


**FLOOD  
GREEN GUIDE  
FRAMEWORK  
WORKSHEETS**



**FLOOD GREEN GUIDE FRAMEWORK WORKSHEET:  
FOUNDATIONAL CONCEPTS AND KEY CROSSCUTTING ISSUES**

Topic		Indicative Sample Answer	Description /Remarks	Relevant Chapter Section
1	List the flood types and impacts that your community experiences	<i>Flash floods and seasonal riverine floods</i>		Floods: Definitions, Natural Process and Benefits, Hazards Section 3.2
2	Do floods in your community contribute to beneficial processes that support agriculture or flush nutrients? If so, briefly describe	<i>Support rice production in delta</i>		Natural Process and Benefits Section 3.2.2
3	Briefly describe the drainage patterns, precipitation regimes and land use in your community	<i>Radial drainage pattern; variable precipitation; primarily agriculture</i>		The Watershed System Section 3.3
4	Is your community monitoring local weather? If so, briefly describe and include information regarding monitoring maximum and minimum levels of precipitation along with averages	<i>Local community group has monitoring station at school</i>		Climate and Weather Section 3.5
5	Are you aware of areas in your watershed that currently lack weather stations or monitoring information?	<i>Yes, mountain area above town</i>		Weather Observation and Monitoring Section 3.5.3
6	Are you familiar with all of the organizations, institutions, and their processes related to flood risk management? Complete the Institutional Flood Management Capacity Assessment 	<i>Yes, will complete the institutional analysis</i>		Institutions Section 3.7.1
7	Have you considered how your community and other sectors can be engaged in flood risk management activities? If so, briefly describe	<i>Yes, have included youth and women's groups</i>		Community Engagement Section 3.7.4
8	Briefly describe how your agency/ community integrates gender into all phases of flood risk assessment and planning, including gender-responsive budgeting	<i>Completing gender analysis with community and business partners</i>		Gender Section 3.7.6
9	Are there existing public-private partnerships or networks that could be included in flood risk management activities? If so, briefly describe	<i>Yes, have contacted the local business association disaster management network</i>		Private Sector Participation Section 3.7.7
10	Have you considered funding sources for natural and nature-based flood risk management from multiple sectors? If so, briefly describe	<i>Yes, considering financing from local government budget, community fund and NGO partners</i>		Finance Section 3.7.8


**FLOOD GREEN GUIDE FRAMEWORK WORKSHEET: URBAN ISSUES**

Topic		Indicative Sample Answer	Description /Remarks	Relevant Chapter Sections
1	How is your area affected by land use change and impervious surfaces?	<i>More land has been converted from open space to covered areas</i>		Physical Factors Section 6.4.1
2	What are visible impacts of urbanization on the hydrology and microclimate of the area?	<i>The area has experienced increased temperature, and there is more runoff</i>		Physical Factors Section 6.4.1 Governance and Management Section 6.4.3 Climate and Weather Factors Section 6.4.2
3	Describe how the frequency of local flooding has changed in the past 10 years	<i>More frequent flash floods</i>		Physical Factors Section 6.4.1 Governance and Management Section 6.4.3 Climate and Weather Factors Section 6.4.2
4	What is the condition of the natural and engineered drainage systems (canals, drains, gullies, small streams) in the area?	<i>Some erosion of canals</i>		Physical Factors Section 6.4.1 Governance and Management Section 6.4.3 Climate and Weather Factors Section 6.4.2
5	Are conditions (lack of maintenance, encroachment of water bodies) contributing to flood risk?	<i>Rubbish accumulates in drainage canals</i>		Physical Factors Section 6.4.1 Governance and Management Section 6.4.3
6	Is the urban flood risk management process in your area supported by governance practices such as adequate urban planning, cross-sector integration and community engagement?	<i>Not much integration with waste management or community groups</i>		Urban Flood Governance Section 6.6
7	How can flood risk management be better supported by local government?	<i>Improved rubbish collection and management regulations</i>		Urban Flood Governance Section 6.6
8	Are climate issues a key consideration in urban flood risk management in your area?	<i>Not sure but will review</i>		Climate and Weather Factors Section 6.4.2
9	If not, how can climate be incorporated into urban flood risk management and urban planning?	<i>Considering climate issues in method selection</i>		Climate and Weather Factors Section 6.4.2
10	Have you considered the specific flood risks in low-lying coastal areas and unique drivers such as sea level rise, storm surges and tsunamis?	<i>No, will study sea level rise issues with local government and NGOs</i>		Urban Coastal Areas and Special Considerations Section 6.7


