Irrigation Development and Indigenous Peoples[1]

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This paper takes the view that cultural diversity is intrinsically desirable and explores the question: *How can irrigation development serve to enhance cultural diversity?* The primary focus of this paper is the context of culturally distinct indigenous societies, so the question becomes: *How can irrigated agriculture – both the agriculture itself and the irrigation systems that support that agriculture – contribute to the cultural richness of indigenous societies?* The answers and insights that will emerge from this line of questioning have general relevance to the irrigation sectors of non-indigenous peasant societies, and, I believe, to the current international debates about the multiple roles of agriculture, the nature of food production, and the future of rural societies.

Background

A decade or two ago the topic of this paper would have sounded outlandish to most development experts. The World Bank's annual assessment of global poverty took per-capta GDP as its standard. UNDP had already initiated its "Quality of Life" index to challenge the narrow view of development defined purely by income, but the work of development was still seen as a predominantly material undertaking. The World Bank's reassessment of poverty, as articulated in its World Development Report of 2000/2001, marked an important shift towards defining poverty in social and institutional terms over and above the raw economic statistics. More recently, in its 2004 Human Development Report, subtitled "Cultural Liberty in Today's Diverse World," the UNDP has incorporated cultural diversity into mainstream discourse about development. Alarmed by the rapid loss of languages and cultural identity, the UNDP report advocates that we incorporate cultural heritage and identity into the concept of what constitutes quality of life. Cultural identity is part of what constitutes development, and the lack of identity is part of what constitutes poverty.

What has been happening in the irrigation sector while the international agencies have shifted their assumptions about development and what is the role of cultural diversity? The recent history of irrigation development reveals a consistent undercurrent of social progressiveness which stands in marked contrast to the general reputation of the irrigation sector as committed to large-scale infrastructure development regardless of the social and cultural impacts. Irrigation projects were pioneers in the concept of community participation and decentralized governance arrangements. Beginning in the 1970s with the Ford Foundation's support for community irrigation in The Philippines and the

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USAID-financed Gal Oya project in Sri Lanka, and continuing into the present with the work of the International Network on Participatory Irrigation Management (www.inpim.org), irrigation has led the way in advocating for local control and capacity building. The indigenous knowledge embedded in traditional irrigation systems was given early recognition in the research program of the International Irrigation Management Institute (www.iwmi.org). The institute-run network on Farmer Managed Irrigation Systems (FMIS) emphasized the importance of enhancing indigenous knowledge, management systems, and the physical infrastructure, rather than replacing them with outside technologies that research showed were not sustainable on the ground. Both the participation work and the FMIS work have led to a common lesson, which is a starting point for this paper: *Irrigation development has the potential to strengthen local social and cultural systems*.

Another conceptual starting point for this paper is that of cultural rights, as a subset of fundamental human rights. Cultural rights were introduced into water planning by the report of the World Commission on Dams in 2000. That report endorsed the human right of indigenous peoples to remain on their ancestral lands if they so choose. Since most large dams supply water for irrigation as well as power, the WCD report has changed an important assumption in irrigation development. Benefit/cost calculations showing economic advantage to downstream populations can be used as a basis for financial negotiations, but cannot justify the abrogation of these human rights. This "rights-based" paradigm has not yet been fully accepted by the international aid agencies, but it appears to be gaining ground over the conventional "cost-benefit" paradigm.

To summarize there are three key assumptions (starting points) of this paper:

1. Cultural heritage/identity is a valid and important dimension of development for all societies, whether indigenous or not;
2. Indigenous peoples have a fundamental right to maintain their cultural identity, including their ancestral lands;
3. Irrigation development has the potential to enhance cultural identity.

Having established a starting point, the remainder of this paper explores ways that irrigation development can contribute to the cultural richness of indigenous societies particularly, and more generally to the cultural richness of any society where irrigation is practiced.

Can Irrigation Development Help Indigenous Cultures?

Irrigation serves as a cultural and social tool that can help a society develop along a desired trajectory. In the era of the Green Revolution, irrigation served as the keystone of agricultural growth and investments were justified in economic terms but which also had far-reaching social and cultural impacts. These ancillary impacts of irrigation development were generally viewed as desirable for creating a modern society as subsistence farmers shifted to higher value crops and were drawn more firmly into the market economy. The loss of cultural diversity which accompanied the socio-economic

transformation of agriculture was also considered desirable because it led to integration of indigenous, tribal societies which had previously remained outside the national economic systems.

