restoration efforts across the country working collaboratively with the seven-provincial governments.

Tiers 3 and 4 will support, mandate and hold accountable the CFUG in performing the duties and ensure coordination with National level stakeholders to monitor and report the asset condition of the forest plantations.

Maintenance tasks for Forest Restoration system

The success of sustainable forest restoration will be dependent on how well the nurseries and the overall plantation system is maintained. The forest restoration plan should be designed to make maintenance as easy as possible to increase the likelihood that those responsible for the systems will follow proper maintenance protocols.

Tasks that should be performed regularly include checking the quality of seeds, checking identified restoration areas, ensuring the nurseries are adequately resourced with both materials and financial resources, ensure the plantations happen in a scientific manner involving community stewardship, etc. The importance of maintenance to the overall success of the forest restoration system should be conveyed to the beneficiaries/community members. Establishing a maintenance contract can reinforce the necessity of timely and thorough maintenance practices and protect the designer from system problems that arise due to lack of maintenance. Additionally, an owner's manual or SOP should accompany every forest restoration system and should include detailed troubleshooting guidance, maintenance tasks and frequency, and damage control measures.

Operations and Maintenance - Grassland Restoration

The project will undertake grassland restoration and grassland conservation efforts through improving water availability by constructing and maintaining water holes in community grasslands and implementing priority management actions for arresting the growth of invasive species. This will be undertaken involving participatory community based approaches and through employing a number of techniques to ensure that there is focus on restoration of grasslands through natural restoration efforts rather than by introducing. The focus would be on strengthening the capacity of communities in playing stewardship functions for restoration of the grasslands. In support of operations and maintenance of the grasslands, the community members will be responsible for the operations and maintenance of the grassland areas as well as the newly constructed water holes. It is recommended that GCF finance be used to develop O&M plans and related SOPs during the project implementation.

The Feasibility Study has documented acceptance of an operations and maintenance (O&M) system (based on community consultations as well as discussions with local government officials and community members).

Tier 1: Community Forest User Groups (CFUG)

Tier 2: Divisional Forest Office

Tier 3: Ministry of Industry, Tourism, Forests and Environment (Gandaki Province)

Tier 4: Department of Forests and Soil Conservation, GoN

The regular planned O&M will be led by the CFUGs (Tier 1). Each will be responsible to properly establish, operate and maintain the grasslands and waterholes areas including cleaning of the waterholes following the practices (SOPs) developed to ensure sustainability and climate resiliency. The project will initiate and facilitate, through capacity building and peer-to-peer learning activities and continued monitoring of the availability and quality of seeds for plantations using simple O&M needs.

The Divisional Forest Office (Tier 2), who are trained in proper operations and maintenance best practices are mandated as per the Constitution of Nepal to monitor and report the state of grasslands to the Rural Municipality Heads. The Rural Municipality Heads will be responsible to encourage and support proper maintenance, through supporting training and awareness programs, if CFUGs are found lagging. The CFUGs also have a number of other duties and will be the focal point for coordination to complete:

- Support and coordinate with Divisional Forest Office on the restoration of grasslands including construction of the waterholes in a programmatic manner following SOPs that relate to grassland restoration plans.
- Become the expert in O/M of by operating and maintaining the grasslands and perform awareness training for the community.
- Coordinate with other rural municipal official to address cross-sectoral problems.

Specific roles and responsibilities for O&M

Community Forest User Group (CFUG): The CFUG are community participatory groups responsible for maintaining restoration area and checking invasive species. They support collection of yearly costs for operations and maintenance from the community including cleaning of the waterholes, report status of grasslands condition, incidence of flooding and landslides, etc. and report to Divisional Forest Office etc.

Divisional Forest Office (DFO): The Divisional Forest Office will be responsible for maintaining the overall management of the restoration areas at the Rural Municipality level including addressing proliferation of invasive species. They will collate information collected from CFUGs including reporting on year costs for operations and maintenance; updated status of grasslands condition, constructed water holes, incidence of flooding and landslides. The DFO will compile these annual reports and submit to the Ministry of Industry, Tourism, Forest and Environment, Gandaki Province.

Ministry of Industry, Tourism, Forest and Environment, Gandaki Province: The Ministry of Industry, Tourism, Forest and Environment, Gandaki province through its Divisional Forest Offices will be responsible for maintaining oversight on the overall operations and maintenance of the grassland restoration areas across the Gandaki River Basin. It will maintain updated status of aspects related to O&M which it will then share with the federal level, Department of Forests and Soil Conservation, Government of Nepal. In case of natural disasters or cost escalations, it will seek help for additional funding to cover costs of operations and maintenance from the federal level for the DFOs and CFUGs.