**FLOOD GREEN GUIDE FRAMEWORK WORKSHEET: FLOOD RISK ASSESSMENT DATA SUMMARY**

Column 1	Column 2		Column 3	Column 4	Column 5
Flood hazard event/spatial and temporal extent	Factors contributing to the event		Event frequency	Expected or historical losses	Number of people affected or at risk (indicate specific groups where possible)
	Anthropological factors	Natural factors			

Column 6	Column 7	Column 8	Column 9
Groups identified with higher-than-normal vulnerability (indicate type and number)	Adaptive capacities (identify specific groups when appropriate)	Notes	Priority

Instructions for completing the Flood Risk Assessment Data Summary table:

**Column 1** – List the type of flooding (see chapter 3, appendix A for flood types) and describe the spatial and temporal extent (flood frequency or recurrence interval).

**Column 2** – List the factors contributing to the flooding under the appropriate heading.

**Column 3** – Indicate how frequently past events have occurred, preferably using yearly, 1:5 (once in five years), 1:10 (once in 10 years), 1:20 (once in 20 years), 1:50 (once in 50 years), or other event frequencies.

**Column 4** – Losses, in monetary terms, for the flood hazard event based on historical data or model projections.

**Column 5** – Total population that could be affected by the flood event. The gender and age breakdown of the affected population can also be provided for future use.

**Column 6** – List short descriptions and number of groups considered more vulnerable to the flooding event than the overall affected population.

**Column 7** – List, for specific groups where appropriate, specific adaptive capacities that have been identified.

**Column 8** – Add any notes to clarify or expand on the information provided.

**Column 9** – List the priority (1 to X) based on (1) the original risk assessment report, (2) per capita damage per year or (3) adjustments in per capita damage ranking based on specific issues of vulnerability and **adaptive capacity**.



### FLOOD GREEN GUIDE FRAMEWORK WORKSHEET: INSTITUTIONAL FLOOD MANAGEMENT CAPACITY ASSESSMENT

*This table describes flood management capacities for use in the Flood Green Guide Framework.*

#### I. Which organizations are involved in flood management?

Name of organization	Contact information, including location	Type of work done	Area of operations (mark area on map)	Specific projects or activities in watershed and duration (mark locations on map)	Note whether project/activity documents and/or details have been collected

#### II. Existing flood management policy and activities

Question	Circle response	Action to be taken
Do you have information on national or watershed-specific flood management plans?	Yes or no	If yes, provide summary below, and collect copies if possible. If no, provide an explanation.
Do you have information on how flood management methods are being implemented upstream from the community?	Yes or no	If yes, provide a summary, and collect copies of plans and activity reports if possible. If no, provide an explanation and plan to acquire information.



