



The Adaptive Watershed

Training program for inclusive, ecosystem-based watershed management





© 2017 International Institute for Sustainable Development
Published by the International Institute for Sustainable Development

International Institute for Sustainable Development

The International Institute for Sustainable Development (IISD) is one of the world's leading centres of research and innovation. The Institute provides practical solutions to the growing challenges and opportunities of integrating environmental and social priorities with economic development. We report on international negotiations and share knowledge gained through collaborative projects, resulting in more rigorous research, stronger global networks, and better engagement among researchers, citizens, businesses and policy-makers.

IISD is registered as a charitable organization in Canada and has 501(c)(3) status in the United States. IISD receives core operating support from the Government of Canada, provided through the International Development Research Centre (IDRC) and from the Province of Manitoba. The Institute receives project funding from numerous governments inside and outside Canada, United Nations agencies, foundations, the private sector, and individuals.

The Adaptive Watershed
Training program for inclusive, ecosystem-based watershed
management

Head Office

111 Lombard Avenue, Suite 325
Winnipeg, Manitoba
Canada R3B 0T4

Tel: +1 (204) 958-7700

Website: www.iisd.org

Twitter: @IISD_news



Table of Contents

Introduction	1
Theme 1: Understanding our Watershed and our People	3
Module 1 – Introduction.....	3
Module 2 – The Watershed and its Socioeconomic Context	4
Module 3 – Stakeholders and Vulnerable Social Groups.....	5
Module 4 – Ecosystems, Ecosystem Services, Structure and Function	6
Module 5 – Climate Change Impacts in the Watershed	7
Mid-Term Assessment	8
Module 6 – Non-Climatic Stressors and their Impacts in the Watershed	9
Module 7 – Ecosystems Under a Changing Climate	10
Theme 2: Making Informed Decisions for an Adaptive Watershed Plan	11
Module 8 – Managing for Ecosystem Services	11
Module 9 – Understanding the Policy Context.....	12
Module 10 – A Toolbox for Adaptation	13
Module 11 – Trade-Offs in Adaptive Ecosystem Management	14
Theme 3: Inclusive Management: Committing to Action and Evaluation	15
Module 12 – Adaptive Management and Evaluation.....	15
Module 13 – Building a Path to the Future	16
Module 14 – Engaging with Stakeholders on Implementing a Path to an Adaptive Watershed	17
Workshop Close	18



Introduction

Integrated, adaptive watershed management has been an elusive goal for practitioners involved in land and water management globally. While the underlying concepts of iteratively managing interlinked land, water and human systems together are irrefutable, implementation remains complex and challenging.

Ecosystem management focuses on understanding processes, functions and benefits from natural, ecological units. Watershed management recognizes the need to manage water in the context of watersheds—the natural, hydrologic unit appropriate for assessing, predicting and managing water to achieve goals such as enhanced water quality, sufficient quantity and availability, improved access, etc. Both frameworks reinforce the links between physical, ecological, social and economic systems to ensure that environmental and economic needs are met and enhanced for long-term future security, both environmental and human. Both management concepts highlight the need to engage people, particularly the under-represented—such as women and Indigenous groups—in such decision-making approaches. Furthermore, an increasing awareness of the significant changes that a rapidly changing climate is having on water systems, including on flow, quality and availability, is expediting the need to look at means of adaptive management. **Adaptive management** promotes a “plan–do–check–correct” method of management where goals and implementation plans are seen as iterative in responding to changing natural, social and economic conditions and priorities.

A clear driver for this work is the global Sustainable Development Goals (SDGs) that focus on all aspects of development: social, economic and environmental. The 17 SDGs with their 169 targets promote actions in areas of poverty reduction, gender equity, ecosystem management and much more. As developing and developed countries aspire to meet the SDG targets, linkages between these ambitious goals are inevitable. We linked this training program to four relevant SDGs. SDG 6 on clean water and sanitation has goals for integrated water resources management, restoration of water-related ecosystems and the participation of local communities. SDG 13 on climate action targets building capacity on climate adaptation and effective climate-change-related planning and management. SDG 5 focuses on effective participation and equal leadership opportunities and rights for women in economic and natural resources. Finally, SDG 15 on life on land targets terrestrial and inland freshwater ecosystems and their services, incorporating ecosystem values into national and local planning.

