Effective Collective Action: A Consultative Approach to Enhancing Ecologically Responsible Development in Tigray, Ethiopia[1]

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Abstract

Rather than primarily following a neoclassical economic paradigm regarding growth and development, which links these two processes via capitalist-oriented market dynamics, this analysis is based upon a broader cultural/environmental/developmental paradigm.[4] It accommodates state-, regional-, and local-level institutional factors and forces, emphasizing the Tigray Development Association (TDA) and its efforts during the 1990s to assist in the redevelopment of Tigray, Ethiopia's northern-most province. Droughts, famines, and the repressive rule of the Mengistu regime through 1991 led to significant deterioration in infrastructure, institutions, agricultural production, and water resources. Upon invitation of Tigrayan representatives, external advisors and consultants (including the two authors) worked through the 1990s to assist the development process. Improving potable water supplies was the original focus. Within a framework of facilitative development, with an emphasis on functional issues of sustainability, this article goes into detail as to the general history of such efforts and the ways in which one Tigrayan village—Beleho—addressed institution-building and organization-building activities that grew out of the original TDA work. Women's roles and capacity-building are discussed.

Introduction

Slogans and catch phrases have come to dominate much of the discourse regarding environmental and development issues. "Sustainable development" is followed—sometimes in the same breath—by such phrases as "environmental sustainability," "ecosystem maintenance," and "diversity preservation." In the socio-economic development field alone, we hear "grassroots development," "facilitative development," and "community development," among other phrases.

In other fields and in other eras, especially within the United States, phrases as wide-ranging as "manifest destiny," "poverty reduction," and "women's rights" have captured the attention of broad segments of the public. By slogan, as it were, some people thus are spurred into action, others into reaction; the availability and content of empirical data (whether lending support to a cause or not) often cannot be easily correlated with the approaches actually taken. Some people become project beneficiaries, others come to research them, and still others choose to promulgate policies affecting the stakeholders involved.

The present article emphasizes the Tigray region of Ethiopia. In so doing, it is our intent to focus on ecological issues using potable water rehabilitation as an example. It is our hope to avoid inappropriate slogans and catch phrases, but not to avoid those expressions which capture the spirit of human endeavor and the essence of empirically based findings. The central question becomes: How can a community's degraded and extremely refractory physical environment be improved to restore a source of safe drinking water? How can limited resources—the community's local collective action, technical knowledge from abroad, and local governmental and non-governmental organizations—be combined to address the need, promote short- and long-term local collective action, and result in a water supply that is less likely to fail in the future?

One Notion of Sustainability

Sustainability is in danger of becoming a cliché. Yet, during the past 20 years it has become one of the most important terms in the development field. Our review attempts to narrow the scope and to place its application within an arena that includes women's activities in Africa. This follows Scott (1995), who—while not analyzing sustainability—emphasized the critical importance for development studies of re-examining women's roles in Africa.

In terms of our work, one of the most important applications of the term is that by Marja-Liisa Swantz (1995). She was among the first to introduce the notion of "sustainable

livelihoods" with special reference to women (cf. Thomas-Slayter 2003). Complementing—but not citing—the work of Scott (1995), who emphasized the need to reconsider the dynamics of the African household and the roles played by women in development, Swantz stressed that women comprise the overwhelming majority within "economies of the poor." In Africa, systematic surveys of women to assess their contributions to the informal sector have been few; their contributions are significant but poorly understood. Primary motivations other than "pure" economic gain stimulate many women's activities. "Such efforts comprise enterprise and service" (1995: 27). Sharing is essential, but diffused and thus difficult to measure. By contrast, men tend to participate less in those activities that regenerate life and reproduce society, i.e., "in managing households and serving communities" (1995: 28). Swantz believes, and we agree, that a basic issue is to "secure continuity of life through sustained livelihood and to put reproduction (regeneration) of biological, material and social life in its rightful place as the foundation of social economics, production, work and employment" (1995: 29).

Swantz does not see this realm of activity as removed from the broader socio-economic system, but rather, as contributing to it. Villagers must work within the perspectives of the world they know. Scale of effort and scale of impact, studied at the micro level, indeed are small, but they are not insignificant. It is by small actions in a multitude of villages that many aspects of life unmeasured and unquantified by the neoclassical economic model are, or are not, produced.

Understanding this and seeing village problems that have not and, in fact, cannot be solved by villagers acting collectively but without assistance from outside, we are forced to recognize the limits of local collective action and the importance of the institutional environment within which they are acting. Solutions by which the local collective action may be enhanced, without being undermined, require a delicate balance of related efforts larger than the too-small effort of local collective action alone (Grindle and Hilderbrand 1995). Causing such a subtle but effective enhancement of collective action requires understanding the environment and finding ways to shape the relationships between organizations and institutions in constructive ways that will lead to the desired results on a sustained basis (Cohen 1995).

The Situation in Tigray and the Development of the TDA

Historically, the boundaries and constituent regions of Tigray have changed, in large part depending on the center of Ethiopia's political power. The former home of the Axumite Empire, contemporary Tigray is a land-locked area of about 80,000 km immediately adjacent to Eritrea (which until 1998 offered port access to the Red Sea). Geographically, Tigray is divided into three distinct regions: 1) the eastern escarpment, a tortured land of high population density; 2) the central plateau/highlands region, which is even more heavily populated; and 3) the western lowlands, which are relatively fertile but the least populated due to the prevalence of malaria (Hailu, Wolde-Georgis, and Van Arsdale 1994). The region is home to the Tigrayan and, in lesser numbers, the Raya and Azebo Oromos, the Afar and the Saho peoples. We estimate the population during the late 1990s to have been about 3.5 million.