Do you have information on how flood management methods are being implemented downstream from the community?	Yes or no	If yes, provide a summary, and collect copies of plans and activity reports if possible.  If no, provide an explanation and plan for acquiring information.
Do you have information on local flood management plans or projects?	Yes or no	If yes, provide a summary, and collect copies of plans and activity reports if possible.  If local flood management plans exist but no information is available, provide a plan for acquiring additional information.
<b>III. Capacity of implementing agency or agencies</b>		
<b>Topic</b>	<b>Input to be provided</b>	
Level of authority for flood management	Provide the name of the authority/authorities involved and a summary of the actions they can take to manage floods.	
Level of planning for flood management	Provide the name of the authority/authorities involved and a summary of their flood management planning.	
Financial resources available for flood management	Provide the level of annual funding available for flood management. Indicate what level of funding is available for specific types of flood management.	
Organizational capacity to carry out infrastructure projects	Provide a summary of how effectively agencies accomplish flood management activities. For example, consider the number of staff, area and level of staff expertise, location of staff, authority and financial resources of the agency, etc.	
Organizational capacity to maintain infrastructure	Provide a summary of how the agency maintains the flood management activities it has implemented.	
Community outreach	Provide a summary of how the flood management agency engages with communities on flood management.	



IV. Capacity of communities involved in flood management					
<i>Community organizations involved in flood management, disaster management or environment-based work or advocacy</i>					
A. Name of community organization	B. Contact information and location	C. Type of work done	D. Area of operations (describe area and mark on map)	E. Projects in watershed and duration (describe locations and mark on map)	F. Note whether project documents and details have been collected
Topic		Action to be taken			
G. Short-term mobilization capacity		Provide a short summary of the capacity of the above listed community-based organizations to mobilize human and other resources for flood management activities.			
H. Literacy and technical skills		Provide a short assessment of the literacy and technical skills available in the community or communities involved in flood management activities.			
I. Environmental and disaster awareness		Provide a short assessment of the local (community) awareness of environmental conditions, climate and disaster management, noting any specific projects or organizations active in these areas.			


**FLOOD GREEN GUIDE FRAMEWORK WORKSHEET: WATERSHED CHARACTERIZATION TABLE AND REPORT**

<b>Date</b>	<b>Name of watershed</b> (usually the name of the major stream or river draining the watershed)	<b>Location of watershed</b> (either a short description of the location or map coordinates)
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**Person(s) completing the form** (If more than one person, add additional names at end of table)

**What is the type of the watershed or sub-watershed?** (See chapter 3)

<b>Response</b> Circle or fill in	<b>Source</b> Indicate source document or contact name where possible	<b>Implications</b>
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**Question 1: What is the current precipitation regime for the watershed?**

<ol style="list-style-type: none"> <li>1. Infrequent precipitation confined to specific months and in very small amounts on average, though, with rare extreme events</li> <li>2. Frequent precipitation throughout the year with months of higher totals</li> <li>3. Variable precipitation throughout the year, with some of the precipitation as snow</li> <li>4. Variable precipitation concentrated during specific periods of the year, as with rain in the fall, snow in the winter and rain and snow in the spring</li> <li>5. Distinct dry* and wet periods</li> </ol>	<p>For instance:</p> <ul style="list-style-type: none"> <li>• Records from national meteorological office</li> <li>• Local weather monitoring station</li> </ul>	<ol style="list-style-type: none"> <li>1. Floods are uncommon and occur infrequently, with heavy precipitation.</li> <li>2. Flooding occurs when rainfall totals exceed averages, either in single events (a cyclone) or through a combination of events (several cyclones in a short period).</li> <li>3. Flooding can occur from a single severe storm, the melting of snow and periods of extended intense precipitation, such as cyclones or stalled weather systems.</li> <li>4. Flooding occurs with intense storms in the fall or spring and the combined effect of rainfall and snowmelt in the spring.</li> <li>5. Flooding is associated with violent storms at the beginning of the rainy season or as the result of weather systems that stall over an area and result in unusually heavy precipitation.</li> </ol>
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**Question 2: What types and conditions of soils are present in the watershed?**

<ol style="list-style-type: none"> <li>1. More permeable, sandy, pebbles and small rocks, more organic matter</li> <li>2. Less permeable, silty, clay, peaty, saline, less organic matter</li> <li>3. Soil layer, thick or thin</li> <li>4. Soil moisture, wet or dry</li> </ol>	<p>For instance:</p> <ul style="list-style-type: none"> <li>• Soil map obtained from local NRM office</li> <li>• Soil reports from government agencies</li> </ul>	<p>The soil type influences the infiltration rate and retention capacity. Less permeable soils increase the likelihood of water runoff, which can contribute to flooding.</p>
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\* "Dry" is used here as the absence of regular precipitation. These areas may remain humid in the absence of rainfall.