IISD has been working with partners to explore the implementation of these frameworks in a variety of ways. Our past work on ecosystem management—from concept to local-scale implementation—was highlighted the complementary elements of ecosystem and watershed management, and provided guidance for watershed managers and those in related planning roles for effective implementation.¹ Other IISD work reviewed integrated water resources initiatives in different parts of the world to assess their application of ecosystem management concepts and tools.² Similarly, our current work on ecosystem-based adaptation³ and gender equity contribute to this work.

This document outlines a training program intended for those in roles related to land and water management, climate adaptation and gender equity. This proposed three-day training will expose local decision-makers to a range of issues and build understanding and capacity for implementing integrated, equitable, adaptive management in watersheds.

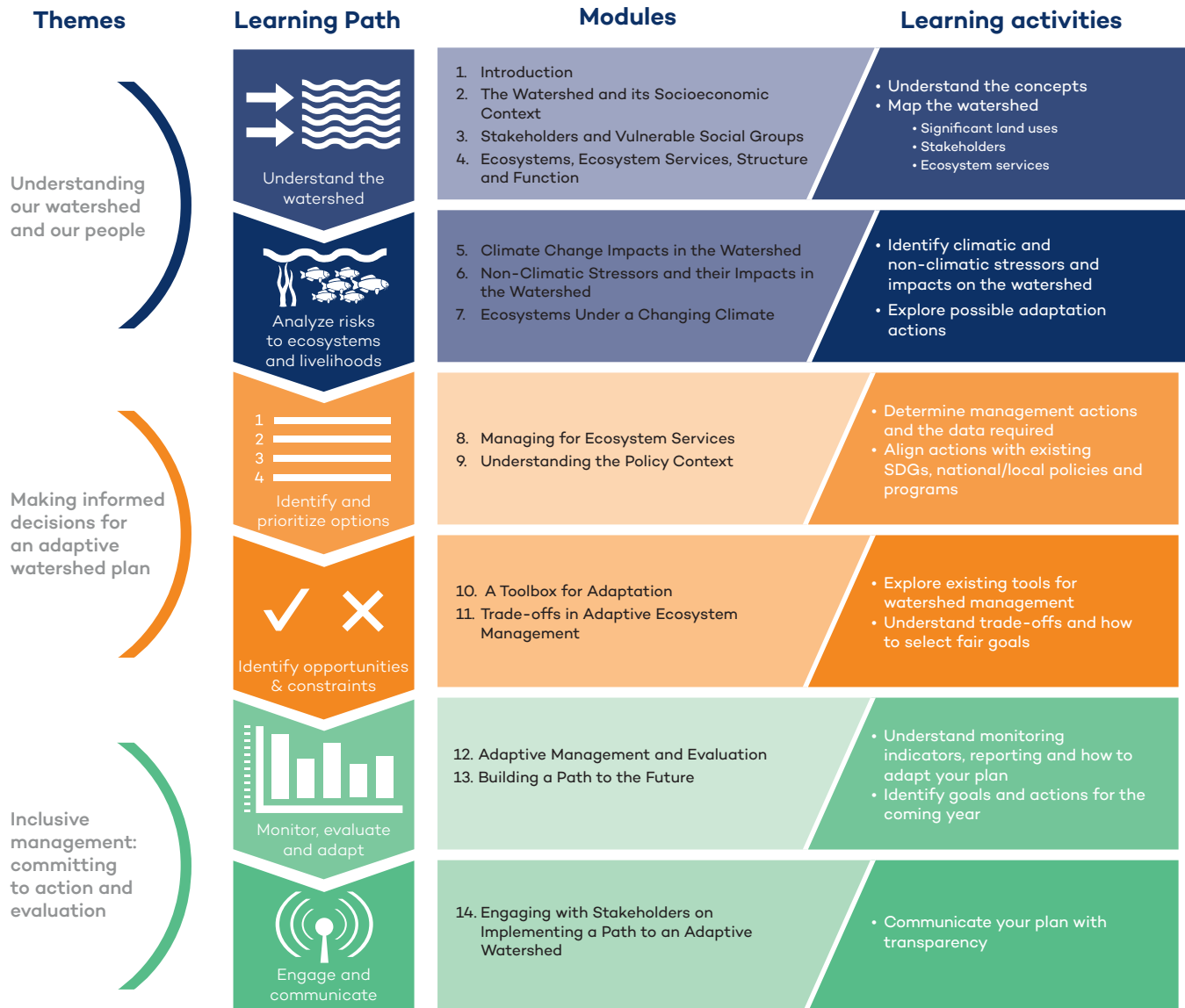
¹ Perry, J. et. al. (2012). *Ecosystem management: Concept to local scale implementation. A facilitator manual*. UNEP and IISD.

