Session 9

Holistic Disaster Recovery: Creating a Sustainable Future

Decision Making in Sustainable Disaster Recovery: Class Exercise and Case Study Dialogue

Time 3 hours

(Slide 9-1)

Objective:

9.1 Describe and conduct class options:

1) Class Exercise/Role Playing

2) Case Study Analysis

Scope: Session 8 described decision making in the context of choices made by relevant stakeholder groups, the manner in which politics shape decision making and the role of planning as a decision making tool that has the potential to improve the likelihood of achieving a sustainable recovery. Session 9 is intended to simulate the decision making milieu of stakeholders following a disaster. The instructor may choose from a class role playing exercise or roundtable discussion of selected case studies. By engaging in role playing or case study analysis, students should gain a greater appreciation of challenges facing decision makers and the implications of their actions in the post-disaster environment.

Readings:

***Instructor Reading*:**

Class Exercise - FEMA Emergency Management Institute course, Mitigation and Recovery Exercises (G398); Earthquake (G398.1), Flood (G398.2), and Hurricane (G398.3). The instructor, who may choose from one of the three modules, should select an exercise that reflects hazards prevalent at the institution in which the course is taught. It is highly recommended that the instructor obtain and become familiar with the Instructor Guide and associated materials. Instructional materials are available in digital and hard copy from the Emergency Management Institute. Phone: (301) 447-1000 or 800 238-3358. http://training.fema.gov/emiweb/rclists.htm

Case Study Analysis – no readings required.

***Student Reading*:**

Class Exercise – FEMA Emergency Management Institute course, Mitigation and Recovery Exercises (G398): Earthquake (G398.1), Flood (G398.2), and Hurricane (G398.3). Students are expected to have read the introductory materials provided by the instructor prior to class.

Case Study Analysis – Each student research team should identify relevant case study material necessary to conduct a class presentation meeting established requirements.

Option #1 Class Exercise

The instructor should begin the session with an overview of the exercise, including its purpose and the rules of the game.[1] Exercise instructions should have been reviewed by the instructor and students prior to class. In reality, this session includes two exercises: 1) Mitigation and Recovery for Local Governments and 2) class dialogue / cardstorming. The mitigation and recovery exercise represents a modified version of a one-day training course.

For the purposed of this higher education course, changes are required in order to address the issue of role playing within the constraints of a three hour session. The mitigation and recovery exercise schedule is broken into a series of tasks (see Attachment A).[2] The instructor should limit the number of tasks addressed in the exercise to no more than two given time limitations. For example, the instructor may choose to use Task K (reconstruction planning – 75 minutes) and Task L (mitigating flood hazards – 40 minutes).

Remember, the purpose of this class exercise is to examine the roles adopted by those engaged in the process. Therefore, the choice of tasks is left to the discretion of the instructor. Additional aspects of the mitigation and recovery exercise may need to be modified in order to meet the unique circumstances of the class and the instructor.

It should be made clear that students are expected to actively engage in the exercise and pay attention to the behavior of other players.[3] In order for the game to effectively portray role dynamics, at least five students should be available to participate in the exercise.[4] In order to keep the exercise manageable, group size should not exceed ten players.

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[1] Instructions and exercise materials should be handed out to students during the previous course session. Students are expected to come to class prepared to initiate the role playing exercise.

[2] Attachment A is representative of tasks and instructions associated with the Flood Mitigation and Recovery Exercise.

[3] The instructor may want to evaluate individual participation by assigning a grade for each student's contribution to the exercise. Potential evaluation criteria may include: 1) The level of participation, 2) The degree to which the student incorporated behaviors discussed up to this point in class, 3) The comments made by students during the post-exercise dialogue. Students should be reminded that this and other exercises comprise a significant amount of their final class participation grade.

[4] The instructor may choose to recruit other instructors to participate in the role playing exercise. If at least five players cannot be identified, the instructor should rely on the case study analysis exercise.

(Slide 9-2)

Role of the instructor:

- The instructor may choose from among the three hazard-specific courses that best reflects the primary hazard faced in the region of the country that the course is being taught (e.g. earthquakes on the west coast, hurricanes in coastal states).

- The instructor will be required to obtain or task students with obtaining the following material from a local unit of government:

    - Base maps
    - Documents referenced in Attachment A (see facilitator's instructions)

- The instructor will be required to obtain and distribute "player packets" as defined in each Mitigation and Recovery Exercise. The content of the packets will depend on the exercise (e.g. G398.1, G398.2 or G398.3) and tasks chosen by the instructor.

- Instructor slides will need to be clipped from the chosen mitigation and recovery exercise. Note: Clipped slides should include those from the appropriate set of tasks.

- The instructor should provide a final overview of the rules of the game and keep students focused throughout the exercises.

- The instructor should take notes throughout the mitigation and recovery exercise, noting specific actions and their consequences. This information should be used to stimulate a dialogue among students during the cardstorming exercise.

- The instructor should encourage students to assume characteristics that have been discussed in previous sessions and observed in assigned readings.

- Students should be informed that a group dialogue will follow the conclusion of the exercise and their level of participation will be evaluated by the instructor.