<b>Question 3: What type of geologic substrate is present in the watershed?</b>		
<ol style="list-style-type: none"> <li>1. More permeable (fractured rock, weathered limestone, volcanic rocks)</li> <li>2. Less permeable (fresh/unfractured granite, sandstone, limestone)</li> </ol>	<p>For instance:</p> <ul style="list-style-type: none"> <li>• Geological map obtained from local land use planning office</li> </ul>	<p>Less permeable geologic substrate increases the likelihood soils will become saturated, leading to runoff, which can contribute to flooding.</p>
<b>Question 4: What type of vegetation is dominant in the watershed?</b>		
<ol style="list-style-type: none"> <li>1. Largely undisturbed habitat such as forest, grasslands, marshes</li> <li>2. A combination of undisturbed habitat and introduced species (including crops and pasture)</li> <li>3. Largely managed areas in the form of fields, plantations and pasture lands</li> <li>4. Little or no vegetation</li> </ol>	<p>For instance:</p> <ul style="list-style-type: none"> <li>• Land use map or report obtained from local land use planning or NRM office</li> </ul>	<p>The type, quantity and management of vegetation and how it interacts with the soil can be contributing factors in flood risk.</p>
<b>Question 5: What is the size of the watershed?</b>		
<ol style="list-style-type: none"> <li>1. Large relative to other watersheds in the region</li> <li>2. Neither large nor small when compared to other watersheds in the region</li> <li>3. Small when compared to other watersheds in the region</li> </ol>	<p>For instance:</p> <ul style="list-style-type: none"> <li>• Land use map or report obtained from local land use planning or NRM office</li> </ul>	<p>Larger watersheds receive and can discharge more water than smaller watersheds receiving the same level of precipitation. (However, smaller watersheds with less retention capacity may flood more quickly than larger watersheds with greater retention capacity.)</p>
<b>Question 6: What is the general slope of the watershed?</b>		
<ol style="list-style-type: none"> <li>1. More than 5%</li> <li>2. Between 5% and 1%</li> <li>3. Less than 1%</li> </ol>	<p>For instance:</p> <ul style="list-style-type: none"> <li>• Land use map or report obtained from local land use planning or NRM office</li> </ul>	<p>The steeper a watershed, the more likely it will experience rapid flooding when there is a large volume of precipitation or rapid snowmelt.</p> <p>The shallower a slope, the less likely it will experience rapid flooding. However, a shallow slope is more likely to sustain flooding from water that drains slowly.</p>
<b>Question 7: What is the nature of land use in the watershed?</b>		
<ol style="list-style-type: none"> <li>1. Land is largely in an undisturbed state</li> <li>2. Half of the watershed has been converted to fields, pasture or orchards, or cut for wood</li> <li>3. All the watershed has been converted to fields, pasture, or orchards, or cut for wood</li> </ol>	<p>For instance:</p> <ul style="list-style-type: none"> <li>• Land use map or report obtained from local land use planning or NRM office</li> </ul>	<p>In some instances, a watershed with undisturbed areas is less likely to flood than a watershed with fields, pasture, orchards or wood harvesting. The less an area is disturbed, or the lower impact its use, the better for flood risk management.</p>