² Roy, D., Barr, J. & Venema, H.D. (2011). *Ecosystem approaches in integrated water resources management (IWRM): A review of transboundary river basins*. UNEP, UNEP-DHI and IISD. Retrieved from http://www.iisd.org/pdf/2011/iwrms_transboundary_river_basins.pdf

³ Terton, A. & Dazé, A. (2017). Connecting the dots: How ecosystem services support adaptation to climate change. Retrieved from <https://www.iisd.org/blog/connecting-dots-how-ecosystem-services-support-adaptation-climate-change>



The Adaptive Watershed flow chart





Theme 1: Understanding our Watershed and our People

Module 1 – Introduction

Module learning objectives:

- (1) Explore the goals, structure and limitations of The Adaptive Watershed (TAW), in the larger context:
 - Ecosystem management at the watershed scale
 - Why we would want to link climate-dependent services to adaptive management
- (2) Examine and agree upon the objectives and expectations of this workshop, including longer-term accountability (i.e., being asked to take action and report on that action over the next 12–15 months).

Key questions to be answered:

- What is TAW and how might it advance adaptive watershed management in the face of climate change here in the local watershed?
- To what are participants committing by agreeing to participate in this structure?
- What will the facilitators offer as tools and guidance to help participants fulfill those commitments?

Activities (Time frame: 90 min)

Presentation (10 min): What to expect: Active learning, facilitated experience, constructivist learning, leading to actionable goals with specific time frames.

Individuals (20 min): Introduce yourself; identify institutional affiliation; provide context about your background in the watershed and with adaptive management and/or climate change.

Presentation (45 min): Watershed context, “ecosystem management” defined, our workshop agenda in depth.

Plenary (15 min): In what ways will the proposed activities and content described in the workshop agenda advance your personal and institutional goals? Do you feel that anything is missing or under-addressed? Are there concerns about where we are going and what we expect?



Module 2 – The Watershed and its Socioeconomic Context

Module learning objectives:

- (1) Describe the principal characteristics of the watershed (e.g., land use distribution, major economic activities) by identifying the main land uses and economic activities in/around the watershed, and understand how ecosystem services support these livelihoods.
- (2) Identify a range of methods that help characterize and analyze activities in the watershed that will be important in planning for a sustainable future.

Key questions to be answered:

- What are the principal resources of the watershed, and how do we interpret the word “principal”?
- What are the major land use and economic activities practiced in the watershed (e.g., energy, fishing, crop farming, livestock, tourism)?
- What management methods can we apply to be better prepared for an uncertain future?

Activities (Time frame: 120 min)

Presentation (5 min): What we mean by “principal resources,” land use and major economic activities (definitions).

Groups (20 min): Each group will develop a map—a visual representation of the watershed—identifying significant land uses and activities.

Presentation (20 min): Overview of a series of resources and methods that help us characterize watershed activities and lead toward prioritization.

Plenary (10 min): Discussion of ways those resources and methods can be applied here in **the local watershed**.

Groups (45 min): Refine the watershed map to create a conceptual model of resource flows in the watershed.

Plenary (20 min): Each group presents its map; peer review by one other group.



Module 3 – Stakeholders and Vulnerable Social Groups

Module learning objectives:

- (1) List and analyze the primary stakeholders within the watershed.
- (2) Deconstruct and compare the power relations among stakeholders.
- (3) Identify particularly vulnerable social groups involved in different land use activities; analyze why they are vulnerable or more resource-dependent than other groups.

Key questions to be answered:

- Who are the primary stakeholders with interests in the resources within the watershed, and what makes them “primary”?
- Which social groups are involved with identified land use practices and economic activities, and why would some of them be more vulnerable than others?

Activities (Time frame: 60 min)

Presentation (5 min): What we mean by “primary” stakeholders.

Groups (15 min): Identify and list who would be the primary stakeholders for each land use and economic activity identified in the watershed map created in Module 2, describing the main interests of each.

Plenary (15 min): Discussion around what is common and not common among the ways groups portray the watershed.

