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THE RELEVANCE OF AT DEVELOPMENTS IN THE U.S. TO THE THIRD WORLD

(A Compendium of U.S. AT Organizations)

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INTRODUCTION:

Development agencies such as the World Bank, O.E.C.D., A.I.D., and others are beginning to recognize the need for experts familiar with small scale, low-cost and easily maintained technologies and also tech-nques which involve low-income people in solving their own problems. This is a result of a shift toward development strategies to meet the basic human needs and the need for technologies which improve local self-reliance.

Alternative America, a directory, lists over 5,000 organizations experimenting with non-conventional means for greater equity, a safer environment, and more harmonious human relationships. Narrower publications such as the National Science Foundation's Appropriate Technology - A Directory of Activities and Projects suggest that at least 300 groups of innovators are developing technologies that incorporate a concern for ecological balance, recycling and diminishing waste, and fostering local self-reliance. This report explores these crucial and important resources of AT developments within the United States, and is concerned with its impact on the lives of low-income people and its possible relevance to Third World development. The authors have tried to reach a broad repre-sentative range of AT practitioners, the persons actually designing and using alternate/appropriate techniques, rather than to select the most technically qualified. The report is based on information in the TRANET files, on a questionnaire sent to 100 organizations by TRANET and Volun-teers in Asia, and by personal visits to over 50 organizations by Bill Ellis, Ken Darrow, and George McRobie. It is not a comprehensive list of the elements of this growing community of interests.

The report has missed many organizations such as Ecotope Group in Washington, Zomeworks in New Mexico, and The Center for Maximum Building Potential in Texas, whose technical expertise and proven innovative abilities would rank them high on any list of AT capabilities. The active organic agriculture and small farm development groups within the United States may likewise be under-represented by the absence of such important groups as The Village Institute of Washington and The Graham Farm of North Carolina. The report has completely neglected groups such as the Hesperian Foundation, VITA, the Heifer Project, and Technoserve, all of whom give their full attention to serving the Third World.

Part I gives general impressions about the AT movement in the United States and a synopsis of the comments by practitioners concerning potential interaction with the AT movement of the Third World. The final section in Part I presents recommendations for any development policy intending to make use of this AT resource. The recommendations are not intended to deprecate the work of VITA, VIA, Technoserve, SIDO or other groups now working well with the Third World. Rather, they are proposals for activities which the AT practitioners in the United States could and would do themselves. Part II contains descriptions of groups implementing AT in the United States today. Finally, Part III consists of biographic information on some AT practitioners which reveals the social and technical breadth of the AT movement in the United States.

PART I

GENERAL IMPRESSIONS OF AT MOVEMENT IN U.S.

COMMENTS BY AT PRACTITIONERS

RECOMMENDATIONS FOR DEVELOPMENT POLICY USING AT RESOURCES

GENERAL IMPRESSIONS OF AT MOVEMENT IN U.S.:

It cannot be emphasized enough that appropriate technology (AT) is no panacea for Third World development. Further, it is difficult to judge the potential for service to the Third World by U.S. residents active in AT. The American AT movement has a wealth of valuable technical capabilities, yet one must be aware of the limits to their application or relevance in other cultures or other ecologies. All too often foreign assistance becomes a process in which the industrialized West tells the Third World what is best for them. That tradition is a fatal threat to the essence of appropriate technology as well as to the ingenuity which peoples of the Third World have shown in providing for their own needs from local resources. Some AT practitioners are too easily convinced of the relevance to the Southern Hemisphere of small scale low-cost technologies proven effective in the North. Furthermore, the roots of the AT movement within Europe and within the United States differ significantly from the origins of this movement in the Third World.

The roots of AT in Europe has a theoretical base. Jacques Ellul in 1935 was one of the first modern philosophers to sound the warning that society was becoming enslaved by a science and technology that proceeded with its own rules of logic with no thought of the welfare of humans. The clearest statements of AT in Europe are voiced in books such as Radical Technology by Godfrey Boyle and Peter Harper, and The Politics of Appropriate Technology by David Dickson; in periodicals such as Undercurrents and Resurgence; and in political actions such as the Lucas Aero Space Combine Shop Steward Committee. The Center for Alternative

Industrial and Technological Systems (CAITS), and the Industrial Common Ownership Movement (ICOM).

A central concern of these European groups is that technology as now developed centralizes power. In fact the purpose of technological developments is not to increase productivity but to free management from the uncertainties of labor. These Europeans contend that an appropriate technology can lead to a new society with greater individual freedom and more concern with human rights.

For the United States the roots of AT are in Rachel Carson's book, Silent Spring, and the ecological movement it symbolized. They are in Ralph Nader's Unsafe at Any Speed and the growing concern with harmful effects of unbridled technology. They are in Martin Luther King's march on Selma Alabama and the growing concern for individual rights and local self-reliance. They are in Watergate and the loss of faith in big government, big industry, big labor, and big science to meet the nation's needs.

The disillusionment with science and technology in the U.S. (as in many other parts of the world) reached its height during the student riots of the 1960s. Not only did the students recognize that our high level of technology was feeding, and perhaps responsible for, many of the evils of society: urban crime, pollution, fear of a nuclear holocaust, economic deprivation, unemployment, etc. But, even the national leaders showed the disillusionment by sharply curtailing the R and D budgets under which universities and private corporations had thrived since World War II.

For the Third World, AT roots lie in the need to meet human needs--food, housing, clothing, transportation, health, and communication. Their AT movement springs from the failure of Conventional Development Strategies (CDS), which rely on "modernization", "technology transfer", "industrialization", and "trickle down" to bring economic development ot the masses while bringing wealth to a small elite. Third World scholars such as Ponna Wignaraja of Thailand and Amilcar Herrara of Argentina are calling for an Alternative Development Strategy (ADS) which starts with the people and assists them to meet their own needs with technologies of their own designs built from local resources.

Despite these diverse origins behind the AT movements on different continents, AT practitioners generally accept the concept as it was defined in a 1975 U.N.E.P. study by a group of practitioners led by A.K.N. Reddy of India. The goals of AT may be summarized under three headings: Environmental, Social and Economic.

Environmental goals of AT include: saving energy, recycling materials, reducing use of resources, minimizing pollution, using only renewable resources, being in harmony with the local ecology, and providing for a sustainable future.

Social goals for AT include: meeting basic human needs, providing for creative and interesting work, giving control to the user, blending with traditional culture, promoting community harmony, being locally developed, and giving power to the people.

Economic goals of AT include: meeting local needs, reducing economic inequalities, generating employment, producing from local resources, producing for local consumption, and leading toward economic decentralization.

Although the U.S. groups surveyed upheld this general definition of AT, they stressed four aspects which need emphasis.

First, AT is by the People. People--the end users--men, women, children, the poor--must be involved with every aspect of AT Development.

They must be involved in choosing, designing, building, using, and owning technology. Any time people are not involved we are not doing AT.

Second, AT is location specific. Ecological, social and economic efficiency demands that technologies be carefully designed to meet local conditions. The greenhouse in Maine has a very different configuration than one used in Michigan, Arizona or Thailand. Local resources, local wants, local climate, local geography, and local culture put restraints on the design of efficient technologies that cannot be met from a distance and cannot be transferred to a new location.

Third, AT is Holistic. AT is not hardware. It is much more an approach to development and a philosophy of human well being. AT practitioners hold that human advancement must include a broad view of culture, human relations, social form, spiritual beliefs, and harmony with nature as well as the organization of physical material under the laws of science. Un-integrated technology has brought on as many problems as it has solved. This technology has been destructive because it has not been developed within a holistic framework of man and nature.

A characteristic of the AT groups visited across the U.S. was that there were a combination of anthropologists, physicists, humanists, horticulturalists and other people. Often their roles had little to do with their academic training. One of the best horticulturists held all his academic degrees in Spanish literature. One of the more culturally sensitive practitioners held a Ph.D. in engineering and had spent most of his career in the Aerospace industry. Both in compostion and approach the AT groups visited were holistic.

Fouth, AT is Futuristic. AT signals where we want to be in the future. Or perhaps more accurately, where we can be under the restraints of population and world resources. In the past, engineers and futurists have been concerned with only what was technologically feasible. They predicted in terms of robots, computers, push buttons, and pills. AT practitioners stress human relations, gardens, bicycles, homes, communities, nature, spirituality, and health.

The AT groups visited were closely associated with health food groups, new spiritual interests, intentional communities, human rights organizations and other concerns which come under the heading of "The New Age". All of the groups seemed to have a concern for the future, and an interest in developing technologies which could be sustained over long periods of time and a belief that the future is now. What we do today must take into account the long term effects.

The most significant characteristic of the AT movement in America which is relevant to development in the Third World is the participation of people in developing their own technologies: AT is by the people. Too often the United States takes for granted the synergy between its culture and its technology. In few other nations does one find the innovative spirit, the interests in tinkering with mechanical devices, the organizations of amateur radio clubs and other signs of a technologically oriented society. The revival of this hands-on research in practical devices such as windmills, solar collectors, home gardening, and self-built homes is the heart of the U.S. movement. Developing and establishing mechanisms by which people can participate in making their own technological choices and in solving their own problems should be the

key to any cooperative AT program between the U.S. and the Third World.

The participation by people in their own development despite their economic status is recognized and clearly endorsed by most of the organizations included in this compendium. Many U.S. groups have outstanding programs involving the low-income people in adapting appropriate technologies. The People's Development Corporation is reviving a section of the Bronx in New York City with solar collectors, waste recycling, greenhouses, and agriculture. HOME is working with the rural poor in Maine to revive traditional hand craft industries and to bring back the small farm, particularly sheep raising, which was the economic base of the area a few decades ago. The Center for Neighborhood Technology in Chicago is assisting ghetto dwellers to establish rooftop greenhouses with financial assistance provided by The South Shore National Bank.

Centering attention on people's participation does not negate in any way the need for highly trained scientists and sophisticated technology in the development process. Many of the innovations used by the groups mentioned above have been developed by other technical AT groups such as The New Alchemy Institute in Massachusetts, Ecology Action in California, or the Center for the Integrated Application of Science, whose research in biological farming, integrated pest management, aquaculture, systems ecology and other areas of science are unsurpassed by our most advanced academic research institutes.

The development and implementation of appropriate technologies is not held captive by social status. The "counter-culture" and ecological movement in which the American AT movement had its roots were dominated

by individuals from a middle class background. Only in recent years have individuals and groups recognized and exploited the potential of providing community services to the poor through AT development. And now, many programs intended for the poor become effectively used by middle class Americans. AT development flows both ways.

Shelter Institute is a case in point. It was established to teach low-income people efficient and effective ways to construct their own energy efficient homes. As the program developed more and more professionals and other middle class people also took the courses in self-help construction. In Davis, California, the opposite seemed to be the case. A program for bicycle transportation established for the University students has grown and developed to become city wide, providing an effective low-cost means of transportation for the lower income workers. Other programs such as the Waste recycling program in Portland, Oregon and the water purification project of Amity Foundation in Eugene, Oregon, are motivated primarily by the municipal authorities to solve city problems but have the side effect of providing the low income people with both employment and services they might otherwise not have.

As effective as the AT system is within the United States, it obviously falls far short of its potentials. Part of the reason for this may be, as many AT proponents claim, the inertia of a society with considerable financial resources tied up in technologies that are no longer safe or efficient. However, as this survey makes clear, it could be a result of the absence of any close connection between the organizations working in AT and the other elements of our society. Of the groups visited only two, Office of Appropriate Technology in California and

The National Center for Appropriate Technology in Butte, Montana, were clearly associated with any level of government. One, the small farm program of Control Data Corporation, was associated with a major industrial firm. And two, the Denver Research Institute and the one by the University of California, were linked to large universities. Thirty-five were independent non-profit organizations or very small businesses.

It is important to recognize that the separation between AT centers and "the establishment" has an ideological origin. Some AT groups, The Farm for example, have their roots deep in the student riots, the hippie movement, and the unrest of the nineteen sixties. Others such as D.A.N.C.E. and the All Co-op Assembly of Minnesota have gone through some rather disruptive periods. Some elements within these groups had tried to restrict the New Age Co-ops to serving the poor only. Others like Shelter Institute and Cornerstones have actually split over disagreements. These last two could not agree on the extent to which the established construction industry should be involved. These ideological struggles among AT practitioners makes it difficult for the conservative bureaucracies to work with even the most constructive AT centers.

The detachment of the most innovative AT practitioners from the accepted channels of government, universities, or industry isolates them from the sources of funds which support other activities. Only two of the many high quality technical programs in this compendium were receiving financial support from governmental science agencies. Only one of them had a "grantsman" assigned to search for financial support for its programs. None of them had the high overhead required to maintain the bookkeeping and proposal writing staffs required by current government

funding procedures. In attempting to maintain their own concepts of small-cale, low-cost, self-sufficient development, they put themselves at a disadvantage with respect to universities and research foundations competing for financial support. As one of the AT groups visited remarked, "There is more money being given to the university social scientists to make directories and study those of us developing AT than is given us to do it."

Financial restrictions have been detrimental to the dissemination of the concepts of AT beyond the confines of those institutions already involved. This has particularly prevented cooperation between the AT developers in the U.S. and those of the Third World. Whereas university researchers and industrial representatives assume that part of their task is to exchange visits and information with colleagues overseas, the AT organizations in this survey had neither the luxury of time nor resources to maintain overseas connections.

In spite of these general limitations there are some notable examples of collaboration with the Third World. In 1970 the New Alchemy Institute began an AT program in Costa Rica which is now directed and staffed largely by Costa Ricans themselves. NAISA (New Alchemy Institute - Sociedad Anonima) was established more to test the stewardship and land restoration techniques for the humid tropics than to solve the immediate problems of the people in the area. But its tree farms, aquaculture ponds and intensive vegetable plots are grasped easily by local peasants who find the ecologically sound technologies equally harmonious with their existing culture. With little previous experience in the Third World, the Domestic Technology Institute found equal acceptance of the

alternative energy ideas they presented in a number of African countries. DTI's concern with local resources and local capabilities made their technologies easily understood by the peoples whose traditional technologies had sprung from the same roots. Similarly, two consultants from The Farm in Tennessee on a mission for the World Bank to Bangladesh found easy access in the rural villages there. They were even requested to continue their stay beyond the terms of reference of IBRD because the low-cost paramedical communication system which they had developed for their community in rural America was easily conveyed to the low income communities of Bangladesh.

Perhaps one should be hesitant to draw any conclusions from such a small number of seemingly successful collaborations between U.S. and Third World AT groups. The well worn tenet that technology cannot be transferred between cultures has too firm a base to be set aside. However, cultural diversity which has limited technology transfer as a tool for development may be of greater consequence within some nation-states rather than between two different ones. The low-income fisherman from Mexico may find it easier to communicate with the low-income fisherman from New England than he does the Department of Fisheries in his own country or a university professor from the United States.

On the basis of the vast AT resources being developed within the U.S., the relevance of the concepts of AT to the development process, and the success of the few collaborative efforts that have been tried, it seems safe to conclude that some experimental programs for the use of AT capabilities in U.S. to the Third World should be tried. Any attempts in this direction must have a sound understanding of the AT resource,

its innovators, and practitioners. The following section presents a synopsis of comments by AT practitioners concerning the establishment of any development program which will tap the AT resource in the United States.

COMMENTS BY AT PRACTITIONERS:

The responses of AT practitioners in the questionnaire reveal a wide range of opinions as to the relevance of AT developments in the United States for the Third World. However, the one point on which there seemed general agreement was the practitioner's concern that AT is misunderstood by development agencies. The practitioners emphasize that AT is an approach to the development of technology which rests on the tenet that technology ought to support a humanistic way of life. It should be innovated, understood, built, and controlled by people, themselves. The participation of people is the most essential ingredient of AT and any program of collaboration with the Third World must be in the context of process not product.