Today there is a new set of assumptions that is emerging about the future of indigenous societies as culturally distinct entities.[3] Cultural diversity is being seen as a desirable feature which can co-exist within modern nation-states (as noted in the 2003 UNDP report cited above). Is it possible for irrigation development, which helped integrate – and sometimes obliterate -- indigenous cultures during the Green Revolution, to play the opposite role today and actually support cultural diversity? How can the social and cultural power of irrigation development be harnessed for a new objective, that of enhancing the capacity of indigenous communities to maintain their core cultural values, and at the same time participate in the desirable benefits that modern technology and globalized markets can offer? The thesis of this paper is that the twin objectives of (1) maintaining indigenous cultural values and (2) participating in the modern world system are not in opposition but rather can be mutually supportive. Indeed, accomplishing objective #1 may be possible only through #2. Indigenous communities need to engage with the outside world to some extent, in order to maintain their distinctive cultural identities.

Irrigation development has a unique role to play in helping indigenous communities meet their cultural objectives because of its blend of economic and socio-cultural impacts. In this regard, the irrigation sector, and the development experts working in this sector, have both an opportunity and a "comparative responsibility"[4] to seek ways of using irrigation development to further the cause of cultural diversity, particularly among indigenous peoples whose diversity is most immediately endangered.

Four Ways that Irrigation Development Can Enhance Indigenous Cultures

This section discusses four ways that irrigation development can contribute to cultural diversity, particularly among indigenous societies whose distinctive styles of life are being eroded by conventional development. These four "ways" are not necessarily sequential, so I am not using the term "steps". Rather, they are "approaches" in a very literal sense. Each represents a way that irrigation interventions can lead to (approach) the goal of cultural diversity. The four approaches are listed here, and then elaborated with examples.

1. Irrigation and agricultural *visioning and planning* that reflect the community's values and recognizes the multiple roles of agriculture within that community.

2. *Building on indigenous knowledge* including farming practices, crops, and irrigation management systems.

[3] For a discussion of these issues, see Groenfeldt, David, *The Future of Indigenous Values*. Futures, Nov. 2003

[4] The term "comparative responsibility" has been popularized by Robert Chambers to contrast with the better known concept of "comparative advantage".

3. *Clarifying and legitimizing water and land rights* (WALIR)

4. *Introducing new irrigation technologies, infrastructure, and management systems* that enhance the agricultural sector in culturally desirable ways:

1. Visioning and Planning

Irrigation projects often assume a vision for what irrigated agricultural should look like in the future, and that vision is usually based on Western notions of irrigation as an input into the economic activity of agriculture. Cultural priorities of local indigenous people are rarely factored into these visions because the project decision-makers assume that irrigation has a "single-sector" contribution to the local agricultural economy and nothing to do with cultural dimensions of the rural society. It is these kinds of assumptions that underlie the erosion of indigenous cultures in the face of irrigation development. The way towards a new style of irrigation development that supports the cultural interests of indigenous communities begins with a thorough visioning process. Once a shared vision is articulated by the community stakeholders, plans can be formulated that can help the community achieve that vision.

Examples of the Visioning Process. While visioning is most needed at a community or project level, there do not appear to be any examples in the water sector, much less the irrigation sector specifically. At the regional level, a visioning process was undertaken by Condesan, a rural development NGO, in reaction to the visioning process presented at the 2nd World Water Forum in The Hague in March 2000. The Andean Water Vision[5] is based on a series of workshops conducted in the region, with participants from indigenous and peasant communities. The vision statement articulates both indigenous understandings of water (as a living, spiritual being) and presents a declaration for how water should be managed in ways consistent with the vision.

How to conduct a water visioning process. Any visioning process needs to be participatory, but not all participatory planning exercises lend themselves to visioning. The intention of the process may be as important as the methods themselves in encouraging the visioning participants to articulate their hopes, desires, and values. In the case of culturally distinct indigenous communities, a particularly sensitive and sympathetic approach is needed if the social, cultural, and spiritual values are to be incorporated into the vision. Two promising methods for imagining the future and creating a shared vision in cross-cultural context are (1) scenario-building and (2) Appreciative Inquiry. *Scenario-building* is an interactive process among stakeholders to create alternative scenarios of the future condition, and then select among them, modify elements of them, etc. until a consensus scenario is reached. This approach has been applied to forest management in indigenous communities in Indonesia.[6] *Appreciative Inquiry* is also carried out in an interactive workshop setting and seeks to uncover the

[5] http://www.condesan.org/memoria/agua/VisionAgua.htm
[6] http://www.cifor.cgiar.org/scripts/newscripts/publications/detail.asp?pid=744

values and experiences which the participating stakeholders "appreciate" about their lives, and then extend these positive attributes into the future (see Box 1).

