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**DRAWING ON SOCIAL ENERGY IN PROJECT IMPLEMENTATION:
A LEARNING PROCESS EXPERIENCE IN SRI LANKA**

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Although the concept of "social energy" first came to my attention through Albert Hirschman's splendid book, Getting Ahead Collectively (1984: 42-57), its manifestations had already been observable while working on an irrigation rehabilitation project in Sri Lanka with colleagues from the Agrarian Research and Training Institute (ARTI) and Cornell University. We were engaged there in establishing farmer organizations to improve water management in an irrigation scheme and were involved also in evaluating overall project implementation.

The results of that effort, which have been described elsewhere,¹ cannot be accounted for, I believe, without reference to something like social energy. The Gal Oya project experience will be reviewed briefly in section II of this paper after an introductory section on old and new paradigms for social science. Then analytical sections explore several sources of "social energy" and its implications for development work.

I. MOVING BEYOND "NEWTONIAN" SOCIAL SCIENCE

Together with the concept of "social energization," which denotes a process having certain origins and dynamics, "social energy" is one of the most profound and potentially transformative concepts to arise in social science. It points toward the equivalent for social science of post-Newtonian physics, i.e., toward a "new social science" that parallels the "new physics" which arose with the discovery of quantum mechanics and the laws of relativity.²

Social science's current paradigm tends to regard people individually and in groups like objects in Newton's celestial mechanics, concerned mostly with how they are acted upon by various external forces. These forces produce at least potentially predictable behavior in a social universe which, however poorly it may be understood at present, is thought to operate according to general laws immune to individual influence. Personal values and particularistic attachments (like loyalty, affection, solidarity, sense of justice, creativity or pride) are regarded as aberrations. Regarded as random or residual variations, they are to be excluded from theoretical consideration, getting no attention as things that hold social enterprises together and make them succeed.

Social scientists know that people are not inanimate objects as in celestial mechanics which have no will or energy of their own. People are

seen as having some of both. But will and energy are understood as affecting people's responses to outside stimuli conditioned by preexisting preferences or habits. Once these are known, it can be predicted how persons will act, and one can manipulate their behavior by external means, like varying gravitational pull. Behaviorism in psychology (e.g. Skinner, 1971) may be an extreme extension of Newtonian concepts into the human realm, but their influence can be found throughout the social science disciplines.

Hirschman (1977) has shown how some of the earliest contributions to social science in the 17th and 18th centuries drew on ideas from natural science formulated by Newton, Galileo, Copernicus and others. The invention of marvelous new machines gave rise to mechanistic notions about human nature and the proper institutions to regulate human behavior and fulfill human needs. The idea of a clockwork universe wholly explainable in material terms created corresponding images of man.³

Not all social science have been so Newtonian. Marxian analysis has been animated by concern with the power and productivity of human potential ("man makes his own history. . ."). Its dialectical method seeks to discover emergent, qualitatively new outcomes. Unfortunately, Marx's historical predictions presumed a mechanistic system of interaction with

a predetermined end-point, and his explanatory theory was compromised by reductionistic, dogmatic materialism. Social scientists in this century have written often about "power," but not about "energy." The analyses of power have been almost unfailingly in the Newtonian tradition of regarding objects acting on one another, seeking predictions based on the premise of closed systems.⁴

With the advent of quantum physics and Einstein's theories of relativity, the previously fixed parameters of time and space that anchored Newtonian versions of the world about us have become, everyone's surprise, variables. Alternative universes have become conceivable to the new physicists, and events irreconcilable within one frame of reference now are judged compatible in two or more. Even so, most social scientists, having a professional complex aptly described as "physics envy" (Johnston and Clark, 1982: 19-20), proceed with a mechanistic view of our social universe that is derived from a rather dated concept of the physical one.

This is not to say that Newtonian physics is obsolete and should be abandoned. Quantum mechanics co-exists with celestial mechanics. They have different laws because they address different kinds of relationships, at different levels of analysis. The "old" physics has provided the theoretical and practical foundation for truly remarkable material accomplish-

ments, from building skyscrapers to putting men on the moon. We continue to use its theories to our great benefit. But they were constructed on the premise of closed systems, according to which the future ultimately holds only entropy. The "new" physics is agnostic about such a future and revels in the possibilities of open systems. Rather than be preoccupied with entropy, physicists in this century have been grappling with the mysteries and potentials of energy. This exists in the universe in practically infinite supply, though only a small part is readily available for use.

One of the mysteries of human affairs is why persons and organizations invariably operate well below their potential. We know that individuals seldom approach -- and certainly cannot sustain for very long -- their maximum possible levels of effort, creativity, collaboration, etc. At best, we can sustain effective outputs maybe 70 to 80% of what we are capable of achieving. And such shortfalls are compounded collectively. How many organizations manage to function on average much above even 30 to 40% of their potential?

These numbers are indicative, being only estimates rather than actual measurements. But they describe relationships that most persons recognize and accept as correct representations. In the Gal Oya irrigation scheme in Sri Lanka, we always operated below 100% effectiveness. We

were, often painfully, below what we wanted to achieve and what could have been done with more time, resources and forethought. But our support staff and organizers at times worked, even under difficult conditions, up to 80 to 90% of their potential, while most government personnel on average barely met 50% of what could be expected of them. Organizers and farmers managed to sustain collective efforts in the 60 to 70% range, compared with 20 to 30% in official institutions. Such differentials made our program look fantastic because its levels of energy and innovation, while certainly below a hypothetical maximum of 100%, were out of the ordinary, and had some synergistic and cumulative effects.

Conventional explanations would look for how we overcame the equivalent of individual or collective "friction" which impeded forward movement, perhaps focusing on manipulation of "incentives," the social equivalent of gravitational pull. Better explanations would consider how in our program unlike others large reserves of personal and group energy could be drawn on.

We know that the "output" of people and organizations is only approximately related to the "inputs" they receive. Persons with similar inputs perform at widely varying levels, and the same is true of organizations. Responses to and transformations of inputs are not

predictable according to Newtonian principles because human enterprises resemble machines only by analogy. Hydraulic and organic concepts are more appropriate, suggesting less mechanistic kinds of cause and effect and greater variability in outcomes.

The importance of "energy" and the dynamics of "energization" are still overlooked, even in some of the best recent work of relevance to new approaches in public administration. The path-breaking study of high-level performance in the private sector by Peters and Waterman (1982) revealed, among other things, the importance of values and even of "caring" in large corporations. They give much evidence of the effects of energization, but they never analyzed it as a concept or process. In his excellent study of professionals, Schon (1982) makes important contributions to our understanding of cognitive factors in management and highlights the role of improvisation. But no systematic connection is elaborated between ideas and energization.

In his consideration of "people-centered development," Korten (1984) persuasively presents the elements of an alternative framework for social management. He even listed in descriptive if not analytical terms, the main factors I find contributing to social energization -- ideas, values, and social relationships (1984:309). But the notion of creating "enabling settings" is like reducing friction in a Newtonian world, and

"empowerment" sounds more like the transfer of energy than its creation. The valuable concept of "self-organizing structures and processes" verges on but does not depend on energization. These omissions in the work of Peters and Waterman, Schon, and Korten are referred to because it represents some of the best current thinking in organizational science.