> Virtually all economic activities are at subsistence level and hence easily disrupted by prolonged droughts and/or socio-political instability. Indeed, droughts and destructive wars have characterized the history of Tigray. ... Causally inter-related are successive famines, civil war [including that which led to Mengistu Haile Mariam's defeat in 1991] and certain policies of the Ethiopian government, which all [contributed] to the displacement of thousands of Tigrayans within and outside of Ethiopia (Hailu, Wolde-Georgis, and Van Arsdale 1994:23).

Indeed, the drought and famine of 1985–1986, intertwined with oppressive policies of the Mengistu regime, are now considered to have been among the most ominous in Tigray's history. These natural downturns occurred in a fast growing population and caused desperate efforts to fend off starvation through cutting of trees, overgrazing, and farming marginal lands better left unfarmed. The results included degraded

soils, increased erosion, less groundwater, and the drying up of traditional water supplies such as springs and hand-dug wells. In many villages the problem was so severe that women, whose work carrying water is well-established in Tigray, were forced, for much of the year, to spend many hours each day carrying small amounts of water up steep cliffs from polluted perennial surface streams far below. Thus women wasted their major resources, time and energy, because their families still had insufficient water of poor quality and less of every other type of care.

Due to the civil war, national and regional government programs stopped, and infrastructure development and maintenance were severely disrupted. The people of the villages of Tigray suffered as their physical environment deterio-

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These four women participated in a focus group, facilitated by the two men at left. In rank order, they expressed their most immediate needs as "new grain grinding facility," "better access to firewood," and "improved village water supply."

rated. But during the war the Tigray Peoples Liberation Front (TPLF) fought environmental degradation as much as it fought the war. The TPLF was a significant part of the Ethiopian Peoples Revolutionary Democratic Front which overcame the Mengistu regime and, after 1991, through national and local elections, came to control the country. During the war TPLF encouraged the creation of local collective action organizations throughout Tigray for the purpose of building hillside terracing to stop soil erosion and rainwater runoff. Thus, at the end of the war, though the villagers had serious water supply problems they also had a functioning soil and water conservation program and a strong belief in the possibility and benefits of collective action. In addition, the position of women in society had changed enough that their voices, and their concerns about water supplies and the adverse effects on their families, were heard in local government meetings. The re-emergent *baito* (a participatory local council) was one reason that this occurred.

In 1989, near the end of the war, the Tigray Development Association (TDA) was founded in Washington, D.C. as a kind of Ethiopian "humanitarian development organization in exile." The repressive Mengistu regime, civil war, economic upheaval, and drought prevented significant development activities from taking place in Tigray, and a number of overseas Tigrayans (including refugees, students, and those in business) were intent on assisting those still at home. Village water supply problems were one of the key problems presented at the first TDA General Assembly. Yet, while chapters and support groups were established in several U.S. cities, Canada, Europe, the Middle East, and Africa, relatively little beyond internal organization-building could be accomplished by TDA during the ensuing two years.

At about this time, and independently, the Water and Sanitation Consultancy Group (WSCG) was founded in Denver, Colorado. Initiated as a nonprofit organization, its mission was—and is—to share the expertise of members representing the fields of engineering, earth sciences, public health, applied anthropology, water resources law, and other disciplines in helping address the water and sanitation needs of those in developing countries. Some representatives are sent as volunteers to targeted areas, such as Tigray, while others work from their bases in the United States. Water resource development is undertaken only in concert with host country counterparts and with host country fiscal involvement. Several early members of WSCG were Tigrayan American professionals. Even before the end of the war, in late 1990, at the request and funding of TDA, former Tigrayan refugee and current United States citizen Tsegaye Hailu made a reconnaissance trip throughout the Tigray region to investigate the current state of village water supplies.

With the overthrow of the Mengistu regime in May of 1991, and the subsequent establishment of a new Ethiopian government sympa-

thetic to the needs of Tigrayans and other ethnic groups, TDA finally was able to begin to pursue certain development goals. The support of outside specialists, including the two authors, was enlisted, with the second author eventually moving to Tigray in 1992. Village water resource needs initially engaged our attention, in part because of our ongoing work with the Denver-based Water and Sanitation Consultancy Group.

In December 1992, TDA consolidated its expatriate and local associations and established its international headquarters in Mekelle, the capital of Tigray. TDA's move to Mekelle brought its operations close to the thousands of TDA members by then located in villages throughout the Tigray region. As government capacities have grown, the organization's vitality has waned, although these members remain one of the strengths of the organization. During the 1990s the majority of TDA's funds came from Tigrayans in Ethiopia, but the members' presence throughout the region's villages presented a unique opportunity for ecologically responsible development. Equally important, however, many urban members responded well to TDA's telethon fund-raisers and also contributed their professional skills to TDA through its five professional associations. Thus TDA itself, by the design of its founders, came to embody the need to bridge the divides between poor and less poor, rural and urban, uneducated and professional.

At about this time, TDA began organizing symposia both in Tigray and abroad at which the second author and another WSCG member were speakers. The information presented through such events helped define and inform TDA development policy. In 1992, TDA began to sponsor short-term visits by experts who helped design development programs in rural water and sanitation, forestry, education, healthcare, and administration. A total of six WSCG professionals, including the two authors, contributed their time and professional expertise during the 1990s.