Box 1

Using Appreciative Inquiry for Agricultural Visioning

The Appreciative Inquiry method invites people to engage in a process of discovering what they like (appreciate) about living in their community or region, and then to dream about what the region could look like in a future where these aspects are enhanced. The vision is built around designing a future that tries to support these dreams, and is also consistent with anticipated reality. [For details about this approach, visit the website "Apreciative Inquiry Commons" at: http://appreciativeinquiry.cwru.edu/]

The process uses a workshop format in which a cross-section of stakeholders are assembled in a single large room, or outside. The more participants the better, although the logistics become more complicated. Prior to the workshop, a facilitator would work with a small planning group to work out details of participant selection, meeting size, etc, and most importantly to come up with questions to ask the participants at the workshop. These questions would ask participants to share stories about their own experiences, and these stories would provide the raw data for the visioning process. In the workshop, the first phase (called "discovery") would entail pairs of participants each spending 20-30 min. interviewing each other using these questions, and then reporting back to a small group of ca. 4 to 6 participant-pairs (and as many of these small groups as need be). Pairs and the small groups would mix-up categories of people (e.g., an environmentalist with a real estate developer) as much as possible. The questions would aimed at sharing peak experiences about living in the region, and then uncovering the values in these stories. For example:

- "*Describe a peak experience you've had with friends or family -- or even alone -- that makes you think, 'Yes - This is why I choose to live in this community!' Why do you remember this experience*".
- "*Imagine it is the year 2020. You are at the top of [nearby hill or mountain] and have the power to see the entire area and everything that is happening. You see that three wishes you had for your community's future have come true. What are they and how do you see that they have become true?*"

2. Building on Indigenous Knowledge

Every indigenous agricultural community owes its existence to countless generations of ancestors who accumulated and transmitted knowledge about the environment and the cultivation of crops. Respecting that knowledge, and actively seeking to understand it, is a logical pre-requisite to introducing any new technologies or management arrangements. When new technologies are consciously designed to incorporate the essential features of the pre-existing technologies, the effect can be to strengthen indigenous institutions and culture, even as the traditional technology becomes superseded by the new. An example is seen in the modernization of traditional river diversion weirs in northern Thailand. The communal organizations, which managed the irrigation systems served by traditional bamboo weirs, requested local government aid in replacing the bamboo weirs with

permanent concrete structures. The result is improved infrastructure, and also a strengthened organization.[7] In contrast, the technical interventions in Balinese subak systems introduced by the Asian Development Bank in the 1980s resulted in severe social and cultural impacts (as well as environmental ones). The ADB project replaced the seemingly inefficient proportional dividers (which defined water allocation to individual subaks) with conventional division boxes, resulting in confusion and conflicts over water rights.[8]

The design issues relating to the physical infrastructure of indigenous irrigation systems constitute an important domain of interest, which has attracted research attention both by engineers[9] as well as by social scientists.[10] The basic "lesson learned" from these studies is that (a) there is a close and complex interaction between the socio-cultural and the physico-technical dimensions of irrigation systems, and (b) it is important to understand those interactions before introducing major changes.

The larger component of the indigenous knowledge of irrigated agriculture pertains not to the irrigation system, but to the agricultural system: the crops and agricultural practices. The richness of indigenous agricultural knowledge is difficult for outsiders to appreciate because it is predicated on a very different set of assumptions than most rational Westerners are accustomed. For most, and perhaps all indigenous peoples, agriculture is as much a spiritual practice as a susbsistence practice. The spiritual and religious basis of indigenous agriculture is being explored in practical terms by the Compas Project.[11] This project is dedicated to unveiling the spiritual underpinnings of indigenous agriculture in order to protect these important traditions from being lost. Irrigation development can also contribute to the preservation of these traditions through helping ensure the economic feasibility of agriculture. Yet irrigation's role can be helpful to cultural diversity only if the style of both the irrigation and the agriculture is consistent with those traditions. For example, a Balinese ceremony blessing the fish in the rice paddies presumes that the fish have not been killed by pesticides. A respect for indigenous agricultural traditions will almost inevitably lead to choices about irrigation development that will support those agricultural traditions, and more broadly, other cultural and spiritual traditions of the particular society.