Department of Forests and Soil Conservation, Government of Nepal: The federal level, Department of Forests and Soil Conservation, Government of Nepal is responsible for coordinating overall grassland restoration efforts across the country working collaboratively with the seven-provincial governments.

Tiers 3 and 4 will support, mandate and hold accountable the CFUG in performing the duties and ensure coordination with National level stakeholders to monitor and report the asset condition of the grasslands including the newly constructed waterholes.

Maintenance tasks for grassland restoration system

The success of sustainable forest restoration will be dependent on how well the grassland system is maintained including the proper construction of waterholes to drain the grasslands. The grassland restoration plan should be designed to make maintenance as easy as possible to

increase the likelihood that those responsible for the systems will follow proper maintenance protocols.

Tasks that should be performed regularly include checking the quality of grasslands, checking identified restoration areas, checking the quality of the newly constructed waterholes, ensuring that the waterholes are kept clean, ensuring that the efforts to construct waterholes and implementing priority actions to address invasive species are adequately resourced with both materials and financial resources, ensure the grassland restoration is conducted in a scientific manner involving community stewardship, etc. The importance of maintenance to the overall success of the grassland restoration system should be conveyed to the beneficiaries/community members. Establishing a maintenance contract can reinforce the necessity of timely and through maintenance practices and protect the designer from system problems that arise due to lack of maintenance. Additionally, an owner's manual or SOP should accompany every grassland restoration system and should include detailed troubleshooting guidance, maintenance tasks and frequency, and damage control measures.

Operations and Maintenance - Wetland Restoration

The project will undertake wetland restoration through implementing priority management actions for arresting the growth of invasive species such as water hyacinth. This will be undertaken involving participatory community based approaches and through employing a number of techniques to ensure that there is focus on restoration of wetlands by addressing the impact of invasive species. The focus would be on strengthening the capacity of communities in playing stewardship functions for restoration of the wetlands. In support of operations and maintenance of the wetlands, the community members will be responsible for the operations and maintenance of the wetland areas. It is recommended that GCF finance be used to develop O&M plans and related SOPs during the project implementation.

The Feasibility Study has documented acceptance of an operations and maintenance (O&M) system (based on community consultations as well as discussions with local government officials and community members).

Tier 1: Community Forest User Groups (CFUG)

Tier 2: Divisional Forest Office

Tier 3: Ministry of Industry, Tourism, Forests and Environment (Gandaki Province)

Tier 4: Department of Forests and Soil Conservation, GoN

The regular planned O&M will be led by the CFUGs (Tier 1). Each will be responsible to properly establish, operate and maintain the wetlands including cleaning of the wetlands following the practices (SOPs) developed to ensure sustainability and climate resiliency. The project will initiate and facilitate, through capacity building and peer-to-peer learning activities and continued monitoring of the actions to address invasive alien species.

The Divisional Forest Office (Tier 2), who are trained in proper operations and maintenance best practices are mandated as per the Constitution of Nepal to monitor and report the state of wetlands to the Rural Municipality Heads. The Rural Municipality Heads will be responsible to encourage and support proper maintenance, through supporting training and awareness programs, if CFUGs are found lagging. The CFUGs also have a number of other duties and will be the focal point for coordination to complete:

- Support and coordinate with Divisional Forest Office on the restoration of wetlands following SOPs that relate to wetland restoration plans.
- Become the expert in O/M of by operating and maintaining the wetlands and perform awareness training for the community.
- Coordinate with other rural municipal official to address cross-sectoral problems.

Specific roles and responsibilities for O&M

Community Forest User Group (CFUG): The CFUG are community participatory groups responsible for maintaining restoration area and checking invasive species. They support collection of yearly costs for operations and maintenance from the community including cleaning of the wetlands, report status of wetlands condition, incidence of flooding and landslides, etc. and report to Divisional Forest Office etc.

Divisional Forest Office (DFO): The Divisional Forest Office will be responsible for maintaining the overall management of the restoration areas at the Rural Municipality level including addressing proliferation of invasive species. They will collate information collected from CFUGs including reporting on year costs for operations and maintenance; updated status of wetlands condition, incidence of flooding and landslides. The DFO will compile these annual reports and submit to the Ministry of Industry, Tourism, Forest and Environment, Gandaki Province.

Ministry of Industry, Tourism, Forest and Environment, Gandaki Province: The Ministry of Industry, Tourism, Forest and Environment, Gandaki province through its Divisional Forest Offices will be responsible for maintaining oversight on the overall operations and maintenance of the wetland restoration areas across the Gandaki River Basin. It will maintain updated status of aspects related to O&M which it will then share with the federal level, Department of Forests and Soil Conservation, Government of Nepal. In case of natural disasters or cost escalations, it will seek help for additional funding to cover costs of operations and maintenance from the federal level for the DFOs and CFUGs.