(Slide 9-3)

Role of the student:

- Students are expected to have read the role playing materials handed out during the previous course session.

- Students should attempt to portray the decisions made by that stakeholder through active role playing.[5] Students are encouraged to incorporate relevant behavior based on previous course readings and exercises.

- Students should be prepared to participate in the dialogue / cardstorming exercise that will follow the conclusion of the mitigation and recovery exercise.

(Slide 9-4)

Card Storming Exercise

Once the role playing is complete, the instructor should take a brief break followed by the cardstorming exercise. The purpose of this exercise is to highlight specific actions that contributed to or impeded a sustainable recovery.[6] A significant part of the card storming process involves students and the instructor applying relevant course materials to the circumstances identified during the mitigation and recovery exercise.

- Students should begin by writing down (on blank 8 ½ x 11 inch sheets of paper) specific actions or issues they observed during role playing that contributed to or impeded a sustainable recovery.[7]

- Each action or issue should be written on a separate sheet of paper.

- The actions or issues should be written legibly in the center of the sheet (in landscape format).

- In the lower right corner, students should note whether the action or issue facilitated or impeded a sustainable recovery.

- Students should write down as many actions or issues as possible in a 30 minute period.

[5] Students should utilize the material learned up to this point in the course when role playing, particularly those conditions that apply to the stakeholder they represent.

[6] The instructor must decide the appropriate time to end role playing and initiate the card storming exercise. Several factors should be considered, including: 1) The length of the entire course session, 2) Allotting at least 45 minutes to the card storming exercise and class dialogue.

[7] The instructor may choose to purchase adhesive paper that does not require the use of tape or thumb tacks.

- Once those involved in role playing have completed the assignment, sheets should be posted on a dry erase board or other suitable wall surface where all participants can observe the results.

- The instructor should read aloud each action or issue statement to familiarize students with each and seek clarification, if necessary.

- Students should begin to identify similar patterns in written actions or issues. The instructor should request that students categorize similar actions or issues into columns.

(Slide 9-5)

- Once all actions have been grouped into similar topical areas, students should identify an appropriate term that characterizes each column. **For example, students may have identified the following issues and their effect on sustainable recovery:**

    - Failure to share information across departments (hindered sustainable recovery);

    - Identification of a local advocate (facilitated sustainable recovery);

    - Adoption of pre-disaster recovery plan (facilitated sustainable recovery);

    - Embraced multi-objective post-disaster planning (facilitated);

    - Aggressively pursued post-disaster grant funding (facilitated or hindered);

    - Limited involvement of the public in post-disaster decision making (hindered);

    - Initiated rapid assessment of post-disaster opportunities (facilitated);

    - High degree of vertical integration (facilitated);

    - Low level of horizontal integration (hindered);

    - Commitment of local funds to aid in recovery (facilitated);

    - Worked closely with non-profit relief agencies; and

    - Emphasized the use of Geographic Information Systems to improve decision making.

(Slide 9-6)

The actions may be categorized in the following manner:[8]

Communication and Coordination

- Failure to share information across departments (hindered sustainable recover;
- Identification of a local advocate (facilitated sustainable recovery);
- High degree of vertical integration (facilitated);
- Low level of horizontal integration (hindered); and
- Worked closely with non-profit relief agencies.

Use of Recovery Funding

- Aggressively pursued post-disaster grant funding; and
- Commitment of local funds to aid in recovery (facilitated).

Recovery Planning

- Adoption of pre-disaster recovery plan (facilitated sustainable recovery);
- Embraced multi-objective post-disaster planning (facilitated); and
- Initiated rapid assessment of post-disaster opportunities (facilitated).

Decision Making

- Limited public involvement in post-disaster decision making (hindered); and
- Emphasized the use of Geographic Information Systems to improve decision making (facilitated).

[8] Keep in mind that there is not a single definitive way to categorize actions. Rather, the value of the exercise is to encourage students to think about what they observed and how it relates to past course materials and their understanding of recovery processes.

(Slide 9-7)

Following the categorization of issues, the instructor should ask students to discuss the results, describing general trends and exercise outcomes. **In order to initiate further dialogue, the instructor may ask students the following questions:**

- Describe specific mitigation and sustainable recovery opportunities that became evident during the exercise.
- Did roles among stakeholders change over time?
- If so, how did they change and at what point in the exercise did the change occur?
- Characterize the level of horizontal and vertical integration.
- Describe specific factors observed that facilitated or hindered integration.
- What role, if any, did politics play in decision making?
- How would you characterize the level of pre and post-disaster planning?

Card storming materials needed:

- Tape
- Markers
- 8 ½ x 11 blank sheets of paper[9]
- Large table for group discussion
- Dry erase board or other suitable surface where the cards can be posted

[9] The instructor may use adhesive paper or plastic sheets of paper that adhere to surfaces due to static electricity.

(Slide 9-8)

Exercise Process

1. ***Opening remarks.*** The instructor should set the stage by explaining the exercise, the importance of role playing, and its relevance to the material covered in past sessions.

2. ***Establish ground rules. Specific rules include:***

   - All participants should respect the comments of other players;

   - Role playing should be taken seriously, the success of the game depends on it; and

   - Players should think about past lectures and readings to help frame the actions of the stakeholder they are representing and provide the context for their responses during the card storming session.

