COOPERATIVE MANAGEMENT OF WATERSHEDS

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ABSTRACT

Our planet is a part of the dynamic universe in which there are many parameters that impact our climate and subsequently creates many changes in the environment and natural disasters in a random fashion. Scientific investigations and rapidly changing technical developments is providing a better understanding of the dynamic processing that surrounds the people, plants, animals and other living creatures. Our water resources are a part of this complex atmosphere that surrounds our "blue planet" which are as diverse and variable as the inhabitants on the planet. Central governments have developed and managed our water supplies for many centuries. However, due to increased demand, growing population, costs of providing clean water, a society with little responsibility to protect our natural resources, and the management of our waters are being assigned to the States who in turn are engaging the stakeholders or water users on the watershed. Efforts must be employed to conserve, sustain its quality as well as develop this precious resource for economic sustainabilty. Strict guidelines, policies, code of ethics and practices must be adopted by the stakeholders for effective and efficient management of water resources in a sustainable fashion in a dynamic environment involving many paramaters.

"Clean Water For Everyone" which was the IWRA theme for the past three years is feasible if water is managed and implemented at the "grass roots" level.

RÉSUMÉ

Notre planète est une partie dynamique de l'univers qui comprend un grand nombre de paramètres qui affecte le climat et, par conséquent, engendrent des changements aléatoires au niveau de l'environnement et de désastres naturels. Les études scientifique et l'évolution technique rapide permet de mieux connaître les processus dynamiques qui intéressent les gens, les plantes, et animaux et les autres être vivants. Nos ressources hydriques font partie de cette atmosphère complexe qui entoure notre «planète bleu» qui sont aussi variées et variables que les habitants sur la planète. Les gouvernements centraux ont développé et géré nos ressources hydriques pendant des siècles. Toutefois, à cause de la demande accrue, la population croissante, les coûts pour fournir de l'eau propre à une société qui a peu de responsabilité pour protéger nos resources naturelles, et la gestion de nos eaux sont confiée à l'Etat qui, à son tour, va faire participer les partenaires ou les utilisateurs de l'eau du bassin versant. Les partenaires doivent dépoyer leurs efforts pour conserver, soutenir sa qualité et développer, à la fois, cette ressource précieuse pour la durabilité économique. Il faut adopter des directives, des politiques, des codes éthiques et pratiques riguoureux pour qu'on puisse réaliser une gestion efficace et durable des ressources en eau dans un environnement dynamique qui implique beaucoup de paramètres.

«De l'eau propre pour tout le monde» qui a été le thème de ces trois dernières années est possible si la gestion est pratiquée dès les niveaux les plus bas.

During the past three decades, there has many programs with donors providing funds to erase some of the problems of water shortages, and polluted water supplies.

There has also been major efforts to educate professional water resources personnel throughout the world and a limited effort to trained technicians and local operators and managers of water programs. Very little has been done to educate and train the individual or communities managers of water resources and water related systems.

In recent years, development and management of water resources have undergone a dramatic shift, with the emphasis changing from the State being the center actor towards greater participation of a variety of other actors,including local governements, non-government organizations and beneficiaries. The World Bank's water resources management policy paper highlights the importance of a decentralized approach of planning and management of water resources in developing countries.

Conventional wisdom has assumed that only the State was capable of handling large capital investment, complicated technical inputs and the legal mandate to distribute water and collect fees. Times are changing. Government-operated irrigation systems are often poorly maintained with steadily deteriorating infrestructure. Water Users' Association or Cooperatives who make contracts with the government for operating and maintaining portions are now in operation in many countries in the world.

Unfortunately, crop production has fallen short of expected increase in yields and other problems have arisen.

It appears that the stakeholders involved lack the training required for effective management at the "grass root" level.

Even those in the developed world whose major concerns are polluted water resources are still plaqued by the slow progress that has been made to keep our waters clean.

Governments and donors now realize that the end user of the resources, whether it is water or any natural resources, must become a partner in the management of the resources. As the population continues to multiply at an increasing rate, all societies around the world must educate its people to be responsible for the protection and sustainable use of the natural resources and learn how to live in a world of peace.

Conflicts for resources must be eliminated through cooperation and partnerships. The economical world will then be able to move forward into the 21st century with

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a healthy and prosperous status for all mankind.

PARTNERSHIPS NEEDED

In a democratic society such as the United States, the states and central governments have a constant concern for improving the water quality in the streams. Many programs to support efforts of reducing the pollution load and sediments in our streams have been organized and supported by the federal government for the past 60 years with limited success. Currently, many states and regions are establishing watershed partnerships involving all of the users of water on the watershed. Formerly, the farmers on the land were encouraged to reduce soil losses through programs administrated by the federal governement through a cooperative arrangement with state agricultural program and educational efforts of the land grant university. Various new techniques are now being explored to recognize the concerns of all users of the watershed. However, it is a difficult problem.