Department of Forests and Soil Conservation, Government of Nepal: The federal level, Department of Forests and Soil Conservation, Government of Nepal is responsible for coordinating overall wetlands restoration and management efforts across the country working collaboratively with the seven-provincial governments.

Tiers 3 and 4 will support, mandate and hold accountable the CFUG in performing the duties and ensure coordination with National level stakeholders to monitor and report the asset condition of the wetlands including the newly constructed waterholes.

Maintenance tasks for wetland restoration system

The success of wetlands restoration will be dependent on how well the wetland system is maintained including addressing invasive alien species. The wetland restoration plan should be designed to make maintenance as easy as possible to increase the likelihood that those responsible for the systems will follow proper maintenance protocols.

Tasks that should be performed regularly include checking the quality of wetlands, checking identified restoration areas, ensuring that the wetlands are kept clean, ensuring that the efforts to implement priority actions to address invasive species are adequately resourced with both materials and financial resources, ensure the grassland restoration is conducted in a scientific manner involving community stewardship, etc. The importance of maintenance to the overall success of the wetland restoration system should be conveyed to the beneficiaries/community members. Establishing a maintenance contract can reinforce the necessity of timely and through maintenance practices and protect the designer from system problems that arise due to lack of maintenance. Additionally, an owner's manual or SOP should accompany every grassland restoration system and should include detailed troubleshooting guidance, maintenance tasks and frequency, and damage control measures.

Operations and Maintenance - Bioengineered Road

The project will apply bioengineering techniques to strengthen roads and made them more sustainable as well as resilient to the impacts of natural disasters such as landslides involving participatory community based approaches and through employing a number of techniques to ensure that there is focus on use of native species and multi-purpose species. The focus would be on strengthening the capacity of communities in maintaining the nurseries established for bioengineering species. In support of operations and maintenance of the bioengineering of roads, the community members will be responsible for the operations and maintenance of the nurseries and bioengineered roads. It is recommended that GCF finance be used to develop O&M plans and related SOPs during the project implementation.

The Feasibility Study has documented acceptance of an operations and maintenance (O&M)

system (based on community consultations as well as discussions with local government officials and community members).

Tier 1: User Committees (UC)

Tier 2: Road Unit of Rural Municipality

Tier 3: Rural Roads Division, Ministry of Physical Infrastructure Development (Gandaki Province)

Tier 4: Department of Roads Conservation, GoN

The regular planned O&M will be led by the UGs (Tier 1). Each will be responsible to properly establish, operate and maintain the nurseries and bioengineered rural road patches following the practices (SOPs) developed to ensure sustainability and climate resiliency. The project will initiate and facilitate, through capacity building and peer-to-peer learning activities and continued monitoring of the availability and quality of seeds for nurseries using simple O&M needs.

The Road Unit of Rural Municipality (Tier 2), who are trained in proper operations and maintenance best practices are mandated as per the Constitution of Nepal to monitor and report the state of roads to the Rural Municipality Heads. The Rural Municipality Heads will be responsible to encourage and support proper maintenance, through supporting training and awareness programs, if UCs are found lagging. The UCs also have a number of other duties and will be the focal point for coordination to complete:

- Support and coordinate with Divisional Forest Office on obtaining seeds, establishing nurseries for bioengineered roads in a programmatic method following SOPs that relate to bioengineering of roads.
- Become the expert in O/M of by operating and maintaining the nurseries and perform awareness training for the community.
- Coordinate with other rural municipal official to address cross-sectoral problems.

Specific roles and responsibilities for O&M

User Committee (UC): The UC are community participatory groups responsible for maintaining the nurseries and the bioengineering roads sections. They support collection of yearly costs for operations and maintenance from the community, report status of road conditions, nurseries, incidence of flooding and landslides, etc. and report to Road Unit of Rural Municipality, etc.

Road Unit of Rural Municipality: The Road Unit of Rural Municipality will be responsible for maintaining the overall management of the bioengineered roads at the Rural Municipality level. They will collate information collected from UCs including reporting on year costs for operations and maintenance; updated status of road conditions, nurseries, incidence of flooding and landslides. The Road Unit of Rural Municipality will compile these annual reports and submit to the Ministry of Physical Infrastructure Development, Gandaki Province.

Rural Road Division, Ministry of Physical Infrastructure Development, Gandaki Province: The Ministry of Physical Infrastructure Development, Gandaki province through its Road Units of Rural Municipalities will be responsible for maintaining oversight on the overall operations and maintenance of the bioengineered road areas across the Gandaki River Basin. It will maintain updated status of aspects related to O&M which it will then share with the federal level, Department of Roads, Government of Nepal. In case of natural disasters or cost escalations, it will seek help for additional funding to cover costs of operations and maintenance from the federal level for the Road Unit of Rural Municipality's and UCs.