3. ***Participants should be assigned a stakeholder role.*** Each stakeholder will be provided basic information regarding their role, including relevant background materials.

4. ***The instructor will play the role of facilitator.*** The facilitator will answer questions posed before, during and after the exercise and raise relevant questions as appropriate. It is the facilitator's role to keep the exercise on track. In addition, the facilitator should keep notes regarding group interaction.[10] Following the exercise, the facilitator and students are tasked with linking the results with relevant issues and materials covered in past sessions.

5. ***Following the role playing exercise, the facilitator should hand out markers and cards.***

6. ***Following the exercise, each player should write down actions and issues faced during the exercise.*** Players should legibly write down one issue per card. Ideas should be summarized in three to five words. In the lower right hand corner students should note whether the issue facilitated or hindered sustainable recovery. Students should write down at least five issues. The idea is to collect approximately 30 to 50 cards from the group.

7. ***Each stakeholder should read their idea aloud and place it on the board.***

8. ***Once all of the issues have been placed on the board, the instructor should ask the students if there are any issues that fall into similar categories.***

9. ***The issues should be organized into columns based on these categories.***

10. ***Once the issues are categorized, the instructor should work with the group to title the categories on the board.***

[10] Players should keep notes in order to capture what they view as important comments and events that occur during the role playing exercise. This will facilitate a more in-depth discussion following the card storming process.

11. ***Next, the instructor should facilitate a group discussion linking the categories and issues to class session topics. The class discussion should last at least 30 minutes.***[11]

12. ***Evaluate the card storming exercise.*** What stood out? What seemed to work and what didn't? Were there any aspects of the exercise that could have been done better?[12]

(Slide 9-9)

Option #2 Case Study Analysis

The instructor may require students to conduct a case study analysis if the class size cannot support the exercise option or as an alternative means to engage students in a critical analysis of disaster recovery processes.

Student teams (consisting of no more than three people) will be expected to identify a suitable disaster recovery case study and give a 45 minute oral presentation of their findings.[13] Students should make sure to identify case studies that are sufficiently detailed.[14]
(Slide 9-10)

Each presentation should address the following topics:

- A description of identified stakeholder groups;
- An analysis of choices made by stakeholder groups, including their impact on the recovery process; and
- A description of inter-organizational relationships using the horizontal and vertical integration framework.

[11] The instructor may choose to revisit the findings later in the course or use them in future classes to encourage group discussion.

[12] The instructor may choose to discuss with students that this card storming technique is often used to encourage policy dialogue, undertake strategic planning, or address organizational decision making. In addition, emergency management officials regularly engage in a "hot wash" following an exercise to uncover existing operational strengths and weaknesses.

[13] The instructor should require that each presentation be conducted using a similar format. The instructor may require that each team develop a Power Point presentation and provide a copy of printed slides to the class. This will allow for the audience and the instructor to evaluate each presentation using the same process. This approach will also enable participants involved in the critique to take notes on specific elements discussed in the presentation and allow the presenters to go back to various slides should the class identify points that need clarification.

[14] The instructor should encourage students to solicit his or her input regarding the adequacy of potential case studies prior to Session 9. The primary criteria used to evaluate the suitability of any given case study should include the ability to access relevant information necessary to answer the assigned questions. Given the brief period of time available to collect relevant information, students should make sure that they choose a well documented case history or an event for which they have access to adequate information.

Following the completion of each presentation, students are expected to critically analyze one another's case study findings across the assigned topics. Student critiques should be grounded in session materials discussed to this point in the course. However, as in the card storming exercise, should students or the instructor identify unique issues that have not been discussed in the course, time should be allocated to address the topic. In fact, should items be uncovered that are not scheduled to be discussed in the course, the instructor may choose to further investigate the issue and discuss in later class sessions.

ATTACHMENT A

Flood Mitigation and Recovery — An Interactive Exercise for Local Governments

Contents

Introduction

This manual describes an interactive training exercise on flood mitigation and recovery. The exercise simulates selected aspects of physical recovery from flood damage. The stage is a single local government jurisdiction and the players are its key staff members. Players are guided in creating their own scenario of flood damage and then led through a series of tasks related to planning for repairs and rebuilding.

Why an Exercise?

Local police and fire departments know the value of exercises to help them prepare for potential disasters. Through such exercises, they develop techniques to handle extraordinary circumstances, make decisions under extreme pressure, and contain the impacts of a disaster to the extent possible. Experience demonstrates that preparing in advance improves performance when disaster strikes.

Weeks after a damaging flood, circumstances are still extraordinary, decisions are made under extreme pressure, and the impacts continue rippling through the community. As the need for emergency responders decreases, a new group of local staff people—managers, planners, building officials, finance officers, and engineers—face mounting responsibilities. Shouldn't there be an exercise for them, too?

This exercise is primarily for this "second wave" of responders whose actions will play an important role in shaping the rebuilt community. It is designed to provide them with a preview of the issues and problems they will face in the hopes that, like the emergency responders, they will be better prepared to serve their community effectively after a flood.