One respondent expressed his concern this way: "It is not a matter of designing technology for traditional society, but designing technology in collaboration with traditional society." Another noted that "Research can only be described as 'results' after the most important components of the research have been completed, that is the testing of the concept and the technology by the villagers themselves...Primary responsibility for design and implementation of the project rests with the local researchers..." The director of the Small Farm Energy Project in Nebraska warned that the specific technologies developed by the Nebraska farmers varied from farm to farm and should not be considered transferable to the Third World. Nonetheless, the process of direct participation by the farmer is broadly applicable. He described this process:

"The following steps are an abbreviation of the process that is being utilized to demonstrate the feasibility of alternative energy on the small farms:

1) expose participants to possibilities;
2) participant selection of project that makes sense to their operation;
3) construction of the project by the participant;
4) monitoring of the project by the participant;
5) sharing of experiment experience with others by the participant.

This process assumes that only each individual small farmer knows what his problems are and he is best able to deal with them. However, the small farmer is better able to solve his problems if he is provided with some tools and assistance. The traditional extension approach would turn the problem over to a specialist who then redefines the problem into a framework that he (the specialist) can handle."

Almost all of the respondents, particularly those with overseas experience, warned of the cultural differences that have made some AT developed in the U.S. of little value to developing countries. They strongly emphasized that AT is "location-specific": "American personnel (for overseas assignments) should be selected with three important personal characteristics - great patience, great persistence, and the ability to be diplomatic. Why? Because <u>nothing</u> works as it does in the U.S." Another who had worked in developing new horticulture techniques in Guatemala observed that "Working in Guatemala required a lot of changes in our ways of thinking and working (no running water, no shovels, different companion plants for humid lowland)....other people worked with shovels (which didn't

exist locally) and had less response."

While a few practitioners welcomed the interest in AT that development agencies are showing, many were alarmed! They felt that any support of AT through governmental agencies would strengthen the notion already prevalent that AT is being pushed on Third World countries as a second best technology and simply a new attempt at cultural domination. A number of cases were cited where "symbolic appropriate technologies" were urged on local villages with counter-productive results. Ferro-cement, for example, was pushed in Indonesia by government agencies without any concern for existing local materials, local customs, or traditional technologies. An Indian tribe in Peru was urged to build adobe houses although the Indian villagers knew that their damp climate was more suitable for the traditional rock and thatch construction. Solar cookers have been pushed where the traditional meal was in the evening. American windmills have been sold to governments at ten times the cost of locally made windmills. Also, a proposal to build helicopter landing pads to service the installation of "appropriate technology" photo voltaic cells in Tanzania was mentioned as another example of misusing the concept of AT.

In spite of the general warning that technologies must be indigenously developed by the people interested in using them, nearly every reply mentioned one or more simple technologies that had been developed in the United States and could be relevant to the Third World. These included new forms of high-yield gardening, composting privies, biological pest control, grey water re-use, passive solar heating, solar greenhouses, small water turbines, wind generators, and information networking. It was pointed out that many of these were embodied in the traditional

technologies of some developing countries but had not been spread to others.

It was also strongly emphasized that "technologies which are of interest to the Third World are not well known by or of interest to the academic or the established research institutions in either the rich or poor countries." Some practitioners pointed out that education in academic institutions too often separates foreign students from their own cultural heritage and makes their return of little value to the grass roots needs of their own countries. The AT practitioners felt that more attention should be given to hands-on experience by craftsmen, artisans and village leaders from the Southern nations.

Few of the AT groups questioned had experience with training Third World artisans in this country, but nearly everyone urged "some sort of long-term participatory sharing in the field (should be established) rather than an attempt to engraft a prefabricated expertise"... "the challenge is now to devise institutional arrangements by which this sharing can be carried on consistently, and by people with the necessary sensitivity, philosophical orientation, and practical horse sense - a not too common combination of characteristics". And there seemed to be a general consensus that "we have at least as much to learn from the world's folk societies about basic life-support arrangements as we have to teach them."

Concrete suggestions and recommendations varied widely among the responses. The appropriate technology movement seems intent upon breaking with the traditional foreign assistance process in which the industrialized West tells the Third World what is best for them. It would break that

tradition and develop alternative means of cooperation. The following are some representative statements on their approach to foreign assistance:

1) "We would emphasize a direct people-to-people exchange, not on the level of visiting consultants and experts, but of true volunteers."

2) "...the role of non-governmental organizations should be emphasized...for their invaluable role in grass roots development where government workers often fail...Few governments actively support programs in this area, and the long standing, practical experience of private individuals and organizations must be tapped for the dissemination of technical information on AT."

3) "This (AT) understanding might be embodied in a thought-exchange center where people who are willing to prepare themselves for participation in ecologically guided economic and technical redevelopment efforts might be exposed to the best thinking on the subject."

4) "...Funds could be provided for Third World people to travel to each other's countries and to the richer countries to teach and/or learn about simple technologies."

5) "Paper listings such as the Appropriate Technology Source Book, Rainbook, Energy Primer, etc., give access to U.S. appropriate technology groups for people from other countries. My policy recommendations (for governments)...are to get out of the way."

6) "I found the greatest need for AT advice in the Home Science department of an Indian agricultural university. The American land grant universities which trained the professors hadn't taught them anything about solar food driers, and they (Indians) wanted good designs and assistance. (In this instance) the establishment people needed AT assistance, not the Third World AT groups."

7) "...lay down guidelines for technical training offered foreign students in U.S. universities. A review of technologies currently being taught should be made along with an analysis of their appropriateness to the cultures that students represent."

8) "...establish a worldwide simple techniques bank of information and of names of people and organizations who can teach these simple skills to others."

9) "A series of mini-bibliographies on task-oriented subjects... could serve to instantly bring field workers up to date as to published information."

10) "AT must gracefully shed its image of second-rate tin can technology. Standard AT engineering handbooks should be available to technologists (not farmers) in the Third World."

11) "Increase communication by funding the edition, printing and distribution of a weekly or at least monthly AT newsletter."

12) "Consultants should be practitioners of AT rather than mere observers or theoreticians."

13) "There should be increased encouragement and funding for projects by currently active AT organizations."

14) "Create greater opportunities for short term staff exchanges between international AT groups."

POLICY RECOMMENDATIONS:

Based on the above responses and visits to AT Centers in the United States, there are four main ways in which Third World development could be strengthened by association with AT work in the U.S. and other industrialized countries. The first is by making much more information available to the developing countries about the AT movement in the rich countries. The second is by involving more of the AT people in the U.S. in AT work overseas. The third is by using AT organizations in the U.S. as centers of learning and experience for people from developing countries. The fourth is by providing adequate support and encouragement for U.S. groups to experiment with and test the small scale technologies which improve on the traditional technologies of the Third World.

1. Information on the AT Movement

A major barrier to the adoption of AT in the developing countries is the belief by some Third World administrators that the AT movement is being fostered on their countries to prevent them from obtaining first class sophisticated technologies. However, there is growing evidence that conventional development strategies based on modernization, industrialization, technology transfer and the "trickle down" theory have failed. In addition, it is now recognized that "modern" technologies in the most industrial countries have brought many dangers and losses as well as benefits and gains.

The AT movement in the U.S. is a movement to develop technologies for a sustainable future for the United States. It is clear that the U.S. is

not relying fully on AT as the only option for its own future. But it is also clear that the U.S. is considering AT among its options. Considerable effort has gone into reviving small scale hydro plants, wood energy, windmills and solar energy. Federal agencies have been established to assess the impact of technologies, to prevent environmental degradation, to regulate nuclear energy, and to protect consumers. Legislation has been passed to develop cooperatives, to revive small farms, and to promote bicycle transportation. Experiments are under way on biological pest management, underground housing, rural health care and interpersonal communications.

The lack of information on the AT program within the rich countries helps perpetuate misunderstandings and undermine the credibility of AT in the north/south dialogue. A program to disseminate information about AT development in the U.S. and other industrialized countries could provide new incentives for the development of appropriate technologies on a community level in less developed countries.

2. AT Overseas Consultants

There is in the United States a large, untapped, and growing resource of highly motivated people with specific hand crafts and technical skills such as rural health, self-help construction, small-scale farming, low-cost communications, non-formal education and other techniques relevant to Third World development. The critical characteristics of these AT practitioners is not their technical skill per se, but their holistic approach to the solution of problems and their ability to work with people.

The core of the AT concept of development is the holistic approach. Most of the AT groups in this compendium are composed of a mix of anthropologists, humanists, and sociologists as well as scientists and engineers. The cross fertilization within the AT groups breaks through some of the barriers which plague traditional specialized overseas consultants. Usually these consultants hold the narrow perception that their job is only to provide the latest and the best technology for the situation. The broader perspective of the AT practitioners makes them a reservoir of talent which might be used effectively in the design and implementation of development projects. Certainly, this has been shown in those few cases in which these AT resources were used.

Part III of this report is the beginning of a register of such people. It needs to be used and expanded by contacting other AT groups in the developing countries as well as the industrial nations.

3. AT Centers of Learning

Perhaps the most effective way of making use of the AT capabilities in the U.S. for Third World development is to enhance the recognition of the AT establishment and its centers of learning. Past programs in the United States have led to the well known "brain drain." Third World professionals are conventionally trained in fields for which there is no need in their home country. They are then faced with the choice of remaining where their training is useful, or returning to their own country and distorting the programs and institutions there to conform to those which they have learned in the developed world.

An alternative form of training and experience would be the exchange of personnel among the AT centers of the world. This should be a multi-dimensional flow of AT experts from the North to the South, the South to the North and the South to the South. Artisans, craftsmen and engineers would spend three months to a year at one or more AT centers in a chosen field of work. Fields might include windmill construction, self-help housing, irrigation, midwifery, and other areas in which the individual had expertise. During the exchange both the host institution and the visitor could learn and exchange information. The goal of the project would be not only the exchange of techniques during the visit but also the establishment of lifelong cooperative relationships among the individuals and the AT centers involved.

Many of the organizations in this compendium, such as Cornerstones, Shelter Institute, Farallones Institute, The Farm, The People's Development Corporation, have already expressed their interest in participating in such a program and have domestic apprenticeship facilities which could be adapted to international cooperation.

4. AT Developments

The use and application of the AT resource to the Third World assumes the continuation and strengthening of the American AT Centers themselves. Any program to use their facilities for additional training or to use their personnel in overseas assignments should not be done at the expense of their very existence. On the contrary only if they are strengthened in their current roles of research on low-cost, easily maintained, people oriented technologies will they be effective as a tool for Third World development.

Inasmuch as neither by capability nor by inclination can the U.S. Centers conform to the bureaucratic structures accepted by U.S. universities and government-oriented R and D centers, new criteria should be established to support their programs. This must recognize the flexibility required for programs which attempt to involve people in decision making. And it must recognize that small scale AT centers cannot afford the costs of preparing lengthy proposals and reports or the time waiting for decisions and payments. AT support should be recognized as a low cost but high risk venture in which funding agencies provide unrestricted grants with faith of their own judgments in the organizations they select.

PART II

COMPENDIUM OF ORGANIZATIONS

KEY PERSONNEL	SHELTER INSTITUTE	AREAS OF EXPERTISE
1. Pat Hening	38 Center Street Bath, Maine 04530	1. Home Constructions
2. Patsy Hening	207-443-9084	2. Appropriate Rural Design
3. John Rogers		3. Self-Inventiveness
4. Dan Kane		

The Shelter Institute is a resource center for owner-builders with expertise in the theoretical foundations as well as the practical skills of self-construction. The Institute's major goal is to present the alternative methods of dealing with all home building problems, and the long and short term implications of each alternative. This enables the individual to make reasonable decisions on home construction based on engineering fact and aimed at blending environmental resources and limits with individual needs and taste.

The Center offers a Basic Course with a daily practicum at present building sites, a Design Seminar for those individuals planning to build, and a Cabinetry course on finishing the interior of a home. From time to time special seminars of interest are offered such as Energy Efficiency in Urban Housing, and one on the Art of Self-Inventiveness. A good updated library and bookstore, along with a 300 acre campus and quarterly newsletters completes the Institute's facilities quite well.

The Basic Course teaches the engineering and physics of the building materials, the soil, the climate and the solar effects so that the student can make original designs which will meet his needs and take the most advantage of the natural surroundings. All common methods of framing, wiring and plumbing are studied as well as some alternatives in order to

free the student from standardized restrictive and expensive commercial practices. Mathematics, such as fiber stress values to determine bending moments for proper load resistance calculations, are presented in a step-by-step sequence. Sixty hours in length, this course is offered about six times annually for an eighteen day session with formal classes in the afternoon. Students have the opportunity to work on any of the fifty houses being built in the area. During the session all of the stages of construction in their various aspects are visible and available for student practical experience.

Following completion of the Basic Course, a tutorial workshop entitled the Design Seminar is offered. The object of this workshop is to entirely refine and build the structure on paper before investment. Under the auspices of several tutors, the individual does the sketching, blueprinting, calculation and integration of all the project systems. In turn the student must find inventive solutions and alternatives to specific problems.

Recently, the Institute has expanded into interior construction for those who have completed their houses. The Seminar on Cabinetry begins with theory and technique of furniture building and carries on through actual practical application in a fully equipped workshop. To ensure a close tutor/student working relationship, the enrollment for this 30 hour course is small.

In 1978 The Shelter Institute inaugurated "The Jackson Experience" which is an alternative Basic Course in August. The students should be well prepared for three weeks of rough camping. Tent platforms and stone campfires will be built in small groups. The staff encourages family participation. The Basic Course is presented in the morning while

in afternoons the class is divided into groups to build a specific summer project. The project's structure has a good variety of engineering problems in foundation wood mechanics and erection procedure. Additional field classes are offered in forest management for fuel and lumber. Biweekly evening seminars will be held to stimulate highly intellectual conversation to balance the day's practical extremes. These will be in the role of law in land use and in the nature of reality as seen by the new physicists. The Institute provides a booklist of their library and copies are available through them.

The Institute possesses a good resource with the software and the hardware of AT development. Dan Kane's seminars on "self-inventiveness" provide a good exposure to the attitude behind AT and could enhance the credibility of AT among individuals unaware of its foundations and aims. Complementing this is theirtechnical training. The reliance on an indigenous base and appreciation of its limits allows home construction to be appropriate both environmentally and culturally. Further, the Institute accomplishes this goal in a climate with considerable change throughout the year. In short, Shelter Institute's adaptability is its strongest asset for trainee exchanges with individuals from the Third World.

KEY PERSONNEL	CORNERSTONES	AREAS OF EXPERTISE
1. Charles Wing	54 Cumberland St. Brunswick, Maine 04011	1. Self-Help Housing 2. Workshops 3. Green houses

Cornerstones is a resource center for participatory building--participatory because the moving force behind Cornerstones is people taking an active role in the design and construction of their own home. The center's program has four main parts. A Design Workshop which demands a basic course as background; and Advanced New House Course which pursues the subject beyond the basic level with individuals wishing to teach or master the trade. Fourthly, there is an energy audit service and two courses aimed to increase energy efficiency and solar dependency. Cornerstones also has offered special sessions to interested parties such as the Maine Audobon Society with location and schedule adapted to the needs of the group.

"Passive Solar House Building" and "Retrofitting Existing Homes," are the two basic courses. "Passive Solar House Building" starts literally from the ground up, assuming no previous knowledge or experience. Every aspect of the house is critically examined for general principles and specific solutions. Particular emphasis is placed upon energy efficiency, harmony with nature, and low-cost solutions.

"Retrofitting Existing Homes" starts not from the ground up, but from the assumption of an existing structure. The course deals with retrofitting which is updating for the coming age of conservation. Use of the life-cycle-cost concept allows computation of true cost/benefit ratios and economic

optimization of improvements. With the aim of modifying to passive solar heat, the course covers solar gain calculations such as installing more glass on the south and constructing your own nighttime insulting shutters. For residents of rural areas, the course includes wood heating equipment, and practical considerations such as cutting, buying, storing and handling of wood.

After completing the basic course, those planning to build in the near future usually join the "Design Workshop" which bridges the gap between technical knowledge and a finished building design. The students first learn the basic building language, architectural drafting. After mastery of drafting, the workshop continues with the students developing their own plans. The group shares information, problems and viewpoints as they work toward their final designs. The goal is a finished set of plans suitable for presentation to a bank. Due to the wide geographic distribution of Cornerstones students, with more than 80% from outside Maine, the Design Workshop is offered in two versions: one at Cornerstones requiring weekly attendance; the other a correspondence course. In either case the staff is available to the workshop students for specific questions through completion of construction. Students often work on each other's houses on a voluntary basis.