Presentation (5 min): Why it is important to assess who is most supportive and influential in our watershed work.

Groups (15 min): Complete the stakeholder power grid (a chart with arrows in four directions: “Most influential or powerful in terms of decision-making processes in the watershed”; “No influence over management, resources or decision-making processes”; “Oppose social and management change in the watershed”; and “Support social and management change in the watershed”) by placing the identified stakeholders into the appropriate quadrants.

Presentation (5 min): Explanation of the concept of different social groups within the watershed and why it is important to understand social dynamics before thinking about future actions. Emphasis is put on understanding why inequalities remain pervasive—particular for women—and what gender equality means.

Groups (20 min): Identify social groups that exist within identified land use activities; consider which are more vulnerable than others and explain why (consider: religious groups, tribes, women, youth, elderly, access to resources for specific groups, discrimination).



Module 4 – Ecosystems, Ecosystem Services, Structure and Function

Module learning objectives:

- (1) Identify ecosystem services from our watershed.
- (2) Identify priority ecosystem services among stakeholders.
- (3) Experience the process of setting priorities among stakeholders.

Key questions to be answered:

- How does a watershed function as an ecosystem (or a series of ecosystems)?
- How do we describe that function in terms of ecosystem services?
- What are the priority ecosystem services for each of several economic activities?

Activities (Time frame: 90 min)

Presentation (30 min): Structure and function of ecosystems; flow of materials and energy.

Groups (15 min): In four groups (representing agriculture, tourism, municipal service and natural resources), list 5–6 structural and/or functional ecosystem attributes here in the watershed upon which your interest group would place high value.

Presentation (20 min): Understanding ecosystem services and ecosystem management.

Groups (15 min): Frame 1–2 ecosystem services from each of the four major classes (i.e., regulating, provisioning, cultural, supporting) your interest group would value and prioritize each on a scale of 1–3 (3 being highest priority).

Plenary (10 min): Groups report back; plenary discussion highlights conflicts (consider particularly vulnerable groups in the discussion).



Module 5 – Climate Change Impacts in the Watershed

Module learning objectives:

- (1) Examine the observed and projected changes in precipitation and temperature in the watershed.
- (2) Express the impact of changes in temperature and precipitation as well as climatic hazards on ecosystems and ecosystem services.
- (3) Consider and describe the indirect impacts on livelihoods and vulnerable social groups through changes in ecosystems and ecosystem services caused by climate change.
- (4) Establish priorities to best position watershed stakeholders for longer-term decisions.

Key questions to be answered:

- What causes changes in temperature and precipitation?
- What are the observed and projected climate changes in the watershed?
- What are the impacts of climate change on ecosystems and ecosystem services (biophysical changes)?
- What are the direct impacts on land use activities based on changes to ecosystems and ecosystem services?
- Which of the identified stakeholders and social groups are particularly vulnerable to the identified impacts on land use activities?
- How do we establish priorities, taking into account climate change predictions?

Activities (Time frame: 120 min)

Presentation (20 min): Definitions of climate and climate change. Description of what drives climate change and what future scenarios look like. Exploration of climate change impacts on ecosystems and ecosystem services, the potential changes and the uncertainty of climate change. Definition of climate hazards (and the difference between a hazard and a condition). Explanation of the activity to follow.

Groups (20 min): Building upon the map of the watershed and its major livelihoods/economic activities created in previous activities, consider the climatic hazards in the watershed (e.g., drought, heavy rains, hailstorms, storms, flooding) and draw them on the map.

Presentation (5 min): Review and analysis of the observations about frequency and intensity of “extreme weather events,” and changes in hazards over the last 20 years. Explanation of next activity step.

Groups (10 min): Using the map of the watershed, indicate frequency and intensity of climate hazards (i.e., by using arrows) and prioritize three hazards.

Presentation (5 min): Exploration of ecosystem services that are most climate-sensitive and examples changes in climate impacts on these. Explanation of next activity step.

Groups (15 min): As a result of the impacts of changes in temperature, precipitation and hazards described in the previous activities, identify and list the resulting indirect impacts on ecosystems and the services they provide (e.g., more wildfires, smaller fish population, erosion, crop failure, drying water sources).