Department of Roads, Government of Nepal: The federal level, Department of Roads, Government of Nepal is responsible for coordinating overall road developing including bioengineered roads across the country working collaboratively with the seven-provincial governments.

Tier 3 will support, mandate and hold accountable the UC in performing the duties and ensure coordination with National level stakeholders to monitor and report the asset condition of the forest plantations.

Maintenance tasks for Bioengineered Roads system

The success of bioengineered roads will be dependent on how well the nurseries and the overall bioengineering roads system is maintained. The bioengineering roads plan should be designed to make maintenance as easy as possible to increase the likelihood that those responsible for the systems will follow proper maintenance protocols.

Tasks that should be performed regularly include checking the quality of seeds in the nurseries, checking identified areas for applying bioengineering road techniques, ensuring the nurseries are adequately resourced with both materials and financial resources, ensure the bioengineering of roads happens in a scientific manner involving community stewardship, etc. The importance of maintenance to the overall success of the bioengineered roads system should be conveyed to the beneficiaries/community members. Establishing a maintenance contract can reinforce the necessity of timely and thorough maintenance practices and protect the designer from system problems that arise due to lack of maintenance. Additionally, an owner's manual or SOP should accompany every bioengineering road system and should include detailed troubleshooting guidance, maintenance tasks and frequency, and damage control measures.

Operations and Maintenance – Water Harvesting Systems

The project will establish water harvesting systems such as conservation ponds and water reservoirs involving participatory community based approaches and through employing a number of techniques to ensure that these are undertaken with minimum damage to the natural ecosystems and towards enhancing soil nutrients, reducing run-off and providing water for wildlife. The focus would be on strengthening the capacity of communities in playing stewardship functions for the establishment of water harvesting systems. In support of operations and maintenance of the water harvesting systems, the community members will be responsible for the operations and maintenance of the conservation ponds and water reservoirs. It is recommended that GCF finance be used to develop O&M plans and related SOPs during the project implementation.

The Feasibility Study has documented acceptance of an operations and maintenance (O&M) system (based on community consultations as well as discussions with local government officials and community members).

Tier 1: Water Users Association (WUA)

Tier 2: Divisional Irrigation Office

Tier 3: Irrigation and Water Induced Disaster Management Section, Ministry of Physical Infrastructure Development (Gandaki Province)

Tier 4: Department of Water Resources and Irrigation, GoN

The regular planned O&M will be led by the Water Users Association/Farmer Groups (Tier 1). Each will be responsible to properly establish, operate and maintain the conservation ponds and water reservoirs following the practices (SOPs) developed to ensure sustainability and climate resiliency. The project will initiate and facilitate, through capacity building and peer-to-peer learning activities and continued monitoring of the quality of the conservation ponds and water reservoirs using simple O&M needs.

The Divisional Irrigation Office (Tier 2), who are trained in proper operations and maintenance best practices, are mandated as per the Constitution of Nepal to monitor and report the state of water harvesting systems to the Rural Municipality Heads. The Rural Municipality Heads will be responsible to encourage and support proper maintenance, through supporting training and awareness programs, if Water Users Association/Farmer Groups are found lagging. The Water User Association/Farmer Groups also have a number of other duties and will be the focal point for coordination to complete:

- Support and coordinate with Divisional Irrigation Office in establishing conservation ponds and water reservoirs and operations and maintenance of the water harvesting systems in a programmatic method following SOPs that relate to water harvesting plans.
- Become the expert in O/M of by operating and maintaining the water harvesting structures and perform awareness training for the community.
- Coordinate with other rural municipal official to address cross-sectoral problems.

Specific roles and responsibilities for O&M

Water User Association/Farmer Groups: The Water User Association/Farmer Groups are community participatory groups responsible for maintaining the newly establishing water harvesting structures. They support collection of yearly costs for operations and maintenance from the community, report status of water harvesting structure conditions, incidence of flooding and landslides, etc. and report to Divisional Forest Office etc.

Divisional Irrigation Office (DIO): The Divisional Irrigation Office will be responsible for maintaining the overall management of the water harvesting structure areas at the Rural Municipality level. They will collate information collected from Water User Association/Farmer Groups including reporting on year costs for operations and maintenance; updated status of water harvesting structure, incidence of flooding and landslides. The DIO will compile these annual reports and submit to the Ministry of Industry, Tourism, Forest and Environment, Gandaki Province.