<b>Question 8: What types of channels are present in the watershed? (Several types may exist in one watershed. Mark types on the map.)</b>		
1. Narrow and steep 2. Meandering "S" curves, not large streambed 3. Meandering "S" curves, large streambed	For instance: <ul style="list-style-type: none"> <li>• River authorities</li> <li>• Geologic or hydrologic maps</li> <li>• Local land use or geologic service offices</li> </ul>	1. Rapid movement of water is likely, but bank erosion is not extreme. 2. Bank erosion is possible, but flow levels are modest. 3. Bank erosion is possible, and flow levels can be significant.
<b>Question 9: Are there any wetlands, lakes or marshes in the watershed?</b>		
If yes, describe and mark on the map	For instance: <ul style="list-style-type: none"> <li>• Land use maps</li> <li>• Parks and protected area maps</li> <li>• River authorities</li> <li>• Geologic or hydrologic maps</li> <li>• Local land use or geologic service offices</li> </ul>	Wetlands, lakes or marshes can provide natural buffers for flooding and can be used to reduce flood hazards.
<b>Question 10: How have infrastructure elements (roads, bridges, buildings, irrigation systems) contributed to previous flooding in the watershed?</b>		
Describe and mark on the map	For instance: <ul style="list-style-type: none"> <li>• Local public works or road authorities</li> <li>• Local disaster management authorities</li> <li>• Local media reports</li> <li>• Local flood control, water, river, irrigation or watershed authorities</li> </ul>	Moving or replacing infrastructure that contributes to flooding can be expensive; alternative risk management options may be needed.
<b>Question 11: How does the infrastructure (dams, dikes, levees, weirs, cutoffs, roads, bridges, buildings, irrigation systems) contribute to a reduction in floods or flood damage in the watershed?</b>		
Describe and mark on the map	For instance: <ul style="list-style-type: none"> <li>• Local flood control, water, river, irrigation or watershed authorities</li> <li>• Local public works or road authorities</li> <li>• Local disaster management authorities</li> <li>• Local media reports</li> </ul>	While infrastructure is an essential way to reduce flood risk, structures must be well maintained and designed to anticipate floods in order to avoid being taken by surprise.



Question 12: What is the nature of the assets in the watershed?		
<ol style="list-style-type: none"> <li>1. Limited number or no assets in the watershed</li> <li>2. Significant number of assets in the watershed, but they are generally located outside previously flooded areas</li> <li>3. Most assets are located in areas that have flooded in the past.</li> </ol>	<p>For instance:</p> <ul style="list-style-type: none"> <li>• Local water, river, irrigation or watershed authorities</li> <li>• Local government (e.g., tax or land use offices)</li> <li>• Land use map or report obtained from local land use planning or NRM office</li> </ul>	<p>Having fewer assets in areas threatened by flood means reduction in potential damage.</p>
Question 13: How urbanized is the watershed?		
<ol style="list-style-type: none"> <li>1. The watershed is not at all urbanized.</li> <li>2. Only a small part of the watershed is urbanized.</li> <li>3. The watershed has one or more urbanized areas containing more than 50% of the watershed's population.</li> <li>4. The watershed is heavily urbanized.</li> </ol>	<p>For instance:</p> <ul style="list-style-type: none"> <li>• Local sanitation authorities</li> <li>• Local government</li> <li>• Local disaster management authority</li> <li>• Land use maps and reports from land use offices or NRM projects</li> </ul>	<p>The more urbanized the area, the greater the risk of flooding, particularly flash flooding. The flood impact risk level can be reduced if adequate warning, drainage and water management plans and operations are in place.</p>

## Watershed Characterization Report

Once the Watershed Characterization table is complete, a narrative report should be prepared for future use in selecting flood management methods. (The report can also be used as public information on the watershed.) The report takes the 13 questions in the Watershed Characterization table and turns them into statements that incorporate the information collected.

For instance, question 10 becomes "Wetlands are located at [indicate the locations], lakes are located at [indicate locations], and marshes are located at [add locations]."

The Watershed Characterization Report includes space for additional comments. These can include information sources used to develop the characterization, observations by those involved in developing the characterization, and any additional information useful to understanding the watershed and the flooding hazard.

An initial format for the report is provided here. The format should be modified to describe different parts of a single large watershed or to note whether only one or several sub-watersheds are covered.