By 1993, TDA was able to embark on a much more active role in the development of Tigray. TDA's 1993 budget was $3 million US, derived entirely from member contributions. During 1993 these funds were targeted to assist the creation of twenty elementary schools, fourteen secondary school labs, ten small dams, ten tree nurseries, four fuel-wood plantations, one major market road, seven research projects (including one on alternative power), and two pilot projects (including one on building-trades training). Plans also were put in place to build libraries, some of which later came to fruition.

However, due to its limited staff and start-up situation, through 1994 TDA's role in most of these projects remained limited to the collection of donations, the disbursement of funds, some monitoring and evaluation, and the appraising and selecting of projects prepared by others. The latter included projects by government bureaus, TDA foreign branch members, and TDA professional association members. The result of this financially and technologically induced "growth without growth," i.e., without the concomitant evolution of social and institutional structures, were severe problems of underperformance and possible long-term lack of sustainability. In concert with Tigrayan leaders and village-based organizations discussed below, we began discussing capacity-building more aggressively.

With regard to the theme of this article, an equally significant limitation of TDA's effectiveness to assist its constituents was that, though it was formed in part to assist with village water supply problems, TDA had no water-supply project or program. Other agencies did, but their choice of technology and funding limitations made them unable to reach the remote situations where drill rigs could not go and, even if they did arrive, could not find water. Even a hand-dug well program was unsuccessful in these locations. The second author, having worked initially with each of these agencies, was well aware of these limitations (Witten 1990).

A Brief History of Development

Since 1992, TDA gradually has sought to expand its expertise in development. In our roles as facilitators, in attempting to tackle the joint issues of institution-building and water resource improvement in Tigray, we reviewed early on the post-World War II history of development approaches (Van Arsdale 1993). While not detailed here, in summary it can be noted that programs that have worked most effectively include capacity-building components, although they rarely have been labeled as such. Program

ownership/empowerment, and—in the broadest sense—sustainability, are tied directly to this. Women play active roles. Institutional development is key. Economic growth by itself does not equate with sustainability nor do structural adjustment and infrastructural modernization.

Attention to grassroots schemes gradually allowed non-governmental organizations (NGOs) to gain greater footholds, filling the unprofitable and difficult-to-perform-in gap between the private and public sectors. This certainly was the case in much of Africa. Localized development efforts, while less spectacular and newsworthy, could be demonstrated to be making impacts on village-based lives. Sustainable livelihoods, if not immediately achievable, at least could be envisioned. Through the 1970s and into the 1980s, socio-economic development programs came to be emphasized by many of these NGOs. The theoretical perspective came to be based on understandings of the political economy (Van Arsdale 1975) and dependency (Nash 1981). While the cultural, environmental, and developmental elements of the ecological paradigm were well understood separately, most NGOs had not yet fully appreciated nor implemented them in integrated form. In Ethiopia, however, by the end of the war in 1991 the TPLF had arrived at something very much like the ecological paradigm, though by a vastly different route, making Tigray a fertile arena for development efforts.

Tying these approaches together, at least for our work in Tigray, has been the concept of facilitative development. This concept became important to some applied social scientists during the 1970s, 1980s, and 1990s as well. As outlined early on by Lang (1973), facilitative development is a form of non-directive development whereby external agents of change work with internal agents of change as counterparts to create opportunities. The outsiders do not dictate what will be done, nor bring in pre-established project plans, but they may take a part in securing external sources of funding. Conceptual leadership is provided by those indigenous to the area.

The Tigray Rural Water Supply Development Program

WSCG and TDA worked in partnership in development endeavors during the early- to mid-1990s. However, WSCG was never registered as an NGO in Ethiopia, operating instead solely through TDA. WSCG continues to send teams of consultants for specific jobs, such as determining the causes of Axum's city water quality problems. Separately, and to a limited extent together, they functioned as NGOs—giving some idea of the diverse types of organizations that may be found within that designation in Africa (Okumu 2003).

Overall, WSCG's contribution to the development of the rural water sector of Tigray has been significant, though not well known outside the Tigrayan political leadership and some donors. The door was opened to these activities by Tsegaye Hailu, mentioned earlier, a Tigrayan hydrogeologist based in Denver, who was both an early TDA member and a WSCG founder. His reconnaissance work in 1990 laid the basis for WSCG's initial proposal for the "framework" Tigray Rural Water Supply Development Program. This contribution is hereinafter referred to as the Framework (Water and Sanitation Consultancy Group 1991). The second author, editor of the Framework, investigated the institutional environment in Ethiopia a month after the end of the war in 1991 and succeeded in enticing the United Nations Children's Fund (UNICEF) to begin funding the first technology in the program, airlifting drilling rigs into Tigray and supporting their operation. UNICEF then hired Tsegaye Hailu to set up the borehole technology element of the program. Building on his reconnaissance work and his own earlier pioneering geologic mapping in Tigray in 1968, he spent seven months in 1991 and 1992 conducting initial field investigations that laid the groundwork for village water projects. The second author moved to Tigray four months after Tsegaye Hailu's return to the United States.

Although never funded as a single program, the Framework has been the basis for UNICEF's and several other donors' partial support. As of 2000, all elements had been put in practice: drilled and hand-dug wells, spring developments, surface dams, and, finally, the TDA element of sub-surface water storage.

The TDA element was the last to be undertaken, perhaps because it was both the most

innovative and the most difficult organizationally. Simply put, the Framework recognized that storing drinking water in the ground is frequently less costly and, at the same time, less susceptible to pollution, than other technologies. In addition, there are many situations where no other technology will work because there is no surface or groundwater source within an economical distance so that the only option is to restore the traditional groundwater system. Both the general and a more specific method of storing rainwater underground were described in the Framework.