How Does the Exercise Relate to Real Time?

The exercise takes 8 hours. During that time, players will complete tasks covering a time period extending from a flood warning received 3-5 days before the flood to one or two years after the flood. The tasks are arranged in approximate time sequence starting with those that normally must be dealt with first. This linear time sequence of tasks oversimplifies a complex, real situation in which tasks often must be addressed simultaneously. The amount of time allocated to each task will seem too short. This simulates, to some degree, the pressure after a flood to do an incredible amount of work very quickly.

How Does the Exercise Relate to Actual Recovery?

Like any exercise, this one is a selective and approximate slice of real experience. It consists of a series of interrelated tasks that local governments almost always must face after a flood. The common links are that all the tasks must be done by local government and all potentially affect options for repairs and rebuilding.

The exercise covers many of the tasks that local officials will face during recovery. Each task in the exercise is realistic in that it will probably need to be carried out after a flood, but not all post-flood recovery tasks are included. For example, much of emergency response is not covered. Economic and fiscal matters are only tangentially included, although they certainly impact physical recovery. FEMA disaster assistance programs and requirements are not fully incorporated into the exercise, mainly because it would take too much exercise time to fully explain the details to the players. However, the tasks are generally consistent with provisions of FEMA's National Flood Insurance Program.

The exercise does not reflect the intense political heat surrounding recovery. Players will need to imagine the political context in their community as they are working the exercise. Political issues pervade every task. After floods, local governments commonly enjoy a brief suspension of political rivalry. Distinctions between the responsibilities of public and private agencies, federal, state, and local governments, and city and county government departments may blur. Every organization and person will be working together to address their common needs. But this does not last long. Pre-flood political problems will soon reemerge to influence decisions about long-term recovery.

Time is an important post-flood issue. The public may perceive that repairs and rebuilding are taking too long. Anger and frustration stemming from feelings of helplessness will often be vented at local public officials, particularly planners and building officials, whose approvals may stand between people and their ability to repair or rebuild damaged homes and businesses.

The exercise deals with common aspects of flood recovery; however, the unexpected will happen. The failure of a flood control structure, for example, can mean rebuilding an entire section of the community. Key staff people may be out of town or unable to handle the pressure, or adverse weather may delay outside help. Contingencies like these are part of the context of recovery. By learning as much as possible about the "normal" tasks of post-flood recovery, local government staffs will be prepared to do these with more ease, giving themselves a better chance of handling the "abnormal" tasks effectively.

And finally, the exercise will give players the important advantage of forethought when they face the inevitable flood, enabling them to help their communities recover and rebuild quickly and effectively. Not only will they be better prepared for recovery tasks, they will learn about the advantages of acting now to prevent flood damage.

What Are the Assumptions for the Exercise?

1. The city or county conducting the exercise prepares for emergency response, plans for community development, administers land development regulations, and issues building permits.

2. The community participates in the National Flood Insurance Program and has adopted a floodplain management ordinance meeting the minimum criteria in the NFIP.

3. The players know their community well, but do not need to know much about floods or recovery from floods.

Facilitator's Instructions

Overview of Exercise Design

This exercise on mitigation and recovery after floods is organized into a series of tasks that are to be completed in sequence. Each task, labeled by a letter (A-L), has a time limit ranging from 20 to 75 minutes. The tasks are in rough chronological order, but in reality, many would be occurring simultaneously. Each task covers, at least partially, an issue related to recovery that typically arises after a flood.

The exercise starts with a flood warning. Task A asks players to respond to the warning and determine areas to evacuate. They begin to record information on a base map of the community that is used throughout the exercise. Then in Task B, they open emergency shelters. The flood arrives in Task C during which the players create a damage scenario based on their best judgment of the impacts of a real flood, considering that flood control structures may fail and debris carried by floodwaters may cause additional damage.

The next tasks, usually part of emergency response, concern the rerouting of traffic in Task D and restoring essential community services in Task E. Then, more information is collected about the damage in Task F. These actions set the stage for early recovery—finding temporary locations for displaced businesses and residents in Tasks G and H, adopting policies for repair of damaged buildings in Task I, and adopting procedures to process permits for repairs and rebuilding in Task J.

The emphasis then turns to planning for reconstruction with Task K to identify planning opportunities and develop a plan for reconstruction of the floodplain. Finally, the exercise ends with Task L to define mitigation actions that can be taken beforehand to avert flood damage and prepare for long-term recovery and rebuilding.

All the tasks can be accomplished using typical local government background documents, such as the comprehensive plan and zoning ordinance, supplemented by handouts provided in this manual. A specific product or products will emerge from each task, often providing input to subsequent tasks.

Throughout, it is important to remember that the primary value of the exercise is in the process, rather than in the products. It is designed to educate staff members about their likely tasks after a damaging flood. They will be able to apply this basic knowledge to floods varying in size and impacts. As with any exercise, it is a first step. Having

learned something of the process and problems, players will need to take further actions to reduce potential damage and prepare for the inevitable tasks of rebuilding.

Overview of this Manual

This manual contains most of the information needed for you to facilitate the tasks and for the players to complete the tasks. The manual is divided into four sections: introduction, facilitator's instructions, exercise tasks, and slide index.