"Advanced New House Course" is available only to those who have completed the Passive Solar House Building course or possess equivalent professional experience in the fields of building design or contractor. The course concentrates on structural analysis, insulation and vapor barriers, the economic analysis of energy conservation, and passive solar design. Sessions on problem solving and design will be substituted for the usual practicum program.

Cornerstones offers an energy audit service and two courses on solar energy. While "Passive Solar Green Houses" deals primarily with vegetable and flower production, most of its principles are covered in the more general "Passive Solar Building Design." Classroom instruction in this course covers the subjects of siting, glazing, night glazing covers, insulation and heat loss, heat storage and distribution, solar geometry and solar gain tables.

It is fair to emphasize that the bottom line of the resource center is participation. The classroom lectures, fieldwork and the expertise of the staff are offered as "a resource for participatory building." As Shelter Institute, Cornerstones' effort to be in balance with nature allows it a certain relevance beyond the confines of its own culture; participation and adaptation stimulate self initiative and innovation.

THE FARALLONES INSTITUTE

The Rural Center
15290 Coleman Valley Rd.
Occidental, CA 95465
707-874-3060

KEY PERSONNEL

1. Christopher Szecsey
2. Max Kroschel
3. David Katz

AREAS OF EXPERTISE

1. Integrated food systems, including bio-intensive horticulture
2. Organic Waste Utilization
3. Small Scale Water Systems
4. Solar Energy and Bio-fuels
5. Training Programs

Integral Urban House
1516 5th St.
Berkeley, CA 94710
415-525-1150

KEY PERSONNEL

1. Tom Javits
2. Jeff Poetsch

AREAS OF EXPERTISE

1. Self-Reliant Housing
2. Urban Gardening
3. Solar Systems
4. Education

The Farallones Institute appeared in 1974 as an alliance of biologists, architects, agriculturists, engineers and artisans. Their purpose is to explore and evaluate technology and systems based on the use of renewable resources to meet our basic needs for food, shelter and energy.

The Institute maintains that the future quality of our lives depends upon evolving a society that scales down human wants, and invents technologies and institutions responsive to human needs in a balanced relationship with nature. It is dedicated to the research, development and implementation of advances towards such a society. There are two parts of the Institute; the Farallones Rural Center and the Integral Urban House.

In the hill country of California's Sonoma County, an old ranch of 80 rolling acres is the home of the Rural Center. It is a big laboratory

in which participants investigate and work in four categories: natural energy sources and systems, ecosystem management and resource recovery, food production through plant and aquatic systems, and shelter design and construction.

Through a live-in situation, the program is intended to develop and test new alternatives based on learning through the discipline of actual practice. The purpose is to equip people with knowledge and direct experience in ways of living that are not wholly dependent on present wasteful, inefficient, unstable systems of resource use, land management and habitat design. Interns learn by working on alternatives under the direction of the resident staff, visiting experts and by living with the products of their own effort. The Center means to combine all the operations of the homestead to make a unified productive flow of resources, eliminating as much waste as possible.

The Integral Urban House is the urban side of the Institute. It offers a variety of classes on subjects relevant to the development of a self-sufficient lifestyle appropriate for urban people. The research behind the course is conducted at the House, and, as at the Rural Center, the courses thrust is applied research. The four major courses are Urban Food Raising, Solar Energy System, Designing Your Urban Homesite, and Bee Keeping. In addition, the House occasionally gives classes in aquaculture, small stock raising and weatherizing.

A third dimension to the Institute is its degree programs through its affiliation with Antioch College-West. They design both undergraduate and graduate degree programs for students desiring an alternative means of obtaining their education. Students are encouraged to develop independent

studies which might involve such learning settings as projects, fieldwork, apprenticeships, on the job training, workshops and tutorials. A major advantage is that each student's program is individually designed to fit his/her needs and goals.

Farallones Institute offers fine facilities to handle exchange interns from the less developed countries. The holistic approach of the Rural Center combined with its individualistic degree program make the institute a clear example of an AT group in the U.S. capable of providing an alternative form of training and experience with its emphasis on appropriate technological development.

KEY PERSONNEL	NEW ALCHEMY INSTITUTE	AREAS OF EXPERTISE
1. John Todd	Box 47 Woods Hole, MA 02543	1. Autonomous Housing
2. Nancy Todd	617-563-2655	2. Eco-development
3. Earle Barnhart		3. Aquaculture
4. Ronald Zweig		4. Green houses
5. Bill McLarney	7. Susan Ervin	5. Biological Agriculture
6. Conn Nugent	8. Hilde Maingay	6. Wind Systems

The New Alchemy Institute was born during the 1969-1970 academic year. It originated partially in a series of evening seminars held by John Todd and Bill McLarney for their biology students at San Diego State College.

Another aspect of the beginnings of New Alchemy in San Diego was concern over what Stewart Brand referred to as the talk/do ratio. The group embarked on a series of field trips to a ranch in the dry, hilly country southeast of the city, just above the Mexican border. From a biology class practicum, the project expanded into a challenge of how to sustain people in such a difficult, arid environment. Each student undertook to examine some part of the environment in detail. Very slowly some pattern emerged, and with the discovery of water and suitable soil, agriculture became a possibility. But the owner sold and bulldozers appeared on the crest of the hill to begin leveling for yet another colony of southern California weekend cottages.

What remained from this experience as the Todds crossed the continent and resettled on Cape Cod has been fundamental to New Alchemy. They fully realized the necessity of the active search for biologically adaptive methods of providing for people. It is this that underlies their aquaculture

and their intensive organic agriculture, their work with solar energy, windmills, and bio-shelters.

The goal of the New Alchemy Institute is to design and test human support systems--food, energy, shelter--that are environmentally sound, economically efficient and socially benign. Implicit in that goal is a commitment to develop inexpensive strategies that minimize reliance on fossil fuels and that are built on a scale accessible to families and small groups.

New Alchemy is unusual: a scientific and educational institution that provides some tangible alternatives to current capital-intensive technologies. Drawing upon experience in biology, design, and engineering, the New Alchemists have devised synthetic arrangements that mimic the productivity and resilience of natural ecosystems.

Most dramatic are New Alchemy's bioshelters, northern-climate buildings which link elements previously uncombined: solar heating, wind power, fish farming, gardening. The Prince Edward Island Ark combines a four-person residence, a family green house, a commercial green house, an aquaculture station, a laboratory, a workshop, and a barn. The Cape Cod Ark is a more modest urban microfarm, featuring year-round agriculture and aquaculture in a passive-solar design that needs no input of auxiliary fuels.

Other projects include: intensive biological farming on small plots, backyard aquaculture, wind systems, agricultural forestry, vermiculture. A small Costa Rican affiliate, with two New Alchemists participating for four months every year, has been cited as a model for combining the dual goals of tropical ecology and economic development. Within this success lies New Alchemy's greatest potential of service to the less developed

parts of the world. This ability to provide economic development in balance with a tropical ecology enhances the preservation of not only the environment, but the cultural values of many peoples. Economic development and socio-cultural tradition are compatible and New Alchemists are proving this by research, writing and living.

For those within the locale or able to travel to Cape Cod, the Institute runs workshops on each Saturday from May through October. Among the topics covered are agriculture, aquaculture, bioshelters, wind and solar energy and the social impliations embodied in these ideas. The New Alchemy Institute has an Associate Membership which is available to those interested in helping support their work. Associates receive the quarterly Newsletter as well as the annual Journal of the New Alchemist, which reflects the group's commitment to a publication based on a holistic approach to ecological planning.

When taken in aggregate, New Alchemy's work suggests a new approach to technological problem solving. A theory of design has emerged that weds twentieth-century science to an age-old ideal of fidelity to nature. Specific technologies must be confined to appropriate geographic regions. Nonetheless, there is evidence that the general theory spawned by the New Alchemy experience can prove useful in any number of international applications.

KEY PERSONNEL	CENTER FOR THE INTEGRATION OF APPLIED SCIENCES	AREAS OF EXPERTISE
1. Helga Olkowski		1. Biological pest control
2. Bill Olkowski	1307 Acton Street Berkeley, CA 94706	2. Waste management systems
	415-524-8404	3. Self-reliant homesteads

The Center for the Integration of Applied Sciences (CIAS) was established as a separate wing of the John Muir Institute in 1978. The CIAS concentrates in the areas of integrated pest management/biological control, waste management systems as well as the integrated development of food production, waste and pest management and energy generation systems for small scale self-reliant homesteads.

CIAS studies how to develop and implement AT decision-making processes for ecosystem management. They use an interdisciplinary team approach and work closely, as consultants, with communities, institutions and government agencies that have specific problems or problem systems. Presently CIAS is working on a contract with Department of Water Resources dealing with water levy management. Levy management systems have suffered from a ground squirrel infestation. The squirrels can disrupt and destroy levy systems, and CIAS is researching, developing and testing control methods without pesticides. Through vegetation control and the introduction of natural enemies, CIAS tries to find an ecologically balanced solution to the problem. For the Department of Food and Agriculture, CIAS is researching and testing the feasibility of importing natural enemies to solve pest-control problems in urban areas. Presently, they are maintaining the development at two urban test sites.

The Center also consults the local governments in Berkeley, Palo Alto, San Jose and Modesto, California, about the use of pesticides in the treatment of street trees. In two aphid tests in Berkeley, CIAS has eliminated the problem, while in other projects, they have reduced the use of pesticides by 75% to 99%.

This pest population control is usually accomplished through the introduction of natural enemies, the planting of different species of trees less susceptible to the pest, and water washing insects off the trees. CIAS is also currently working with other community groups on waste management and energy conservation projects.

Most of these projects include not only the research and implementation components, but an educational element including general public education and technology transfer. The staff is in the process of preparing a number of pamphlets, displays and slide shows for this purpose. For instance, CIAS produced a prepared public hand-out which the Palo Alto authorities enclosed in each city utility bill. The Center also maintains an extensive library and files on the management of ecosystems and toxic materials, as well as the associated hazards to human health and the environment. They also have a small insectory which raises and supplies predatory and parasitic insects, and also undertakes biological control importation projects through cooperative arrangements with government quarantine facilities.

The staff is trained in entomology, parasitology, conservation of natural resources, and biology. The Center is currently publishing an international newsletter in integrated pest management. Though the Center has had little direct contact with the Third World, its biological approach to pest management depends on a thorough understanding of the

specific environment in which one is working. Such a requirement combined with their scientific expertise and a willingness to deal with Third World persons seeking ecologically sound pest control offers some potential for assistance to developing countries by CIAS.

KEY PERSONNEL	DOMESTIC TECHNOLOGY INSTITUTE	AREAS OF EXPERTISE
1. Malcolm Lillwhite	12520 West Cedar Drive Lakewood, CO 80228	1. Workshops
2. Marc McRae		2. Solar Energy
		3. Greenhouses

The Domestic Technology Institute is a research and training organization which specializes in energy conservation and alternative energy technologies. It has developed a broad research and training capability utilizing small-scale, decentralized technology to encourage energy conservation, economic development and application of appropriate technology at the community and small business level.

Domestic technology is a systematic way of solving community problems by demonstrating how individuals and communities can utilize alternative technology to develop the local economy and become more energy self-sufficient.

Currently, the Institute is engaged in several research, training and community development programs. One is a workshop program to develop participants' awareness of energy conservation and renewable energy sources. It provides technical training to learn skills in these alternate technologies. The workshops deal with several types of low-cost alternatives in energy conservation ranging from solar heating and cooling to food production and preservation. The aim is to present technologies which can be applied at the community level.

In the program, a holistic teaching-learning process is followed by which participants learn theory and concepts, observe it applied to examples and then themselves apply their new skill to solving problems and

constructing projects. Equally important, the Institute strives to train the participants as to how the application of appropriate technology does correlate with social change processes within a community.

There are four workshop programs: Community Energy Technology, Solar Reliant Greenhouse Construction and Operation, Low-Cost Solar Heating and Cooling, and Energy Conservation and Weatherization. The Institute also has the capability of developing specialized seminars, conferences and workshops in a variety of alternative technologies.

Among their research and development projects, there is one on a solar-assisted processing system for fuel and ethanol fuel. It is devleoping a facility for converting waste and excess agricultural products into alcohol for use as a fuel supplement. It is anticipated that this facility will be operating in a small Colorado community early this year. Further, DTI is involved in an energy conservation program with Colorado Office of Energy Conservation. The development project aims to establish community based energy conservation centers and programs. The centers will be a resource information center by providing literature and conducting workshops and some technical training in energy conservation. These community centers will also collect data to analyze the effectiveness of energy conservation programs. DTI will play a major role in designing the centers and their programs.

The Institute has two valuable assets for any exchange with the AT groups of the Third World. Its capability of developing specialized seminars to enhance local self-sufficiency is one, but its relevance increases a great deal with the second asset. DTI's appreciation of a correlation between AT development and social change processes adds depth and gives a

sense of overall purpose to alternative technology. Such a comprehensive, yet technical approach to one aspect of appropriate technology will greatly enhance the Institute's relevance for the Third World.

KEY PERSONNEL	ROGER BLOBAUM AND ASSOCIATES	AREAS OF EXPERTISE
1. Roger Blobaum	Rural Route 4 Creston, Iowa 50801 515-782-8098	1. Alternative agriculture

Blobaum and Associates is a private consulting firm in alternative agriculture. At present they are assisting in three projects, The Small Farm Energy Project; The Urban Wastes Project; and The Energy/Agriculture Project. Each of the three projects is the first of its kind and all involve alternative approaches to conventional agricultural practices. Two involve research with farmers on working farms which is an approach of considerable merit.

The Small Farm Energy Project is a national research and demonstration project funded for a thirty-nine month period by the Community Services Administration. Blobaum Associates is the principal investigator and is responsible for providing conceptual leadership and supervising the work of a 4-person staff. The staff works with fifty full-time, low-income, small farmers in a rual county in northeast Nebraska. They provide technical and cost share assistance to the 25 farmers who are the project cooperators. The other 25 make up a control group, and their only involvement is maintenance of detailed energy and farm income records.

There are few results on the research component as they do not have two full years of data. The demonstration component, however, has gone extremely well. The project has already shown that farmers will adopt a wide range of alternative energy innovations if they are provided with the technical assistance, some cost sharing and encouragement. Some completed farmer-built projects include a solar grain dryer, two solar hot water

heaters on dairy barns and two types of solar heating systems for houses. In addition, these farmers are involved in manure composting and other energy saving approaches that do not require hardware or construction.

The Urban Wastes Project is a systems study of the feasibility of applying urban wastes to agricultural land. Blobaum and Associates is the grantee for this project which is funded by NSF and has a staff of 4 persons. The unique element of this study is that it views sludge, paunch manure, and other organic wastes found in urban areas as a resource opportunity, not a disposal problem.

They examined three systems scenarios for the Omaha-Council Bluffs SMSA and decided that two different land application approaches would be feasible for the region. The work included developing land availability and cropping sequence projections through the year 2000; developing and applying criteria for identifying suitability for waste application of all land in the region; and testing all waste as to its application safety over a long period at agronomic rates. A final report is being prepared for printing.

The Energy/Agriculture Project is a study of the economic feasibility of organic agricultures in five Corn Belt states. The work is directed by Dr. Barry Commoner and Dr. William Lockeretz. Now in its fourth year, the project compares the production, economic returns, and energy intensiveness of fourteen pairs of matched commercial-size farms in Nebraska, Minnesota, Missouri, Iowa, and Illinois. Its main conclusions are that organic farms consume only about one third the energy of a conventional farm; that the conventional farms have slightly higher yields than organic farms; that organic farms require a little more labor and have lower production costs;

and that the net returns from the two types of farms is almost identical. Thus, organic production appears to be economically feasible for the types of farms studied.

The firm is also directing an emerging agricultural technology assessment plan of the U.S. Office of Technology Assessment and has a contract to assist the Community Services Administration with the Small Farm Conferences throughout the country.