Perhaps the body of literature coming closest to a concern with social energy is that on "organizational development" and particularly its offshoot seeking to promote "organizational transformation." The latter explicitly identifies the phenomena and effects of "organizational energy." But some ambiguity and even circularity are evident in the way this subject is treated by writers on O.T.⁵ So while their concerns are very welcome, their formulations I do not find of much help.

My own approach to this subject has been inductive, turning to "energy" explanations only when more standard notions in the Newtonian tradition of individualistic and materialistic interests and incentives did not account adequately for what my colleagues and I were observing. I should note that our work in the Gal Oya irrigation scheme was planned and implemented from the start in the "learning process" mode proposed by David Korten (1980). We were pleased and fortunate to have him as a member of the initial ARTI-Cornell reconnaissance team that visited Gal Oya in January 1980.

I am quite sure that had we proceeded in a conventional

"blueprint" manner, we would have had much less success. But more important, we would have learned less. We would have presumed that deficiencies in our performance derived from having a faulty plan of work, which we should try to improve. Instead it was necessary to rethink the processes of innovation and institutionalization occurring before our eyes, to arrive at more penetrating understandings of the sources of higher collective performance.

II. THE CASE OF GAL OYA

The Gal Oya irrigation system presented more difficulties for rehabilitation and management than any other scheme in Sri Lanka. At the end of the reconnaissance visit just mentioned, the Deputy Director for Water Management in the Sri Lankan Irrigation Department (ID) suggested to us, "If you can make progress in Gal Oya, you can make progress anywhere in Sri Lanka." This statement was intended as encouragement because the task before us appeared so forbidding as we learned more about the distinctive characteristics of the project area.

" Gal Oya was the largest and most hydrologically complex system in the country. To make complicate matters, the scheme overlapped two districts' administrative boundaries, so it was managed from two different Irrigation Department offices, in Ampare and Batticaloa.

" It was the most deteriorated system, with Left Bank channel

conveyance capacity reduced by 30% or more from siltation. About three-fourths of the gates for controlling water were broken or missing. Water could be both measured and controlled at only 7 points for 60,000 acres of command area.

- ** The reservoir collected less water than expected and planned, usually filling only to about half its capacity before the start of the dry season. Meanwhile, the area below the reservoir which was to be irrigated had expanded by perhaps 50% more than planned. The lower third of the command area hardly ever got irrigation water, and the middle third was seldom adequately served in the dry season.
- ** Officials regarded Ampare District as a "hardship" post (even a "punishment" posting) by officials because it was the most distant from Colombo by road travel time. As a settlement scheme carved out of literal wilderness it lacked amenities and was still considered dangerous because of wild animals and natural hazards.
- ** The reputation (and self-image) of the settlers was poor. Many had been relocated unwillingly or under unfavorable circumstances. Some were resettled convicts, and others were "rejects" from their overpopulated home villages. They were thought by officials to be particularly quarrelsome and uncooperative. Being brought from many parts of the island, their villages lacked the solidarity and ethos of "traditional" communities. Murders over water were known to occur.
- ** To make matters worse, water distribution had an ethnic dimension. Head-tail tensions and conflicts are found in any irrigation system where there is water scarcity. But these were more serious because in Gal Oya, mostly Sinhalese households had been settled in the vacant head and middle areas, while Tamils were given land in the tail near their ancestral villages on the southeastern coast of Sri Lanka. That a majority of the irrigation engineers operating the system were Tamil could not remedy maldistribution or assuage tail-ender resentment.

Had we known all these factors fully at the outset, quite possibly we would have declined to take on the task of introducing farmer organization for improved irrigation management, since we knew that the Irrigation Department was not sympathetic to this idea. Provision was made in the project design for setting up water user associations almost as an afterthought.⁶ It was accepted by the Department only because USAID wanted it and ARTI and Cornell agreed to be responsible for implementing it.

In retrospect we can appreciate the "hiding hand" which Hirschman (1967) has written about, which obscured from us the many difficulties that lay ahead, so we tackled the assignment with optimistic, even naive ideas and energy. The story has a reasonably happy outcome, in part due to our "learning process" approach, so we are pleased we did not pass up the opportunity or give up on it mid-course. But there were times when any optimism seemed utterly misplaced.

The top administrative official for the district, the Government Agent, told our first group of organizers when they had completed their field training, before settling into the villages: "If you can bring even 10 or 15 farmers in Gal Oya to work together, that in itself will be a big achievement." Regarding Gal Oya farmers as unruly and difficult, he wanted to encourage the organizers by setting low expectations. The

project plan, however, specified that we were to "organize" 19,000 farmers within four years!

This target was utterly unrealistic. For one thing, the project design team had not even known how many acres there were in the Left Bank, let alone how many farmers there were. We started with a pilot organizing area over 5,000 acres, and five years later there were water user organizations with over 10,000 farmers functioning from the field channel level upward to the district level for 25,000 acres. For two years, warfare between Tamil secessionist guerillas and government forces was going on around the project area, making travel to and from Gal Oya difficult. It forced us to abandon organizing work started in an additional 10,000 acres with Tamil farmers who proved to be at least as actively participatory as their Sinhalese neighbors upstream. Even so, we probably could have reached the target if we had not had to contend with the warfare, budget cutbacks, considerable instability in ARTI's staff after the first two years of organizing effort, and continuous turnover in our organizer cadre (95% during the life of the project).⁷

By the end of the project in December 1985, there were some impressive summary measures of improved water use efficiency one could point to. For the dry season, water issues had been reduced from 8 to 9 acre-feet per acre to between 5 and 5.5 acre-feet; for the wet season,

the issue had been brought from 5 acre-feet to about 2 acre-feet (2/3 of the national norm of 3!). Part of this was certainly due to the physical rehabilitation of the system and to the better management efforts made by Irrigation Department personnel. But ID engineers at district level freely gave the farmer organizations and organizers much credit for improving system management, for reducing offtakes of water, cleaning channels better, leaving gates closed and not breaking them (as had been widely done before), etc. Whereas the ID's project director in Gal Oya had tried to sabotage our program for farmer organizations, his successor concluded that organizers should be deployed to start working with farmers two years in advance of any future rehabilitation projects.

Strong endorsements came from top political and bureaucratic levels. The District Minister several times stated publicly that the program had practically eliminated farmer complaints about irrigation management. The Government Agent said in an interview in a government magazine:

When I came here in 1980, about 100 people would come to my office on Mondays and Wednesdays [his days for meeting the public] to speak to me about water problems. Now not a single farmer comes to complain to me about water problems. (Desa-tiye, October 1984, p. 19.)

While this statement might be somewhat exaggerated, the Deputy Director of Irrigation told me that the formal complaints he received

about irrigation problems had declined from hundreds to "a handful." This could not be due just to physical improvements in the system because these had been completed in only about half of the Left Bank at the time of the interview with the GA. Significant improvements in water distribution started within weeks of the organizers' arrival in the communities, before any rehabilitation work was done.

This is not to say there are no problems, but most can be handled among farmers themselves (farmers make many of their problems among themselves) or in cooperation with field staff (a great change from previously), leaving only a few to bring to higher levels. ID engineers come to farmer meetings, and farmer-representatives participate in project-level discussions.