In practice, as later research showed, the specific method was unsuccessful because in many areas of Tigray the underlying rock formations are fractured and the storage systems leak. How groundwater storage might be enhanced was not well understood, appeared to require massive amounts of labor that exceeded a village's collective action capabilities, and might well be a risky investment. Consequently, the more traditional elements of the Framework were undertaken first by government agencies for drilled wells and NGOs for hand-dug wells and springs development, both suitable for small community undertakings with some specially trained technical assistance. But the sub-surface element languished, even though in a few areas it was known to be the only feasible technology.

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These two women daily hike a three-mile round trip, carrying water from the stream below to the village of Beleho on the mesa above. When full, a water jug can weigh 40 pounds.

In these areas, environmental degradation of surface soil deposits, due to deforestation, overgrazing, and inappropriate farming, had caused severe erosion of the surface deposits that, at some former time, had supported springs and traditional hand-dug wells of great age. The relation between the deposits and the point of access varies, but in many cases rain falling in a small basin had naturally slowed down, infiltrated into storage in the soils, and then slowly percolated to the surface at a connected spring or shallow well. In many sites, this ground-water flow provided a year-round source of clean water. After the surface soils were eroded and degraded, however, they no longer held water, and the time period after the rainy season during which the spring flowed or the well produced decreased and, in many cases, ceased. This meant that women sought water from the only alternative source: polluted lowland perennial surface streams.

Over the course of several WSCG consultancies in Tigray, we found evidence that villages had attempted to address these situations using their soil and water conservation work. At the request of the people in one area, the community of Beleho, TDA, with the assistance of the authors, investigated the water situation. The investigation used participatory methods of research and project design, which the first author taught to the TDA staff in class and field exercises and implemented through dialogue with various members of the community over six continuous days.

The Case of Beleho, Phase I

Beleho is situated high on a plateau and has a population of approximately 1,200 people. Its water supply had been good some thirty years before but had deteriorated. The area where rainfall recharges the water stored in the ground is small, extending not more than one kilometer over a slightly oblong "bowl," tipped down with a basalt lip at the low end where water runs out and is underlain by solid basalt from which the

soils have been highly eroded. At the time of the investigation, the springs flowed for a short time after the rains but dried up long before the next rains. During the dry period, women, children with herd animals, and in many cases men, were forced to walk some five kilometers to the river fetch water. Because of the distance to the water, men were reportedly finding it difficult to convince women from other villages to marry them.

The investigation identified a series of community efforts spanning some 30 years designed to solve the water supply problem (Wolde-Georgis 1993). The community clearly understood the causes of the problem and understood how the problem might be solved. Some 20 years before, one well-to-do man led and worked with several women to build a stone wall at a natural dam site, with the intention of catching rain runoff, slowing it down enough so that it would drop its sediment load and fill the space behind the wall, thus reestablishing the "soil sponge" that misuse had eroded. That first effort had some positive effect and confirmed the people's assessment of the problem, but it was too small an intervention at the basin. Small groups of men conducted several other modest efforts, but these were even less successful. Degradation continued. These insufficient interventions confirmed that working together did not provide the necessary solution. As one man related the outcome:

> We could not work together. We just fought all the time about who was working and who was not. The work got nowhere, and there was so much to do.

Subsequently, shortly after the war, representatives to the community meeting decided that they had learned so much from their soil and water conservation program, built up during the war, that they would simply move that system to the water-supply basin. They would do the work needed, then move it back to the area they had undertaken to terrace in agreement with the local government leaders. Asked what the importance of the program was, one person replied:

> The teams of workers, and the trained terrace designers gave us a plan. But the most important was the standard of a day's work. Having that allowed us to work together without fighting.

This work is a prime example of the strong effect of simple time-management tools introduced by the TPLF during the war. The community never told the local government and did not try to get recognition for the terraces built above the dried-up springs. They simply did the work and expressed pleasure with being able to do it on their own.

Unfortunately, the project was not well designed. The design used was that for small terraces for soil conservation. Although it stopped degradation in the upper part of the basin, it was insufficient to store enough water to restore the springs to their original state. The people recognized this; they could see the erosion continuing in the lower two-thirds of the basin that comprised the majority of the catchment and groundwater storage area.

It was at this juncture that the community asked for help. The people knew that bigger check-dams were needed, but they also knew the designs for terraces were not strong enough for a dam. Unfortunately, although this technology is ancient and has been used over much of the world (usually through check-dams, sand storage dams or sand recharge dams, depending on design and use), neither TDA or WSCG had personnel skilled in this ancient technology.

TDA's report noted the importance of the Soil and Water Conservation Program management tools that enabled the community to work together voluntarily and effectively. A proposal was made to the regional government to consider incorporating recharge structures into the program. A hypothetical positive answer followed, hypothetical because the technology had to be demonstrated first.

Understanding their role in this collaborative effort, WSCG professionals performed a literature review and provided copies of all references to the TDA library. With the literature "under their belts," Jim Horner, a dam safety engineer and WSCG president, and Mark Palumbo, a hydrologist, visited Tigray in 1994. Together with new TDA water project staff and the second author, they investigated other areas in Tigray where similar dry-laid stone check-dams had been

constructed, paying special attention to how the sediment had accumulated and how the dams had held up.