Irrigation and Water Induced Disaster Management Section, Ministry of Physical Infrastructure Development Gandaki Province: The Ministry of Industry, Tourism, Forest and Environment, Gandaki province through its Divisional Irrigation Offices will be responsible for maintaining oversight on the overall operations and maintenance of the newly established water harvesting structures across the Gandaki River Basin. It will maintain updated status of aspects related to O&M which it will then share with the federal level, Department of Irrigation, Government of Nepal. In case of natural disasters or cost escalations, it will seek help for additional funding to cover costs of operations and maintenance from the federal level for the DIOs and Water User Association/Farmer Groups.

Department of Water Resources and Irrigation, Government of Nepal: The federal level, Department of Irrigation, Government of Nepal is responsible for coordinating water resources management including water harvesting structure management across the country working collaboratively with the seven-provincial governments.

Tiers 3 and 4 will support, mandate and hold accountable the Water User Association/Farmer Groups in performing the duties and ensure coordination with National level stakeholders to monitor and report the asset condition of the water harvesting structures.

Maintenance tasks for Water Harvesting system

The success of sustainable water harvesting will be dependent on how well the overall water harvesting system is maintained. The water harvesting system should be designed to make maintenance as easy as possible to increase the likelihood that those responsible for the systems will follow proper maintenance protocols.

Tasks that should be performed regularly include checking the quality of the construction of the conservation ponds and water reservoirs, checking identified areas for constructing conservation ponds and water reservoirs, ensuring that the quality of the conservation ponds and water reservoirs are ensured including regular cleaning of these water harvesting systems as well as proper recharge of water reservoirs, ensure that the construction of water harvesting systems is adequately resourced with both materials and financial resources, ensure the construction of water harvesting systems happens in a scientific manner involving community stewardship, etc. The importance of maintenance to the overall success of the water harvesting system should be conveyed to the beneficiaries/community members. Establishing a maintenance contract can reinforce the necessity of timely and through maintenance practices and protect the designer from system problems that arise due to lack of maintenance. Additionally, an owner's manual or SOP should accompany every water harvesting system and should include detailed troubleshooting guidance, maintenance tasks and frequency, and damage control measures.

Operations and Maintenance – Small Irrigation Systems

The project will establish small irrigations systems by diverting stream water involving participatory community based approaches and through employing a number of techniques to ensure that these

are undertaken with minimum damage to the natural ecosystems and towards enhancing soil nutrients. The focus would be on strengthening the capacity of communities in playing stewardship functions for the establishment of small irrigation systems. In support of operations and maintenance of the small irrigation systems, the community members will be responsible for the operations and maintenance of the community owned irrigation system. It is recommended that GCF finance be used to develop O&M plans and related SOPs during the project implementation.

The Feasibility Study has documented acceptance of an operations and maintenance (O&M) system (based on community consultations as well as discussions with local government officials and community members).

Tier 1: Water Users Association (WUA)

Tier 2: Divisional Irrigation Office

Tier 3: Ministry of Industry, Tourism and Environment (Gandaki Province)

Tier 4: Department of Irrigation, GoN

The regular planned O&M will be led by the Water Users Association/Farmer Groups (Tier 1). Each will be responsible to properly establish, operate and maintain the small irrigation systems following the practices (SOPs) developed to ensure sustainability and climate resiliency. The project will initiate and facilitate, through capacity building and peer-to-peer learning activities and continued monitoring of the quality of the small irrigation systems using simple O&M needs.

The Divisional Irrigation Office (Tier 2), who are trained in proper operations and maintenance best practices, are mandated as per the Constitution of Nepal to monitor and report the state of small irrigation systems to the Rural Municipality Heads. The Rural Municipality Heads will be responsible to encourage and support proper maintenance, through supporting training and awareness programs, if Water Users Association/Farmer Groups are found lagging. The Water User Association/Farmer Groups also have a number of other duties and will be the focal point for coordination to complete:

- Support and coordinate with Divisional Irrigation Office in establishing small irrigation systems and operations and maintenance of the community owned irrigation systems in a programmatic method following SOPs that relate to water harvesting plans.
- Become the expert in O/M of by operating and maintaining the small irrigation systems and perform awareness training for the community.
- Coordinate with other rural municipal official to address cross-sectoral problems.

Specific roles and responsibilities for O&M

Water User Association/Farmer Groups: The Water User Association/Farmer Groups are community participatory groups responsible for maintaining the newly established small irrigation systems. They support collection of yearly costs for operations and maintenance from the community, report status of small irrigation system conditions, incidence of flooding and landslides, etc. and report to Divisional Forest Office etc.

Divisional Irrigation Office (DIO): The Divisional Irrigation Office will be responsible for maintaining the overall management of the small irrigation system areas at the Rural Municipality level. They will collate information collected from Water User Association/Farmer Groups including reporting on year costs for operations and maintenance; updated status of small irrigation systems, incidence of flooding and landslides. The DIO will compile these annual reports and submit to the Ministry of Industry, Tourism, Forest and Environment, Gandaki Province.