Information presented in the report should be noted on a map, where appropriate. This can be done by transferring data from the working map developed for the Watershed Characterization table and adding further notes from the narrative report. Photos and drawings can be added to the report to help explain the information provided and the impact of past flooding.

## SUGGESTED TEMPLATE FOR THE WATERSHED CHARACTERIZATION REPORT



### Watershed Characterization Report for [add name of watershed]

Date report completed:

Person(s) completing the report:

Location of Watershed:

1. The [add name of watershed] is a [add type] of watershed.
2. The precipitation regime for the watershed is [add regime].
3. The following types of soils can be found in the watershed:
4. The following geologic substrate can be found in the watershed:
5. The following types of vegetation can be found in the watershed:
6. The watershed is [add size] relative to other watersheds in the same area.
7. The slope of the watershed is [add slope].
8. The land use in the watershed is [add land uses].
9. The following types of stream or river channels are present in the watershed:
10. The following wetlands, lakes or marshes are present in the watershed (indicate name and location):
  - Wetlands -
  - Lakes -
  - Marshes -
11. The following infrastructure has been affected by flooding in the past (indicate name and location):
  - Roads -
  - Bridges -
  - Buildings -
  - Irrigation systems -
  - Other (list) -
12. The following infrastructure has contributed to reducing flooding (provide names, locations and details):
  - Dams -
  - Dikes -
  - Levees -
  - Weirs -
  - Cutoffs -
  - Roads -
  - Bridges -
  - Buildings -
  - Irrigation systems -
  - Other (list) -
13. The physical assets in the watershed range from [add description] to [add description].
14. Urbanization in the watershed is [add description].

Additional Comments:


**FLOOD GREEN GUIDE FRAMEWORK WORKSHEET: METHODS SELECTION REVIEW**

	Question	Assessment	Indicative Sample Answer	Description/Remarks
1	Have you considered all types of floods?	Yes/No/ Not sure	<i>Riverine floods, flash floods</i>	
2	Have you considered all flood-related risks?	Yes/No/ Not sure	<i>Inundation of 50-70 households (1-2 m); village road was inundated and completely cut off from the city; contamination of 30 wells</i>	
3	Have you accounted for the uncertainty of risks due to future climate change/variability?	Yes/No/ Not sure	<i>Precipitation is likely to increase and storms are increasing in severity.</i>	
4	Have you accounted for the uncertainty of risk related to future land use in the watershed?	Yes/No/ Not sure	<i>Potential conversion of 20,000-40,000 ha of forest gardens in area A into oil-palm cultivations; may significantly increase runoff and riverine floods in city B</i>	
5	Have you accounted for the uncertainty of risk due to future population/demographic changes in the watershed?	Yes/No/ Not sure	<i>City B is rapidly urbanizing; may increase impermeability and reduce wetlands, increasing flash floods</i>	
6	What are your proposed non-structural methods in the affected area?	N/A	<ol style="list-style-type: none"> <li>1. Create a no-build zone 100 m from stream center.</li> <li>2. Introduce mandatory flood-proofing measures to buildings constructed between 100-250 m from the river.</li> </ol>	
7	What is/are the proposed structural flood risk management method(s) in the affected area?	N/A	<ol style="list-style-type: none"> <li>1. Restore 3,000 ha of wetlands in city B.</li> <li>2. Introduce rain gardens to 20,000 households.</li> </ol>	
8	What is/are the proposed non-structural and structural flood risk management method(s) upstream?	N/A	<ol style="list-style-type: none"> <li>1. Establish protected area for existing forest.</li> <li>2. Conduct reforestation of 15,000 ha of abandoned tea plantation in area C in the upper watershed.</li> </ol>	
9	What is/are the proposed non-structural and structural flood risk management method(s) downstream?	N/A	<ol style="list-style-type: none"> <li>1. Enforce existing land use plans.</li> <li>2. Construct a flood barrage in estuary to control tidal floods entering the river.</li> </ol>	