In the section labeled *Exercise Tasks*, you will find a series of tabs identifying each exercise task. Behind each of these tabs is a script, a one-page instruction sheet for doing the task, and, for some tasks, handouts to be used by players during the task.

> ***Scripts.*** Each task is introduced with a scripted slide show. The script may be read or paraphrased. Each script tells what the task is, why it is important, and how it has been carried out after recent floods. Tasks A, C, and K contain short blanks for community-specific information that need to be filled in by the facilitator using the materials for the exercise. A one-line description of each slide accompanies each paragraph of the script. This line is in bold face italics and is not meant to be read aloud.
>
> ***Instructions.*** The instruction page for each task is to be duplicated and included in the packet for each player. This page states the purpose of the task and lists the materials that will be needed to complete it, including handouts. Then, the specific steps required to do the task are listed, followed by a description of the product or products the task will generate.
>
> ***Handouts.*** Handouts, too, should be duplicated and included in the packets. They are forms to be filled out as a product of the task.

An index for all slides used in this exercise follows the Exercise Tasks section.

Recommended Participants

The exercise has three categories of participants:

- ***Facilitator(s)—*** the person or persons responsible for organizing the exercise, providing information to the players before, during, and after the exercise, and conducting the actual exercise.
- ***Players—*** those carrying out the prescribed exercise tasks.
- ***Observers—*** people invited to learn from the exercise by watching.

Who exactly should participate in each of these categories? The exercise is designed with the following assumptions about participation.

Facilitator(s). The facilitator should be skilled in running meetings and knowledgeable about flood hazards, long-term recovery from floods, and flood hazard mitigation. Someone from your state's floodplain management office, hazard mitigation office, or emergency services department could facilitate the exercise for your community. The facilitator could also be a community's emergency services coordinator or other staff member. Because the exercise emphasizes planning issues during recovery, a community's city planner could be an excellent facilitator, either alone or working with someone with emergency management expertise. A consultant with appropriate qualifications is a possible choice. The facilitator must have the full support of the community's chief administrative officer and be authorized to ask assistance from staff members in preparing for the exercise.

Players. The players should include 8 to 12 local government senior staff members, selected by the city or county manager. Staff members, such as the planning director, building official, and public works director, who would be responsible for rebuilding recommendations after a flood must be involved. Other possible players are the city or county manager, emergency services coordinator, housing specialist, engineer, clerk, attorney, parks and recreation director, and any other staff person who might have recovery responsibilities. The police and fire chiefs need to be involved as the exercise deals with some emergency response issues. However, it is wise to alert them that this is not an emergency response exercise, and that others on the staff will probably be taking the lead. Council members, local American Red Cross personnel, or business persons may be players. It is important to include those people who would be responsible for the tasks in the exercise after a flood, regardless of their formal titles or roles.

Observers. Allowing non-players to observe the exercise is an effective way to spread the benefit; however, it is optional. The decision would be made by the facilitator and the participating jurisdiction. Observers could be other staff members from participating departments, staff members from non-participating departments, elected or appointed local officials, and community representatives. Staff members from other

nearby jurisdictions might also be invited. By including observers, a jurisdiction would be increasing the impact of the exercise as a learning tool.

Recommended Schedule

The exercise can be completed in an 8-hour day with a break for lunch. It is fast-paced, calling for intensive effort from the players during the playing period. The schedule is deliberately tight to give players some sense of the pressure and tension that would pervade such tasks after a real flood. It can be done in a single day as shown in the schedule below. However, it can be spread over two days, perhaps starting in the afternoon of the first day and finishing at noon on the second day. By doing this, the players have time to rest and bring fresh perspective to the important tasks that come later in the exercise.

EXERCISE SCHEDULE

		Minutes
8:00 - 8:30	Introductions/Explanations	30
8:30 - 9:10	Task A. Warning and Evacuation	40
9:10 - 9:30	Task B. Emergency Shelter	20
9:30 - 10:30	Task C. Damage Scenario	60
10:30-10:50	*Break*	*20*
10:50-11:10	Task D. Rerouting Traffic	20
11:10-11:30	Task E. Restoring Services	20
11:30-12:00	Task F. Damage Assessment	30
12:00 - 1:00	*Lunch*	*60*
1:00 - 1:20	Task G. Temporary Business Locations	20
1:20 - 1:40	Task H. Temporary Housing	20
1:40 - 2:25	Task I. Policies for Damaged Buildings	45
2:25 - 2:45	Task J. Permit Processing	20
2:45 - 3:05	*Break*	*20*
3:05 - 4:20	Task K. Reconstruction Planning	75
4:20 - 5:00	Task L. Mitigating Flood Hazards	40

Materials Needed for Exercise

To conduct the exercise, you will need to assemble some readily-available supplies and standard local documents. Below are lists of materials needed for the exercise.

Supplies. Supplies include a slide projector, screen, marking pens, map overlay material (such as acetate, tracing paper, or mylar), tape, and push pins. A flip chart or blackboard is not necessary, but can be used, as a supplement to the handouts, to record information during the exercise. A display timer, such as a kitchen timer, is essential for you and the players to keep track of time during the exercise.