Ministry of Industry, Tourism, Forest and Environment, Gandaki Province: The Ministry of Industry, Tourism, Forest and Environment, Gandaki province through its Divisional Irrigation Offices will be responsible for maintaining oversight on the overall operations and maintenance of the newly established small irrigation systems across the Gandaki River Basin. It will maintain

updated status of aspects related to O&M which it will then share with the federal level, Department of Irrigation, Government of Nepal. In case of natural disasters or cost escalations, it will seek help for additional funding to cover costs of operations and maintenance from the federal level for the DIOs and Water User Association/Farmer Groups.

Department of Irrigation, Government of Nepal: The federal level, Department of Irrigation, Government of Nepal is responsible for coordinating water resources management including small irrigation systems management across the country working collaboratively with the seven-provincial governments.

Tiers 3 and 4 will support, mandate and hold accountable the Water User Association/Farmer Groups in performing the duties and ensure coordination with National level stakeholders to monitor and report the asset condition of the small irrigation systems.

Maintenance tasks for Irrigation system

The success of sustainable small irrigation systems will be dependent on how well the overall community owned irrigation systems are maintained. The small irrigation systems should be designed to make maintenance as easy as possible to increase the likelihood that those responsible for the systems will follow proper maintenance protocols.

Tasks that should be performed regularly include checking the quality of the construction of the small irrigation systems, checking identified areas for constructing community owned irrigation systems, taking decisions on the allocation of benefits from the small irrigation systems to individual beneficiaries, ensuring that the quality of the small irrigation systems are ensured, ensure that the construction of small irrigation systems is adequately resourced with both materials and financial resources, ensure the construction of small irrigation systems happens in a scientific manner involving community stewardship, etc. The importance of maintenance to the overall success of the small irrigation system should be conveyed to the beneficiaries/community members. Establishing a maintenance contract can reinforce the necessity of timely and through maintenance practices and protect the designer from system problems that arise due to lack of maintenance. Additionally, an owner's manual or SOP should accompany every small irrigation system and should include detailed troubleshooting guidance, maintenance tasks and frequency, and damage control measures.

Sustainability of Infrastructures Supported by the Project

The Constitution of Nepal and the Local Governance Act, 2074 has provided clear mandate to the local levels to establish, mobilize and manage the User Committee for conducting physical infrastructure development work within their judiciary. The Ministry of Federal Affairs and General Administration has enacted the sample of 'Local Level User Committee Establishment, Mobilization and Management Directives 2074', which can be endorsed by relevant local level executive council. According to the Directives, the local level can implement the activity of up to NRs 10 million through the establishment and mobilization of the local user committee. Such local user committee must have representation of at least 33 percent women. Similarly, at least one women should be in executive level either in chairperson or secretary or the treasurer.

To ensure the effective implementation and the sustainability of the activity, the sample of agreement between the local level and the local user committee has been provided on Annex 2 of the Directives. There are number of terms and conditions provided in the agreement, which not only focuses the effective implementation of the activity but also ensures its sustainability for long term. For example, under the clause 17 of the terms and condition, it is clearly mentioned that the user committee should be responsible for managing the sustainable operation and maintenance of the project. The provisions mentioned in the Directives not only will make the activity transparent but also make the local community accountable for implementing any activity in the local level.

Among several of its mandates, the UC is responsible to open a separate account for each project they contract. The account continues even after the project. The UCs are required to create a maintenance fund for the project supported infrastructures after the project. For this purpose, they prepare their guidelines where they have to show how will that fund be generated and used sustainably. Among several terms and conditions that UCs agree with the project, one clause

(7(2) Annex 2(17) clearly says that the UCs are responsible for the sustainable implementation and maintenance of the infrastructures. Hence the Working Guideline ensures that the infrastructures being built in collaboration with the USs will have no problem in the maintenance after the project life.

Section B: Project Operation Manual

As an accredited entity, IUCN will follow its own policy, procedure, and guidelines for the management of its offices and projects. These policies and procedures are also linked with the Operation Management & Information System and it is supported with the suitable method of the information technology (e.g. web portals and multiuser software applications) which have been used for the IUCN engagement & its Operational Guidelines.

These policies and guidelines can be accessed by the link
<https://portals.iucn.org/union/anglist/groupdocuments/686/9540>.