Presentation (5 min): Based on the identified impacts on ecosystems and ecosystem services, clarify implications for stakeholders' land use activities in the watershed: indirect impacts. Examples of these impacts (food insecurity, migration, reduced income, health impacts, etc.). Description of the vulnerable social groups (e.g., Indigenous Peoples, women, elderly, specific castes) that are more prone to these impacts and why.

Groups (15 min): On a flipchart, draw a table with two columns: one headed "Impacts" and the second one "Vulnerable Groups." Summarize the impacts on livelihoods under one column. Under the other column, identify vulnerable social groups that are more prone to these impacts and explain why.

Presentation (5 min): Briefly summarize the observed and projected climatic impacts for the watershed. Get the groups to start thinking about the future and identify priority areas for adaptation.

Plenary (15 min): Again, using the climate scenario, revisit the impacts on ecosystem services and land use activities. What do you feel should be some of the priorities over the next 5 years to provide the greatest opportunity to adapt as the conditions of 2050 emerge?

Plenary (5 min): Reflect on our learning objectives: Have we achieved understanding? What aspects are missing or poorly understood?

Mid-Term Assessment

Objectives:

- Take stock of the engagement/training process to understand what things are going well and what could be improved.

Key questions to be answered:

- What aspects of this workshop are engaging you?
- What aspects help you see relationships here in the **local watershed** that were new to you?
- In what ways might we be more effective in leading this workshop?

Plenary (20 min): Share any thoughts you wish, hoping that your thoughts will help elicit some deeper interaction from someone else.



Module 6 – Non-Climatic Stressors and their Impacts in the Watershed

Module learning objectives:

- (1) Gauge the impact of non-climatic stressors on ecosystems and ecosystem services in the watershed.
- (2) Analyze and list the indirect impacts from non-climatic stressors on land use activities and vulnerable social groups.

Key questions to be answered:

- What are the non-climatic stressors in the watershed?
- What are the impacts of non-climatic stressors on ecosystems and ecosystem services?
- What are the direct impacts on land use activities and vulnerable groups?

Activities (Time frame: 60 min)

Presentation (5 min): Non-climatic stressors, including definition and examples. It is important to note and identify non-climatic stressors because they may exacerbate the negative impacts of climate hazards on ecosystems. Presenters should differentiate between non-climatic hazards and climatic hazards but also explore the linkages between the two.

Groups (15 min): In groups of 4–5. Use the watershed map from the previous modules. Get participants to think about non-climatic stressors they believe have a direct impact on the watershed (e.g., fertilizer, dam construction, over-fishing, migration, political instability) and have participants draw them into the map.

Presentation (5 min): How to identify what the impact of these non-climatic stressors are on ecosystems and the services they provide. Examples of what these impacts could be.

Groups (15 min): On a flipchart, under each of the non-climatic stressors, identify the impacts on ecosystems and ecosystem services (e.g., pollution, smaller fish population, erosion).

Presentation (5 min): Based on the identified impacts on ecosystems and ecosystem services from the non-climatic stressors, explanation of the implications for people and land use activities in the watershed. Examples of these impacts (e.g., food insecurity for livelihoods dependant on fisheries, reduced income because of less tourism, migration, health impacts).

Groups (15 min): On a flipchart draw a table with two columns: “Impacts” and “Vulnerable Groups.” Summarize the impacts on livelihoods under the first column, and under the second, identify vulnerable social groups (e.g., Indigenous Peoples, women, elderly, specific castes) that are more prone to these impacts and explain why.



Module 7 – Ecosystems Under a Changing Climate

Module learning objectives:

- (1) Conceptualize the ways society would express goals for ecosystem services from this watershed.
- (2) Describe and distinguish management strategies that are explicitly useful under uncertainty.
- (3) Experience and apply the process of incorporating uncertainty into societal priorities, and adjusting goals to ones most amenable to uncertain conditions.

Key questions to be answered:

- What are societal priorities for ecosystem services here in the **local watershed**?
- The future, including future climate, is uncertain. How should and how will that uncertainty affect our management?
- How do our ecosystem service goals change when we explicitly consider management under uncertainty?

Activities (Time frame: 90 min)

Opening charge (5 min): What is expected here, how will it be structured, what will it be like when we are done?

Groups (20 min): Build a series of 3–5 ecosystem management goals for the **local watershed**. In those goals, show awareness of community priorities, including balanced attention to gender and under-represented groups, flows of ecosystem services, intentional attention to economics and cultural values.