This is why problems reaching the District Minister and GA are indeed reduced. My polling of farmer-representatives in January 1986 about water problems suggested 80 to 100% satisfaction, up from 20 to 30% five years before. Farmer-representatives on the longest and most difficult distributary in the Left Bank (M5) told me proudly that whereas they had had murders over water a few years before, now they did not even have any significant conflicts over water. "You can check the police records if you don't believe us," they said. All problems were worked out by the representatives themselves or with ID staff.

What was most impressive to me was that the organizing effort started in an extremely water-short dry season, when the reservoir was only one-quarter full due to lack of rainfall in the catchment area. Previously it has been usually at least half full. (The next year's dry season started with even less water supply!) The Cornell advisors suggested that water management activities not be started in 1981 because the crop failures which were likely might be blamed on our program, thus discrediting it before it was given a fair chance.

Fortunately, the organizers and ARTI staff decided to proceed with water management work, in advance of physical rehabilitation, because farmers were in such a dire situation. We dropped our plans to spend several months constructing "profiles" for each channel area and started informal consultations among farmers, initiating a problem-solving process. No formal organizations were established. Rather, informal, ad hoc arrangements were made, all on a voluntary basis, with some farmers emerging as the most capable and conscientious leaders (always called farmer-representatives, however, not farmer-leaders).

Within six weeks, farmers on 90% of the field channels in the pilot area were engaged in some combination of the following:

- "" cleaning field channels by group voluntary labor -- some of these had not been cleaned for 10, 15, even 20 years because of the social disorganization among farmers.

- ** rotating water within field channels so that tail-end farmers would get their fair share of the limited supply available; this was all the more remarkable because at the time, the Irrigation Department's deliveries of water to distributary channels (five days of flow, then five days closed) were unpredictable and irregular, imposing a known risk on farmers who agreed to get water at the end of the issue, and**
- ** where enough water was available to a field channel thanks to more efficient and equitable distribution due to channel cleaning and rotation, sending one or two days' supply to downstream farmers; head-end channels were could take unlimited amounts because of broken gates, so they had to make special efforts to shut off their supply.**

This latter activity was especially surprising, not expected given the presumption that farmers as "rational actors" (i.e., individualist, self-interest-seeking decision-makers) would not give up anything of value for others whom they did not even know! Such generosity particularly energized the program, when (Sinhalese) farmers on several head-end channels sent some of their water down the branch channel to (Tamil) tail-end farmers. This action particularly impressed the Tamil engineers who had quite negative stereotyped views of Sinhalese farmers.⁸

Inter-communal cooperation continued in this area even when ethnic disturbances broke out in the district in August 1981, and some Tamil shops were burned in Gonagolla town. Sinhalese farmer-representatives took it upon themselves to go to the homes of the ID Technical Assistant and Work Supervisor, both Tamils, to protect them in case the mob came

there. (Only four months before, at a public meeting to set the irrigation schedule for that dry season, Gonagolla farmers had loudly berated the TA and WS for what they considered poor performance of their duties.) Still later, in January 1982, when a recurrence of communal violence was feared, Sinhalese farmer-representatives suggested to Tamil fishermen who fished in the reservoir that they stay home the next day for their own safety, offering at the same time to guard their boats and nets to be sure no damage would be done to their property.

For Sinhalese farmers to care about Tamil fishermen was doubly surprising. Although communal conflict was increasing elsewhere in the country, these farmers were anxious to avoid it. Because the two languages are mutually unintelligible, I asked them whether there should be one or two overall farmer organizations in Gal Oya. Their answer: "One. There are no Sinhalese farmers, and no Tamil farmers, only farmers."

Such expressions of solidarity reflected the cooperation we saw springing up where there had been very little or none for the previous three decades. When the Director of Irrigation, publicly critical and skeptical about farmer participation, made a field inspection of the program in January 1982 one farmer-representative, who became a leader for the whole area, told him:

Sir, I have lived here for 29 years. My field is the second from the head of the channel and I never once in all those years closed the pipe serving my field before June [when the program started]. But then we started working together and I was elected representative. Now everybody closes their pipe when they have enough water. I sometimes patrol the channel at night just to make sure everybody is cooperating. If I find somebody is not, I just close off the pipe, because I know the other farmers support me in this.

Farmers at the close of this meeting with the Director asked him whether he could please extend it to other irrigation schemes, where they knew other farmers had problems similar to their own before the program started. Three years later, farmer-representatives organized a "convention" to commemorate the third anniversary of "their" organizations and invited the Ministers of Agriculture and of Lands as well as the District Minister to come as guests. Between 2,000 and 3,000 farmers came to this event, which they funded with 13,000 rupees of their own money.

There were many disappointments and setbacks, especially due to the turnover of organizers. And many of our initial ideas had to be revised or abandoned. We frequently failed to follow through on good ideas and even on promises for lack of staff and other resources or for not appreciating at the time how important certain efforts would be. A whole book could be written about disappointments and mistakes. Yet the program very quickly acquired a momentum and purpose of its own. Its accomplishments, satisfying farmers and officials alike, made it a

remarkable program in the midst of government fiscal troubles and ethnic crisis. USAID and the government have adopted the Gal Oya approach in principle to be extended to other irrigation schemes in a follow-on project (unfortunately still not appreciating fully the principles behind it, so the new project builds less firmly on the foundations of our learning than possible). The current Director of Irrigation has told a national workshop at the International Irrigation Management Institute:

Without active involvement of the farmer, I don't think any irrigation system can succeed . . . At the beginning there was certain doubt and resistance, I can say . . . There was no concept [then] of getting farmers involved as we have today. . . We were not very convinced. But now we can look back and see that we have been making useful changes. We are learning and continue to learn. (K. D. P. Perera, May 16, 1986)

There have been continuing difficulties in getting the new approach implemented on a national scale due to budget, personnel administration, bureaucratic competition and other constraints. Of most importance has been the acceptance of this system among farmers and officials. How was such a change in the situation possible? An adequate analysis and explanation will require a whole book, but one central factor was what can be called "social energy." This I would like to examine analytically based on our experience in Gal Oya but drawing on concepts derived from other fields of inquiry and practice.

II. SOURCES OF SOCIAL ENERGY

Within the first year of organizing work, it was clear that "something new, something useful" was underway.⁹ The organizing strategy and learning process cannot be detailed here. Instead I will consider the three main sources of "social energy" that I saw at work in this relatively remote and disadvantaged area -- ideas, ideals, and friendship. All kinds of people -- farmers, officials, visitors, organizers and even (especially) their advisors -- were amazed at the social and physical transformation occurring, at the emergence of energy and innovation at many levels. The Government Agent for the adjoining district (Batticaloa) where the tail-end of the system was located wrote to me at Cornell in September 1981 to say he had just attended a meeting where farmer had said (probably to the chagrin of the officials present) that if all government staff worked like the organizers, most of the area's problems could be solved.

The phenomenon of "energization" was everywhere to see. During my bi-annual visits to Gal Oya with ARTI colleagues, as we drove through the system we continually came across IOs on their bicycles or on foot, making their rounds of contacts or going to or from meetings.

