

HANDOUT #8

SOLVING PROBLEMS on the RIVER SYSTEM Understanding the Common Good



1) 'Nature Knows Best!' THE PROBLEM of the BOSQUE

Background Information:

The bosque is an area along the river with trees and shrubs that like water. It is home to many species of wildlife dependent in some way on bosque. With all of its water-loving vegetation, the bosque is like a sponge. Plants form a web of roots which bind the soil, holding it in place. This 'sponge' then absorbs a lot of water when high water or flooding comes. Erosion of soil and river banks and other flood damage is reduced because of these tangles of root systems.

The vegetation also acts as a filter. Chemical contaminants that could get into our groundwater are absorbed or taken up. The plants use the chemical contaminants for growth and in forming plant tissue. Then, some of the 'purified' water filters down into the ground recharging aquifers. Nature has it all worked out. '**Nature knows Best!**'

The Problem:

Everybody wants something from the bosque. Some come to get sand and gravel, to cut the trees for firewood, to birdwatch, hunt, jog, motorbike, fish, or simply picnic. Many use the bosque to dump their garbage, old tires, car hulks or dead animals. It all takes its toll on the plants, the soil, and the animal life. Some citizens, however, have come to realize the importance of the bosque. They are worried about the '**sustainability**' of the bosque. Remember, sustainability means the ongoing ability (potential) to sustain (support) life. The citizens have made proposals. Choose the one you think is best. Be ready to support your choice.

Proposal 1. Unlimited Access. The bosque belongs to everybody so let everybody use it in whatever way he/she wishes. Access roads would be built to give maximum use to all the regions.

Proposal 2. Limited Access. A person would have to apply to the elected members of the Bosque Conservation Board to get a permit to use the bosque. The Board would decide how the bosque could be used and who could use it.

Proposal 3. Certain Areas Off-Limits. Areas that could not stand a lot of use because of delicate vegetation or vulnerable wildlife would be closed off to public use. Otherwise, the public could use the rest of the bosque as they chose.

Proposal 4. Closed Access. The entire bosque would be off-limits.

Proposal 5. Your Proposal. If you are not satisfied with the previous proposals, what would you propose?

2) 'EVERYTHING MUST GO SOMEWHERE!' A PROBLEM OF WATER QUALITY



Background Information:

The Environment Department monitors both surface and ground water and checks for contamination of our water resources. It issues permits to users who return the water to the river system. To purify the water to the way it was before use would be too costly. So the ED strictly limits the contaminants entering the river system through permits. The ED knows the point where the source of that contaminant enters the river system. These are called **point sources**. For example, meat packing industries use a lot of water in processing meat. They want to release the water after use into the river. They apply to the ED for a permit to discharge into the river. The ED tests the discharge then issues a permit with strict limits on the contaminants. The industry must meet the standard.

Eighty-seven percent of the contamination of our water comes from unidentified sources called **non-point sources**. The runoff after a rain storm carries carelessly dumped garbage, litter in streets and roads, pesticides and fertilizers into our rivers. Household septic tanks are estimated to be the single largest source of ground water contamination in the state. Gas tanks or city sewer lines are a problem. All ends up in one of our surface or ground water systems because **'Everything must go somewhere!'**

The Problem:

The ED monitors rivers and ground water on a regular basis. They have discovered serious contamination of the Rio Grande coming from non-point sources.

They have asked us to help them find a solution reminding us that we are all responsible in some way. Below is a list of suggestions to limit non-point source contamination or pollution. Check the solutions your group would be willing to support. Be ready to give reasons for your choices from the point of view of your interest group.

__1. Inspect septic tanks every five years. Owners of inadequate septic tanks would be required to make the necessary repairs.

__2. Require towns and cities to collect storm-runoff water from the city streets. The runoff would be held in a reservoir for water quality testing and allowed into the river only after the trash and impurities were removed.

__3. Require commercial recreation users (boaters, fishermen, etc.) to carry 'porta-potties' and to carry out all garbage.

__4. Impose stiff fines for illegal dumping of garbage in arroyos and other parts of the river system.

__5. Require schools and communities to have education programs to prevent the dumping of garbage in arroyos and other parts of the river system.

__6. Prohibit construction of roads, especially logging roads, along streams and rivers to prevent silting of streams.

__7. Require logging and mining companies to quickly re-vegetate areas disturbed by logging and mining to prevent erosion and silting of streams.