Presentation (35 min): What are some guiding principles for management under uncertainty and how might they apply to the **local watershed**?

Groups (20 min): You now have seen climate predictions for this watershed and guidance for managing in the face of uncertainty. Given that, how would your goals and priorities change? Build reasonable, actionable, measureable goals by modifying your earlier constraint-free goals.

Plenary (10 min): Report from groups: Which groups changed a lot or a little from the earlier goals? What do groups have in common; what is unique to one group? Back to our learning objectives: have we achieved them? What aspects are missing or poorly understood?



Theme 2: Making Informed Decisions for an Adaptive Watershed Plan

Module 8 – Managing for Ecosystem Services

Module learning objectives:

- (1) Identify the ways the biophysical ecosystem supports and controls ecosystem services.
- (2) Apply a seven-step process to identify management objectives and actions to sustain the highest-priority ecosystem services.

Key questions to be answered:

- How would we approach framing ecosystem services here in the **local watershed**?
- How do the structural and functional attributes of the ecosystem control those ecosystem services?
- What specific steps might we follow to frame management actions to sustain selected ecosystem services?

Activities (Time frame: 90 min)

Opening and presentation (40 min): A seven-step process for management objectives to achieve societal goals.

Groups (30 min): Consider the **local watershed** ecosystem and steps 1–5 of the process.

- List the ecosystem services and functions you believe to be of highest societal priority, and describe the current state of those services and functions. Specify actions you would take for steps 1–3
- Briefly, identify data needed to build landscape maps for Step 4.
- Describe three management actions you would assess in Step 5.

Plenary (15 min): Groups summarize management actions and data needed to support those actions in the **local watershed**.

Plenary (5 min): Synthesis: What have we learned from that exercise and how does that empower us to proceed?



Module 9 – Understanding the Policy Context

Module learning objectives:

- (1) Identify and link existing local watershed priorities and tasks to broader regional, national (potentially international) priorities and processes.
- (2) Prioritize specific policies, markets and other opportunities and strategies in which to connect TAW efforts with these for optimal impact and added value.

Key questions to be answered:

- What are the international, national and local priorities, policies and markets related to land and water management, climate adaptation and mitigation, and development?
- Based on the previous identification of watershed ecosystem services, which components of the policy and economic context intersect with these ecological goods and services?
- Can we identify ways to take advantage of regional and national processes with adaptive watershed management or, at minimum, not work at odds with those processes?

Activities (Time frame: 90 min)

Presentation (20 min): Overview of the sustainable development goals (SDGs). Overview of general and specific international, national and local priorities and plans. Some emphasis on those that intersect climate change adaptation in the context of land and water management.

Groups (20 min): Based on the diversity of people in the room, either together or in groups, identify national and local-scale priorities that relate to land–water management and climate mitigation–adaptation (e.g., agriculture and food, flood protection, water quality improvement).

Plenary discussion (20 min): Bring groups back together and list priorities of regional (state, district) and national governments. Categorize these into high, medium and low priorities as possible. If there isn't clear consensus, use a simple voting system.

Presentation (10 min): Description of the types of questions to answer to identify crossover between priority watershed ecosystem services and regional/national policy priorities.

Groups (20 min): Based on the list of ecosystem services in the watershed that we have developed, identify the priorities that are most relevant to aspects of the adaptive watershed management. For example, if reduction of flood-related impacts in the country is a national priority, there will be significant implications and opportunities for water and watershed-based management.



Module 10 – A Toolbox for Adaptation

Module learning objectives:

- (1) Describe and distinguish among of the wide range of available tools for adaptive management in the watershed.
- (2) Evaluate and select the most appropriate tools, taking into account the ecosystem services we decide to sustain and the community conditions (i.e., societal willingness to invest).

Key questions to be answered:

- How does a watershed manager come to develop a meaningful understanding of the range of tools available for adaptation?
- What is the process one should, or might, employ in selecting and deploying tools?
- How does one evaluate the suite of tools selected for an application?

Activities (Time frame: 90 min)

Presentation (35 min): There are many tools available for managing watershed services. This overview puts some of those in context to help the manager explore and consider choices.

Groups (30 min): Consider those tools and choose a suite (of 3–7) that seems appropriate for application here in the **local watershed**.