This would have been difficult to stage because our schedule and route were usually not known in advance even to ourselves (or we were behind schedule). Farmers verified that IOs were always accessible and taking initiative though not so much as to displace the emergence of farmers' own leadership. (The dangers of creating "dependence" had been stressed in training.) We also found government staff making more effort to work with farmers, coming to meetings, keeping office hours, being more responsive to people's needs.¹⁰

At first I tried to explain this process with the common concepts of "interest" and "incentive." Farmer cooperation was consistent with such explanations, but then why had collective action been negligible in Gal Oya for the previous 30 years, when interests and incentives had been practically the same? Some normative or other factors must be involved. Without them one could not account for the behavior of Irrigation Department and other officials whose interests remained the same and who got no direct or personal reward for discharging their duties more conscientiously now. They were responding to a new social and moral climate in Gal Oya, created by the organizers and farmers. Even local politicians and members of the rural elite, sometimes after initial efforts to undermine the program, got "on board" or at least did not interfere with it.

Of most direct importance was the effort and initiative of the organizers and the ARTI staff who were displaying unusual levels of physical and intellectual energy. The role of the organizers was to act as "catalysts," bringing forth individual talent and collective action from the farming community for which potential already existed but which was dormant. If entropy as understood in physics results from disorganization, organizers were countervailing this dynamic by building up new structures of people and ideas.

In our program, the ARTI staff were catalysts for the organizers, who were catalysts for the farmers. However, the process did not stop there. Conscientious farmer-representatives were catalysts for officials, whose actions in turn encouraged and energized farmers, organizers, ARTI staff and Cornell consultants. What we were seeing was a collective phenomenon of mutual energization, where our organizers energized each other and the persons with whom they interacted. Colloquially, the process could be described as people "bringing out the best" in each other. The effects spanned physical distances, from Colombo to Ampare to Ithaca, N.Y., and moved in all directions. Indeed, our efforts had been initially energized (inspired, informed) by similar, successful precedents in the Philippines and Nepal.¹¹ The network of social energization was far-flung.

How could it be explained? As I began puzzling about this several years into the program, I found the kind of analysis which Olson (1965) offered on collective action inadequate (Uphoff, 1985a). Three major factors can be identified that respectively contributed to the dynamic we were observing, and which reinforced one another to accelerate and sustain it. I have listed them above as ideas (concepts and symbols), ideals (values and norms), and friendship (sometimes known as solidarity).¹²

An underlying relationship ties these three factors together theoretically and behaviorally. All represent positive-sum relationships in contrast to the zero-sum and even negative-sum dynamics implicit in most current social science, which exalts competition and resigns itself to entropy. Pitting force against force and interest against interest has been seen as a productive use of energy (Hirschman, 1977), and a downward slide toward disorganization is viewed as our ultimate, necessary fate (Boulding, 1978).

Explicating these three powerful, positive-sum, energizing factors in human affairs is a huge task so they can only be sketched here. But I want to encourage more consideration of them because they have been underrated in the prevailing formulations of social science. Its reductionist logic unfortunately favors mechanistic concepts. Its "model of

man" emphasizes materialistic motivations and self-interested, individualistic calculations. Cognitive phenomena, both ideas and ideals, and "other-regarding" orientations, sources of social energy, are discounted or deprecated, in the name of rigor, as beyond the realm of "science."

Ideas. Fortunately, there is increasing appreciation of ideas as having validity and value in their own right. Gardner (1985) has shown that one can today speak meaningfully of "cognitive science," embracing a confluence of disciplines producing similar insights, ranging from neuroanatomy and computer-based studies of "artificial intelligence" to linguistics and philosophy. Exciting new theorizing supported by rigorous research is giving concreteness to variables previously dismissed as too ephemeral for serious consideration.¹³

In Gal Oya, I found myself marvelling at the power of ideas, not to change or eliminate material interests but to introduce new lines of behavior once they had been conceived and communicated. My Cornell colleague, Gil Levine, an agricultural engineering professor, had a demonstrable impact on ID engineers, who were trying to control water down to the field level, once he explained that it was reasonable for them, rather than "retail" water to individual farmers, to "wholesale" it down to a middle level of the system and then let farmer organizations take over the distribution. This concept of "wholesaling" water opened

up new possibilities and practices even though it was more in engineers' material "interest" to keep complete control of this scarce resource.

My contribution to the program was periodically to come up with conceptualizations -- of strategy, of sequence, of decision rules, of justifications -- that gave coherence to the emerging field experience. I was not discovering new things so much as clarifying and simplifying aspects of the world around us, the classic role of the teacher. My formulations had an energizing effect on organizers and farmers, and sometimes on officials, by making it easier for them to have confidence in what they were doing. My being an American professor gave some status and legitimacy to their efforts, but my main contribution to the common effort was to help make things "clearer" for everyone. Conceptual confusion reduces people's confidence for acting and accordingly has an immobilizing (de-energizing) effect.

Ideas as forms of information defy the first law of thermodynamics, which proclaims the conservation (in effect, the limitation) of energy (Boulding, 1961). Ideas are truly positive-sum in that they can be shared and disseminated without being lost or diminished. It is this dynamic which gives Boulding some hope that the entropy trap can be avoided, especially if we can begin understanding and treating the world as an open system rather than as a closed one (Boulding, 1978). A more



adequate discussion of this subject would take much more space, but the basic argument should be fairly clear (and energizing?). We should begin taking ideas more seriously as causal factors and influences in human affairs, not simply as reflections of material interests or realities.

A "learning process" approach is preferable because it produces ideas and information as an expected consequence of action. Also, such an approach is best undertaken with an explicit "problem-solving" strategy, identifying and prioritizing problems to be tackled through collective effort. Hirschman (1967) has argued persuasively that increased problem-solving capacity is the essence of development and should therefore be fostered. A "blueprint" approach, focused on implementing a preconceived program, does not deliberately generate knowledge.

Another advantage of a learning, problem-solving approach is that it gives many persons a stake in the outcome. Those who become engaged in the process come to regard it as "theirs." Had ARTI or Cornell come to Gal Oya with a blueprint for farmer organizations, neither the organizers nor the farmers would have felt so much responsibility for the process of implementation, for innovating and problem-solving in big and small ways as we proceeded. There would have been less conscientiousness and less success, I am sure. Some of the "mechanisms"

whereby a learning process approach can be energizing seem fairly clear. They turn at least partly on the generation and flow of ideas.

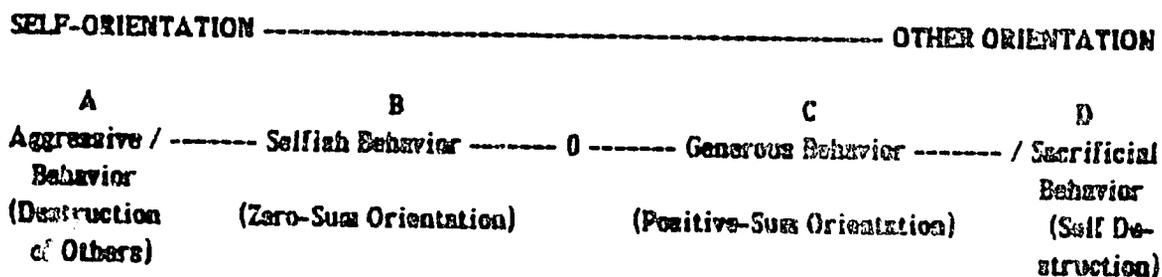
Ideals. The energizing effects of "idealism" are widely recognized, but they are still not often taken seriously in "scientific" analyses. The leading social scientist of this century, Max Weber, devoted much attention to norms and values in his work. But he proceeded to champion "value-free" social science, enshrining a dichotomy between "facts" and "values" that depreciated the latter's status within social science.