Base Maps. One or more copies of a base map of the community is essential. The map should be the largest scale available that can fit on the table. It should show major properties, streets and bridges, important facilities, and, if available, parcel boundaries. If the jurisdiction is geographically large, a table-top sized base map will not show both the whole jurisdiction and individual parcels. You may wish to select a part of the floodplain as a focus for the exercise and provide large scale maps covering the selected area. In this case, a map of the entire jurisdiction should also be provided for context and perhaps for use in some of the early tasks.

Documents. The instruction sheets contain a list of materials to use for each task. Most of these are common local government documents and should be readily available. If documents are not available, the tasks can still be done relying on the players' knowledge of the community. Documents to collect, if available, are:

- Flood Insurance Rate Map (FIRM) or most recent NFIP map
- floodplain management ordinance
- information on previous floods
- local comprehensive plan and plan diagram
- emergency response plan, including shelter plans
- redevelopment, downtown, or special sector plans
- zoning ordinance and maps
- procedures for processing planning and building permits
- lists of historic buildings

Other relevant materials, such as census data, housing plans, or economic development plans, may be useful and should be provided, if readily available.

Player Packets. You will need to provide each player with an exercise packet, containing 12 instruction pages and 10 handout pages. You may also wish to prepare packets for observers so they may follow the action. The packets should be clipped (not stapled) or placed in a binder. The pages should be collated according the sequence of the tasks. Following is a list of the packet pages in the order they should be assembled.

Contents of the Player Packets

Handout 1	Exercise Schedule
Handout 2	Color Key for Mapping Information
Handout 3	Task Leaders and Other Assignments
Handout 4	Recommended Actions
Instructions	Task A. Warning and Evacuation
Handout A	Actions in Response to Flood Warning
Instructions	Task B. Emergency Shelter
Instructions	Task C. Damage Scenario
Instructions	Task D. Rerouting Traffic
Instructions	Task E. Restoring Services
Instructions	Task F. Damage Assessment
Handout F	Damage Assessment
Instructions	Task G. Temporary Business Locations
Instructions	Task H. Temporary Housing
Instructions	Task I. Policies for Damaged Buildings
Handout I	Policies for Damaged Buildings
Instructions	Task J. Permit Processing
Instructions	Task K. Reconstruction Planning
Handout K	Planning Opportunities
Instructions	Task L. Mitigating Flood Hazards
Handout L1	High-Priority Action to Reduce Flood Risk
Handout L2	Contacts for Technical and Financial Assistance

Suggestions for Conducting the Exercise

1. Select as players 8 to 12 high-level staff persons to form a small working group in which each player can interact freely with all others. Invite additional staff members to observe.

2. The success of the exercise depends on total concentration of all players for the entire day. If possible, arrange to conduct the exercise away from the normal work place to reduce chances for interruption.

3. The exercise is tightly timed. Let players know that they must be on time for the exercise and clear their schedules to prevent interruptions.

4. Find a room that can be darkened for showing slides. The room should have a table the players can sit around to work on the base map and a wall on which maps may be attached with tape or push pins.

5. Provide for refreshments during the breaks. Thinking burns up energy.

6. Exert control to keep the exercise on the time schedule. Discussion should be discouraged while you are reading the scripts. Discussion can take place while the players are working on the tasks.

7. Whenever possible, add a few local slides with brief descriptions to the slide presentations. Slides showing past floods in the community, buildings in the floodplain, or elevated structures can be added at the appropriate places in the task introductions. Doing this can help the players see the local relevance of the many examples in the presentations from around the country.

8. If the facilitator is not a staff member, he or she needs to secure the support of the jurisdiction's chief executive officer and coordinate with a designated staff person. That staff person must be able to verify that the key players will commit the full day to the exercise and help with local arrangements.

Facilitator's Checklist

Checklist

Before Exercise

- q Obtain authorization from CAO, council, or other appropriate body.
- q Set date and time.
- q Reserve meeting room.
- q Determine players and arrange with the CAO for them to participate.
- q Invite observers, if desired.
- q Arrange for slide projector and screen.
- q Provide materials for map overlays, pens, push pins, and tape.
- q Obtain copies of the jurisdiction base map and parcel maps.
- q Assemble documents
- q Assemble player packets.
- q Study task scripts and instructions.
- q Acquire local slides and make additions to the script.
- q Place the slides in order in slide carousels.

During Exercise

- q Use the script and slides to introduce the exercise and each task.
- q Time the tasks and facilitate their timely completion.
- q Answer questions and assist players with the tasks.
- q Oversee creation of a list of high-priority actions to reduce flood risk.

After Exercise

- q Continue to work with players on the high-priority actions to reduce flood risk.

Exercise Tasks

In the section labeled *Exercise Tasks*, you will find a series of tabs identifying each exercise task. Behind each of these tabs is a script, a one-page instruction sheet for doing the task, and, for some tasks, handouts to be used by players during the task.

Scripts. Each task is introduced with a scripted slide show. The script may be read or paraphrased. Each script tells what the task is, why it is important, and how it has been carried out after recent floods. A one-line description of each slide accompanies each paragraph of the script. This line is in bold face italics and is not meant to be read aloud.