Based on this work, WSCG and TDA produced a manual for locating, designing, and constructing such dams in conjunction with traditional springs and wells that had in the past provided a good water supply but that had, due to changes in the surface topology, deteriorated. This came to be known as the TDA Recharge Project and incorporated two stages. The first would test the site with a check-dam treatment. If that worked, and the traditional spring or well was revitalized, then the spring or well would be improved and protected from pollution with a spring box or well cap and hand-pump. WSC consultants provided basic training to TDA staff.

However, this process took time and these developments spanned a very critical transition period after the war during which time the socio-economic environment changed. The people were diverted from their war-time and marginally "post-wartime highs" of voluntary community collective action. Increasing opportunities for paid labor in public works construction programs, designed to build needed infrastructure such as roads and larger dams, in which TDA was a major investor, meant that fewer and fewer person-days of free labor were available for the community's self-help collective action projects. When TDA staff met regularly with the community, they continued their demands for technical designs that they could implement themselves and assured TDA that the community would do the work. The community may not have understood the scope of the work needed to build the larger check-dams as they had never built anything like these structures. Additionally, technicians and other professionals may not have provided information in a form that the rural farmers could understand. Probably for these reasons, when the rural water supply specialist finally delivered tools and cement, the community was unable to organize sufficient collective action. Only a small amount of the work was accomplished before the rains began and agricultural activities took over.

Beleho and Beyond, Phase II

The community of Beleho is small. Without support from the local government or some other institution or entity larger than itself, it is unable to increase the size of its collective action pool. Thus the situation required a new institutional analysis of the development environment to determine how the project could be implemented.

A plan was forged by which a community anywhere in the region could obtain TDA consulting advice on recharge systems, built upon the praise received for the Soil and Water Conservation Program, reported in the earlier document, and extensive discussion between TDA and local government at three levels. It also assessed the inadequacies of the private sector to deliver the needed inputs at reasonable costs. If a TDA expert and community members believed a design was feasible, the design could be made, the collective action needed to actualize could be estimated, and the community could take the design to the local district government. Through this democratic process, the community could advocate for a public works project within the district. Once selected, the district could budget from among its resources, including cash grants from more tax-rich levels of government, carefully targeted food-for-work food aid, and donor funding, some from TDA. TDA then could provide technical expertise, on-site project management, and education in maintenance in addition to water, sanitation, and hygiene education by TDA-trained community health workers (CHWs).

By late 1997, the program had become established institutionally, a process that illustrates the points we wish to demonstrate regarding institution-building. To succeed, the institution had to be fully integrated with local governments, the government water supply agency, and the government agricultural agency. These entities assisted with local organizing, site selection, and public works funding. The water resource technology appeared to work in many, if not all, of the difficult cases and was tested at an additional 12 sites during 1996–1997, thus strengthening the site selection methodology. The TDA field staff increased in number and skill. Several additional sites entered the second phase of the TDA program with well and spring development.

WSCG's anthropological, institutional,

and engineering assistance and its seed funds contributed directly to the development of this program. It became the last piece of the comprehensive, although underfunded, Framework of the rural water supply development program. Although subsequent, post-1997 political instability, including war with Eritrea, led to institutional problems, a successful model had been established.

Capacity Building: Strategies

We believe that what Bissell (1988) early on called "capacity enhancement" and what Paul (1987) early on called "capacity building" is central to what success we have been able to achieve in Tigray and will be central to the notion of sustainable development in the 21st century.

Capacity building, as we define it, is the process by which internal and external agents of change work in partnership to increase the socio-economic and managerial capabilities of intended project or program beneficiaries. Important indicators of capacity include ability to invest financially in local initiatives, ability to manage local projects, ability to create new economic opportunities, and ability to build upon village-based institutions. We believe that capacity is built upon a foundation of ownership with psychological investment as reflected in the decision to invest one's own resources.

Thus, alongside WSCG's sector-specific capacity building effort with TDA, the second author assisted TDA to develop effective programs in health, education, training, and economic development. Different development strategies and management techniques were developed for different efforts. Overall consolidation, reorganization, and expansions were carried out. But the primary actors have been the members, directors and staff of TDA. WSCG's assistance followed the facilitative model outlined above: suggesting alternative ways to do things and emphasizing horizontal connections among parts of TDA and among TDA and the organizations and institutions in its environment. All major decisions and undertakings were made by TDA and the communities in need.

On the short side of the collaborative effort, WSCG never has been able to contribute much financial support to the Ethiopian program, beyond funds needed to support WSCG visiting consultants. Except for its negative effect on WSCG's efforts to make a greater name for itself, this situation has been unfortunate, but not critical. Peaking at about 60 percent of its estimated 1996 annual revenue of $10 million US, TDA succeeded in attracting contributions from members and supporters in Ethiopia, from members abroad, and from major donors. TDA, for example, became a direct contractor with USAID. It had earned a reputation as being a well-managed, efficiently controlled, and fiscally effective organization.

WSCG's limited capacity as a volunteer association of primarily United States-based professionals has also been a constraint. During the late 1990s and early 2000s, WSCG was unable to respond to some requests for overseas consulting services in designing and building small earth-filled irrigation dams. That WSCG does not seek consulting fees, working primarily through volunteers, has both upsides and downsides.

In Tigray, the collaborative capacity building effort during the early 1990s led to a multiplicity of TDA development initiatives beyond the water program, including the following:

- Constructing schools and clinics, TDA coordinated with the regional, district, and community levels of local government, partnered directly with the community/village (which must contribute a share), and supplied as needed a foreman and skilled workers.
- Improving the quality and gender equity of education, TDA deployed Development Agents ("DAs", all Teacher Training Institute graduates) to work with communities, with the support of USAID. The community members, assisted by the DA, made strategic plans, applied for grants, and implemented their own projects to improve the education of their children.
- Enhancing the management side of capacity building, TDA began a consulting service to make local professionals available directly to communities at reasonable costs until the private sector could provide the same services.