Blobaum and Associates are overcoming in some manner one of the greatest hindrances in agricultural development. That is the deep-rooted traditions of agricultural production. With skill, facts, and assistance on The Small Farm Energy Project, the firm has successfully convinced some farmers to adopt a wide range of alternative energy innovations. This success has potential value for dealings with Third World farmers. In developing countries, the unwillingness of rural farmers to apply and utilize alternative methods of agriculture hinders considerably the dissemination and development of low-cost, self-sustained agriculture. Tempering the effects of this limit could enhance alternative agriculture in the Third World. Further, the firm's interest in small-scale production and AT applications was increased as a result of trips to People's Republic of China in 1975 and 1976. Their continuing exposure to Third World agricultural needs strengthens the plausibility that their assistance and knowledge could have value for the Third World.

KEY PERSONNEL	ECOLOGY ACTION/ COMMON GROUND	AREAS OF EXPERTISE
1. John Jeavons	2225 El Camino Real Palo Alto, California 94306 415-328-6752	1. Bio-Intensive Food Raising 2. Mini-Farming 3. Urban Homesteading

Ecology Action of the Midpeninsula is a non-profit tax-exempt educational organization. Ecology Action's theme is living one's life within a balanced ecology. Its staff provide supplies, services, and information that help people live in ways that are more self-sufficient, that protect and enhance the environment and that lead to greater health, permanence, and stability. Extensive research on the biointensive form of small-scale food raising and its application to "mini-farming" is also performed. There are four major projects within Ecology Action:

The Common Ground Store is a small organic store which supplies inexpensive quality seeds, organic fertilizers, soil amendments, good quality tools, and sound pest controls. It has two seed and seedling trading programs under which homegrown seeds or organically grown seedlings can be exchanged for others in the store. It provides a soil testing service for the area and offers good advice on local compost materials and methods of environmentally sound soil conservation. In addition, the store maintains an extensive library, for public use, of good books, current periodicals, tapes, and slides on gardening, homesteading, appropriate agriculture, and related topics as well as a collection of unusual publications which are often difficult to find. Ecology Action also publishes and distributes various staff-written information sheets, research reports, and a book describing the basic biointensive techniques of food raising

Areas of interest and research objectives in the garden include: 1) the development of an economically cost-efficient and cost-competitive successful intensive 1/10 acre multiple vegetable mini-farm which could be managed by hand and which could remain self-sustaining in terms of organic matter for compost fertilizer; 2) determining and demonstrating the minimum area of land required to grow a complete, balanced, vegetarian diet; 3) application of the method to Third World and Urban Gardening systems and 4) the development and utilization of sophisticated low-technologies and tools appropriate for small-scale farming, such as the U-bar digging tool, new hand watering and seeding tools, and mini-greenhouses. Small, portable grain threshers and seed cleaners will be tested soon in conjunction with experiments testing the feasibility of small-scale backyard grain production. Qualified staff persons conduct tours of the garden on a regular, weekly basis. An in-depth, introductory half day exposure to the garden project, under the supervision of the garden manager, is available for interested visitors if arranged (preferably a month) in advance.

Ecology Action also has apprenticeships available for individuals who want training in the biodynamic/French Intensive method of small-scale farming. A year program has been designed for those individuals wishing to develop a reasonable level of proficiency. The two year program will enable one to become confident in the yearly food raising cycle, develop intermediate level skills, and be capable of teaching other teachers the method. After completing a three year apprenticeship, the individual should have developed an advanced level of skill and sensitivity to the method and will be able to plan and manage a major, sophisticated, low technology demonstration mini-farm or garden. To date, apprentices have

been trained from the east coast, west coast, midwest, and Canada. The first overseas apprentice, from France, is expected this year. Additional apprentices are expected from other countries in the future.

KEY PERSONNEL	THE SOCIAL SCIENCE INSTITUTE	AREAS OF EXPERTISE
1. Scott Nearing	Forest Farm Harborside, Maine 04642	1. Self-sufficiency
2. Helen Nearing		2. Organic Gardening

The Institute is no structured organization, rather simply an information exchange point where interested homesteaders, organic farmers and the like can seek practical advice based on half a century of experience. The roots of the Institute were planted and cultivated by the ascetic living and writing of Scott and Helen Nearing. Considered the gurus of the "back-to-nature" movement in the U.S., both have lived off the land for nearly fifty years at two different homesteads in Vermont and Maine. In addition they have pursued steady intellectual development through their writings and lectures, many of which they make available through the Institute for a small fee. Their story goes back a long way as both are well over seventy, she being 75 and he 95.

Many years ago, they too lived in the world of clocks and commercialism, money and tension. Scott earned a doctorate degree at the University of Pennsylvania and taught there and at two other institutions. His social viewpoint and strong pacifist stand resulted in his loss of academic credibility, and when he was 50 and unable to survive in a hostile urban environment, the Nearings took to the hills of Vermont where they invented a farm. For twenty years they experimented by living, and they succeeded at establishing a viable, healthy homestead that was nearly self-sufficient. In their co-authored account of this experience, they summarize what they have proven: "Life's necessaries are easily come by if people are willing

to adjust their consumption to the quantity and variety of their products." In 1952 as the development of winter resorts began to crowd their Vermont valley, at 70 and 50 years of age, they picked up roots and moved to Maine to begin again. The Nearings are about 85% self-sufficient on food, 100% on fuel and rent, and they buy a few clothes, hardware and their gasoline. Self-initiative and human balance with nature are two major qualities of the Nearings, and in these rest a major resource for those seeking balanced and self-supportive development.

The physical work is only a part of the vigorous life of these two individuals. Besides running their homestead, they belong to many organizations, lecture widely and write continually. Behind the raw physical success of the Nearings lies an articulate intellectual framework touching on many spheres of politics, environment and philosophy. Their most famous publication is Living the Good Life, which is the working plans for a twenty year project on pioneering, building, organic gardening, and cooperation and vegetarian living on a self-subsistent New England homestead. Scott's work entitled Man's Search for the Good Life is an analysis of the difficulties and dangers which beset the present day western world. More importantly he suggests alternatives for the individual and the community. Two other works are particularly applicable as intellectual stimuli for the pursuers of self-sufficiency: Civilization and Beyond and Freedom: Promise and Menace.

Self-sufficiency with intellectual pursuit are salient ingredients for alternative development in the Third World. The Nearings' self-inventiveness is not crushed in a battle of survival against nature, but a joint pursuit of mind and body in a philosophy of balance with nature.

They have coexisted successfully as an alternative lifestyle in the most advanced and technological society. It has been a choice in which they have equipped themselves with both the "hardware" and "software" to make a good life. The extreme winters they endure, the vegetarian diets they follow, the sound writings they produce make them as much an enduring information resource as a monument to alternative methods of living a full, balanced and happy life.

KEY PERSONNEL

1. David Morris
2. Neil Seldman
3. Harriet Barlow
4. Tessa Huxley
5. David Macgregor

INSTITUTE FOR
LOCAL SELF-RELIANCE

1717 18th Street, N.W.
Washington, D.C. 20009

202-232-4108

AREAS OF EXPERTISE

1. Decentralized energy systems
2. Waste utilization
3. Urban agriculture
4. Local eco development
5. Information systems

The Institute for Local Self-Reliance was established in 1974 to investigate the technical feasibility of community self-reliance in high density living areas and to examine the implications of such decentralization. The staff of the Institute is committed to urban life and to the resolution of some of the problems which face the 75% of Americans who do live in urban areas. They are also committed to exploring the potential for self-reliance, not of individuals or of nations, but of humanly-scaled cooperative communities, of neighborhoods and cities.

In order to provide technical assistance to urban dwellers who want community-based and community-controlled development, the Center has two major parts in its operations: the provision of technical assistance to community organizations, and extensive research, experimenting and writing on the progress toward and the feasibility of economic and political decentralization. On the one hand, the staff has provided technical assistance in weatherization, insulation, and the design and construction of solar hot water systems. On the other, their research covers the 3 dimensions of economic decentralization: the micro-economic means, the macro-economic effects, and the public policy support. For instance, the Center has researched the possibility for community-based energy related industries

such as solar cells as well as analyzing the actual decentralization effect of that and other energy alternatives. However, the staff's efforts go beyond the physical and economic elements of decentralization, and include an on-going effort to change the social attitude towards appropriate technology, and the relationship between man and technology. Evaluting public hearings on solar energy policy is an example of the Center's effort in this area. Through their activities in the public policy arena, the Center serves as an advocate of economic development geared towards local self-reliance. and control as a watchdog over the direction of social policy; and finally through this activity the Center enhances the credibility of AT in the decision-making process which determines public policy.

There are some clear examples of projects in decentralized energy systems; waste utilization; urban agriculture, and information networking which the Center has undertaken. The staff has studied the potential for energy self-reliance in two eastern metropolitan areas, Baltimore and Washington, D.C. Currently, the Center is involved in a neighborhood conservation program in Anacostia section of the city, including energy audits, workshops and weatherization. Their activity in waste utilization is throughout the country. In Washington, D.C., they helped start a community-based recycling business. They provided the technical assistance to a large-scale composting operation in the South Bronx and presently are providing similar help to Kent County, Michigan for a county-wide recycling and waste utilization program. In urban agriculture, the staff works in both the production and processing of food in urban neighborhoods. For instance, on the rooftop of the Center, they maintain a garden and have helped develop similar community gardening programs throughout Washington,

D.C. At the present the Center is providing technical assistance to the South Bronx Open Space Task Force for community-based design, construction, and maintenance of parks and gardens.

Finally, in the area of information networking, the Center has published books and reports which they make available through their publications list. Two such publications include Planning for Energy Self-Reliance: A Case Study of the District of Columbia and Economic Feasibility of Recycling. Since 1976 the Center has been publishing a bi-monthly newsletter, Self-Reliance. The newsletter reflects the staff's concern with urban problems and with the application of small-scale, appropriate technology and social organization in overcoming these problems. It is filled with information from worker-managed factories to small-scale production systems, from municipal banks to cooperative housing experiments. The newsletter reports on developments in politics and economics, in energy, agriculture and waste recovery, which have implications for the move towards decentralization and self-reliance.

The Center's macro and micro approach to local economic development is enhanced by its knowledge of public policy and the political process. This multi-faceted, interwoven approach to research and implementation is dependent on motivation coming from grass root activity. Its structure and approach to developing and sustaining urban local self-development could offer some valuable information to enhance any move towards neighborhood self-sufficiency in the urban centers of the Third World.

KEY PERSONNEL

1. Scott Bernstein
2. Jesse Auerbach
3. Kathy Tholin
4. Jame Potts

CENTER FOR NEIGHBORHOOD TECHNOLOGY

570 West Randolph
Chicago, Illinois
60602

312-454-6060

AREAS OF EXPERTISE:

1. Community Development
2. Urban Self-Sufficiency
3. Greenhouses

The Center for Neighborhood Technology is a technical assistance center working with fifteen neighborhoods in the city of Chicago. The center develops neighborhood technologies to meet basic human needs in food, energy, waste disposal and environmental balance. Part of what the Center does is to publish twice monthly The Neighborhood Works Information Service. It is a journal whose underlying premise is that the neighborhood is not only workable, but even desirable as a natural setting for new "low" technologies. Because many of the tools and techniques to help make neighborhoods viable and healthy already exist and can be implemented by individuals working and living in urban neighborhoods, The Neighborhood Works concentrates on hurdling one of the major roadblocks which plagues most pursuers of self-innovation: access to the thinkers and their thoughts, the practitioners and their projects in the field. Information dealing with developments, projects or meetings on urban technology are scattered throughout many publications which are not easily available to neighborhood innovators due to cost or a limited distribution. The Neighborhood Works is a clearinghouse for projects, ideas and technologies that are currently reported in over one hundred publications. From these sources, the staff assembles each issue of The Neighborhood Works. This enhances access to information on urban

technologies which people can use in their own situations. Issues cover topics from conserving energy in city homes to urban agriculture, and even the development of neighborhood industry in available industrial buildings.

The journal provides other services. The "idea exchange" is a forum for exchanging problems and solutions, as well as sponsoring challenges to solve particular dilemmas. Each issue carries a two page single sheet reproduceable feature that can be used in any subscriber's own publication or newsletter. "The Calendar of Events", though limited to the greater Chicago area, increases the potential for interaction between local groups which to a considerable degree are isolated from one another. This calendar is a significant step in raising awareness in Chicago to stimulate neighborhood innovation. For its wider based subscribers, the journal is an information source which enhances self-support neighborhood organizations to counteract the trend towards economic and political abandonment of urban neighborhoods. Also it makes more credible the city folks' demand for low cost self-innovation in the face of growing high cost renovation of neighborhoods.

The Neighborhood Works is a balanced reflection of the diversity of knowledge and skill that have combined to create neighborhood technology. The list of periodicals which the editors and associates review for possible inclusion encompass a broad range of world views and functions. The accessibility of the staff to review submitted suggestions for publication and the "idea exchange" are good checks against it becoming stagnant. This balanced, open approach to disseminating information is the key to the journal's most vital quality: usefulness. In the end the bottom line

of The Neighborhood Works is its usefulness, its practicality. Each problem has a solution, and a balanced, open, practical publication can make reality out of The Neighborhood Works motto: "If your only tool is a hammer, you tend to see every problem as a nail."

KEY PERSONNEL	SOUTH SHORE NATIONAL BANK	AREAS OF EXPERTISE
1. Stanley J. Hallett	400 North Michigan Ave. Chicago, Illinois 60611 312-288-1000	1. Mortgage financing 2. Community economic development 3. Job creation

The South Shore National Bank is a local commercial bank whose main focus is development of the South Shore section of Chicago. In 1960 this section of the city was one of Chicago's most desirable lakefront communities. By 1970 there had been one significant change. The racial composition has shifted from one percent black to nearly seventy-two percent black. Most of the blacks were "middle class," and, as a group, were much younger than the whites whom they replaced. School enrollment tripled, school services failed to keep pace, and the white flight accelerated despite efforts by the city's South Shore Commission.

This rapid replacement of the South Shore's population totally disrupted the informal, interpersonal networks that create solidarity and make communities work. It literally tore apart the existing fabric of community life. Steadily, financial institutions redlined the South Shore area and in reaction property owners began to manage their real estate holdings for short-term, not long-term, investment. Soon the deterioration of the commercial district followed and financing for improvements became more scarce. By the early 1970's, credit was being shut off and the community was losing any capacity to shape its future.

At this time the South Shore National Bank was being offered for sale. Relying heavily on the plans for a model development bank evolved

by Ron Grzywinski, the Illinois Neighborhood Development Corporation bought the South Shore National Bank.

The primary goal of the new owners was to halt and reverse the spiraling deterioration of the South Shore area. It has been under the ownership of the Illinois Neighborhood Development Corporation that the South Shore National Bank has become extensively involved in local economic development. While the policy of the Bank is to make loans and investments only in situations which it believes offer a reasonable expectation of return to the corporation, it will not attempt to maximize such return at the expense of its primary goal of developing the neighborhood for the benefit of the residents. Their unorthodox perception of a bank's primary goal goes further. As the Bank becomes profitable and succeeds in its commercial and residential development goals, its ultimate goal would be to sell to residents of the neighborhood the equity in the corporation, or alternatively in the bank. This provides the future opportunity for not only a community based, but also a community owned and controlled commercial bank.

Towards the goal of community revitalization, there exists within the Bank a Neighborhood Development Center. This office attempts to have the split-personality viewpoint of a banker and a developer. The banker is a judge on the investment while the developer is an advocate for the investment. The center attempts to minimize the inevitable tension between these roles. Today the South Shore Bank has $62 million in deposits and there a over $15 million on loan within the neighborhood. South Shore Bank has found that they have a lower risk rating than most banks. Its critical success has been the duo-evolution of both a development and

defense strategy. The investments have been local and have managed to link housing, businesses, and jobs allowing for a rise in individual income with the stemming of local deterioration. Money is being funneled not only into housing but also into the creation of meaningful work. The development assistance aims at local economic stability, thereby tempering dependence for outside assistance and strengthening the community capacity for sound stable economic independence.

The Bank's approach to development investments has greatly enhanced local recognition that additional income is dependent on the essentials of housing and banking; housing to lower costs and strengthen the community, banking to provide the facilities for new enterprises and thus job creation.

The South Shore National Bank has proven that unorthodox banking can be sound and stable. It has shown how local urban community development is an integrated process of social and economic development--and that the financial sphere can be oriented and controlled wisely within those same local parameters. It stands as a considerable example how the large unmanageable problems of urban development can be well managed in a decentralized approach where a neighborhood can exercise self-initiative. Such a strategy could offer a potentially strong alternative solution to urban development/investment difficulties of the large overpopulated cities of the Third World.