10	Have you considered an appropriate balance of conventional and natural/nature-based (hard and soft) methods to reduce cost and increase social and environmental co-benefits?	Yes/No/ Not sure	<i>Yes, the only hard method used is the tidal flood barrage; excess runoff could be significantly reduced by reforestation and rain gardens. Wetland restoration will improve flood management.</i>	
11	What are your non-structural methods?	N/A	<ol style="list-style-type: none"> <li>1. Create a no-build zone 100 m from stream center.</li> <li>2. Introduce mandatory flood-proofing measures to buildings constructed between 100-250 m from the river.</li> </ol>	
12	Have you considered all possible environmental implications of the proposed methods?	Yes/No/ Not sure	<i>Frequent closing of the tidal flood barrage may decrease the salinity level of the estuary and disrupt animal migration.</i>	
13	Have you consulted the community in the selection of the methods?	Yes/No/ Not sure	<ol style="list-style-type: none"> <li>1. Initial community consultations</li> <li>2. Establishment of flood committees</li> </ol>	
14	Have you considered all of the regulatory requirements for the proposed methods?	Yes/No/ Not sure	<ol style="list-style-type: none"> <li>1. Construction of the tidal flood barrage needs an EIA and approval from the Coastal Conservation Department.</li> <li>2. Reforestation project has to be approved by the Forest Department.</li> </ol>	


**FLOOD GREEN GUIDE FRAMEWORK WORKSHEET: OPERATIONAL REQUIREMENTS**

Topic		Indicative Sample Answer	Method 1	Method 2	Method 3
1	Main operational activities	<i>e.g., pump operation, flood committee meetings, painting and repair of flood warning signs</i>			
2	Staff required for operation and mode of engagement	<i>e.g., pump operators – regular; community mobilizes flood awareness – one day per week</i>			
3	Material and logistical requirements for operation per annum	<i>e.g., fuel, vehicles</i>			
4	List of documented operational procedures and standing orders*	<i>e.g., pump operation schedule, flood evacuation drill schedule, flood gate operation standing orders</i>			
5	Expected annual operational cost				
6	Main maintenance activities and frequency	<i>e.g., pruning of vegetated swales twice a year</i>			
7	Staff required for maintenance and mode of engagement	<i>e.g., canal dredging – two dredger operators, one week per year</i>			
8	Material and logistical requirements for operation per annum	<i>e.g., fuel, vehicles, equipment</i>			
9	Expected annual maintenance cost				
10	List of documented operational procedures and standing orders	<i>e.g., drain cleaning schedule, green roof maintenance guide</i>			

\* “Standing orders” are operational procedures mandated by government directives. For example, a standing order may state: When the water level of a river exceeds a certain limit, lock gates in the levees should be closed, flood warnings should be issued, and flood evacuation committees should be mobilized.


**FLOOD GREEN GUIDE FRAMEWORK WORKSHEET: MONITORING PLAN**

Topic		Indicative Sample Answer	Method 1	Method 2	Method 3
1	Description of the method	<i>Small watershed dam to control overland flooding in Village A</i>			
2	Monitoring parameters (based on table E1)	<i>Performance/condition; social</i>			
3	Monitoring responsibility and frequency (community, officials, experts)	<p><i>Performance/condition:</i></p> <ol style="list-style-type: none"> <li><i>1. Regular (monthly or after heavy rains)</i></li> <li><i>2. Community monitoring, intermediate (6 months)</i></li> <li><i>3. Local government official monitoring, long term (3-5 years or as needed)</i></li> </ol> <p><i>Social:</i></p> <ol style="list-style-type: none"> <li><i>1. Local government officials, intermediate (1-2 years or as needed)</i></li> </ol>			
4	What are the key elements of the monitoring parameters selected?	<p><i>Performance/condition:</i></p> <p><i>Visible damages or malfunctions in the structures of devices</i></p> <p><i>Social:</i></p> <p><i>Community embraces the project with a sense of ownership</i></p>			
5	Resources required for monitoring	<p><i>Cost of training CBOs for monitoring;</i></p> <p><i>Travel cost for officials for 6 months of monitoring</i></p>			
6	Funding source(s)	<i>Local government, Irrigation Department</i>			
7	Organizations and responsibilities (personnel, resources, funding)	<i>Local government: manages community monitoring, conducts official monitoring</i>			
8	How do you plan to evaluate the monitoring data?	<i>Five-year evaluation meeting, organized by local government with Irrigation Department and selected CBOs</i>			
9	Communications plan for organizations	<i>Brief annual status report of the dam sent to senior government officials and the Irrigation Department</i>			
10	Communications plan for community	<i>Annual meeting held with the community stakeholders of the dam</i>			