• TDA's five professional associations supplemented the skills of TDA's staff.

Under the general umbrella of institution-building and capacity-building, our approach came to emphasize the following components, some of which are still only partially realized:

• Regional development, at the level of the province and below, with particular attention to those at the district and community levels;

• Villager "psychological investment" and project ownership, with (as it pertains to water resources) careful attention being paid to share distribution systems;

• Local mechanisms for dispute resolution, tied to both in-depth understandings of local customs and national laws regarding natural resources;

• Training, with a strong component on "train-the-trainers" and (as it pertains to water resources) skills aimed at operation, maintenance, and repair;

• Projects leading to programs, couched within an ecological paradigm, which avoid the pitfalls of pilot and demonstration projects;

• Reliance on the *baito* (a participatory, local council of representatives that helps decide both social and political activities), to include significant co-involvement of potential beneficiaries—particularly women—in the planning, implementation, and evaluation processes;

• Sensitivity to technologies and strategies which themselves are sensitive to environmental enhancement and the avoidance of environmental degradation;

• Restudy of similar, previous programs and projects in Ethiopia and elsewhere to determine what worked and what did not work. Publications and seminars of the Consortium for Sustainable Village-Based Development, headquartered in Colorado, have enabled much of this to occur (Consortium for Sustainable Village-Based Development 1997).

One strategy WSCG continues to promote involves a package of efforts that are evolving toward market oriented, "consultative development." One of TDA's development models embodies this strategy. The package ideally provides technical services to community-based members in order to stimulate completely self-reliant groups undertaking locally controlled and financed development. Today in Tigray, village problem-solving capacities remain weak in the areas of problem quantification and analysis, the understanding of financing methods, and the forging of necessary linkages with available private- and public-sector technological, material, and financial resources. If fully applied, we believe that many community-based TDA members would undertake singular- or group-based development activities, applying their own resources, if they were able to engage such problem-solving skills. We proposed that TDA's development officers, hired and primarily responsible for implementing the community-based education project, might make these skills available on a consulting basis, and at the same time provide training in these techniques in order to facilitate more widespread community-based development. This mode of operation falls at the high end of what we would term the "member participation continuum." It has yet to be fully implemented.

The Issue of Where to "Base" Sustainable Development

An important topic that has received less attention than required, at least in the general development literature, concerns where sustainable development activities should be "based." This is not a facilities or infrastructural question, in the strictest sense, but rather a question of concept. Is sustainable development to be "based in" a community, a village, a zone or region, a development agency, a local institution? Is it to cross a wide spectrum?

One relatively early approach focused on what were originally described as "development zones," a more recent spin-off being "enterprise zones." Most recently, the concept of "zone of peace" has been introduced (Ramos-Horta 2005). To the degree to which influential members of "zones" or "communities" can be empowered, and in turn can share their skills, localized successes can be achieved. To the degree to which "zones" or "communities" come simply to be treated as "units" to be developed, failures likely will be seen.

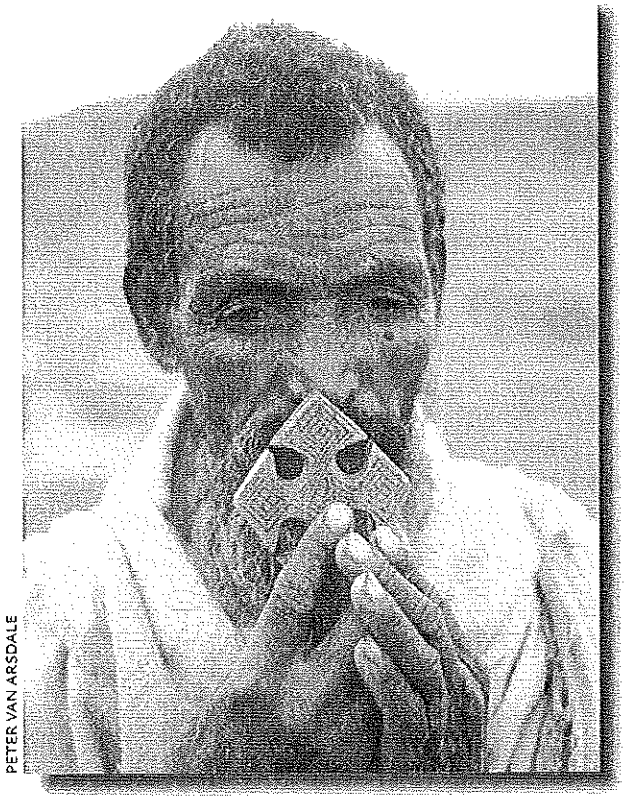
To be distinguished from community development historically was "village development" (Critchfield 1979). Unlike the community, which could be a single village but in many instances

was not, this approach focused on the village per se. Certain projects, especially those involving careful assessment of beneficiary-identified needs, did succeed at the village level. However, when "the village as a unit" became the primary subject of development activities, successes were rare.

Still other approaches, not necessarily mutually exclusive from those mentioned above, have framed development in terms of the impetus of external vs. internal agents of change. For example, the Global Poverty Reduction Act, devised using input from a wide variety of sources during the 1980s, focused on bilateral foreign aid offered by the United States. Its intent was to make the recipients of such aid more accountable and the products of such aid more measurable. In consultation with overseas leaders, as well as representatives of entities such as rural women's groups, one measurable target was the under-age-five child mortality rate, which ideally is to be brought below 70 per 1,000 live births by the year 2000.