Area	Name	Type of document
General	IUCN Delegation of Authority	Policy
	Code of Conduct and Professional Ethics	Policy
	IUCN Anti-Fraud Policy	Policy
	Time Management Policy	Policy
	Travel Policy and Procedures	Policy & Procedure
	IUCN Carbon Offset Policy and Procedures	Policy & Procedure
	IUCN Gender Policy	Policy
Human Resources	Global Human Resources Policy	Policy
	Human Resources Procedures Manual	Procedure
	Expatriate Staff Policy	Policy & Procedure
	Conditions of Service and Loan Policy: HQ and Other	Policy
	Emergency and Evacuation Policy	Policy & Procedure
Finance	Project budgeting guidelines	Guidelines
	IUCN Cost Allocation Policy	Policy
	IUCN Cost Allocation Policy Summary	Policy
	Statement to donors on 2.5% charge	Policy
	Cash Management and Investment Policy	Policy
	IUCN Investment Principles and SRI Framework	Policy
	Reserves Policy	Policy
	Grants to Implementing Partners – Financial Procedure	Procedure
	Procurement Policy and Procedure	Policy & Procedure
IS	Union Portal Data Policy English Español Français	Policy
	Union Portal User Guide English Español Français	Guidelines
	Union Portal User Guide for IUCN staff (To be added to the Union Portal – needs updating)	Guidelines
	CRM User Guide	Guidelines
Programme	Project Guidelines and Standards	Guidelines
	The IUCN Monitoring and Evaluation Policy 2013	Policy

	Procedures for establishing and managing IUCN-supported Independent Scientific & Technical Advisory Panels	Procedure
Communications	IUCN Publishing Guidelines	Guidelines
	IUCN Website Template Guidelines	Guidelines
	IUCN Website Quality and Positioning Guidelines	Guidelines
	Global Media Protocol	Policy
	Photo Library Policy	Policy & Guidelines
	Library Archiving Manual	Guidelines
	IUCN Brand Book	Policy & Guidelines
	IUCN logo rules for Members	Policy & Guidelines
	IUCN logo rules for National and Regional Committees (To upload on Union Portal – Publications has master files; UDG has a copy)	Policy & Guidelines
	IUCN Style Manual	Guidelines
	IUCN Visual Identity guidelines	Guidelines
	IUCN Glossary of translated terms	Guidelines
Oversight	Internal Audit Policy	Policy
Legal	Legal Procedures	Procedure Guidelines
	Contract Review Procedure	Procedure
	Procedure for Review by external legal counsel (including Sign-off Form)	Procedure
Membership	Communicating with Members	Guidelines
Fundraising	Guidelines for Grants Management IUCN WASHINGTON, DC and IUCN-US 501(c)(3)	Guidelines
	Operational guidelines for business engagement	Guidelines
Business engagement	IUCN Business Engagement Strategy	Policy

Inventory

- As accredited entity, IUCN will follow its procurement policy and other related policies to procure the inventory items based on the assumptions of consumptions for the bottom – up planning of the supply chain management for each quarter cycle throughout the project period. Maintenance of inventory level and Reorder level will be calculated on monthly basis to optimize the resources & working capital and maximize the usability as accord with activities planned.
- Procured and consumed inventories upon the approval of the project designated authority, managers or project nodal officers will be updated frequently within the Inventory Database by the Administration Department. IUCN will follow First in First Out (FIFO) system to record all the procurements and consumptions.
- Such inventories will be stored and reserved within the IUCN premises with correct storage techniques as per the necessity and suitability of inventory items. Access to the Inventory will be restricted to other sections and processed only by the Administration Department.
- Inventory of nonphysical goods, for example, databases, software, CAD drawings, maps, etc. will be managed by the designated authority as per necessity and suitability.

- Reports on the Inventory Database will be submitted quarterly along with other Financial Report to the Donor.

Assets

- To ensure that all physical assets are managed in a consistent manner that best supports the project with optimum utilization of both its short and long term resources
- To ensure that providing an asset base that matched and supports the needs of the University and aligning assets operating costs with activities planning and delivery requirements.
- IUCN has categorized the Assets as follows to support efficient assets management.

Type of Assets	Life of Assets for Depreciation
Vehicle	4-7 Years
Computer Hardware and Software	3 Years
Electronics/ Office and General Equipment	4-7 Years
Furniture and Fixtures	4-7 Years
Building renovations	10-20 Years
Building installations	20 Years
Building infrastructures	50 Years
Intangible assets	5-7 Years