KEY PERSONNEL

1. Ramon Rueda
2. Michael Bobker

PEOPLE'S DEVELOPMENT CORPORATION

500 E. 167th Street
Bronx, New York 10456

212-292-1378
993-7771

AREAS OF EXPERTISE:

1. Integrated Urban Planning
2. Skilled Job Training
3. Appropriate Education

People's Development Corporation is a not-for-profit neighborhood group based in a nine-block area of the South Bronx. This core of nine square blocks extending from 166th Street to 169th Street, and from Brook Avenue to Franklin Avenue, will gradually expand to include a 40 square block "urban conservancy." This urban conservancy should be seen as a unified planning area, a district which has a mixture of physical spaces and functions to support the local population and a revitalization strategy. This revitalization is under way through sweat equity housing revitalization, locally-based economic development, and the wide use of local resources. Further, the social and economic development of the residents and their nieghborhood is tied to job training programs, stress on meaningful education, and a firm intention to foster significant involvement and participation of all members.

The forty block area is inhabited mostly by poverty level minorities with Blacks accounting for 61.2% and Puerto Ricans representing 34.8%. Throughout the 60's the proportional size of these minorities in the 40 block area rose by 89%, which was balanced by a drop in the income level and available development financing from private sources.

Since 1975, the population in the nine core blocks, in which PDC is very active, has stabilized under the sweat equity rehab program,

community management program, and the opening of the Turnkey Public Housing Project, whereas the population in the remaining 34 blocks continues to decline with the abandonment of residential buildings which results in a drop in local retail activity.

Since the neighborhood needs are multiple, the PDC does what no government agency--including the Model Cities program--is equipped to do. Projects, financing alternatives, and employment training programs are coordinated so that the ultimate impact goes far beyond what any single program can do. For instance, one of the PDC's accomplishments is being one of three neighborhood organizations which will participate in a National Urban Homesteading Demonstration Program. HUD has committed $1.2 million in 20 year 3% mortgage loans for PDC's component with interim financing from local banks. During this National Urban Homesteading Demonstration program, the PDC has already restored a 28 unit six story apartment building through sweat equity gut rehabilitation. The sweat equity housing renovation activity is used as a vehicle for providing skills for the participants, space and markets for local retail and industrial development, and decent low-cost housing. Homesteader-trainees are divided into work teams. PDC has established an In-house Planning and Design Unit (PDU) which has a senior architect, a design architect grad student and four homesteaders. They work in conjunction with a woodcraft/cabinet shop which employs two cabinet makers and 5 homesteader trainees. They presently build most of the cabinets for rehabilitated projects. PDC also helped establish a Bio-Eco-Solar System (BESS) Team which has set up a solid waste recovery program at the six story building. This group is also getting assistance from Solarsearch Inc. to help design and build some

greenhouses. Their aim is to develop an integrated system of food production, including organic vegetables, fish, earthworms, rabbits and poultry.

While each team is trained in a particular construction-related trade, the team is also prepared to be spun-off into an independent economic development unit. Each resulting enterprise is to be structured so that its workers are responsible for production, management, and long-range decisions. In addition, it is envisioned that these projects will contribute a given proportion of their profits to a community fund for re-investment into other activities in the neighborhood. By training homesteaders in special business management, accounting, and trade skills, a local pool of skilled workers and managers will develop. Career training is the bridge to permanent economic development which provides in turn steady meaningful employment and re-establishes a stable economic base for the community.

It is PDC's commitment to accompany the development of such a pool with start-up capital and the definition and development of markets before the various projects are actually spun-off. Housing rehabilitation of abandoned buildings repopulates the neighborhood and is the setting in which homesteaders will be able to discover their own special talents. The rehabilitation of the six story apartment building was assisted not only with the National Urban Homesteading Demonstration Program but with some municipal loans and job training grants obtained by PDC. Thousands of hours of sweat-equity labor went into the demolition and actual reconstruction. This included the installation and operation of a solar hot water system from which the residents presently collect information and

experience data which feeds further refinement and improvement of the system for future neighborhood projects.

Further, PDC has obtained $1.4 million in CETA Title I job training funds for the employment of 24 skilled staff and 77 homesteader trainees. These individuals are trained by PDC and then employed under the HUD's Urban Homesteading Demonstration Program. This helps guarantee that the initiative, ideas and work spring forth from local residents, and not distant housing authorities. Along job training lines, PDC is one of 10 community groups in the U.S. which has received $500,000 for a National Youth Incentive Training Program demonstration from HUD's office. This involves 53 out-of-school youths and 30 youths from a local vocational high school in a variety of projects. This grant is a result of the successful operation of Summer Youth Employment Programs which cumulatively involved over 250 youths.

PDC has expanded beyond the rehabilitation projects into Tenant Management Associations in five other buildings. Two years ago, tenants were vacating these buildings as no heat or hot water was being provided. One year later, all five had heat and hot water services, tenancy stabilized, and new tenants, screened by the tenant association, have moved in. The most impressive fact is that this has all been done by the tenants themselves and a PDC member under the coordination of two poorly-paid but dedicated organizers. This project has led to a $39,000 Community Management grant from City's Department of Housing Preservation and Development.

PDC's coordination of various sources of financing with a spectrum of community needs results in multiple effects balanced towards economically sound local self-development. Its expertise is in urban development, its relevance to Third World limited.

KEY PERSONNEL	THE CENTER FOR COMMUNITY ECONOMIC DEVELOPMENT	AREAS OF EXPERTISE
1. Rudy Yaksic	639 Massachusetts Avenue Cambridge, Massachusetts	1. Community Development 2. Small-Scale Industry

The Center for Community Economic Development, founded in 1969, is an independent nonprofit research and policy development organization whose main focus is the promotion and strengthening of community-based economic development. CCED's primary function is to conduct public policy research by examining the ongoing problems of community development corporations (D.C.C.'s) and of other community-based economic organizations. These organizations, instituted and controlled by local residents, work to improve the economy of their communities. The central aim of these groups is to increase the influence of their constituents over the economic, political, and social conditions of their lives. R+D activities at CCED are designed to support that aim.

To accomplish these goals, CCED employs over 30 professionals and administrative support staff. Their educational and professional backgrounds cover a broad range of disciplines, including urban planning, economics, law, business administration, public administration, sociology, library science, accounting, journalism, editing and production, and management science. These skills provide the Center with the needed resources to translate the complexities of community revitalization into layman's terms and to introduce community groups to the working tools of commun. y economic development. At the same time CCED is experienced at providing needed data information, and other expertise to professionals and technicians in the field of community economic development at

providing assistance related to managerial and organizational problems to community organizations. The agency is organized so that its staff can be assigned to work on the projects of its ongoing program as the needs of the broad field that it covers are disclosed.

The insights drawn from observing projects in the field form the basis of the working papers that are published by CCED. It is through these papers, as well as through book-length monographs and other reports and memoranda, that CCED attempts to encourage changes in public programs or in the behavior of private institutions.

CCED also maintains a library, acts as a clearinghouse for materials and information on community-based economic development, and provides advocacy services related to its research. The work is supported by a grant from the federal Community Services Administration, as well as by other public and private funding sources.

Because their purpose has been to strengthen community economic development, the Center has maintained contacts with economic institutions used as tools to achieve local community goals from the formation of land trusts to worker-managed enterprises to cooperative and community projects, such as canning centers. The Center has studied such institutions, provided them library services, conference organization, and research. As a consequence, they have well established links across the nation with grassroots organizations, a thorough knowledge of their problems, and an organizational ability to formulate programs and otherwise respond to any particular request for assistance or need for information.

Over the past several years, the staff at CCED has provided training, development assistance, and management support to the OED funded CDC's

as well as to other community based, low-income organizations nationally. In addition, support and consultation has been provided to research, support, and technical organizations, including local, state, and federal governments. The aim is to create or expand resources in support of multi-regional and national community economic development activities which attempt to alleviate poverty and poverty-related human, social, and environmental problems.

KEY PERSONNEL	OPERATION BROTHERHOOD	AREAS OF EXPERTISE
1. Belle Whaley	3475 West Ogden Avenue Chicago, Illinois 60623 312-522-0433	1. Aged Self-Help Programs 2. Crafts Education 3. Urban Farming

The center opened over eight years ago under the supervision and sponsorship of the Little Brothers of the Poor and operated within the area bordered by Ashland Avenue and Cicero Avenue between Chicago Avenue and 31st Street. In 1975 the center continued operation on its own and its new endeavor was named Operation Brotherhood. Their motto is "to provide, protect and teach" which rests on a philosophy of self-initiative; a belief that within the citizens of the West Side lies the answers to their community's problems. Their goal is to express what is in the minds and hearts of the people who live there by setting an example of unification, sacrifice, innovation and brotherhood. They do not see themselves as an island in a cold and empty city. Rather, their self perception is that they are a catalyst for innovative human care programs serving the special needs of the elderly and physically handicapped.

At present the center services nearly 2,500 people on the West Side under a variety of programs. Six days a week they serve hot meals totalling over 100 meals daily. They also provide transportation to the center if necessary. For shutins the center delivers over 300 meals each week. It also provides housekeeping services to the disabled by hiring at minimum wage some semi-retired active women. The great benefit is that the disabled person is able to remain at his own home in a familiar setting for the duration of the disability. The center operates two Food Pantries

which sell fresh food at cost to the elderly. One is located at the Center, but the second is a mobile grocery store visiting mostly the shutins in senior centers. This services over 1,000 people in their area. Also a significant amount of the vegetables sold are raised on their Mini-farm located within the city limits. This is operated by seven senior men and yields food inexpensively while providing good exercise and satisfaction to these urban farmers. With the cooperation of a resource group on solar greenhouses, Operation Brotherhood is constructing a roof-top greenhouse which will extend their growing season the full year.

Beyond food, the Center Thrift Shop offers good quality clothes and household items at low cost. Through Malcolm X College, college credit courses on basic nutrition, consumer education, body dynamics and community affairs are available at the Center. For relaxation, handicraft courses and entertainment games fill the social calendar.

Another element of their services is counselling on various problems. Nearly 40 senior persons assist in this area sharing their vast experience of how to live, survive and retain self-initiative. Younger members of the Community participate in the food delivery program once each month. Packages of food are taken to elderly persons and the volunteer reports back to Brotherhood on their condition. It serves not only to keep the Center informed about these persons, but exposes the young to the philosophy "old as part of the whole."

Though the west side of Chicago is hardly similar to most of the Third World, the quality of self-initiative is a human resource not monopolized by any area. Their workers and directress no doubt hold valuable skills on how to feel, understand and mutually motivate the quality of innovation even within the handicapped and elderly.

KEY PERSONNEL	H.O.M.E. (Home Workers Organized for More Employment)	AREAS OF EXPERTISE
1. Lucy Poulin		1. Community Development
2. Carolyn Alteri	Orland, Maine 04472	2. Cottage Industry
3. Catherine Tracy	208-469-7961	3. Rural Development

Founded in Hancock County, Maine, by local folks in an attempt to raise their standard of living through local self-sustaining development, HOME has evolved into a significant resource center for rural community development. The homestead rests on a 26 acre tract of land just outside Bangor, Maine, and has established four major social development programs: Community Learning Center, Crafts Marketing Cooperative, Farm Marketing Cooperative, and a land trust, Self-Help Family Farms. Their goal of local self-sustaining development is carefully enhanced by each program.

The Learning Center is an extensive community education program. The instruction emphasizes training in crafts, basic literacy and life-coping skills. One objective is to teach skills in craft work which can be a means for supplementary income. Classes may also be taken for high school diploma credits. Of the 400 students at the Center, 80 are working for their diploma with an age span of 16 to 65. The students are a cross section of the community ranging from housewives and high school drop-outs to retired people. In addition to the regular courses, the Learning Center sponsors seminars on subjects of community concern. These are open to the public.

The marketing cooperatives for crafts and farm goods are small shops located at the Rural Life Center. They provide a marketplace for items produced by the members of the community. This has motivated many

individuals to use their skills acquired at the Learning Center and earn supplementary income. The effect of the cooperatives has been two-fold: a local revival of cottage industries and the strengthening of family self support.

HOME established a land trust to enhance the development of Self-Help Family Farms. This is a housing delivery system which conforms to the real aggregate income structure of the area. As a land trust, it allows persons to build homes, grow gardens, and raise livestock who otherwise could not due to real estate and construction costs. By leasing the land from the trust, any low-income family can have a farmsite as new ones become available with the understanding that they will contribute labor in the construction of each other's homes. Energy efficient homes have been designed and built for about $7,000 to $10,000 per unit. Low payments per month cover mortgage, taxes, insurance and land. After the mortgage is paid, the remaining costs will mean almost rent free living.

This Time is HOME's publication and is released about six times annually. It covers recent developments in areas such as organic farming, stock breeding and energy efficiency. It also carries feature articles about events and individuals in the cooperative family.

HOME's full approach to self-sustaining cooperative living has many aspects to it, many of which could be relevant to rural AT development in the poor countries. The educational center makes its training process self-supportive as well. HOME could be a sound training center for individuals from rural AT projects in the Third World and is willing to offer that service.

KEY PERSONNEL	THE FARM	AREAS OF EXPERTISE
1. Steve Gaskin	156 Drakes Lane Summertown, Tennessee	1. Alternate Community Development
2. Peter Schweitzer		2. Primary Medical Care
3. Leigh Kahn	615-964-3574	3. Communication-Media Development

After a cross-country trip from California, about 270 people arrived in Tennessee during May 1971 and established The Farm. Presently, the community numbers 1200 folks living on a 1,750 acre farm who share a common pursuit for a "world full of love" in which the community feeds the hungry, shelters the homeless, heals the sick and shares their experience, knowledge and needs. Their philosophy has never been to take over the government, but to take over the government's function: to help people take care of themselves. The Farm in its political, social and economic structure is the evidence of a pragmatic lifestyle working towards this goal.

The Farm's government is a Tribal Council of about twenty-five people representing all areas of activity in the community. The council helps to set priorities, guide resource allocation, and draw up a weekly basic budget. However, The Farm mostly runs itself. The members live collectively, sharing their fortunes and holding their land in common. No money is ever exchanged for goods or services within the community. Their social structure rests on households of several couples, their children and some single folks. They share a common kitchen and living area, and they eat and live together like a large family. The smallest household consists of two individuals, the largest fifty with the average household having thirty people.

The community members are complete vegetarians and rely heavily on soybean products. They maintain a central soy dairy which provides the community with soy milk, tofu and Tempeh. Farm Foods is their food distributing cottage industry. It makes available a variety of soy and vegetarian related products and maintains a produce store in a neighboring town where they sell fresh country produce and baked goods. The Farm Construction Company is the backbone of their basic budget. They build entire houses outside The Farm from the masonry to the cabinet work done in their own Wood Shop. Presently, they are building several log houses using solar technology and completing plans for a multi-purpose dome meeting hall using mostly recycled materials.

The Book Publishing Company is a publishing house and printshop. All the books are written, designed, and produced in the community. Since 1973 they have printed over 510,000 themselves and another 520,000 commercially. Their publishing company provides all the printing for their educational and health care systems. It is in both these areas, education and health, that The Farm forges an ever-more firm tie with the peoples of the Third World.

Beyond offering apprenticeship training as an elective in the schools, the education program supplements the basic subjects with discussions and readings on the cultures and tribal peoples of other countries. Spanish is offered as a foreign language. Farm Health develops and implements a primary health care system in the community as well as offering apprenticeships to individuals from the Third World. The system began with midwives and along with the mothers, remains the heart of the system. They have delivered over 800 babies, some 400 outside of The Farm. Their services

have expanded to include an outpatient clinic, medical laboratory, pharmacy and emergency medical treatment. The staff is drawn from the community, including a doctor, paramedics, nurses and lab technicians.