Within what we have termed the external versus internal change agent genre are those approaches which are agency-based, or at least agency-driven. Many of those funded by USAID fall within the external category. The irrigation redevelopment project which the first author worked on in Guyana as early as 1980 was of this type, as were some of those whose agency representatives he interviewed in post-war Bosnia in the late 1990s. During this same period several authors reiterated that for development to succeed many parts of the institutional environment must function in concert (Cohen 1995; Grindle and Hilderbrand 1995).

Judging from our work in Tigray, it is our belief that sustainable development must be "based" at several levels simultaneously and must integrate the effective actions of the public, private, and nonprofit sectors. The sectoral lines are blurred. The levels are conceptual, and not merely geographic or infrastructural entities, and involve local, district, and regional councils, as well as women's committees. Because of what we would term its "vertical and horizontal penetration" and because of lessons learned from working together with WSCG, TDA was able to accomplish this better than an external NGO alone, better than the private sector alone, and better than the government alone. The notion of simultaneity in the context of community water management is independently supported by the findings of a joint team representing the Society for Applied Anthropology and the Environmental Protection Agency *(Society for Applied Anthropology 2001).*



PETER VAN ARSDALE

The two authors met this priest while hiking near the Tigrayan capital of Mekelle. He blessed them, while warning them not to step off the main path, since land mines still were buried nearby.

Is it possible to provide a protocol or develop a visual portrayal or graphic of what pieces must work together and what will hold them together? Is a theory per se possible? We think the answer is "not yet." We hope to eventually refine our understanding, but at this time what we believe is needed is an improved operational definition. The process entails an assessment of the environment as a system, identifying key institutions and organizations within it, and analyzing why they are not working effectively together. Further ethnographically based understandings of what constitute the correct domains for ecologically responsive development are needed. We think the water supply examples demonstrate this process. It is a learning process, though not the highly structured and staged one originally proposed by David Korten in his clas-

sic study (1980). It must be a continuous process because the environment is changing continuously and because errors occur both randomly and systematically. We think it is similar to the process by which effective private corporate enterprises and conscientious public enterprises assess their constituents' demands and seek the most efficient methods of satisfying them, except more fully informed by the values enumerated above.

Thus, where private enterprise is able and willing, it is likely to be the most responsive and economically efficient. Where government is able and willing it may be the most equitable and best able to deal with the "free-rider" problems associated with public goods. Where neither of these types of actors is willing or able, a special organization from a complementary sector may fill the gap until profitability, sustainability, equity, or another value comes to determine that the program should be handed over. Almost always collaboration is necessary to include the key elements necessary for success. Understanding the elements and how they may be encouraged to work together through incentives, rules, accountability, and responsiveness is the main function of the process.

The Issue of Unsung Variables: Time and Freedom

Capacity-building indeed is reliant on the factors outlined above. But there are two more factors that are essential, time and freedom. These are difficult to conceptualize in the context of sustainable development, and almost impossible to measure. Even as we present them here, we run the risk of being accused of being "too idealistic" or "too cosmic."

Capacity-building does not run by a clock. It is not governed by the schedules imposed by government agencies, NGOs, nor development contracts. It also is not dictated time-wise by project beneficiaries themselves. Capacity-building occurs in fluid fashion. For this reason, we are recommending that the projects we work with in one sense be open-ended. This does not mean abandoning planning and schedules; it means being sensitive to the fact that learning and building relationships often does not occur on schedule. When it does not, pushing ahead and ignoring the problem is not usually beneficial. In terms of the diffusion of training opportunities from villagers trained by outsiders to those eventually trained by insiders, this is particularly true. This "second-order training effect" is contingent upon those initially trained having the time to internalize the value of the process, and to develop the motivation necessary to impart what they have learned to others. Time also is necessary so that those not interested or capable can select themselves out.

Freedom is essential to development in many ways, of course, but we would like to address one dimension that easily overlooked: dispute resolution. Free people eventually design mechanisms to settle disputes. Usually these mechanisms involve some form of enforceable laws or other local systems of rules, and thus the government serves as regulator, forum creator, or facilitator, but not lead actor. In order to resolve disputes the rights of each party must be defined. When people's rights are well defined, certainty is enhanced and perceived risk is reduced. Certainty is one of the main criteria for investment, a key indicator of capacity. Relating this to water, as water user associations are created and initial disputes over small amounts of water are resolved, the rights of association members are defined. Information spreads, with others coming to feel more confident in joining, and eventually in making the investments necessary to harvest more and more costly water, such as that impounded by dams. Collective action of all types is similar. The people of Beleho reminded us that they needed work standards before they could work together: A small step in terms of rules but an important management tool.

Conclusions

The applied fieldwork that we conducted in Tigray in conjunction with our Ethiopian colleagues during the 1990s leads to several important, and quite simple, conclusions regarding environmental preservation and conservation.

Environmental preservation and conservation indeed can succeed within rural areas dominated by "the poor." In concert with governmental support, locally designed and implemented conservation efforts will work when conjoined with other socio-economic initiatives. In Tigray soil and water conservation activities, in concert with

terracing, served as springboards upon which other development initiatives could be started. A "piggy-backing" of efforts took place. Furthermore, NGOs have an important role to play in education and facilitation, catalyzing pieces of the puzzle into effective cooperative action. The process of facilitative development depends on this. Recent research by Petros (2005) indicates that an increase of over 500% occurred in the number of registered NGOs in Ethiopia during the late 1990s and early 2000s, with over 250 now operative. It is estimated that a higher percentage are being run internally—rather than by external agents—than ever before. It also is estimated that a higher percentage are focusing on sustainable development—rather than temporary relief—than ever before.