- As an accredited entity IUCN will follow its procurement policy and other related policies to procure the Asset items based on the requirement of the project activities and management. Assets requirement will be verified by the Nodal Officers, Project Manager, and Administration Manager respectively and will be supplied to the required sections or unit.
- Information of procured assets will be immediately updated to the IUCN ERP Software and each and every asset those are used inside the office premises will be marked with the IUCN Assets Serial Number along with the name, designation of the assets user and physical location of the assets. Records of the disbursement of assets will be updated and maintained by the Administration department and will be verified by the finance and project manager.
- Required and proper insurance coverage/ policies will be procured for the safety of the assets and newly procured assets will be updated immediately to insurance before the assets usages.
- For non- official assets or assets used/stayed in the field and/or under the open sky will be informed to the community level organization with proper asset-handover notes to maintain the security of the Assets.
- Unused, non- repairable, outdated assets will be removed from the Assets database after getting clearances from the designated authority and such assets will be exchanged with the good monetary value if possible.
- Reports of Assets along with Assets Utilization summary will be prepared.

insurances

- Insurance policies will be procured to maintain safety for Human resources involved for the project and following policies will be used.
 - **Human Resources**
 - Staff - Group Accident Policy
 - Staff - Medical Coverage Policy
 - Staff- International Travel Insurance Policy
 - Consultant/ Other Technical Professionals - Accident Policy
 - **Office Vehicle, Equipment, Furniture and Supplies**
 - Earthquake, Fire, Natural Disaster, Terrorism, Burglary, etc.

maintenance and servicing

- Regular servicing of the assets and equipment will be followed by the Administration department to extend the life of the assets and to minimize the risk of assets. The inspection and servicing model of the assets will be as follows and procurement policy will be followed to issue the service agreement.

Type of Assets	Example	Servicing Cycle
Vehicle	2 Wheelers, 4 Wheelers	Trimester
Computer Hardware and Software	PC, Laptop, Network Switch/Hub, NAS , Windows License	Trimester
Electronics/ Office and General Equipment	Photocopy Machine, Printers, Plotters, Scanners, Air Conditioners, Radio, Television, Screen, Multimedia Projectors	Trimester
Furniture and Fixtures	Wooden, Steel, Plastic Furniture, Room Partitions, Ceilings,	As required
Building Renovation/Installations	-	As Required

Management information system (mis)

IUCN will follow the combined information system of the functions of each section, which will manage the procedures and produce the following reports to support the overall IUCN managers and project in- charges for effective implementation of the program and projects.

Tools and Procedures for Functional Management Systems

Human Resource Section

- Implementation of Procurement of Services, Training,
- Preparation of Performance Evaluation Report, Update of Standing Lists of Human Resources, Human Resources Reports
- Human Resources Leave and Attendance Schedule, Loan and Advance Payments, Benefits and Remuneration Updates, etc.

Software Use: iucn.hrms.org; iucn.congnitohrm.org

Administration Section

- Requisition and Demand Management System, Procurement
- Travel Requisition and Authorization
- Insurances
- Financial Instruments (Bond, Bid, etc)
- Procurement of Goods, Assets/Inventory Management,
- Operation Management
- Preparation of Standing List of Goods Suppliers, etc

Software Use: portals-erp.iucn.org (For Requisition, Travel, Expense Entry, and for Approval Processing); confluence.iucn.org (For IUCN internal discussion and knowledge Update); serviceportal.iucn.org (For Server and Web Problems & Solving); civcrm.iucn.org (For CRM)

Program Section

- Implementation of the Programme/ Projects
- Knowledge Management System, etc.

Software Use: <https://projects.iucn.org/> (for Programme Management); jira.iucn.org (for Project Management); confluence.iucn.org (For IUCN internal discussion and knowledge Update);

Accounts and Finance Section

- Preparation and Finalization of Final Accounts
- Inventory / Assets- Depreciation Reports
- Cash/Fund Flow Reports, Change in Equity Reports
- Project-wise Financial Reports, etc.

Software Use: Microsoft Dynamics NAV along with Customized Microsoft Excel and Access Sheets (For Accounting, Book- Keeping of Offices and Projects and for preparation Final Accounts); confluence.iucn.org (For IUCN internal discussion and knowledge Update);

Tools and IUCN ERP

Enterprise Resource Planning (ERP) Model									
Programme		Human Resources		Administration/ Operation		Finance/Accounts		Knowledge Management	
Tech:	Objective	Tech:	Objective	Tech:	Objective	Tech:	Objective	Tech:	Objective
projects.iucn.org	Projects/Program Management	hrms.iucn.org	Staff Information and Records	portals-erp.iucn.org	Requisitions, Travel, Expenses Mgmt.	Dynamics Nav	Financial Mgmt.	portals.iucn.org/library	Knowledge Management
jira.iucn.org	Projects/Program Management	iucn.congntohrm.org	Staff Performance & Evaluation	civirm.iucn.org	Constituency Relationship Mgmt.	Customized Excel	Financial Mgmt.		
confluence.iucn.org (Internal Discussion/Knowledge Share)									
serviceportal.iucn.org (Internal Services & Maintenance Mgmt, esp. Web & Server)									