For this discussion you will be split up into five groups of 3-5 people each. Each group will represent a different community or interest group along a large meandering river. The communities will each have their own agenda in regards to the river and during discussion will attempt to achieve their list of goals. In addition to reading this introductory material, please read the material in the pdf file pertaining to your community or interest group. Finally, you will need to bring a printout of a peer reviewed journal article related to your group’s focus. A good source for this is GeoRef, which can be found on the A-Z List of Databases on the APSU Library website. Make sure your name and the group/community that you are in are written on the article (or you may print out this page and fill out the information at the top and staple it with the article).

The diagram on the next page shows the locations of the communities along the river, as well as the proposed structures to be added to the river. Listed below are the five communities/groups and their major concerns or goals. More detail for each group is given in their respective pdf files.

Community A
This larger city is located near the headlands of the river and would like to build a hydroelectric dam which will create a large reservoir. The dam and reservoir will be used as a power supply, water supply, and recreation area.

Community B
This village is located along a meander that is close to being naturally cut off from the rest of the river. They would like to add structural supports to stop this from happening and also put levees along the river to reduce their flooding risk.

Community C
This smaller city is located near the delta and is concerned with the effects the upstream activity will have on subsidence, flooding, and river water quality and quantity, as it is their water supply and would like to stop many of these projects from being completed.

Farmers
This agricultural community would like to drain the wetlands in order to have more land available for farming.

Environmentalists
This interest group is concerned with the effects the construction of the dam and draining of the wetlands will have on the local wildlife and would like to stop both of these projects from being completed.
Diagram showing locations of communities and proposed structural changes along the river.
Environmental Geology
River of the Dammed: Community A

Review the Introduction before reading this information

Your community has two goals that it would like accomplished. Your first and main goal is to build a hydroelectric dam on the river. Your second goal is to keep Community B from building their structural supports on the meander so it can be naturally cut off, as a straighter channel makes for an easier shipping route for your growing community.

Use the information from the following references (including useful websites), as well as the journal article you bring to class. Note that it will be helpful to print out graphs and figures presenting the scientific evidence to prove to the other groups your goals should be fulfilled. You may need to find additional journal articles to convince the other communities of your position. Finally, you may want to divide topics up between your community members.

As you are finding references, consider that you need to convince the other communities of the benefits of hydroelectric dams and allowing for meanders to naturally cut off, but also need to be prepared for problems or topics the other communities may use to debate these benefits. For example, one benefit of a hydroelectric dam is it creates a reservoir that can be used for recreation. However, the creation of this reservoir changes the environment and may reduce natural fish populations, such as salmon.

References:


USGS Publications Warehouse. There are a number of publications on the Mississippi River that may be useful to your community.
Environmental Geology
River of the Dammed: Community B

Review the Introduction before reading this information

Your community has two goals that it would like accomplished. Your first and main goal is to build supporting structures on the meander in order to keep your section of the river from being cut off as your community does not want to end up living along a meander scar. Your second goal is to build levees (your community is concerned the natural levees are not enough) along the river to protect your community from flooding.

Use the information from the following references (including useful websites), as well as the journal article you bring to class. Note that it will be helpful to print out graphs and figures presenting the scientific evidence to prove to the other groups your goals should be fulfilled. You may need to find additional journal articles to convince the other communities of your position. Finally, you may want to divide topics up between your community members.

As you are finding references, consider that you need to convince the other communities of the benefits of support structures and levees, but also need to be prepared for problems or topics the other communities may use to debate these benefits. For example, one benefit of levees is the protection from flooding. However, the creation of levees may increase flooding to communities downstream.

References:


*see in particular Chapter 7

USGS Publications Warehouse. There are a number of publications on the Mississippi River that may be useful to your community.
Your community has two goals that it would like accomplished. Your first and main goal is to protect your water supply, which is the river. This includes both quantity and quality. In particular you would like the Farmers to use less irrigation water and stop using fertilizers and pesticides. Your second goal is to protect your community from subsidence and increased flooding. You need to consider how the other proposals may increase flooding or reduce sediment deposition near your community.

Use the information from the following references (including useful websites), as well as the journal article you bring to class. Note that it will be helpful to print out graphs and figures presenting the scientific evidence to prove to the other groups your goals should be fulfilled. You may need to find additional journal articles to convince the other communities of your position. Finally, you may want to divide topics up between your community members.

As you are finding references, consider that you need to convince the other communities as to why they should protect the river and keep your community from flooding, but also need to be prepared for problems or topics the other communities may use to debate these benefits. For example, better quality river water means less cost to treat your water and also protects wildlife that live in and along the river. However, the lack of fertilizers and pesticides may make it difficult for the farmers to produce enough food for the population.

References:
Federal Emergency Management Agency Dam Safety webpage:  


Rabalais, Nancy N., Turner, R. Eugene, and Scavia, Donald, 2002. Beyond Science into Policy: Gulf of Mexico Hypoxia and the Mississippi River Nutrient policy development for the Mississippi River watershed reflects the accumulated scientific evidence that the increase in nitrogen loading is the primary factor in the worsening of hypoxia in the northern Gulf of Mexico. Bioscience, vol. 52, no. 2, p. 129-142.