Nobody has questioned that norms and values exist and have some influence, but they have usually been abstracted or counted in ways that make them less meaningful for people, minimizing their motive force.¹⁴ There was no way one could miss their significance in Gal Oya, however. The program's goal of promoting more equitable distribution of water with the fullest possible participation of all water users was quite idealistic. It animated the young organizers, in part because it was promoted with conviction by their ARTI and Cornell advisors. Those farmers who shared these values were the first to respond and provided leadership from the grassroots. The more idealistic among officials picked up the theme and supported it.

The first season of organizing activity, as noted already, was extremely water-short. Such circumstances are usually thought to bring

out selfishness and competition. Yet quickly, hundreds of farmers were cleaning channels without payment and sharing water, even with strangers. The usual social science notion that their values had been somehow "changed" by the program's intervention did not make sense. It was not possible to have such a rapid mass moral "conversion" of farmers, to profoundly change behavior patterns of 30 years. My conclusion was that the organizers as "catalysts" activated norms and values that were already present within the rural community but that had been latent or dormant for decades.¹⁵

To provide some theory to explain what happened, I would propose a two-dimensional normative "field" in which people's behavior can be probabilistically located, depending on which of their normative orientations are motivating under the circumstances. The first dimension represents people's orientation toward ends, whether they desire outcomes that are exclusively self-oriented or ones that are also other-oriented. The following continuum of orientations can be postulated ranging from selfishness to generosity, with "pathological" extremes at either end:

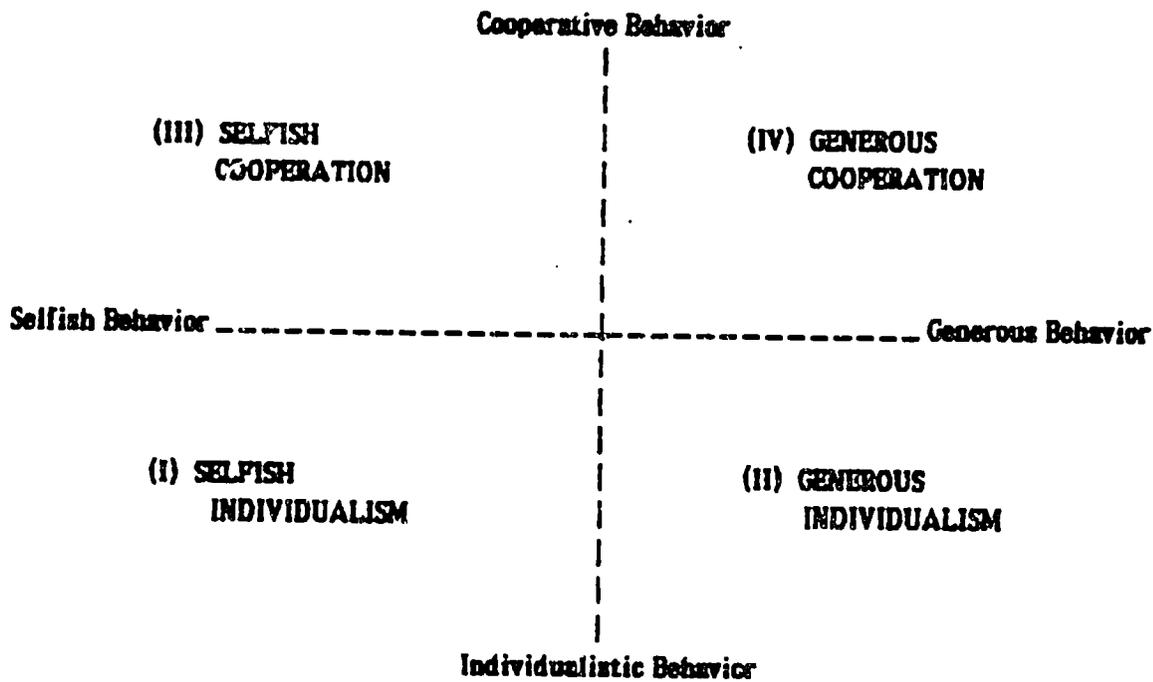


Selfish behavior (B) ranges from indifference to others' well-being (the mid-point in the continuum) to the point where one is willfully harming others, rather than simply seeking one's own advantage. Generous behavior (C), commonly referred to as altruism, goes from indifference to the point where one willingly suffers harm and annihilation.

Most of the altruistic range encompasses what is called "Pareto optimality" by welfare economists. Close to the mid-point we have situations where everyone clearly gains in gross positive-sum outcomes. When moving toward (D), one passes through situations where persons consider their loss outweighed by others' gains, with net positive-sum results because they attach some positive value to others' well-being. The individual who accepts such costs is getting some psychic compensation which justifies the loss. We saw a lot of such behavior in Gal Oya. At some point, when the orientation becomes self-sacrificial, one passes "beyond altruism," according to this analysis. We did not find instances of this.

Most social science analyses and prescriptions presume that "human nature" is most often manifested in selfish behavior (B), though generous (altruistic) behavior (C) is welcome. (B) is thought to be so common that it deters most (C). That was my expectation when we started in Gal Oya.

The other dimension, shown vertically below, describes people's orientation toward means, whether they will try to solve problems individualistically or cooperatively. These two dimensions produce four quadrants representing ends-means value combinations.



The first condition (I) in its extreme at the lowermost left-hand corner is Hobbes' "state of nature," the war of all against all. Toward the center it is more a matter of competitive indifference vis-a-vis others. The second condition (II) represents philanthropy, unfortunately not a very stable or ample condition for improving human welfare. The third condition (III) is Hobbes' Commonwealth ruled by the Leviathan, or Olson's (1965) version of collective action, engaged in only in so far as one gains advantages, attaching no value to others' benefits. The fourth

condition (IV) is the most promising for developmental outcomes and more likely to be stable for being positive-sum in both dimensions.¹⁶

For the preceding 30 years, farmer behavior in Gal Oya had been in a different equilibrium (I) which by being zero-sum in its motivation in fact produced negative-sum results. For lack of cooperation, individuals who sought to maximize their respective well-being were reducing each other's welfare. Competitive behavior yielded a sum total of satisfactions less than the resource potential permitted, which was evident: once farmer behavior shifted to (IV). By sharing water and by not wasting it (out of consideration for other farmers), even with reduced total supply in the 1981 and 1982 seasons, harvests were obtained on fields not successfully cultivated for the previous 5, 10, even 20 years.

This visible and indisputable payoff from cooperation was of course a tremendous reinforcement for behavior that expressed positive-sum values. Tangible material success obviously helped to energize farmers, organizers and officials. We do not know how long (IV) would have been sustainable without it. But there were also non-material benefits which farmers identified, including greater self-respect among people, reduced conflict in the community, and achievement of "a spirit of unity" (eke-mutekame in Sinhala), a strongly held cultural value reportedly found in "traditional" villages but not previously in this settlement scheme.

A very powerful reward for farmers was the respect they began receiving from officials, who came to farmer meetings, who took them and their ideas seriously, who even became "friendly" with farmers. For persons who were used to being treated as barely human (I remember a senior engineer's jocular reference to farmers as "those donkeys"), this produced tremendous satisfaction, since respect and self-respect represent some of the strongest human needs, even (especially?) among the poor.