COMMUNITY-BASED WATER DEVELOPMENT

The Collector Well Garden Program (CWGP) in southeast Zimbabwe is an example of a program that has evolved over time and that has been successful in putting research into practice. There is now a huge local demand for productive water points. There is also increasing regional interest in the novel approach to community-based water development (Water, newsletter of UK, 1997).

The main differences in the approach used by the CWGP from other community-based water and sanitation projects, is the emphasis placed on implementing water points that have potential to generate crop production and/or income. Thus, these water points support community gardens or similar activities. This produces a much wider range of benefits than is the case with conventional water points. In addition, the sense of ownership or value is increased such that the local community wants to maintain the water points and adopts land management practices to protect it.

The initial research project was started at Zimbabwe's Lowveld Research Station in 1988 and led to the implementation of collector wells and associated gardens. The first off-station well and garden (or productive water point) was located in the Romwe Catchment, some 80 Km south of Masvingo, as a primary source of drinking water for three villages. The garden was divided so that is could be used by 46 families to produce vegetables for home consumption and for sale.

A major turning point for the program came during the 1991-92 drought. At a time when all irrigation schemes using water from the dams and reservoirs failed, the Romwe Garden continues to flourish. The collector well provided water for an increasing number of people as other wells in the area failed. This success prompted

the construction of an additional eight collector well gardens.

The emphasis of these schemes was to study (Brundtland, 1987) the institutional aspects of implementing productive water points, and (Maxwell and Beard, 1984) the effect of land use and management on groundwater recharge. The research was carried out with Zimbabwe's Agricultural Extension Service and with the active participation of local communities and institutions. The information gained has been used to develop guidelines for siting wells and managing groundwater in crystalline basement areas. Also, plans have been initiated for a more ambitious project on the use of productive water points in developing community-based integrated natural resources management.

The key lessons learned from the design and implementation of the Collector Well Garden Program are to:

1) have ambitious, long-term objectives. These enable relatively small technical projects to be harnesed together in tackling poverty alleviation and resource management problems;

2) encourage active participation from local institutions, communities and external advisors;

3) take an interdisciplinary approach. Many human, institutional and economic factors influence the adoption of research results as much as the results themselves;

4) take account of indigenous knowledge, and develop strategies that integrate with existing farming and social systems;

5) be prepared to challenge existing orthodoxies on the design of small- scale irrigations systems and on the implementation of water and sanitation projects;
6) coordinate the program so that the research can evolve in response to feedback from the development program.

Role of NGO's

Expansion of community based approaches and strengthening of the role of NGO's in the water sector is bring explored by the United Kingdom. Dept. for International Development with funds by WEDC at Loughborough University (Water, newsletter of UK, 1997). Closer links are desired between research and practice to improve future water sector projects. There was general agreement that the role of European NGO's should be that of a facilitator working with local partner organizations within national water and sanitation policies, with the aim of influencing government and promoting community activity or poverty or alleviation. Steps to strengthen NGO work in the water sector were summarize as:

Networking and systematic learning

Better dissemination of information about NGO's and the impact of their projects to the public and to field workers.
NGO's should build up closer links with researchers. Further research is needed in health aspects, improved recovery of project cost, low-cost sanitation, urban community structures and water resources management.

In-Country coordination of activities

— More effective collaboration for NGO's with other NGO's, donors and local governments.
— Better sharing of technical data and better local training. NGO Donor project mechanisms.
— Less oppresssive donor information requirements.
— Action by donors and NGO's to improve mutual knowledge of each other.
— More flexibility in project funding.
— Adequate funding for project identification/preparation.

Water week on watershed partnerships

Water week is an annual celebration of water resources and issues in New York State. The New York State Department of Environmental Conservation (NYSCED) who distribute information materials that will encourage New Yorkers to work together in partnerships to solve watershed problems cooperatively. The packets are designed for teachers, youth group leaders, businesses, civic and environmental associations and local governments to use with their groups (Water Courses, 1997).

In one packet there is a program description and reporting form for people who would like to participate in NYSDEC's Watershed Stewardship program. This program encourages New Yorkers to take action in their own watershed throughout the year, through projects such as water conservation, water quality monitoring , streambank stabilization plantings, beach cleanups or community education. When groups or individuals send in reports of their stewardship activities, they receive a certificate of recognition.
To strengthen partnerships, the Watershed Stewardship Program will send a list of steward groups in a specific drainage basin to those who request it. County water quality coordinating committee contacts and watershed associations also are included.
Other Water Week activities include local water festivals, conferences, water works tours and the first (county level) round of drinking water taste contests that lead to a winner determined at the State Fair. Water Week is an opportunity for local groups and classes to shine the spotlight on their own water-related project.