The Farm Community members are voluntary peasants and relate to the greater American culture somewhat as the lesser developed country does. They develop village technologies, based not on a profit oriented system but rather on what it takes to make it. This attitude towards development and cultural diversities has influenced the evolution of Plenty considerably. Plenty is a charitable relief organization of The Farm and began by distributing food and clothing in the U.S. as disaster relief after the hurricanes and tornadoes in Alabama and Tennessee during 1974 and 1975. This operation spread to Honduras and Haiti through the Mennonite Central Committee. Today a central focus of Plenty's operations is an empathy with the natural and original peoples all over the world--native people of the Western Hemisphere, Australia, Asia and Africa. Plenty realizes that the original peoples have already developed their own technologies and cultural ways which must be respected. The volunteers learned how to adapt relevant technologies to other cultures that can raise the standard of living without being detrimental to an original lifestyle and culture.

After the earthquakes of February 1976 in Guatemala, Plenty distributed medical supplies and other disaster relief supplies to the devastated area. This relief program developed into a reconstruction one with Plenty volunteers helping to rebuild schools and houses and developing emergency communications network to connect previously isolated villages with a new ambulance and trained crew. Plenty also is involved with constructing

community-center buildings and training centers aimed toward enhancing cultural uniqueness while raising the standard of living through self-sustained development. For about two and a half years, Plenty has worked in Dacca, Bangladesh, running a small free hospital and midwivery clinic with a British physician. They also help maintain an orphanage of one hundred children. Further, Plenty is aiding migrated urban dwellers in the construction of new rural communities by helping to discover with them a more nutritious self-sufficient community lifestyle. Even within the vast South Bronx of New York City, Plenty is assisting in rehabilitating old tenements and setting up free medical care services for the neighborhood. Through close people-to-people contact and authentic knowledge of the cultural dimensions of a community, Plenty tries to provide an atmosphere where truly appropriate technology can be designed and implemented.

KEY PERSONNEL	INSTITUTE FOR COMMUNITY ECONOMICS INC.	AREAS OF EXPERTISE
1. Bob Swann 2. Nathan Gray	639 Massachusetts Avenue Cambridge, MA 02139 617-661-3636	1. Land Trusts 2. Small Industry 3. Community Development

Since its founding in 1967, the Institute for Community Economics, formerly the International Independence Institute, has been closely associated with the community land trust movement. Robert Swann and the late Ralph Borsodi began the institute operating out of a barn in Massachusetts and promtoing their novel, and often heretical, ideas for a worldwide economic reform.

The conceptual basis for community land trusts stems from Borsodi's distinction between property and "trusterty". Property consists of those things that man creates through his own efforts, while trusterty includes resources like land, the oceans and the atmosphere, which came into existence without human intervention. If trusterty is to be held at all, it must be held in public trust. Advocating community control over such resources, Swann and Borsodi pronosed the formation of regional trusts to act as "stewards," or trustees, of the land.

In 1968 they helped organize an American community land trust, New Communities Inc., in Lee County, Georgia. Swann and seven of the leaders from New Communities Inc. went to Israel to study land acquisition and settlement practices there. The group returned enthusiastic and confident. Ten years later, New Communities Inc. operates a 5,735 acre cooperative farm near Smithville, Georgia, the largest black-owned single

tract farm in America. Community land trusts organized since New Communities Inc. have explored many variations on the land access theme. In Vermont, Earth Bridge Land Trust consists of fourteen leaseholds on five sites in four different towns while western Virginia's Wortoot Trust has focused on one particular tract, an Appalachian hollow, which its members hope to develop as a pure watershed system surrounded by farmsteads to show how land conservation can be balanced with agricultural use. Still other trusts, such as the Oregon Women's Land Trust, were formed, as New Communities Inc., to provide land access to the traditionally landless groups; women, black sharecroppers and migrant farm workers.

One of the more salient features of the Institute is its global perception. Some of Borsodi's and Swann's ideas have precedents in western thinking, but they refused to be limited by that. In the Far East they explored how the Gramdan movement in India pursued similar goals. On the practical side, the actual process of land acquisition and settlement of the tract, they studied the Israeli system. This global attitude, this willingness to absorb knowledge and innovation from beyond the confines of western civilization, is an essential element in alternative development. Both the industrial West and the less developed parts of the world can learn much about self-supportive lifestyles from the exchange of ideas and the openness to listen to something new and different.

After several years of market analysis, Swann and Nathan Gray have formulated a proposal for a permanent Community Investment Fund. This model would be primarily concerned with the financing of democratically managed or cooperative enterprises with most of its portfolio in fully secured or federally guaranteed investments. This investment fund would

ultimately be open to the general public and consist of three kinds of funds: the Mortgage Fund is structured to provide security and yield between 6-8% divident return; the Small Business Investment Corporation aimed towards the establishment of democratic worker participation for ownership and/or control in organizations conventionally structured, when the product is clearly of social benefit (i.e. a privately owned company producing solar energy devices); and the third fund responding to those investment opportunities which are not witin the scope of the first two funds.

The Institute for Community Economics offers the sound practical experience in establishing land trusts and a community investment fund. It still maintains that too much land is controlled by too few and to take part in some decisions about land use helps to counteract that centralized control. The land trust idea must always lend itself to a braod range of social and economic applications and be helpful to those wanting to earn a livelihood from the land but who lack the resources to do so.

KEY PERSONNEL	ALTERNATIVE SOURCES OF ENERGY	AREAS OF EXPERTISE
1. Don Marrier	Route 2 Box 90 A Milaca, Minnesota 56353	1. Alternate Energy Technologies
2. Abbie Marrier	612-983-6392	2. Communication Networking
3. Martin Jopp		3. Lending Library
4. Al Ruthan		

Alternative Sources of Energy (A.S.E.) is an educational and scientific organization concerned with the development of alternative and appropriate technologies. A bi-monthly magazine, Alternative Sources of Energy, is published by the organization. A.S.E. Magazine covers information on renewable energy sources, housing, integrated systems, agriculture as well as covering events and information sources concerning alternative technologies.

Alternative Sources of Energy also provides information services--giving design and research aid in all areas of alternative technology. A research library is maintained. Emphasis of the library is on practical and design type information. Extensive files are maintained on thousands of renewable energy products, organizations, background papers, and several hundred publications.

A.S.E. has sponsored or been involved in many alternate energy workshops and seminars. Recently, a slide show was written, photographed and edited by A.S.E. The slide show describes the many energy projects in the local area.

Aside from the bi-monthly magazine, A.S.E. publishes special booklets on various subjects. Available in print is a collection of back issues, Book One. Also, the A.S.E. equipment directory, Spectrum, and Kilowatt

Counter: A Consumer Guide to Energy Concepts, Quantities and Uses can be obtained as with any new booklets from the A.S.E. magazine mailing address. Because of the democratic approach of A.S.E. towards the contribution of material for publication, and its demand that the articles be written by actual practitioners of appropriate technology, it is a good example of alternate media. A.S.E. is not distracted by commercial advertising. It is self-supporting because the interest of its readers matches the interest of its writers. Its survival rests on the desire of practitioners to exchange ideas and learn more about alternate sources of energy. It could assist as a possible framework for building information networks in the Third World.

KEY PERSONNEL	ACORN	AREAS OF EXPERTISE:
1. Jim Laukes 2. Beth Hagens	Governor's State University Park Forest South, Illinois 60466 312-534-5000	1. Alternative Media 2. Alternative Souces of Energy 3. Midwest Access Catalogue

Acorn is a newsletter which covers the development of alternatives to the use of conventional sources of energy in the Midwest. It has come into existence to aid communication between practitioners, especially since the significant increase in activity in response to the energy crisis.

By reporting on work and development in the field of alternative energy, Acorn acts as a communications tool. Acorn tries to make connections: connections that will help bridge the geographic, technological and cultural gaps between people as they work for mutual benefit. By sending information to Acorn, and by having access to other information and people, Acorn enhances the development of viable energy resources and systems while also providing information on setbacks which helps others to avoid similar mistakes.

Acorn draws its source material from alternative sources of energy (solar, wind, water, and biofuels), appropriate technology, agriculture, architecture, planning, engineering, cooperatives, nuclear and coal technologies, social science, community development, conservation, environmental education, community action agencies, government, and other related areas of knowledge. This process of information exchange helps create a Midwest Energy Alternatives Network (M.E.A.N.). M.E.A.N. is a potentially powerful mechanism for public participation in future energy planning--

in the home, the community, the state or the multi-state region. M.E.A.N. is an information network which responds to other essences as well as humanity. Its approach to dispersing information on alternative energy development is centered on the strong belief that any development is only valuable in so far as it's appropriate to the particular cultural and economic milieu of the people who will use it. Diversity and integrity is the pattern of interdependence that can be seen widely in nature, and is equally appropriate to man's development.

M.E.A.N. has also compiled a Midwest Access Catalog with a number of other groups in the Midwest interested in the design, theory, and practices of energy-related lifestyle alternatives. Other services offered to subscribers include regional information referral, special topic bibliographies, reprints, and access to their files. From time to time, they sponsor working conferences such as the one two years ago with the late E. F. Schumacher. The Acorn is published bimonthly. Each issue includes a regional calendar, special topics with annotated resources, regional publications, ideas in practice, and Midwest desk (a mostly reader-contributed space for philosophizing on current events and policies). The office for Acorn is located at The College of Environmental and Applied Sciences at Governor's State University of Illinois. Although located in an academic institution, its bent is practical and its language is relatively non-specialized, which extends its potential use to true in-the-field practitioners.

Acorn and its M.E.A.N. process represent a successively proven alternate method of communication wherein the materials are from the actual developers and the publications are geared to their use. They

depend on no distant coordinating news agency, but on their own initiative and on their own sensitivity to appreciate the importance and effect of cultural diversities.

KEY PERSONNEL

PORTLAND RECYCLING TEAM (PRT)

1801 N.W. Irving
Portland, Oregon 97209

AREAS OF EXPERTISE

1. Solid Waste

PRT is the oldest and largest non-profit recycling organization in the Pacific Northwest. Started in 1970 as a small experiment of one person with a pick-up truck, it was incorporated in 1972 and for a short period was limited to the campus of Portland State University. Since late 1972 it has steadily grown and developed into a full-time recycling organization and today has seven permanent recycling centers throughout Portland with round-the-clock drop-off service.

Since 1973, its monthly volume has risen from 30 tons to nearly 800 tons in 1976. Paper companies in the area buy different qualities of paper while the broken glass goes to either a stained glass firm or a local glass bottle company. About one half total waste is glass with roughly 60 tons in the form of high grade paper. Also they recycle oil from car owners at the rate of 200 gallons each month. Though they receive some support from a local government grant, they are quickly approaching a self-supporting status with their annual income just under $600,000.

Though the overwhelming source of waste is through contracts with public offices, PRT's main purpose is to stimulate and sustain community awareness in the area of conservation through recycling. Their method is to involve citizens in solid waste management on a personal level via source separation within homes and offices and by the service of recycling tons of solid waste which otherwise could be a burden on the community. Therefore, PRT is dedicated to offering a full-line service even when

depressed economic conditions would have encouraged the agency to focus on recyclable items of relatively high resale value.

PRT offers a multi-faceted education program through speaking engagements as well as tours of recycling facilities. Thereby, they can reveal the vastness of the problem while making the completion of the cycle obvious. The main office/warehouse serves as an educational resource center with a library on solid waste literature and current magazines.

PRT also offers a recycling consultancy unit. Because they approach recycling as part of a general system of development aimed not only towards waste management, but local economic and social development their knowledge may have significance to areas of the Third World. Three salient characteristics exist in their approach. The empahsis on conservation and reuse of waste greatly increases potential local resources for development. Second, the dependence of their work on individual participation in its operation helps retain control on a local level. Third, the real possibility of the system creating off-shoot industries in the locale ties conservation to job creation. Examples of this are glass-block making; aluminum ingot making; and small-scale de-tinning. Another major potential is small-scale insulating material manufacturing. With a town of 30,000, one might set up its own industry with local government policy helping to develop it. Therefore, PRT's approach will raise public awareness by integrating individual energy conservation with job creation and environmental protection. All managed on a small local level.

KEY PERSONNEL

1. Kevin Mulligan
2. Jerry Powell

RESOURCE CONSERVATION CONSULTANTS

1615 N.W. 23rd Avenue
Portland, Oregon
97210

503-227-1319

AREAS OF EXPERTISE

1. Development and Design of Re-Use Systems for Solid Waste
2. Implementation of System
3. Development of Off-Shoot Industries

Resource Conservation Consultants Inc. is a specialized firm offering services to planners, municipalities, and government bodies involved in Solid Waste Management. The firm provides services at the three stages of a solid waste system: the development and management of an appropriate system; the planning and distribution of public information on the processes of the system and thirdly, integration of the system with the secondary materials markets.

In the development of integrated models the firm employs a variety of technologies. RCC works with the decision makers investigating the compatibility of source separation recycling techniques with other solid waste management options, including resource recovery. After the development of a system, RCC usually assists in the implementation of source separation and waste reduction systems. This stage of implementation involves the public participation components of the solid waste management plans. Through careful planning and development of public information, the firm helps the local authorities to raise public awareness as to the new conservation methods in solid waste disposal. The firm has production experience in radio and television advertising, public service announcements, newspaper and magazine advertising, public exhibits, and workshop presentations and lectures.

RCC has operated the large, low technology, urban recycling program entitled Portland Recycling Team. Within this program it worked extensively with public agencies and private businesses in implementing a source separation recycling system in their offices. Further, RCC has been successful not only with the integration of the waste management system into the secondary materials market, but also in developing some off-shoot industries. Through this they create new jobs, conserve resources and assist with environmental protection. Currently, RCC is providing economic feasibility analysis for the implementation of city-wide recycling collection in Cleveland Heights, Ohio. In Seattle, Washington, they are providing design and program monitoring services for a similar project.

RCC also makes available their special experience in recylcing systems to the industrial and business community of Portland known as Exchange. Exchange is an information clearinghouse which acts as a transfer agent to identify, locate and encourage the productive use of industrial waste materials with a re-use value. The Exchange is a free service for the purpose of economic and environmental savings through the diversion of waste materials from disposal to secondary use. The Exchange publishes a free, bi-monthly bulletin, listing waste materials, availability, and the general location. All information of participating firms is confidential to protect individual interests yet assure participation in this community interest program.

Presently, RCC is developing a compendium describing waste utilization technologies for possible implementation in developing countries. This includes an analysis of metals high-grading, ingot-making, small scale de-tinning, cellulose insulation manufacture, glass mineral wool

insulation manufacture, felt making, vermiculture, and low technology waste fiber utilization such as egg carton manufacture. This compendium is accompanied by the offer of technical assistance on the development of waste utilization technologies. The aim is to preserve the unrecognized employment provided by scavenger-hunting in the dumps of the urban areas of LDCs. This approach could increase employment via off-shoot industries, raise the standard of living and preserve the environment through greater conservation.

KEY PERSONNEL

1. Kris Olsen

ALL COOPERATING ASSEMBLY

P. O. Box 6022
Minneapolis, Minnesota
55406

612-721-4925

AREAS OF EXPERTISE

1. Cooperative organizations
2. Service networking
3. Outreach work
4. Information directories

The All Cooperating Assembly of Minnesota consists of cooperatives and collectives drawn together by their common belief in cooperation as the best means for advancement. They work together meeting their needs without competition, authoritarianism, violence or exploitation of people or nature. Any cooperative or collective in the area which adheres to these goals may join for a small annual fee. Each member-group is entitled to two representatives with both having a vote in the Assembly. These groups have a varied and valuable resource of skills and knowledge. Their individual members act as consultants in their area of activity whether it be food services, shelter needs, clothing, health, day care or education. This way they weave the health, ethical, economic and other basic concerns of people into a lifestyle of cooperation.

The ACA representatives meet in a general conference twice a year. In December and June they come together to share knowledge through workshops, caucus, recreation, culture and just being together. However, throughout the remainder of the year, the ACA's work is carried out through its committees dealing with a particular area of concern. Each representative to the Assembly joins the particular committee for which he could do the most. The working committees consist of Equipment, Legal/

Finance, Food Research, Farm, Outreach, and Education. These committees deal with professional services, research and social counselling. Through presentations, talks, workshops on many co-op and collective related topics, and actual projects, the Assembly provides technical assistance and published materials on initiating, organizing, and developing cooperative businesses, services and organizations. This includes both consumer and worker (producer) cooperatives. The Assembly also has much information on such community activities as fundraising, publicity, and communications.