This movement from (I) to (IV) was made possible by the "catalysts" who brought out the potential for cooperation that existed in the community. They did not create but rather activated positive-sum orientations with regard to ends and means of action. The methodology used was one developed in the Philippines, Nepal and other places and adapted to Gal Oya circumstances through a learning process. The "evolution" of cooperation and of norms has been analyzed very rigorously and imaginatively by Axelrod (1984 and 1986). But in this case, because the response was so quick and so strong, I believe his work would explain why such normative orientations had already evolved within the culture. It would not explain the behavior we observed.

The logic of collective action as analyzed by Olson (1965) suggested little prospect for such cooperation because it was thought any "free

riding" by non-cooperating farmers, who could try to benefit from better water distribution without helping clean channels or implement rotations, would discourage other farmers from working together even to create what benefits they could, because undeserving persons (shirkers) would gain too. The fact that the whole system of organization was based on small groups at the field channel level (10-20 farmers) meant that free-riding could be kept to a minimum through face-to-face social pressure. But free-riding did occur, without any visible deterrent effect.

For the majority to have remained uncooperative would have denied them many benefits, which is consistent with Olson's explanation. But it ignores the normative dimension which moved farmer cooperation from (III) to (IV) when farmers started considering the welfare of others besides themselves. This shift farmers reported many times, usually crediting the organizers with raising their consciousness about the need for and value of both cooperation and solidarity.

Most farmers stayed within the range of Pareto optimality, helping others so long as this involved no major costs for themselves. But particularly the leaders, most hardly above the subsistence level, were willing to bear many costs, for example, the time and money to travel to coordinating meetings, which would help others and create net total benefits, a positive-sum result but not especially benefiting them.

(None, to be sure, carried this to the point of substantial material sacrifice, which would disadvantage their families, not just themselves.)

The organizers' methodology was to start by going house to house, getting acquainted with all farmers and their families personally, then arranging for small group discussions to assess past experience, identify problems, and encourage group initiatives on an informal, ad hoc basis. The program deliberately avoided establishing formal organizations as the first step, wanting "demand-led" rather than "supply-side" organizational development.

To have held elections of leaders at the outset would have given prominence and power to the rural elite and discouraged the emergence of local leadership that was oriented toward equity, productivity and participation. Where existing local leadership had such an orientation, work started more quickly and effectively. But much new leadership was mobilized which became recognized and legitimated on the basis of group-centered performance.

When it came to selecting more formal leadership, this was done by consensus, and after the group had discussed the criteria for selection (not election). Such discussion tacitly screened out less desirable candidates and informed whoever was chosen of what the group expected of him. Never during the five years of the program did the

Farmer-Representatives chosen and functioning in this manner ever have any formal authority.

The program would at some point probably have been more effective if "social" authority had been backed by some "legal" powers to enforce group decisions. The program gained the backing, eventually enthusiastic, of the Government Agent and District Minister, and it had the obvious support of the Ministry of Lands and USAID. But the marvel of the program was that it functioned entirely by informal, consensual means, which generated social energy.

The organizers encouraged constructive behavior with normative and structural reinforcement. They emphasized the values of cooperation and participation (means) and of equitable sharing as well as efficient use of water (ends). At the same time they facilitated the formation of organizations which created "public space," where problems could be raised and transformed from individual to collective ones.

Farmers who had not been other-regarding began changing their behavior because, as one organizer nicely put it, "It is much more difficult to be selfish in public than in private." Agreements to share water that would have been impossible among individuals emerged almost "naturally" when "third parties" were part of the problem-solving process. People kept to agreements witnessed by their neighbors.

So normative and structural considerations reinforced each other. At first I tried to construct a purely structural explanation of what was happening, to make it more "replicable," I thought. In retrospect, I see that I was trying to come up with an explanation more "respectable" among colleagues who discounted approaches based on value commitments and personalized efforts. These were generally seen as ethereal, idiosyncratic, unreliable. But gradually I concluded that however real was the individualistic, materialistic basis for farmer cooperation in Gal Oya, this could not be accounted for without understanding and promoting also its collective and normative bases, which farmers and organizers repeatedly stressed when I pressed them for explanations.

Even if farmers' collective performance could be accounted for within conventional frameworks, how about the dedicated work of the organizers? They sometimes worked without a contract (they were on year-to-year appointments that often got delayed) and even for months without payment, due to budget foul-ups between the ID and ARTI (the organizing effort was paid for not by USAID but by the ID out of its rupee funds). Because there was great insecurity, most (but not all) IOs accepted more permanent jobs elsewhere when the opportunity came. We trained six different cohorts of IOs in the five years, with turnover of

over 95% by the end of the project. And yet the cadre maintained its dedication and persistence. As seemingly irreplaceable leadership was lost, underrated or new IOs moved into the gaps and often even added momentum.

The IO cadre survived several "scandals," including unfounded allegations of corruption and an accusation by the opposition party during the 1982 election that they were "CIA agents." Their devotion to farmers' interests backed up by personal sacrifices won respect and affection. True, they were reasonably paid, but they had to live in farmers' homes under conditions not expected of or by most university graduates. (I remember being told that farmers thought the women IOs were "spending too much time in the fields." Why? Farmers were concerned that the young women, come to help them, were getting sunburned and were losing their fair complexions, valued for marriageability.)

Was this all just a matter of youthful idealism? The organizers could see beneficial results from their efforts as quickly as could the farmers, and they had to feel good about the fine reputation they enjoyed in the whole district. Job satisfaction by their own account was very high. They were given considerable freedom to plan and evaluate their work, part of the learning process approach. This strategy engaged their best efforts as no "blueprint" for organizing drawn up in Colombo

or Ithaca, N. Y. ever could. A sense of responsibility evident in all but a few (who were separated from the program) grew and flourished under the difficult conditions of Gal Oya.

But ideals and ideas alone could not explain the amount of social energy this cadre generated, among themselves and with farmers and officials. The experience in Gal Oya points to a third factor which was the most unorthodox explanation, but quite obvious once recognized.

Friendship. The program thrived on friendship, that personalistic, idiosyncratic phenomenon we find universally "making the world go round." The core group at ARTI developed strong bonds of mutual appreciation and support, mirroring the connections already established among the four Cornell faculty involved in this effort. The IO cadre very quickly established high morale, partly because the organizers enjoyed each others' company and continually helped each other out. The farmer groups acquired more momentum where there was a spirit of friendship animating members. The climate of mutual acceptance and assistance spread between groups. It started between ARTI and Cornell staff, but then grew up between them and the IOs, between IOs and farmers, between IOs and officials, and between farmers and officials.

References to friendship kept cropping up in discussions, too often to be ignored. The expressions "giving others the benefit of the doubt"

and "bringing out the best in each other" -- key characteristics of relations among friends -- took on practical meaning in the field with the emergence of cooperation and energization. The importance of friendship was evident on the "up side," but the explanation held on the "down side" too. The program went through some disappointing "valleys" of low morale and loss of effectiveness. These were associated with a breakdown of friendship and trust, partly due to ethnic tensions after 1983, but more often due to conflicts of personalities, competition, and misunderstanding, not giving "the benefit of the doubt."