3. Clarifying and Legitimizing Water and Land Rights

Water rights are an increasingly contentious issue for everyone, and particularly so for indigenous communities whose customary use of water is neither legally recognized nor practically respected. Irrigation development provides a context for establishing new

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[7] Tan-Kim-Yong, Uraivan (1987), Problems and Strategies in Management of Communal Irrigation Systems. In IIMI, *Public Intervention in Farmer-Managed Irrigation Systems*. Kandy, Sri Lanka. (IIMI publication 86-21).

[8] Horst, Lucas (1996), Intervention in irrigation water diverision in Bali, Indonesia. In, G. Diemer and F. Huibers (eds), *Crops, People and Irrigation*, Intermediate Technology Publications.

[9] Yoder, Robert and Juanita Thurston (1990), editors, *Design Issues in Farmer-Managed Irrigation Systems*. Colombo, Sri Lanka: IIMI.

[10] There is an extensive literature of social and cultural studies of indigenous irrigation systems.

[11] www.compasnet.org

water rights, and recognizing (or not recognizing) existing water uses. For indigenous communities whose rights to water may be customary rather than statutory, any proposal for new irrigation development can constitute a blessing or a threat (see Box 2). Will the irrigation project help the community to gain legal rights to the irrigation water, or will the project mark the end of that community's customary use of water? Even legally established statutory water rights are no practical guarantee that an indigenous community will be able to retain those rights against political manipulation. How can irrigation development provide benefits to poor, marginalized indigenous communities whose water rights are legally or practically insecure?

Box 2

Challenges to Indigenous Water Rights in the Andean Region: Lessons from the WALIR Program

Interventions in irrigation,…whether 'social' or 'technical', always influence water rights, modify power relationships and gender relationships, and change resource distribution. These relations cannot be planned with organizational prescriptions or by technical and economic formulas.

Water management development is a socio-political process in which different interest groups meet, face off and negotiate, to include their ideas and interests in organizational, technical and normative designs. These interests are about increasing control over water resources themselves, over decision-making power in system management, over the redistribution of productive resources and/or over the behaviour of the users' group in general. The great challenge, is for such negotiation platforms, at the local, regional and national level, to give groups with less social, economic and political power the right to speak up and to vote, to become real co-managers of the water resources, and to avoid the hegemonic rule of dominant groups and institutions.

At the local level, organization-building and generation of greater sustainability and social justice in water management, through equitable rules and concrete practices known to all, go hand-in-hand with self-respect, identity, capacity, power and collective action.

- Adapted from the paper, *Formal law and local water control in the Andean region: a field of fierce contestation*, by Rutgerd Boelens and Rocio Bustamante, Jan. 2005.[12]

There are three basic ways that irrigation development can work to enhance the water rights of indigenous communities in the face of competing interests working against indigenous water claims:

Sound information. The social, political, cultural, and institutional setting of the irrigation project must be well understood in order to design an intervention (whether hardware or software) that can deliver benefits to the target communities. This implies

[12] The full text of this paper is available from the workshop website: http://www.nri.org/waterlaw/AWLworkshop/papers.htm#BOELENS

the need for research, planning, monitoring, and other well-known features of good project management,

Openness and participation. Ensuring that the indigenous communities are involved in the initial stages of project formulation is one way to try to re-balance the imbalance of political power. Another strategy is to ensure that the powerful political factions understand the project's intentions to serve the interests of the indigenous communities. In some cases, the effective participation of indigenous people in the project may require a separate project component. When the Sukhomajri project in northern India was being designed, it became clear that the low-caste communities would not be able to claim their irrigation rights in the face of intimidation from the adjacent upper caste communities. The project response was to construct separate irrigation systems fed by separate (small) reservoirs to make it physically impractical for the powerful faction to usurp the water.[13]

Legal Reforms. Changes to the legal framework defining water rights may be necessary to improve the chances of delivering benefits to indigenous communities. Where legal reforms are impractical, an exemption or other ad hoc legal mechanism might also be useful. Formal recognition of customary water rights is a longer-term goal which might be facilitated by the promise of irrigation development that will benefit non-indigenous farmers as well as indigenous ones.[14]

4. Introducing New Irrigation Technologies

Where indigenous communities have traditionally practiced dry-land farming, irrigation technologies and associated management systems and cropping strategies, have much to offer. Just as irrigation development sparked the Green Revolution, irrigation can play a key role in supporting sustainable livelihoods in the future. Yet irrigation is a powerful tool that can have transformational effects on rural societies. This power implies the need for careful consideration in designing irrigation interventions among culturally distinct indigenous communities.