At the present time the Assembly is updating and making more comprehensive the Minneapolis metro and regional directories, as well as carrying on outreach social work. Aside from the co-op directories, the Assembly publishes The Scoop, which is a regional cooperative newspaper. They also issue update mailings on various issues such as the Nestle boycott, food and nutrition information, and the status of political issues such as co-op housing, relevant appropriate technologies and, last year, the Co-op Bank Bill.

The Assembly is an organization in which the driving force is people wishing to advance a cooperative approach to living. ACA is wholly self-reliant, existing on the energy and financial contributions of their member organizations. They are now forging ahead with plans for a national federation of cooperatives, loosely bound, financially self-reliant; useful and advocating independence through interaction. This assembly of consultant practitioners is an example of individuals evolving a social, economic, political and business infrastructure which exist to serve their needs and enhance their lifestyle. Regionalization through development of voluntary infrastructures brings the benefits of cooperation together

with the independence of self-control. This type of networking of technical, social, economic, and political information and expertise may offer some salient guidelines for strengthening regional infrastructures within AT movements in the countries of the Third World.

KEY PERSONNEL	NEW SCHOOL FOR DEMOCRATIC MANAGEMENT	AREAS OF EXPERTISE
1. Dave Olsen	588 Howard Street San Francisco, CA 94108 415-434-1705	1. Management Training 2. Worker Participation 3. Micro-economics

The New School for Democratic Management began in 1976 as a project of the Foundation for National Progress. It is an employee controlled, democratically managed educational corporation. The School conducts research on a variety of economic, political and cultural affairs. Until March 1979, NSDM had the Foundation for National Progress, which publishes Mother Jones magazine, as its legal sponsor.

The School challenges the traditional view that democracy is too inefficient for business purposes. It aims to bring about an economic democracy in the United States matching the political democracy in existence. Therefore, the long run interest of NSDM surpasses mere economic "alternatives" and lies in the development of a restructured economy. The extension of democracy into economics is seen as both a political and economic necessity. Economically, it can produce the quality of full employment which can solve the problems of overproduction, stagnation and unemployment with high inflation. Politically, economic democracy would be geared to the needs and interest of the broadest spectrum of Americans and therefore, could reverse the decline in the collective standard-of-living.

By sound, efficient research, the NSDM is developing systematic principles and practices for alternative business management. Through its courses, the school addresses the enormous difficulties of developing

democratically run businesses and economy. Courses emphasize the skills-training capabilities within the students to enable them to initiate economic democracy in their own activities. They try to produce managers who are motivators and coordinators at the points of contact where the resources of the work force meet the requirements of business, but whose loyalty lies with the employees as a collective body. The School also discusses the need of democratic organizations to develop a tradition of scientific workmanship. This means buidling formula and programs for educating employees to accept informed responsibility for their organizations and for the management structure which guides their work. NSDM trained over 800 people (in 1978 alone) in understanding balance sheets and income statements, doing financial planning, developing work plans and personnel policies for a wide variety of community organizations, social service agencies, and small businesses.

NSDM recognizes that community based and worker controlled businesses are a major locus of current experiments with democracy in the workplace. The course, Business Problems of Alternative Enterprise, deals with the operation of food coops, community development corporations, community media and other community based and cooperatively controlled organizations. Leadership Training for Restructured Workplaces concentrates on worker participation in management, employee self-supervision and worker autonomy. Two other courses cover Industrial Democracy and Union Administration and Democratic Management in the Public Sector. While these course descriptions sound pretty traditional, the context of the training is what makes it unique and especially appropriate for low-income groups.

In addition, NSDM offers a wide selection of other courses in sessions of different lengths: weekend seminars, five-day and two-week workshops. The School has the capability to conduct these seminars and workshops anywhere in the U.S. if it is guaranteed 50 or more participants.

NSDM's emphasis on economic decentralization andlabor intensive industrial development are a good combination in a program for alternative technical/business training. The School's focus on management planning and business skills in a context supportive of participatory development makes the aim of local business self-development more a logical result than a lofty philosophical goal. Their capability of offering the training in a variety of places adds even more to the potential service of which NSDM might be for personnel exchanges between AT groups in U.S. and those of the Third World.

KEY PERSONNEL

1. Ken Darrow
2. Rick Pam

VOLUNTEERS IN ASIA INC.

Box 4543
Stanford, California
94350

415-497-3228

AREAS OF EXPERTISE

1. Exchanges to/from Asia
2. AT Information on Asia
3. Recruitment Processes

Volunteers in Asia began in 1963 with a group of undergraduates at Stanford University interested in some alternative education through a live-in experience in a non-Western world. A request for English teachers and workcampers in Hong Kong triggered the initial program. By 1968 programs had been extended into the Philippines, Taiwan, Japan, Indonesia, Korea, and for short periods in Bangladesh, Vietnam and Nepal.

VIA has expanded into four major activities since these early days. It continues to provide young Americans with a working/learning/living experience among the people of Asia through the request of Asian institutions. Each year from thirty to forty volunteers go to the above five Asian nations. Many are teachers of English as a foreign language, some others are involved in appropriate technology, music education, economic planning, ecological studies and development reportage roles. Before departing, each volunteer participates in a cross-cultural orientation and preparation. The volunteer usually is assigned to work with a local institution. The trade-off is that the volunteer gives his/her work in return for an opportunity to live and learn immersed in an Asian culture by living with an Asian family and being part of their neighborhood.

Since 1975 Volunteers in Asia has worked on an Appropriate Technology Project. It was started by two returned volunteers whose Asian experience

left them with an awareness of the many important values and models Asians have to offer Americans, a concern for the problems of developing countries, and a belief that while cooperative discussion is to be welcomed, it is usually inappropriate for foreigners to propose solutions. They sought a useful complementary role in the AT area and discovered that one of the few legitimate roles was gathering information on information. VIA attempts to identify published materials from all over the world that can be of use to those people creating an appropriate village technology. The most tangible results of this are two editions of the Appropriate Technology Sourcebook. The second edition contains critical reviews of selected publications on alternate sources of energy, farm implements, shop tools, agriculture, low-cost housing, health care, water supply, pedal power, and the philosophy of appropriate technology. This project of VIA draws from and assists the work of its volunteers involved directly in village technology and development reportage. VIA also publishes two booklets to help travellers approach Asia in a culturally sensitive fashion: On-Your-Own Guide to Asia and Trans-Cultural Study Guide.

In a reverse exchange of individuals, VIA brings Japanese students to Stanford University campus for a period of intensive cross-cultural and English study. This is an ongoing privately funded experiment which highlights VIA capacity to be sensitive about an Asia to America cultural exchange as well as its major volunteer exchange from America to Asia. Finally, VIA through its companion organization, Volunteers for International Development, acts as the West Coast recruitment arm for the United Nations Volunteers.

A salient feature of VIA is its self-sufficiency. Returned volunteers are much of the organization's energy and support providing all the staff and most of the board of directors. Further, its funding is mostly self-generated through services rendered and donations from former volunteers. A small amount of revenue comes from family foundations.

VIA represents one of the most advanced AT groups in the U.S. for experience in dealing with the Third World. Its sensitivity to the value of cultural uniqueness is the guiding principle of each of its activities. It may well serve as a contact point for exchanges to and from Asia in any future cooperation between AT groups. VIA deals from one local level to another. Its programs are grass-root and its center of concern is the person.

KEY PERSONNEL	NATIONAL CENTER FOR APPROPRIATE TECHNOLOGY	AREAS OF EXPERTISE
1. Hiram Shaw 2. Blair Hamilton 3. Beth Sachs	P.O. Box 3838 Butte, Montana 59701 406-723-5474	1. Funding Agency 2. Networking 3. Research and Development

The National Center for Appropriate Technology (NCAT) approaches small-scale technologies as appropriate solutions to the current energy and lifestyle problems facing Western society including rapidly rising costs of energy; increasing scarcity of non-renewable energy resources; and developing self-reliant and self-sufficient individuals and communities.

Although these problems touch the entire country, low-income individuals and communities are troubled the most and need effective assistance to achieve self-reliance. In low-income communities, NCAT's mission is to develop viable appropriate technology solutions to energy and energy-related problems, to create an awareness of AT opportunities, to provide financial and technical assistance to the poor to encourage the use of small-scale community based technologies, and to research, develop and refine the appropriate technology data base to ensure high quality and cost-effective options. The Community Services Administration (CSA) funds NCAT to pursue this goal as part of CSA's Emergency Energy Conservation Services Program.

While the Center in Butte is national in scope, the actual program operation of NCAT focuses on lcoal and regional programs. The Butte Center functions as the vehicle for dissemination and decentralization by sharing information and resources, and providing technical and program support through multi-media communications and publications, grants,

outreach workers, information networks, regional newsletters and workshops. All of these components work toward providing and applying the tools of AT for the development of community self-reliance.

NCAT's Technical Research staff members, on contract from Montana Energy and MHD Research and Development Institute, has established task forces to study the problems related to appropriate technology. For example, the Residential Energy System Evaluation Group conducts basic research on how energy is consumed in American homes by identifying both areas of heat loss and inefficiency. The data are used to develop optimum weatherization applications and techniques. NCAT's Solar Energy Research involves the development and evaluation of low-cost solar energy appliances. Specific solar projects include passive solar research, solar-reliant greenhouses, testing and certification of do-it-yourself solar collectors, passive and low-energy cooling, thermal shutters, and an experimental solar forge. Agriculture, waste recycling, housing and transportation are some other topics studied. The technical staff also identifies instructional methods and develop training packages for community action agencies, weatherization crews and other interested people.

NCAT's Small Grants Programs facilitates locally-developed solutions to technical problems and encourages dissemination of small-scale technologies. Development of community-based experiments, programs, and demonstrations is encouraged by Requests for Proposals (RFP's) mailed to Community Action Agencies, Community Development Corporations, appropriate technologists and grass-roots groups. Outreach Activities encourage and facilitate the initiation and use of regional and local resources for community development. The efforts of NCAT's ten region-based field

representatives comprise the prime thrust for decentralization of NCAT's resources and programs by establishing a network between NCAT and local communities; and by developing good relations between community action agencies and appropriate technologists. Information and Communications provides support services for NCAT programs through the activities of and materials produced by The Resource Center and Library, regional newsletters, information sharing systems, publications of how-to guides, and multi-media projects.

With NCAT being oriented towards low-income communities, it shares a common trait with many AT groups in the developing countries. The need to develop technologies which are not only cost-effective but can be self-sustained by a low-income community is vital to successful AT development. The research at NCAT and its application in the region offers considerable potential as an exchange center for any alternative training programs with the Third World. Its staff has a wide-ranging spectrum of expertise and though their time is in great demand, they could be available as project consultants for groups in the Third World. Their value is to assist local people in finding innovative solutions to their local needs. Do not expect a simple transfer of alternative technological solutions.

KEY PERSONNEL	OFFICE OF APPROPRIATE TECHNOLOGY OF GOVERNOR'S OFFICE	AREAS OF EXPERTISE
1. Gigi Coe		1. Resource coordination
2. Robert Judd	1530 10th Street Sacramento, California 95808 916-445-1803	2. Public education programs 3. AT feasibility analysis

In recognition that the world has limited resources which require the development of a conserving technology and with the realization that government must adapt to this reality of changing values, the Governor's Office of California created the Office of Appropriate Technology (OAT) in spring 1976. However, in most areas of life state laws and standards tend to institutionalize high-technological values in such a way as to make it difficult for more appropriate forms to compete fairly or even exist. Public policy favors and often subsidizes large scale standardized activity at the expense of diversified local enterprise. OAT intends to catalyze change in State government by introducing new perspectives of social and ecological well being, resource conservation and economic redevelopment into State policies, programs and projects. Through appropriate technology there can be less need for government intervention to control the myriad and often unanticipated effects of "advanced" technology.

The Office of Appropriate Technology has a variety of activities which help it to meet its objectives. The "On-Going Programs" are aimed at bringing the message and perspectives of appropriate technology to State Government and to encourage its implementation throughout California.

The "On-Going Programs" are a series of seminars which emphasize current projects and perspectives in appropriate technology. Topics have ranged from energy and resource conservation to aquaculture, solar systems, and innovative recycling techniques. They aim towards stimulating local activities by meeting with small groups throughout the State and also regional meetings. By way of this on-going, open exchange of ideas and discussion of projects, OAT attempts to avoid centralizing information on and codifying ideas about decentralization. The program serves the dual purpose of helping coordinate government resources with local needs and keeping in touch with new projects and grass roots activities. Also to raise public awareness of AT, OAT sponsors "The New Possibilities Show." It is a traveling trailer exhibit which carries displays and working examples of home insulation, solar energy, water conservation, shelter and recycling. Both the conservation tips and working systems on the trailer convey the message: conservation is simple, makes sense, and saves money.

OAT also strives to document and evaluate the economic, social and technical feasibility of alternative technologies. Since its founding, the Office has been compiling information about people and groups working with AT in California and across the country. Complementing this resource is a library which covers topics ranging from alternative agriculture and health to shelter and transportation. The information, library and files are open to the public for research and browsing. The Atlas Project aims towards fulfilling this objective. It is a catalogue of resources which support and encourage local and regional self-reliance in the Central Valley area.

The "Capitol Bicycle Program" is a demonstration program which provides a bicycle for state employees as an alternative to state cars or taxicabs for inter-office transportation. It is an example of implementing working alternative technologies into government. However, encouraging the implementation of appropriate technology throughout California remains a primary concern. The "Solar Technician Training Project" trains individuals to be competent in building and installing solar systems. Although the program concentrates on state employees and the converted buildings are mostly state, the program provides a sound training from which individuals can initiate their own private projects. Further, the OAT is helping to develop alternatives for both single home and municipal wastewater treatment processes that are biologically sound and provide great savings in both energy and construction costs. Finally, OAT works with some mini-agricultural experiments. "The Drought Tolerant Garden" provides answers and alternatives for gardening in the California climate of winter rains and warm, dry summers.

OAT is unique among all the groups visited as it is completely governmental. It is in that uniqueness that its potential relevance to the Third World arises. In many developing countries government is the central force for any major social and economic revisions. OAT demonstrates how that governmental authority can serve to produce social and economic revisions which are environmentally safe and technologically appropriate.

PART III

BIOGRAPHICAL SKETCHES OF AT PRACTITIONERS

PAUL M. RELIS
Community Environmental Council
924 Anacapa Street Suite B-4
Santa Barbara, California

AREAS OF EXPERTISE

1. Rural-Urban Community Planning
2. Coastal Environmental Planning
3. Small-Scale Intensive Gardening

BRIEF OF EXPERIENCES:

After completing college, Paul worked for the U.S. Forest Service in 1969. The following year, he was a researcher in Santa Barbara County Planning Department. Since 1971 he has been Director of Community Environmental Council in Santa Barbara. This organization was involved with training about 30 individuals to teach small-scale intensive gardening in Central and South America. He helped formulate the program. Volunteers have gone to Guatemala, Honduras, and Ecuador. He also has been a planner for the County of Santa Barbara since 1976 in the area of coastal planning.

CURRENT PROJECT:

He conceived of and is currently directing the development of the Community Environmental Council's Mesa Project which will serve as a demonstration center for AT. One building will be constructed this summer. The aim of the project is to gain a more intimate understanding of AT as applied to single and multi-family residential development.

TYPICAL ACHIEVEMENTS:

He received his AB in 1969 from the Monterey Institute of Foreign Studies of the University of California. He instructs at Santa Barbara City College, Continuing Education Division, and coordinates a series on the Energy Crisis; Challenge of Scarcity; Solutions to the Energy Crisis; Last Call for Santa Barbara.