Instructions. The instruction page is to be duplicated and included in the packet for each player. This page states the purpose of the task and lists the materials that will be needed to complete it, including handouts. Then, the specific steps required to do the task are listed, followed by a description of the product or products the task will generate.

Handouts. Handouts, too, should be duplicated and included in the packets. They are forms to be filled out as a product of the task.

SCRIPT—INTRODUCTION TO TASKS
(15 minutes to read the script)

Slide 1. Flood Mitigation and Recovery-An Interactive Exercise for Local Governments

This is a flood mitigation and recovery exercise designed for local government officials. The exercise introduces you to some of the tasks you will face when a damaging flood strikes your community.

Slide 2. Exercise tasks

The exercise is organized into a series of twelve tasks that are to be completed in sequence. The tasks are listed on the screen. Each task is identified by a letter A through L.

The exercise starts with heavy rains and a flood warning. In the first task, Task A, you decide how to respond to the warning and what areas to evacuate. Then, in Task B, you determine how to provide emergency shelter for the people evacuated. The flood arrives in Task C and you determine its extent and major impacts.

Next come typical tasks during emergency response—Task D rerouting traffic around washed out bridges and roads and Task E restoring essential services to the community. Then, more information is collected about the damage in Task F. This task sets the stage for early recovery—finding temporary space for displaced businesses and residents in Tasks G and H and adopting policies and procedures for the repair, removal, or rebuilding of damaged buildings in Tasks I and J.

The emphasis then turns to planning for reuse of the floodplain with Task K during which you prepare a reconstruction plan for the flooded area. Finally, the recovery exercise ends with Task L. In this task, you recap the problems encountered in the previous tasks and detail high-priority actions that can be taken beforehand to avert flood losses and prepare for rebuilding.

Slide 3. Exercise schedule

Here is a schedule of the exercise showing the amount of time allocated to each task. You each have a copy of this schedule in your packet (*Handout 1*). Times range from 20 to 75 minutes. The amount of time allocated to each task will seem much too short. This simulates, to some degree, the time pressure you will experience after a flood. In addition to time for the tasks, this introduction will take about 30 minutes and you will have a 20-minute break in mid-morning and

mid-afternoon. One hour is allocated for lunch. The entire exercise will take until 5:00 this afternoon.

Slide 4. Exercise purpose

The primary purpose of the exercise—shown here—is to improve the ability of local governments to recover from damaging floods. We think it will do so in the ways listed here.

- Training non-emergency personnel in recovery tasks. Fire fighters and police officers receive training to prepare them to handle disasters; most other staff people rarely do. This exercise is designed primarily to train non-emergency staff in tasks that come after emergency workers are through.

- Passing on experience from cities that have rebuilt. Many jurisdictions have had damaging floods. The exercise content draws from these experiences.

- Providing a chance for hands-on experience. The exercise gives you a chance to apply general information about recovery and rebuilding to your specific circumstances.

- Encouraging preparations for recovery and rebuilding. The exercise will help you see how you can prepare now to handle typical recovery tasks more effectively after a flood.

- Encouraging actions to reduce flood damage. Once you see how tough recovery will be, we think you will want to initiate actions now to reduce the potential damage in your community.

Slide 5. Topics not covered

The exercise covers recovery from flooding along rivers and streams usually caused by heavy rainfall. It does not cover coastal flooding or other kinds of storm damage. Nor are all aspects of recovery covered. The slide lists some significant omissions. Most of emergency response is not covered, such as search and rescue and debris removal. Economic and fiscal matters are only tangentially included, although they certainly impact physical recovery.

FEMA disaster assistance programs and requirements are not incorporated into the exercise, but you need to recognize that FEMA requirements will affect nearly every post-flood activity. Much of what takes place after a flood responds to requirements of the local floodplain management ordinance adopted as a condition for participating in the National Flood Insurance Program. The tasks in the exercise are consistent with those requirements, but the details of the program are not incorporated.

The exercise does not incorporate your community's political context. As you work the tasks, it will help to keep in mind the major political issues in your

community. After a flood, there may be a brief suspension of political rivalries, but this does not last long. What you can and cannot accomplish will depend a great deal on political factors.

Slide 6. Flood recovery timeline

This is a timeline showing typical lengths of time to accomplish the tasks in the exercise after a real flood. The timeline is divided into three sections: 1) pre-flood warning shown in white, 2) short-term recovery running from the flood to about 2 months shown in light gray, and 3) long-term recovery running from about 2 months to two years shown in dark gray. Actual rebuilding can take much longer than 2 years, and mitigating flood hazards is an ongoing process. Almost all of the tasks are started during early recovery, but many of them extend into long-term recovery. Today you get to do the tasks one at a time, but as you can see here, after a real flood, you will be doing many of them simultaneously.

In general, the tasks take longer after a flood than people expect. This means that you start the recovery effort with unreasonable expectations for a speedy recovery. People are likely to feel that repairs and rebuilding are taking too long. The procedures and permits you require may be seen as obstacles to the quick reoccupancy of flooded homes and businesses. The recovery process is permeated by tension between the desire for speed and the need to take time to ensure responsible rebuilding.