In terms of communication strategies, we have that information is transferred more easily horizontally, that is, among peer agencies, programs, and personnel, than vertically as among different levels of a hierarchy. However, the "elite" must not be bypassed communication-wise, even if the program is being developed "from the grassroots up." We are concerned about changes currently underway in central Ethiopian administrative practices that do not bode well for the country as a whole. If elites can be made effective in their present leadership roles, informed by our participatory values, then we will work with them to that end.

Capacity-building is essential to institution-building, and that same institution-building is essential to sustainable development. While remaining elusive to precise measurement, as Harrington (1992) originally emphasized, sustainability and capacity are dependent upon the existence and cultivation of a well-managed resource network. Human resource and fiscal resource development, while essential, cannot be conducted at the exclusion of network development (Van Arsdale 1985). The network must be structured so that mechanisms for dispute resolution can evolve. It must be structured so that women have substantive, ongoing roles and so that their contributions to the maintenance of sustainable livelihoods are supported. It also must be structured so that useful written products, such as field manuals, can be incorporated. That seven U.S.-based universities have agreed to work with Mekelle University of Tigray in development and capacity-building activities, beginning in 2005, suggests that these principles are now at work within one increasingly important Ethiopian educational institution.

The development approach being used in Tigray is still evolving. Since the split in the TPLF, and the associated reform movement, tremendous effort by many people and institutions is once again going into building effective networks. We are, therefore, only able to address or critique certain of the intended outcomes. Important elements being tried derive from earlier Integrated Rural Development and Counterpart Development models, as well as the concept of facilitative development (discussed above). While a formal theory encompassing these is not in place, the future development of an empirically driven "grounded theory" might be possible.

The TDA program outlined in this article might serve as a model. The ecological paradigm is thus subsumed, although often not explicitly discussed by villagers. Bringing the local members into the decision-making process fosters participatory democracy, one of TDA's principles and a common element in successful development efforts. Encouraging TDA members to undertake their own local development activities stimulates a struggle as important as the one by which the feudal and centralized regimes of the Ethiopian past have been overthrown. The current struggle, equally revolutionary and equally difficult, is this time aimed against paternalism and dependency. To the degree to which Ethiopian expatriates and refugees can be reincorporated back into this struggle, with their expertise being tapped, gains also will be realized. Current local leaders understand these and other culturally embedded concepts beyond our knowledge. Making such concepts work on the ground, as the political leaders know only too well, takes a great deal of ingenuity, perseverance, and luck. Time also is essential, but for fragile democracies in poor countries this usually is not in great supply. Getting it right early affords a premium. New strategies for getting the right pieces lined up efficiently with the right "glue" and "lubricant" are valuable. O

Notes

1. Portions of this article, now updated, are based extensively upon two earlier papers, one by M. Wray Witten and Peter W. Van Arsdale (1993) and the other by Tsegaye Hailu, Tsegay Wolde-Georgis, and Peter W. Van Arsdale (1994).

2. Peter W. Van Arsdale's Ph.D. was awarded in 1975 by the Department of Anthropology of the University of Colorado at Boulder. Through early 1996 he served as Denver, Colorado, USA liaison for Tigray for the Water and Sanitation Consultancy Group (WSCG). He is a senior lecturer in the Graduate School of International Studies at the University of Denver, having retired in 2003 as the director of program evaluation at the Colorado Mental Health Institute at Fort Logan, Denver, Colorado. He is trained as an applied cultural and medical anthropologist and can be reached at the University of Denver, Graduate School of International Studies, Cherrington Hall, Room 102-G, Denver, Colorado, 80208 USA. His telephone number is 303-871-3281 and his e-mail is **pvanarsd@du.edu.**

3. M. Wray Witten's J.D.(Juris Doctor) degree was awarded by the School of Law of the University of Colorado at Boulder in 1979. He also holds an M.P.A. degree that was awarded by the Graduate School of Public Affairs of the University of Colorado at Denver in 1991. Through 1997 he served as Tigray-based representative for the Water and Sanitation Consultancy Group of Denver, Colorado, USA (WSCG). He also served as consultant to the Tigray Development Association (TDA) and, subsequently, participated in the development of Mekelle University while working in Ethiopia. He is a former visiting lecturer at Princeton University and start-up dean of the Mekelle University Faculty of Law and is trained as a water resource development attorney and public administration educator. He can be reached at his home office, 28 Thomson Street, Aberdeen AB25 2QQ, Scotland, United Kingdom. His telephone number is [0044](0)1224-658846 and his e-mail is **wrayw2@yahoo.com.**

4. As Christoph Rahbany (1996:1–2) correctly points out in his critique, neoclassical economic thought accommodates a complete and internally coherent version of sustainable development theory.

> [Neoclassical theory] asserts that development occurs simultaneously with economic growth . . . It is fundamental to this capitalist conception that development requires massive infrastructure improvements to provide maximum access to markets. Such infrastructure projects have traditionally included hydroelectric dams, conventional electrification projects. ... As countries are provided the capital to industrialize a la the Post Industrial West, their take-off into the development fold is inevitable.

Our disagreement with the neoclassical paradigm, however, does not say that the economic costs of environmental change should not be addressed; indeed they must (Smil 1996). A recent incisive critique of the neoclassical approach has been provided by Thomas-Slayter (2003).

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