Friendship is seldom taken seriously in social science because almost by definition it is "particularistic," something disparaged in Talcott Parsons' monumental scheme of analysis as the antithesis of being "modern" (something "good"). The subject has rarely been treated with any theoretical interest or sophistication, although Rubin (1985) has recently contributed some good analytical and empirical insights.

The neglect is surprising given how ubiquitous we all know friendship to be as a social force, seen for example as "old school ties" or "connections," arising from common experiences and sense of purpose. There is an implication that these personal linkages, for being particularistic, are somehow illicit or illegitimate. Yet most of the world's business, not just commercial but also administrative, gets expedited if

not transacted on such bases. To ignore them only shows how unobservant and unempirical have been those social scientists who sought universalistic, abstract explanations thought to be truly "scientific."

Common Characteristics. Ideas, ideals and friendship, as suggested already, share the characteristic of being positive-sum in their conception and dynamics. Ideas, as we said, are not diminished by being given to someone else; they defy the laws of thermodynamics. The value of certain ideas might diminish if this is derived from a monopoly position (secrecy), but their volume can expand indefinitely.

Ideals derive their meaning and significance from being shared by many people. To exclude others from sharing one's own ideals makes no sense. Moreover, the most widespread and compelling ideals are those that exalt positive-sum relationships, based on people's common interest and common fate. There can be "ideals" of selfishness and individual action, but these are hardly energizing across populations in the way that norms of altruism and cooperation can be.

Finally, friendship is by definition a positive-sum phenomenon. A friend is someone whose well-being we value, unlike that of a stranger, toward whom we are indifferent, or an enemy, who we think would do us harm and thus with whom we will engage in conflict. All relationships are based on notions of reciprocity, but the dynamics are

respectively positive-sum, zero-sum, and negative-sum for the three categories just suggested. Cooperation even with strangers can produce typically positive-sum results (Axelrod, 1984), but it will be Selfish Cooperation (III), more liable to end than (IV) because one does not value benefits for anyone else. Where generous cooperation (IV) is involved, relations among friends persist even when one does not receive an immediate or direct benefit. Expected payoffs are complex because decisions are based on what economists call the "interdependence of utility functions." People then regard themselves as better off when valued others are getting ahead.

Whether or not one chooses to value others' well-being in addition to one's own is a personal decision. If I choose to get satisfaction from others' gains, I can regard myself as better off when they get ahead. Note that we are not talking here about valuing others' well-being instead of or to the exclusion of one's own. That passes beyond the degree of self-sacrifice accepted under altruism and into the realm of self-sacrifice (D), which is different from generosity (C). The Gal Oya experience showed a great deal of altruism but no self-destruction on the part of farmers.

IV. IMPLICATIONS

The subject being opened up here is vast, and the analysis needed to elevate it alongside the prevailing theories and prescriptions of social science would be extensive. It will not replace all the premises and conclusions of contemporary social science but will broaden what social scientists look for and accept in their research and writing. One can hope that by learning to deal with the non-material positive-sum factors of ideas, ideals and friendship, even if these are difficult to analyze, social scientists can help policy-makers and administrators become more attuned to the opportunities which the "social energy" to be derived from these factors can create.

Such discoveries are most important for the future of less-developed countries because what these have most in common is their pervasive material poverty and limited financial resources. In such circumstances, it is self-defeating to pursue economic and managerial strategies that rely mostly or entirely on economic factors. Existing planning and administrative systems use these material factors very inefficiently anyway. Mechanistic "input-output" conceptions equating money spent with "development" achieved (Korten and Uphoff, 1981) too often end up producing less value than the resources expended. Impersonal bureaucratic approaches designed to ensure some "minimum" level of

performance unfortunately too often ensure that no more than a minimum will be achieved.¹⁷

There is need for a social science which recasts planning and implementation to mobilize social energy (idealism and cooperation) through more organic and more personal concepts of organization where material resources are so scarce. Julius Nyerere some years ago warned that poor countries should not try to fight the war against poverty primarily with the weapons of the rich. But what kind of social science will help us reformulate the campaign? Not one inspired by a theoretical framework oriented toward entropy. By a process of abstraction and impersonalization in our analyses, social scientists have glossed over and lost the tremendous power that exists in individuals, like atoms. What is needed is a social science that helps to set off the social equivalent of nuclear chain reactions.

In Part I, Korten's work on "people-centered development" was cited. Though it does not focusing explicitly on the phenomenon of "social energy," I noted that it aptly called for a new social science paradigm relying on "alternative ideas, values, social techniques and technologies" (1984:309). If the latter reference to social techniques and technologies encompasses what I would refer to as interpersonal

relationships and bonding, his principal factors for "people-centered development" correspond to what I refer to as ideas, ideals and friendship.

Once I had concluded, based on practical experience in Cal Oya, that these three factors held vast potential for improving of efforts for Third World development, I realized that I was rediscovering factors analyzed 15 years earlier (Ilchman and Uphoff, 1969). In The Political Economy of Change, we considered what would be the political equivalents of the "factors of production" which economists treat analytically and empirically. What are the analogues for politics of land, labor and capital?

We concluded that economic resources constituted one such category, along with social status, information, force, legitimacy and authority. The "softest" of these "political resources" were information, legitimacy and status, with force being the "hardest." Force was most like a hard or convertible currency which is exchangeable with anyone, whereas the "soft" resources were like soft currencies, not readily redeemable and thus hard to place a value on. Authority and economic resources were "hard" in so far as they were zero-sum, to be allocated from fixed amounts. But when they are regarded and utilized as "renewable resources," as flows rather than as stocks, they become positive-sum and thereby "softer."

Authority and economic resources each have a discipline devoted to their explication, political science and economics. But information and legitimacy are more free-floating across disciplines, undervalued and too often ignored as factors. Status though formally within the province of sociology gets little analysis in resource terms.¹⁸

What I am focusing on now, as I try to make some sense out of the subject of "social energy," is the three resource domains I had most difficulty with 15 years ago. Though they continue to be "soft," they gain more definition and substance once associated with the study of "energization." This inquiry goes well beyond the subject of project implementation, but it was itself informed and energized by project experience in Sri Lanka. To the extent such theoretical explorations are successful, they will have enormous implications for the way we design and implement development projects. Tapping the potential of social energy for generating material and non-material improvements, particularly at local levels, becomes all the more important as present zero-sum and negative-sum dynamics threaten to stall developmental progress in the Third World.

Footnotes

¹ See Uphoff (1985 and 1987). An extended examination of the Gal Oya experience (volume I) and what can be learned from it (volume II) is "in progress." The first volume has gone through several drafts already. Some of the main ideas being developed in the second are sketched in this paper.

² There is a growing literature on this. The most helpful expositions I have found are Zukav (1979), Wolf (1981), Briggs and Peat (1984), and Gribbin (1984). Readable presentations by contributors to the quantum revolution in physics include Heisenberg (1958) and Gamow (1966).