Slide 7. Task structure

Each task in the exercise is organized the same way.

Introduction. Each task is introduced with a slide presentation with background information to help you with the task. The slides show how the task has been handled by communities after real floods. The introductions average about 5 minutes.

Instructions. Your packet contains one-page instruction sheets telling you the steps to take to complete each task. You will want to take time to read the instructions before you start work.

Handouts. For some tasks you will find handouts in your packet consisting of forms to be filled out during the task.

Products. You will produce something in every task. Products consist of information added to the map and entries on handouts.

Slide 8. What players need

You do not need to be a recovery expert to do these tasks. You need working knowledge of your community and some idea of the effects of floods. You have here a collection of background documents and maps to help you with the tasks. The materials include your community plan and land use diagram, zoning ordinance and maps, emergency response plan, and any available redevelopment plans and lists of historic buildings. You also have the flood hazard information available for your community, including your Flood Insurance Rate Maps issued by the Federal Emergency Management Agency and your floodplain management ordinance. You can refer to these items throughout the exercise as questions arise.

Here is a base map covering the community. You will be recording information on this map throughout the exercise. You also have a set of colored pens for adding information to the map. *Handout 2* tells you which color to use for each category of information to be mapped.

Slide 9. Getting started

Before you start the exercise, you need to organize yourselves to do the work. First, you need to select a player to take the lead on each task. The selections can be recorded on *Handout 3* in your packet. The task leader will be responsible for keeping the discussion on track and helping the group reach some decisions before the timer goes off. We will also ask the leader to give a two-minute (or less) summary of the results at the end of each task, focusing on any problems encountered and recommended actions to overcome them.

You also need to select a player to be group recorder. This should be someone whose position on the city staff is somewhat peripheral to the topics covered in the exercise. For example, the planning director or building official would not be a good choice, but the city clerk or personnel director might be. This person will fill out the handouts with particular attention to *Handout 4. Recommended Actions*, which is filled out at the end of each task. If available, a flip chart or a blackboard may be used in place of *Handout 4*. The recorder will then recap the recommended actions listed on *Handout 4* as part of Task L.

In addition, you may want to select the artist among you to draw on the map.

Now, open your packet and review the four handouts. Take a minute to look them over. Then go right to selecting the players to fill the various roles. We will start the introduction to Task A as soon as you have made your selections.

Handout 1

EXERCISE SCHEDULE

		Minutes
8:00 - 8:30	Introductions/Explanations	30
8:30 - 9:10	Task A. Warning and Evacuation	40
9:10 - 9:30	Task B. Emergency Shelter	20
9:30 - 10:30	Task C. Damage Scenario	60
10:30-10:50	*Break*	*20*
10:50-11:10	Task D. Rerouting Traffic	20
11:10-11:30	Task E. Restoring Services	20
11:30-12:00	Task F. Damage Assessment	30
12:00 - 1:00	*Lunch*	*60*
1:00 - 1:20	Task G. Temporary Business Locations	20
1:20 - 1:40	Task H. Temporary Housing	20
1:40 - 2:25	Task I. Policies for Damaged Buildings	45
2:25 - 2:45	Task J. Permit Processing	20
2:45 - 3:05	*Break*	*20*
3:05 - 4:20	Task K. Reconstruction Planning	75
4:20 - 5:00	Task L. Mitigating Flood Hazards	40

Handout 2

COLOR KEY FOR MAPPING INFORMATION

COLOR	INFORMATION ON MAP
Yellow	• floodway and 100-year floodplain • temporary housing
Brown	• areas evacuated • temporary business locations
Green	• emergency shelters • road blocks, alternative traffic routes
Blue	• area flooded • parcels with buildings over 50% damaged
Orange	• areas with concentration of pre-FIRM • historic buildings
Purple	• major facilities (schools, hospitals, government buildings, etc.) • areas with impaired access
Red	• washed out bridges and roads • areas affected by loss of utilities
Black	• damaged utilities • buildings to be demolished • areas subject to moratorium on rebuilding

Handout 3

TASK LEADERS AND OTHER ASSIGNMENTS

TASKS	LEADERS
Task A. Warning and Evacuation	
Task B. Emergency Shelter	
Task C. Damage Scenario	
Task D. Rerouting Traffic	
Task E. Restoring Services	
Task F. Damage Assessment	
Task G. Temporary Business Locations	
Task H. Temporary Housing	
Task I. Policies for Damaged Buildings	
Task J. Permit Processing	
Task K. Reconstruction Planning	
Task L. Mitigating Flood Hazards	

Mapper: _____

Group Recorder:_____

Handout 4

TASKS	RECOMMENDED ACTIONS	Priority
Task A Warning and Evacuation		
Task B Emergency Shelter		
Task C Damage Scenario		
Task D Rerouting Traffic		
Task E Restoring Services		
Task F Damage Assessment		
Task G Temporary Business Locations		
Task H Temporary Housing		
Task I Policies for Damaged Buildings		
Task J Permit Processing		
Task K Reconstruction Planning		

INSTRUCTOR NOTES / EXERCISE COMMENTS