USGS Publications Warehouse. There are a number of publications on the Mississippi River that may be useful to your community.
Your community has two goals that it would like accomplished. Your first and main goal is to drain the wetlands south of your current land so that more land is available to grow food on. Your second goal is to keep Community B from building their levees directly upstream from you as it will increase your flooding.

Use the information from the following references (including useful websites), as well as the journal article you bring to class. Note that it will be helpful to print out graphs and figures presenting the scientific evidence to prove to the other groups your goals should be fulfilled. You may need to find additional journal articles to convince the other communities of your position. Finally, you may want to divide topics up between your community members.

As you are finding references, consider that you need to convince the other communities as to why additional farmland is needed and keep your community from flooding, but also need to be prepared for problems or topics the other communities may use to debate these benefits. For example, food shortages are a concern as climate changes so more farmland may be required to supply the population. However, draining wetlands can increase flooding to downstream communities.

References:
Center for Global Food Issues webpage: www.cgfi.org

Federal Emergency Management Agency Levee Resources webpage:
http://www.fema.gov/living-levees-its-shared-responsibility/fema-levee-resources-library

The Fertilizer Institute’s Introduction to Fertilizer webpage:
http://www.tfi.org/introduction-fertilizer

Moyers, Bill. Agricultural Ecosystems Profile. PBS: Earth on Edge Series. Website is:
http://www.pbs.org/earthonedge/ecosystems/agricultural1.html

U.S. Environmental Protection Agency Wetland Information:
http://water.epa.gov/type/wetlands/fish.cfm
    look at the following pdf’s:
        America's wetlands: Our vital link between land and water
        Functions and values of Wetlands
        Economic Benefits of Wetlands
Your community has two goals that it would like accomplished. Your first and main goal is to keep Community A from building their dam as it will make it difficult or impossible for fish to move past it and will flood a large deer habitat. Your second goal is to keep the Farmers from draining the wetlands as a number of unique wildlife species inhabit them.

Use the information from the following references (including useful websites), as well as the journal article you bring to class. Note that it will be helpful to print out graphs and figures presenting the scientific evidence to prove to the other groups your goals should be fulfilled. You may need to find additional journal articles to convince the other communities of your position. Finally, you may want to divide topics up between your community members.

As you are finding references, consider that you need to convince the other communities as to why the dam should not be built and wetlands not be drained, but also need to be prepared for benefits the other communities may use to debate these problems. For example, the construction of the dam changes the environment and may reduce natural fish populations, such as salmon. However, the dam will provide cheap electricity to a large population.

References:


U.S. Environmental Protection Agency Wetland Information:
http://water.epa.gov/type/wetlands/fish.cfm
look at the following pdf’s:
America's wetlands: Our vital link between land and water
Functions and values of Wetlands
Economic Benefits of Wetlands


USGS Publications Warehouse. There are a number of publications on the Mississippi River that may be useful to your community.
ROTD Ballot

Should a dam be constructed near Community A?

☐ Yes

☐ No

Should the wetlands be drained to provide more farmland?

☐ Yes

☐ No

Should levees be constructed near Community B?

☐ Yes

☐ No

Should the farmers reduce the amount of irrigated water, fertilizers, and pesticides used?

☐ Yes

☐ No

Should structural supports be constructed on the meander near Community B?

☐ Yes

☐ No
**ROTD Instructor Notes**

You will need to initially start this a week (or two…depends on how much research time you want to give them) before the scheduled “town hall” style meeting. I gave the students the introductory page and image and we discuss the activity and the timeline. I then assigned communities by having students draw out of a hat. I recorded who was assigned to each community to ensure students do not switch or forget the community they are assigned to. You may want to allow them a few minutes to get in groups so they know who else is in their community.

Then I let them research on their own outside of class. You could give them time to work on this in their groups during class. I posted their individual community information pages on D2L, so they had to print those out themselves.

Before the day of the meeting I drew up an agenda, so that each group that had a proposal (ex. Community A constructing a dam) were given a couple minutes to explain why the proposal was important. Then I left time for discussion of each. An example is shown below, but it would have been better to allow for more time for proposals and discussion. I would recommend doing this during a lab period instead of an hour lecture period. I did bring copies of the agenda for each student. Additionally, I allowed a little time at the beginning of class for the students to organize and determine who would present, etc. Another thing I did was to print out signs for each group so everyone knew where the groups were located during discussion. I set the tables up in a large circle and had a moderator sign in front of me.

At the end I gave every student a ballot, tallied the votes, and presented the results. A majority was required to pass a proposal.

**Example Agenda**

12:05-12:15pm  Community Discussion/Preparation
12:15-12:17pm  Proposal to Build Dam: Community A
12:17-12:22pm  Discussion of Dam Proposal
12:22-12:24pm  Proposal to Drain Wetlands: Farmers
12:24-12:29pm  Discussion of Wetland Proposal
12:29-12:31pm  Proposal to Construct Levees: Community B
12:31-12:36pm  Discussion of Levee Proposal
12:36-12:38pm  Proposal to decrease Irrigation & Fertilizer/Pesticide Use: Community C
12:38-12:43pm  Discussion of Irrigation and Fertilizer Use
12:43-12:45pm  Proposal to Construct Levees: Community B
12:45-12:50pm  Discussion of Levee Proposal
12:50-12:54pm  Voting
12:54-12:55pm  Results