An Illinois program

The Watershed Management Program seeks to end single issue planning. Comprehensive plans which address point source and nonpoint souce pollution, regulatory and non-regulatory issues, and ground and surfaace water issues will lead to the development and implementation of successful efforts in natural resource protection or restoration. A complete and comprehensive plan will also allow the state natural resousrce agencies to better address local needs and allow for better coordination of efforts in providing available technical financial assistance (Watershed Watch, 1997).
Dealing with natural resource issues on a watershsed basis creates the opportunity for the urban and agrcultural sectors to come together to accomplish a common goal-the protection or restoration of natural resources. Anyone can get involved by becoming a member of an existing watershed committee, or by forming a committee in your watershed. Local involvement and ownership is essesntial for achieving successful, long-term natural resource protection/restoration.
Another program in Illinois is known as the Illinois River Action Team Participation. The participants include many disciplines and stakeholders who are the users of water.
Each participant on an Illinois River Action Team brings a different perspective. This is one of the strengths of a Team, and it is one of its challenges. The concepts for participation on the Action Teams are (Kustra, 1997):
1) Participants come to the Team with a commitment to contribute their time and energy toward fulfilling the Team's purpose.
2) The Team makes decisions by consensus, meaning that each participant gives their consent.

3) If a participant misses a meeting, he or she consents to what occurs during that time.
4) If a participant cannot consent, he or she must explain why, and must be open to helping the Team find an alternative solution.
5) The specific Watershed is the subject matter of the meetings, not personalities.
6) If a participant cannot convince others that his or her special interest is a part of the common interest, he/she must be willing to let go and move on to another issue.
7) Giving consent means that participants will support the decisions in Public and in private.
8) Remarks during Team meetings are confidential; the Team's consensus decisions are public.
9) Participants do not criticize persons or organizations present or absent from the meeting.
10) The Team facilitators have the right to establish other fundamental concepts for participation.
(These ten concepts for participation on Illinois River Action Teams were derived from Lawrence Huggins Associates, "Protocols for Facilitating Meetings").

Watershed top ten "Hint" List

Everyone lives, works and plays in a watershed. And almost everything we do impacts the health of the watershed's natural, economic and social resources. How we manage watersheds also can impact economic health.
That's why the USDA Conservation Technology Information Center in West Lafayette, IN, enbraced the challenge of encouraging the formation of local, voluntary watershed management partnerships throughout America. Through its work with watershed parnerships, the center has compliled the following "Top Ten Hint List" for successful watershed management efforts:
10. Think small. The smaller the watershed, the easier the partners can relate or connect to it. In addition, the smaller the watershed, the faster it will react to changes in management practices such as precision farming or land uses such as green strips.
9. Bring everyone to the table. Successful watershed efforts include everyone who has a stake in the watershed. This enables the group to build consensus on what needs to be done and how to do it. Leaving a critical stakeholder out of the process at any step may cause unnecessary problems later.
8. Great leaders plant seeds and nurture them. They faciliate the group to reach consensus, plant new and different ideas when necessary and assist the group in nurturing those ideas. Effective watershed leaders are great communicators, They listen and expand on others' ideas, and make sure every idea is explored and that all stakeholders are heard.
7. Ask for free advice and in-kind services. For example, if you need a video, ask the local television station for script and production assistance. If you need monitoring or assistance, work with you local water department and your local school system. And don't forget that saying thank you in public will go a long way toward getting additional help the next time. One bonus tip: No one gives money to a group without a plan for how to use it. Financial assistance can come from unusual places and innovative sources once the group has a solid plan.
6. Encourage teaching. Allow watershed stakeholders to teach each other. No idea is too simple to be discussed. For example, a farmer can reach the basics of watering, fertilzer application and pest management to homeowners.
5. Seek common interests, not positions. By working to find the common interest of all stakeholders, you'll establish a stong foundation for an effective watershed management plan. One way to do this is to get past opposing positions by asking why stakeholder has taken a particular postion. Keep asking why again and again. It usually takes seven layers of "whys" to uncover an interest that is common to other stakeholders.
4. Celebrate your successes. Regardless how small, celebrate progress. Whether your groups measure progress by the number of canoe trips, miles of buffer strips or acres of no-stil farming, reaching milestones are important. One more bonus tip: Be kind to each other; you may need that person to agree with you later.
3. Ask not "do you like it?" but ask "can you live with it?" Remember, you probably will propose many ideas before the group reaches a common point of agreement.What's important is reaching consenus is that everyone can agree to live with a decision.
2. Conflict can be healthy-if managed postively. Conflicting views or ideas often become a third review or idea that can be near healthy for the group's efforts and the watershed's health.
1. Patience. Patience. Patience. We didn't get to where we are today overnight, and we don't get to where wer'e going tomorrow. When you set a lofty goal, break it down in smaller steps. Before you know it, you'll have reached your goal. ●

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