³ Hirschman says: "The advances of mathematics and celestial mechanics held out the hope that laws of motion might be discovered for men's actions, just as for falling bodies and planets." (p. 13) He notes that Hobbes based his theory of human nature on Galileo, and Spinoza sought to "consider human actions and appetites just as if I were considering lines, planes or bodies." (pp. 13-14) Helvetius proclaimed: "As the physical world is ruled by the laws of movement, so is the moral universe ruled by laws of interest." (p. 43) Early political economists regarded the economy as working with "the delicacy of a watch," while the movements of economic men proceeded "with the uniformity of a machine." (p. 93)

⁴ Probably the best review of this literature is Wrong (1979). See also the anthology by Bell et al. (1969) which contains the most "scientific" contributions to the literature. Analyses by Shapley and Shubik, March, Simon, Harsanyi, Dahl and others clearly show "Newtonian" influences. My own previous analysis of power, I must acknowledge, was in that same tradition (Ilchman and Uphoff, 1969: 50-51). However, our resource-exchange analysis which treats authority and legitimacy as positive-sum (rather than zero-sum, as in most analyses) opens the way to a "new social science" treatment of power (Uphoff, 1986a).

5 Levy and Merry (1986) in their excellent synthesis and presentation of the organizational transformation approach cite Hawley's description of O.T. as "a basic change in the organization energy. O.T. is a spirit and energy change," and Adams' definition of organizational energy as "human potential for action or the accomplishment of work." Levy and Merry summarize the main components of the O.T. approach as "abstract, fluid and dynamic elements that are hard to define and deal with. These elements are the organization unconsciousness, energy, spirit, spirituality, mission, purpose, vision, belief systems, world view, myths, symbols, paradigm, and state of being" (1986: 169).

6 A staff member in the AID mission wrote in a farmer participation component after the design team deliberately omitted it. The technical members of the team accepted the ID's view that many problems of water "waste" stemmed from lack of farmer "discipline" and this was to be enforced by legal means. The sociologist member of the team who saw a need for what we subsequently called "bureaucratic reorientation" (Korten and Uphoff, 1981) did not propose forming water user associations for fear this would distract attention from bureaucratic reforms, giving engineers another opportunity to blame deficiencies in system performance on the farmers. After visiting Gal Oya nine months after our program started, he acknowledged that his supposition had been wrong and that establishing farmer organizations was contributing to BRO.

7 In the first period, ARTI contributed fine and steady leadership to the program, particularly from C. M. Wijayarata, who then came to Cornell to do his Ph.D. in agricultural economics in January 1983. Thereafter, six persons over the next three years were in turn responsible for the program, including for a while someone with the rank only of research assistant. These were some good and committed persons but many problems resulted from instability and inexperience. Vital continuity and leadership were given by a Sri Lankan sociologist, Sena Ganewatte, who assisted as a training consultant for five years, and by a government official, S. Munaingho, who served as supervisor for the organizers in the field. For two-thirds of the time, Cornell had someone resident in Sri Lanka working with ARTI, and several other Cornell faculty and I made periodic visits to observe and assist the program.

The government had initially agreed to make at least the best organizers into a permanent cadre after two years. But for a variety of reasons, including personnel ceilings, trade union objections, reorganization of the bureaucracy responsible for irrigation management, and mistrust between engineers and administrators, this promise was not kept, even though it was made a condition precedent for extending the project in 1983. Consequently, most organizers when offered more permanent employment elsewhere, often as teachers, left the program, usually with expressions of considerable regret. Some returned to the organizing work after trying out these other jobs because they found our program more challenging and rewarding, despite the more arduous living and working conditions. The average time in the field was only nine months; four of the 169 trained remained the full five years.

⁸ The episode which initiated this sharing is particularly interesting. All but one farmer on a head-end channel accepted the suggestion to save one day's water (out of five) for tail-enders. The holdout was taken by another farmer on his bicycle down to the tail to see what conditions there were like. The man came back so moved by what he saw that he suggested they try to save two days' water. "Those people don't even have water for drinking or bathing, let alone growing rice," he said. Like most Sinhalese at the head, he had never been to the Tamil area.

⁹ These were the words used by the Director of Irrigation during his first field inspection of the program in January 1982. He had opposed the program at its outset, saying first that farmer organization was unnecessary ("if the farmers would just do what they are told. . .") and then even if user organizations would be useful, Institutional Organizers would not be needed (ID staff could do the job). He did finally consent to a two-year experiment, but after 10 months he had enough positive feedback from his staff that he pledged the program "full support" and offered to take the IOs into the Irrigation Department. For a variety of reasons, all of them in retrospect mistaken or unimportant, this transfer did not occur, which turned out to be a great strategic error, or missed opportunity, however one chooses to characterize it. Seeking an ideal solution instead of a feasible one set back the institutionalization process.

¹⁰ This result was not unique to Gal Oya. A similar organizational effort improvised a few years before by an ID Deputy Director at Minipe, a 15,000 acre scheme, had shown similar effects (de Silva, 1981 and 1985). This engineer, now chairman of the Mahaweli Engineering and Construc-

tion Authority, said he learned as a junior engineer that working with farmers produced better and quicker technical results, and much better relations between farmers and officials. In the first stage of effort at Minipe, de Silva had the assistance of organizers (catalysts) from a Buddhist service society.

11 The role of organizer was patterned after successful "bottom-up" programs for irrigation improvement in the Philippines (described in Korten, 1980) and for small farmer development in Nepal (see Rahman, 1984; also Esman and Uphoff, 1984: 245-261, 343-350). The first crystallization of the "catalyst" concept that I came across was Lassen (1980).

12 The English words "society" and "social," we should note, derive from the Latin word for "friend" (socius). I have been encouraged to learn that ideas, values and community are the three things emphasized in the strategic thinking of Upali Senanayake, one of the leaders of rural development work in Sri Lanka through non-governmental organizations (Moles and Riker, 1984). He was founder of the National Heritage Movement, which provided organizers for the irrigation experiment described in footnote 10.

13 "Serious" people, like Harvard professor Jerome Bruner (1985) and Nobel prize-winning brain physiologist Sir John Eccles (Eccles and Robinson, 1984), are opening up new lines of inquiry and understanding that regard ideas as explanatory phenomena in themselves. The latter book draws heavily on Eccles' earlier book with a noted philosopher of science who has turned his attention to this area (Eccles and Popper, 1977).

14 A notable exception is the work of Goulet (e.g. 1980) which recognizes the dynamism which religious and social values can engender. He characterizes development experts as "one-eyed giants" who have failed to recognize the importance of values in the development process.

15 Goulet (1980:485) writes of "traditional values (including religious beliefs and practices) [that] harbour within them a latent dynamism which, when properly respected, can serve as the springboard for modes of development which are more humane than those drawn from outside paradigms." Both organizers and farmer-representatives appealed to Buddhist values which sanctioned generosity and cooperation. But these values had been at least nominally held by Gal Oya farmers during the

previous 30 years with little effect. So the values by themselves explained little. Hindu or Muslim values were appealed to by organizers in the Tamil-speaking areas.

16 In the normative-behavioral theory I wish to develop, the manifestation of these values is to be understood as probabilistic, but here I am dealing with them as stable alternative manifestations.

17 Others who read Peters and Waterman (1982) were probably as impressed as I was by the statement from one General Motors Corporation manager: "Our control systems are designed under the apparent assumption that 90 percent of the people are lazy ne'er-do-wells, just waiting to lie, cheat, steal, or otherwise screw us. We demoralize 95 percent of the work force, who act as adults, by designing systems to cover our tails against the 5 percent who really are bad actors." (pages 57-58)

18 The closest thing to a resource analysis of status is by Blau (1964).

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