- Choose the tools you feel would be appropriate and be prepared to explain why.
- What organizational partners would be potential supporters?
- Are there initiatives already in place in the watershed that you can work to expand?
- Who are key stakeholders you may want to involve in this process?

Plenary (20 min): Each group will summarize the tools selected and the partners identified as potential collaborators.

- Each group will have an assigned peer-review group who will ask at least one question about tool selection, partners and/or evaluation.

Plenary (5 min): Synthesis of our discussions and learning to date.



Module 11 – Trade-Offs in Adaptive Ecosystem Management

Module learning objectives:

- Describe the diverse types of ecosystem changes resulting from land and water use.
- Assess the types of management interventions that can halt or accelerate these changes.
- Take into account the diversity of views to make decisions about priorities.
- Communicate trade-offs in an adaptive ecosystem watershed.

Key questions to be answered:

- How does a watershed manager evaluate competing interests and associate managerial tools with highest priority goals?
- How does, or how should, one understand the trade-offs of management and communicate about those trade-offs to stakeholders?

Activities (Time frame: 90 min)

Presentation (25 min): Management of a landscape often results in significant change in land use (e.g., plant cover, soil stability, hydrology). We need to understand those typical changes and understand how to evaluate them in order to weigh potential strategies.

Groups (15 min): Each group will be assigned to consider the “special interest” of a particular social group or organization (e.g. women, youth, community, environmental non-governmental organizations, a major industrial complex, or an extractive natural resource industry such as forestry) and asked to think about the following scenario: agricultural intensity in the upper slopes increases and crop selection changes as climate change causes higher temperatures here in the **local watershed**.

- Identify 2–4 downstream ecosystem services that will be advanced, and 2–4 that will be constrained by those changes.
- Identify 1–3 adaptive strategies (i.e., policies or suites of practices) that would protect or advance the goals of your assigned special interest.

Plenary (15 min): Each group will summarize the negative and positive impacts envisioned and the strategies proposed to mitigate negative changes.

- One other group comments on how those strategies would advance or impede the goals of the special interest of the second group.

Groups (15 min): Each group will now be assigned two ecosystem services (e.g., freshwater quality for fishing, fresh water for urban drinking, flood protection, crop productivity, etc.) and asked to reconsider the goals of their assigned special interest, this time from the perspective of optimizing two discrete ecosystem services.

- For each service, from the perspective of that special interest, tabulate conflicts that will be encountered, constraints in achieving the goal, opportunities for management action to achieve the goal, justification for the goal in spite of conflicts and constraints.

Plenary (15 min): Each group will summarize the trade-offs they would choose to make.

Plenary (5 min): Synthesis and re-direction.



Theme 3: Inclusive Management: Committing to Action and Evaluation

Module 12 – Adaptive Management and Evaluation

Module learning objectives:

- (1) Describe the principles of adaptive management and summarize how watershed management can respond to anticipated and unanticipated uncertainties.
- (2) Explain the role of monitoring and evaluation (M&E) and key performance indicators and describe how to implement appropriate M&E systems for adaptive watersheds.

Key questions to be answered:

- What is adaptive management? Why is it necessary? What are the key elements of adaptive management?
- How is adaptive management implemented?
- How can we develop key performance indicators (KPIs), including long term and near term?
- How can we develop effective M&E systems?

Activities (Time frame: 90 min)

Presentation (25 min): Adaptive management: an overview; KPIs: an overview.

Group (20 min): Using priorities and implementation actions developed in past sessions, identify 10 illustrative KPIs for your watershed. These must be SMART indicators (specific, measurable, achievable, responsible and time-bound). Talk about how these might be measured (using what data/information). Include ecological and social (including gender and Indigenous) KPIs as well as economic aspects.

Presentation (15 min): M&E: guidance for robust data/information contributing to adaptive management, including hydrological monitoring, broader monitoring for socioeconomic well-being, and elements of gender and Indigenous communities.

Group (20 min): Identify existing M&E efforts in the watershed and gaps, and brainstorm how these might be filled (e.g., watershed group conducting hydrological monitoring, citizen science efforts). Be sure to recognize that a gap might be lack of awareness rather than lack of monitoring. For each gap, identify who might do that monitoring and how you can learn if it is already being implemented.

Plenary (10 min): Briefly discuss how KPIs, M&E and reporting together contribute to adaptive management processes. Begin to frame a communication plan, which will receive much more attention later in the workshop, that discusses how you would communicate results of monitoring (i.e., who would care, how would you reach them?).