The visioning process would seem particularly critical in the case of new irrigation. Although it may be especially difficult for the indigenous communities to imagine what the possibilities might be, the process of visioning is especially important for this very reason. Without a shared sense of a desirable future, the indigenous communities will have little option but to react to an outside vision introduced by development experts. Yet, as noted above, there appear to be no cases of a visioning process linked to irrigation development either in indigenous contexts or non-indigenous.

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[13] Based on the author's personal experience with the project in 1982, and documented in an internal report to the Ford Foundation. A more recent account can be found in *Harvesting the Rain: Fighting Ecological Poverty Through Participatory Democracy,* Sunita Narain and Anil Agarwal (December 2002); available on-line at http://www.umass.edu/peri/pdfs/CDP4.pdf.

[14] See the paper by Stefano Burchi on The interface between customary and statutory water rights – a statutory perspective (*http://www.nri.org/waterlaw/AWLworkshop/BURCHI-S.pdf*).

The types of new irrigation interventions that are being carried out in indigenous areas fall into three categories: (1) new irrigation systems using conventional technologies, (2) new irrigation systems using new technologies (e.g., drip), and (3) social and institutional interventions.

New irrigation systems with conventional technologies. There is still considerable potential in introducing conventional (stream diversions feeding canals, or small reservoirs feeding canals) technologies. In the highlands of Northern Thailand, Hmong farmers were encouraged to develop irrigation to support vegetable production as a means of inducing a shift away from dryland poppy (for opium) production. In tribal areas of India, irrigation development is seen as a basic means for stabilizing livelihoods and enhancing local food security.

New (or existing) irrigation with new technologies. New technologies, whether treadle pumps or drip systems, can make a dramatic difference in the lives of poor farmers. International Development Enterprises (IDE) has pioneered an approach that combines training rural entrepreneurs in how to manufacture drip systems, with training farmers how to use those systems to generate profits. Marketing strategies and ensuring availability of spare parts, credit, and agro-inputs, are included in a very comprehensive approach to introducing irrigated agriculture.[15] The IDE approach is oriented to individual farmers, rather than to larger groups or villages.

Social and institutional interventions. Irrigation can provide a basis for building the capacity of community institutions, and creating new institutions such as water user associations. Under the Aga Khan Rural Support Programme in India, tribal farmers whose lands are already served by canal irrigation systems, are being organized into water user groups. These groups serve the dual purpose of managing the irrigation water more effectively, while also building the capacity of the larger community. Elsewhere in India, many local NGOs are using irrigation as a basis for community capacity building and watershed conservation (e.g., the Sukhomajri project cited above).

Conclusions:

Cultural identity and indigenous knowledge are part of what humans value about their lives. The absence of cultural identity, the loss of indigenous knowledge, are part of what we perceive as poverty. Indigenous peoples still retain important cultural capital, but it is being steadily eroded. It is ironic, but not really surprising, that as indigenous cultural identities become most steadily weaker, we Westerners decide that cultural diversity is a good thing after all.

The new view of cultural diversity, as espoused in the 2004 UNDP report, is not likely to be a passing phenomenon. Pressures on cultural identity will continue to mount, and the economics of scarcity suggest that the value of cultural identity will continue to increase. Irrigation development, which has played a significant role in eroding the cultural

[15] See the IDE website for details: www.ideorg.org.

identities of indigenous peoples, can now use its proven capacity for social transformation to make cultural reparations. Irrigation has an important new role to play in agricultural livelihood strategies that support and strengthen the cultural values of indigenous peoples. This paper has outlined a number of strategies whereby irrigation development can support indigenous peoples without any loss of benefits to the non-indigenous world. Just as environmentalism is good for both nature and humans, an irrigation investment strategy aimed at supporting indigenous peoples will also bring wider benefits.