__8. Require fencing along river systems to keep cattle out of riparian areas.

__9. Prohibit users of irrigation water from allowing excess water to return to rivers. This would keep salts, fertilizers, and pesticides from going into the rivers.



3. 'THERE IS NO SUCH THING AS A FREE LUNCH!' BECAUSE EVERYTHING IS CONNECTED TO EVERYTHING ELSE!' A PROBLEM OF WATER QUANTITY

Background Information:

Water flows into the Rio Grande from snowmelt and rainstorms. The Rio Grande has a lot of people depending on its water. One might think that this water is a free gift from heaven or 'a free lunch!' But it isn't!! The water comes in an uncontrolled way when the snow melts and the run-off begins. Summer thunderstorms bring torrents of water from the rivers and streams flowing into the Rio Grande. The mainstem then carries tremendous volumes of water that flood farms, towns, homes, etc. 'There is no such thing as a free lunch!' And that is certainly true of the Rio Grande.

In addition, there is not enough water for everybody who wants to use it. From its headwaters in Colorado, the Rio Grande travels through New Mexico and into Texas and Mexico. All along the way people have water rights that allow them to use its water. The only way in which the downstream users are guaranteed enough water for their use is through legal agreements. These agreements are called compacts. The Rio Grande Compact requires the State Engineer to deliver a certain amount of water each year to Texas. Another agreement guarantees a certain amount of water to Mexico. There are measuring stations along the river that measure the river's flow. Based on that flow, a certain amount of the water must arrive at Elephant Butte to guarantee the required water for Texas and Mexico.

The Problem:

The State Engineer has determined that there simply is not enough water this year to deliver to Texas and Mexico. And because of the increasing demand for water, there will not be enough in the future. Flooding has been too costly and destructive. A dam is planned for the mainstem or main part of the Rio Grande to be built somewhere between Albuquerque and the Taos box. This dam will store the flood waters and release it as needed by downstream users. From the point of view of your interest group, do you support the building of this dam? To help you decide, do the following:

1. List all the ways the proposed dam would help or hurt your interest group.

2. Remember the common good and all that you have learned about the river system. Try to think of all the changes that could possibly result from the dam – both good and bad. Remember, 'There is no such thing as a free lunch!'
3. Weigh your group's benefits or harm from the proposed dam against the changes the dam would make to the river system and other people's lives.

Everything is Connected to Everything Else!' The End of a Tale

We just learned that '**There is no such thing as a free lunch.**' The dam that was built was the Cochiti Dam. Built for flood control, it also stores water which is used for recreation. Other costly dams have been built all along the river system from Colorado to near the Gulf of Mexico. Dams have solved some major problems, but they have created others.

Not only does the Cochiti Dam remind us that there is no free lunch, it also teaches us about the final law of ecology. '**Everything is connected to everything else.**' You cannot change just one thing because we find that each thing is connected to something else.

Rio Grande cottonwoods and willows were destroyed in the filling of the dam. Seedlings have repeatedly tried to reestablish themselves. Each time the reservoir is allowed to fill to capacity, the water backs up and drowns the new vegetation. During periods when the water level is low, seedlings don't get sufficient water. During droughts, they die. This means destruction of native wildlife habitat such as cottonwoods and willows. Non-native vegetation, 'exotics,' such as Russian olives and salt cedars, have moved in.

As we have said, Cochiti Dam was built to solve the problems of flood control and water storage. After the dam was built, however, the river system underwent unforeseen changes. Just below the Cochiti Dam lies the Pueblo of Cochiti. People have lived there for centuries using irrigation water from the Rio Grande to grow crops of corn, beans, squash and other vegetables. Their animals have grazed on lush pastures.

Shortly after the dam was completed and the reservoir behind it had filled, the land around the Pueblo began to change. The water table rose to the surface and soon most of the fields were water-logged. Farmers could no longer use their fields for agriculture. Since farming was a way of life for many of the residents of Cochiti, the Pueblo changed in many ways.

The Mayordomo of the acequias is an officer for life and a spiritual leader of the Pueblo. The acequias are tied to the spirituality of the community. All of this has been disrupted. When the reservoir is filled to capacity many sacred sites are flooded.

To this day many of the Cochitis have nightmares. They believe the dam has wronged the natural order of things.