Module 13 – Building a Path to the Future

Module learning objectives:

- (1) Identify the constituency you represent as a participant in this workshop (e.g., your institution, or an interest group whose causes you champion).
- (2) Define, express and commit to a statement of personal and institutional responsibility.
- (3) Select and express the individual actions in support of the interest group you represent in a way that is synergistic and advances the interests of more than one group at once.

Key questions to be answered:

- What is the agenda of the people and the institution you represent?
- What are the management goals for the **local watershed** that those people hold forth?
- What actions can you personally agree to undertake that will advance those goals?

Activities (Time frame: 90 min)

Individuals (5 min): Write down what you feel to be the agenda or goals of the people you represent.

Groups (15 min): Share those goals and seek both common interests and places where the goals of one interest are at odds with those of another.

Plenary (15 min): Each group will summarize the common and disparate goals the participants in the room represent.

Individuals (10 min): Write down specific actions you are willing to commit to in the next year that will advance the interests of the people you represent, and will build adaptive capacity within the watershed over the next five years

Groups (20 min): Share those actions and seek synergy, places where actions you take would advance the interests of your supporters and those of at least one other person/group.

Plenary (15 min): Each group will summarize the collection of actions you see advancing the interests of your supporters and increasing adaptive capacity, which we will define as actions taken in five years that increase the probability of successful adaptation for the climates of 2050.

Plenary (10 min): Synthesis and re-direction.



Module 14 – Engaging with Stakeholders on Implementing a Path to an Adaptive Watershed

Module learning objectives:

- (1) Accept and defend that:
 - As a representative of one of one or more interests in the **local watershed**, you have accepted responsibility for personal and collective action.
 - The adaptive capacity of the stakeholders of the **local watershed** will be advanced only through informed decision making, a process of personal and institutional responsibility.
 - Informed decision making and adaptive capacity can only succeed if each person and institution holds his/herself/itself accountable, and acts transparently.

Key questions to be answered:

- Who are the stakeholders you represent?
- In what ways might you reach those stakeholders (e.g., newspapers, radio, Internet blog, social media)?
- What communication strategies would allow you to inform those stakeholders and maintain an open dialogue such that you also understand their changing views?

Activities (Time frame: 90 min)

Individuals (5 min): Identify and list the people you represent (i.e., institutions, individuals, interests).

Groups (15 min): Share each other's stakeholder lists and seek common ground and opportunities where communicating with one stakeholder group would seem to advance the interests of another.

Plenary (10 min): Each group will summarize the common and disparate stakeholder interests the people in the room represent.

Individuals (10 min): Write down specific ways you will reach out to your stakeholders, and actions you will take to learn of interests and views, and to communicate goals, actions, successes and failures, specifically actions you will take in the next year.

Groups (15 min): Share those actions and seek synergy, places where actions you take would advance the interests of your supporters and those of at least one other person/group.

Plenary (10 min): Each group will summarize the ways they plan to demonstrate transparency and accountability. The explicit goal is to define actions in the next 12 months that will clarify and empower decisions to be taken in five years that will increase the probability of successful adaptation for the climates of 2050.

Plenary (25 min): Synthesis: We will develop and agree upon a series of actions and communications to be taken in the next year, on an interim reporting structure for tracking those actions, and on a specific structure for reporting and celebrating those actions when we reconvene in 12 months.



Workshop Close

Module learning objectives:

- Understand that, as facilitators, we accept responsibility for leading a thoughtful and engaging experience. Your thoughts will help us design a positive experience for our second interaction a year from now, and will help us improve the workshop we offer to others.

Key questions to be answered:

- What aspects of this workshop engaged you?
- What aspects helped you see relationships here in the **local watershed** that were new to you?
- In what ways might we have been more effective in leading this workshop?

Activities (Time frame: 15 min)

Individuals (10 min): Please complete the workshop evaluation questionnaire.

Plenary (5 min): Share any thoughts you wish, hoping that your thoughts will help elicit some deeper interaction from someone else.

©2017 The International Institute for Sustainable Development
Published by the International Institute for Sustainable Development.

Head Office

111 Lombard Avenue, Suite 325
Winnipeg, Manitoba
Canada R3B 0T4

Tel: +1 (204) 958-7700

Website: www.iisd.org

Twitter: @IISD_news