## FLOOD GREEN GUIDE FRAMEWORK WORKSHEET: PROJECT EVALUATION

Overall Project				
	Topic	Assessment	Indicative Sample Answer	Description/Remarks
1	Has the project fulfilled the planning objectives?	Yes/No/Partially	<i>No inundation or flood-related damage was recorded in the target area in the past 5 years.</i>	
2	Are there any major failures?	Yes/No	<i>Main road was flooded in 2 years (within 5 years) during the storm season.</i>	
3	Has the project exceeded the planned objectives/targets?	Yes/No	<i>Average peak water level (5 years) of the river has reduced by 10%, exceeding the planned 5%.</i>	
4	Has the project been generally accepted by the community (including disadvantaged groups)?	Yes/No/Partially	<i>Community is actively engaged in monitoring, and women are using the restored wetland for fodder gathering.</i>	
5	Has the project been accepted and supported by the stakeholder agencies (state, nongovernmental and local government)?	Yes/No/Partially	<i>Active participation from Irrigation Department officials but lacks support from the Agrarian Services Department.</i>	
6	Have the geophysical conditions of the watershed/surroundings changed substantially since project initiation?	Yes/No/Not sure	<i>No.</i>	
7	Have the ecological conditions of the watershed/surroundings changed substantially since project initiation?	Yes/No/Not sure	<i>Upper watershed terraced paddies are being converted to cash-crop plantations.</i>	
8	Has the population or demographic characteristics of the watershed/surroundings changed substantially since project initiation?	Yes/No/Not sure	<i>Rapid urbanization has occurred in lower watershed, especially around city B.</i>	
9	Have the planning regimes, laws and regulations pertaining to the project changed substantially since initiation?	Yes/No/Not sure	<i>Wetland Management Board was merged with Urban Development Authority.</i>	
10	Is there substantial change in climate trends?	Yes/No/Not sure	<i>Rainfall intensity has increased but with no significant change in annual average rainfall.</i>	



Individual Methods					
	Topic	Indicative Sample Answer	Method 1	Method 2	Method 3
1	Is the method still operational?	Yes			
2	Has the method fulfilled the planned objectives?	<i>No overland flooding of the village in past 5 years</i>			
3	Are there physical defects or faults in the method (structural methods only)?	<i>Sluice gate needs repair, minor erosion in the northern end of the dam, silting is higher than expected</i>			
4	Are there maintenance difficulties in the method (structural methods only)?	<i>Desilting is very expensive, requires minor desilting every 3 years</i>			
5	Have there been any operational or implementation issues in the method?	<i>Operation of the sluice gate is not done properly and regularly by the assigned volunteer farmer</i>			
6	What are the social impacts of the method (positive or negative)?	<i>Farmers use the dam for watering their livestock (mainly goats)</i>			
7	What are the environmental impacts (positive or negative) of the method?	<i>No significant impacts observed</i>			
8	Are there any operational or maintenance cost overruns?	<i>Maintenance allocation exceeded due to desilting costs</i>			
9	What are the additional remarks of the project staff?	<i>Project staff are satisfied with the dam apart from the silting issue; they propose an upstream revegetation program to control the silt load</i>			