The following are a partial list of his writings:

"Boston's Fenway Garden", Santa Barbara: Survival Times, Vol. 2, No. 10, 1972

Today's Action, Tomorrow's Profit: An Alternative Approach to Community Development, A Special Report on a Citizens' Symposium held at Santa Barbara, California, May 1-22, 1972

"The City Farm that Teaches Organic Living", Emmanus, Pa: Organic Gardening and Farming, Vol. 20, No. 1, January, 1973

"Disputes at the Urban-Rural Border", Radical Agriculture (edited by Richard Merrill), in paper and hardback. New York: Harper + Row, 1975

The Impacts of Growth: A Population Analysis, Praegar Press: 1976

Community Gardens: Past and Present, Community Environmental Council, 1978

Coastal Plan for Santa Barbara County, Santa Barbara Planning Department, November, 1978

HIRAM M. SHAW
N.C.A.T.
3040 Continental Drive
P.O. Box 3838
Butte, Montana 59701

406-723-6533

AREAS OF EXPERTISE:

1. Grant Application Preparation
2. Project Management
3. Staff Administrator

BRIEF OF EXPERIENCES:

After receiving an advanced degree in urban planning, Hiram began his career in community planning. In Colorado, New Mexico, Ohio, and Wisconsin from 1966-1979, he has been active in research, management, and administration of various Community Assistance Projects which were primarily aimed at local self-development of low-income communities. These experiences include Assistant Director of Social Development Commission of Milwaukee, Wisconsin; Assistant Director of Albuquerque Urban Observatory in New Mexico; Deputy Director of Ohio Commission on Local Government; Assistant to Director of Denver Urban Observatory in Colorado; Associate Director, Milwaukee Community Development Agency in Wisconsin; and Associate Coordinator of NCAT until assuming his present position.

CURRENT PROJECTS:

Executive Director of NCAT since May 1978. He is responsible for supervision of the national center, promoting research and development of AT, especially for low-income communities. This includes overseeing grants, programs, field representatives, information and research unit, publications, technical research unit, and administrative and planning unit, business office, and Washington, D.C. office.

TYPICAL ACHIEVEMENTS:

In 1964 Hiram received his BA from Antioch College of Ohio and a year later received his MA in Urban Affairs from the University of Wisconsin. While in New Mexico, he served as Adjunct Professor in Business, Economics and Urban Development at the University of Albuquerque 1969-1972.

MALCOLM A. LILLYWHITE

Domestic Technology Institute
6766 South Happy Hill Road
Evergreen, Colorado

AREAS OF EXPERTISE:

1. Renewable Energy Sources
2. Domestic Technology
3. Decentralized Economic Development

BRIEF OF EXPERIENCES:

Malcolm worked for 15 years in the aerospace industry as a technology transfer officer for NASA to the U.N.; as a supervisor of a Solar Simulation Laboratory for Electro-Mechanical Research, Inc.; and as a supervisor of the Thermophysics Laboratory at Martin Marietta Corp. in Denver, Colorado. For five years, he has been developing programs to bring low-cost renewable energy technologies to small urban, rural and inner city communities in the U.S. and developing countries. Four years were devoted to developing energy related elementary, secondary and adult education programs in energy conservation.

CURRENT PROJECTS:

Since 1976, he has been Director of Domestic Technology Institute. The solutions and processes offered at DTI focus on energy and food self-reliance through "hands-on" training and are developed around a concept of domestic technology which emphasizes applicability and efficiency for individuals or families at low cost. He also conducts research and training in decentralized economic development and marketing.

TYPICAL ACHIEVEMENTS:

In 1962, Mr. Lillywhite received his BS in Physics from William and Mary College and one year later completed his MS in Physics there. He has finished his Ph.D. dissertation in Physics at the University of California

and has done graduate work in thermophysics at UCLA, Goddard Institute, Columbia University and University of Colorado. He is President of Solar Power Supply Company, a solar energy engineering firm, and the author of a vast and varied collection of publications.

Publications: 48 documents in the area of space simulation and thermal control coatings; 28 documents in the area of environmental simulation, assessment and impact survey; 8 documents in the area of environmental modification and environmental awareness; 16 documents in the area of domestic technology and domestic solar energy technology. Books--available in June 1979: Domestic Solar Energy Technology; elementary, secondary and undergraduate editions.

ROGER BLOBAUM

R.R. 4
Creston, Iowa 50801

515-782-8098

AREAS OF EXPERTISE:

1. Alternative Agriculture Technology
2. Urban Waste Re-Use
3. Land-Use Policy

BRIEF OF EXPERIENCES:

After eight years as a political reporter and editor for the Associated Press in Madison, Wisconsin, and Chicago, Roger became the Legislative Assistant to U.S. Senator Gaylord Nelson, specializing in farm, rural development and environmental policy. Moving from the government side to the farmer's side, he served as an advisor to the President of National Farmers Union in Denver and in Washington, D.C. During 1969-1970 he was the Senior Legislative Assistant on the Democratic Study Group's task forces on "Food and Agriculture" and "Natural Resources and the Environment." Since 1970 until founding Blobaum and Associates, he was a consultant to government agencies and organizations on farm, rural development, and land use policy.

CURRENT PROJECTS:

He is President of Blobaum and Associates Inc., a small firm specializing in energy/agriculture and appropriate technology. He is Principal Investigator of The Small Farm Energy Project, which is a national research and demonstration project, as well as for The Urban Wastes Project, which is a systems study of the economic feasibility of applying urban wastes to agricultural land.

SKILLS AND ACHIEVEMENTS:

Mr. Blobaum earned his B.S. in Agriculture from Iowa State University in 1955. Then, while pursuing a career in the news reporting profession, he resumed his studies at University of Wisconsin, where he received his MS in Communications in 1963. In 1963-64 he was a Congressional Fellow of the American Political Science Association in Washington, D.C. He also participates from time to time in panels and seminar discussions of D.O.E. and National Science Foundation, usually dealing with the urban or agricultural areas of public policy. The following is a partial list of his publictions:

R. Blobaum, S. Fast, L. Holcomb, and L. Swanson. "An Assessment of the Potential for Applying Urban Wastes to Agricultural Land." A study prepared for the Program of Research Applied to National Needs, National Science Foundation. September, 1978.

R. Blobaum, "The Need for Appropriate Technology in Agriculture." Published by Design Alternatives, Inc. Washington, 1978.

R. Blobaum, "The Politics of Agricultural Land Preservation." A paper presented at the annual meeting of the American Political Science Association. Chicago, September 4, 1976.

R. Blobaum, "The Loss of Agricultural Land." A study report to the Citizens Advisory Committee on Environmental Quality, Washington, D.C., 1974. Reprinted in "Readings in Land Use Policy," a Committee Print, the Senate Interior Committee, June 1975.

R. Blobaum, Review of a paper by H. Carter. J. Youde, and M. Peterson, entitled "Future Land Requirements to Grow Food for an Expanding World Population." Both papers prepared for the USDA Prime Land Seminar, Warrenton, Virginia, July, 1975.

STANLEY J. HALLETT

2335 Commonwealth
Chicago, Illinois 60614

312-549-8134

AREAS OF EXPERTISE

1. Social and urban analysis
2. Banking and urban re-investment strategies
3. Technology appropriate to retrofitting older urban areas
4. Voluntary associations and their roles in social change

BRIEF OF EXPERIENCES:

His experiences have combined work as an activist and theorist in problems of urban development, primarily in Chicago. His Ph.D. from Boston University in social ethics was written on the topic of "Ethical Issues in Urban Planning and Development" in 1962. It followed four years of work in a parish in Newark, New Jersey, doing community organization building. During the 1960's, he was the director of research and planning for the Church Federation of Greater Chicago, working on problems of civil rights and neighborhood development, and teaching at the University of Chicago Divinity School and the Urban Trailing Center. During the 1970's, he worked at creating a self-sustaining neighborhood development institution, designing, raising capital to purchase, and then working as a Vice-President of the South Shore National Bank.

CURRENT ACTIVITIES:

During the past four years, he has also been teaching at Northwestern University in the Graduate School of Management (courses on planning and management in the urban environment) and at Garrett Evangelical Theological Seminary (ethics and urban affairs). As a faculty member of the Center for Urban Affairs of Northwestern, he directed a project on

Technology and Social Structure, one of whose outcomes was the formation of the Center for Neighborhood Technology. Another outcome of that project has been the effort to identify and get public policy changes which would support small scale neighborhood-based alternatives to a massive public works program, the deep tunnel project of the Metropolitan Sanitary District.

TYPICAL SKILLS AND ACHIEVEMENTS:

In 1949 Mr. Hallett received his BA from Dakota Wesleyan University and his S.T.B. from Boston University in 1953. After a year as a Rockefeller Doctoral Fellow he completed his Ph.D. in social ethics from Boston University in 1963.

EARLE ALLEN BARNHART

316 Woods Hole Road
Falmouth, Massachusetts 02540

617-540-1455

AREAS OF EXPERTISE

1. Water Pumping Windmills
2. Solar Heated Greenhouses
3. Biological Agriculture--Temperate Zone
4. Family-Scale Agricultural Technology, Costa Rica-Haiti
5. Tree Crops

BRIEF OF EXPERIENCES:

Earle grew up on an Ohio rural mixed crop-dairy farm. He received an undergraduate degree. Since then he has been a biological/energy designer at the New Alchemy Institute, working in the design and development of ecological forms of agriculture, aquaculture, shelter, energy sources and landscapes. He has been involved in the integration of windmills for water pumping with aquaculture; integration of aquaculture in passive solar houses and greenhouses; integration of intensive biological agriculture with simple portable solar cloches and solar aquaculture ponds. For one month in Haiti and two months in Costa Rica he evaluated uses of aquaculture and alternative energy sources of hot, moist, tropical climates, including the construction of a solar copra/herb dryer in Costa Rica with local materials.

CURRENT ACTIVITIES:

He is presently developing propagation techniques for large-scale planting of tree crops for human and animal food. New Alchemy is exploring the uses of food trees and animal forage trees as integral components of agricultural landscapes. He is carrying out research to develop

faster, cheaper propagation techniques for northern temperate nut trees and animal forage trees. Simultaneously, he is studying the ecological theory pertaining to natural forests that would allow one to develop humanly-designed analogs yielding a higher amount of human food. These processes will result in preliminary trial food forests combining food trees and domestic animals on pasture beneath.

TYPICAL SKILLS AND ACHIEVEMENTS:

While working with the New Alchemy Institute, Earle has completed his Master's thesis entitled "Alternative Energy Systems for Small Communities" (1972). The following is a list of his important publications:

Barnhart, E. A., "Wind Power", Journal of the New Alchemists, I. 1973.

_____. "An Advanced Sail-Wing for Water Pumping Windmills", Journal of NAI, III. 1976.

_____ "Technology Appropriate to the Gondoca Region of Costa Rica", Journal of NAI, IV. 1977.

_____ "Bioshelter Biotechnics", Journal of NAI, V. 1978.

_____ "On the Feasibility of an Agricultural Landscape", Journal of NAI, V. 1978.

_____ "Food Forests: An Appropriate Agriculture for the Northeast", New Roots, New England's Appropriate Technology Newsletter, October 1978.

B. FELIX MEINIKHEIM

Dry Buck Ranch
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Banks, Idaho 83602

208-793-2555

AREAS OF EXPERTISE:

1. Machinist and Welder
2. Designer and Builder of Machinery, Equipment, and Electronic Systems
3. Consultant--Hydroelectric Plants

BRIEF OF EXPERIENCES:

In his mid-sixties, Felix has spent his life designing, building, installing and maintaining various machinery equipment and electronic systems. He was with the U.S. Corps of Engineers from 1957 to 1962 and then worked with Harza Engineering Company International of Chicago. These jobs brought him to Pakistan and many Asian countries working on hydraulic irrigation systems. However, throughout his life, he has always developed machines for his own use which makes him quite self-sufficient. These innovations include three sawmills for personal use, a lightweight surveyors transit, radios, and a small milling machine.

CURRENT PROJECTS:

Though retired, Felix is kept busy with several projects. He is completing construction of a four story home in which a power plant is located in its own basement. Also, he maintains a small machine repair and construction shop to service neighbors. Beyond this, he is active as a consultant for the construction and installation of small hydro-electric plants. With his wife, they grow all their own vegetables and maintain a winter supply by preserving food in several ways.

TYPICAL SKILLS AND ACHIEVEMENTS:

He attended Bucknell University in 1931-33, and Rutgers University in 1934. Worked a lifetime with machines and electrical systems. At

present, beyond consulting and his personal projects, Felix maintains and runs Meinikheim Machines, which is a manufacturer of bench milling machines and accessories. Finally, he has designed, constructed and installed his own small hydro-power system, together with electronic equipment to govern the power output. This system has been working well for over five years with minimum upkeep.

CLINT C. COLEMAN

1913 Beulah Lane Road
East Troy, Wisconsin 53120

AREAS OF EXPERTISE:

1. Wind Turbines
2. Passive Solar
3. Biomass and Grey Water Treatment

BRIEF OF EXPERIENCES:

After receiving his BS in Wood Science and Technology from Colorado State University in 1970, Clint spent two years as a Peace Corps volunteer in the Dominican Republic. During this time, he provided design and construction services for rural communities. Study of their environment and cultural needs preceded the development of a 40 dwelling housing project, city water system, and community centers. While working on a Master's Degree in Mechanical Engineering 1973-75, he was a Teaching Assistant in the Mechanical Engineering Department at University of Nevada.

CURRENT PROJECTS:

Since 1977, Clint has been with Windworks Inc. as a Design Engineer responsible for the design and development of wind conversion equipment, test equipment, and aerodynamic and dynamic analysis of rotor systems. Currently he is heading aerodynamics section of D.O.E. contract PF 64086 F to design and build an 8 Kw residential size wind system. Design phase of contract is now complete and work is being performed in hardware phase.

TYPICAL SKILLS AND ACHIEVEMENTS:

Clint is an excellent skier and has done coaching at University of Nevada as well as for Lake Eldorn Racing Team of Boulder, Colorado. He also has written the following publications:

"High Efficiency Propeller Design", co-authored with R. McKee, Wind Engineering Research Conference, Fort Collins, Colorado, June 1975.

"Design and Construction of a 2 kw Electrical Generating Windmill", Masters Thesis, University of Nevada, 1975.

"Rocky Flats Site Test Plan Review", Technical Memorandum No. W101, December 1976.

"Areas of Research for the Advancement of Small WECS", Technical Memorandum No. W102, Rocky Flats SWECS Test Program, December 1977.

"Axial Thrust Measurements", Technical Memorandum No. W103, Rocky Flats SWECS Test Programs, December 1976.

"Free Stream Airflow Testing", Technical Memorandum No. W104, Stage 1, Final Report, March 1977.

CHRISTOPHER SZECSEY

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Occidental, California 95465

707-874-3060

AREAS OF EXPERTISE:

1. Small-Scale Agriculture
2. Biodynamic/French Intensive Horticulture
3. Nutritional Gardening
4. Cross-Cultural Studies (Culturally/Socially Appropriate Technologies)
5. Rural Community Development and Extension Methodology

BRIEF OF EXPERIENCES:

1971-74 served with the U.S. Peace Corps, Ecuador, South America. Agricultural extensionist and supervisor of 45 people in school and family gardens, nutrition, and rural community development. 1976-77: Center for Developmental Teaching in Oaxaca, Mexico. Developed and implemented university field studies program, agricultural community development projects and studies. Field facilitator for students and indigenous families. Bio-intensive agriculture and composting for school and family gardens. 1978: Center for Human Potential International in Antigua, Guatemala. Consulted in program development and implementation for 54 Peace Corps volunteers training in appropriate technology: small-scale agriculture, including soil conservation/fertility, Biodynamic/French intensive horticulture, composting, and nutrition; cross-cultural studies; community analysis; and extension methodology.

CURRENT PROJECTS:

Farallones Institute Rural Center: Research, development and education in appropriate technology: coordinator in food production, including bio-intensive agriculture, composting, vermiculture, nutrition, preserva-

tion and storage; public information and education; and consulting and contracting overseas in appropriate technology.

TYPICAL SKILLS AND ACHIEVEMENTS:

1978: Member - Board of Directors for Sonoma County Appropriate Technology Network.

1977-current: Farallones Institute: Biodynamic/French intensive horticulture, composting, low-flush and composting toilets, greywater recycling, apiculture and vermiculture.

1977: Advisor to integral rural development project in Otavalo, Ecuador, in establishing community food production using methane digestor sludge and biointensive techniques.

1975-1976: Private research in cultural ecology and agricultural systems in South and Central America.

1971-1974: During service in U.S. Peace Corps: Spanish language and cross-cultural training, horticulture, nutrition and health.

1967-1971: Callison College, University of the Pacific, Stockton, California. B.A. in Cultural Anthropology and Political Philosophy. Sophomore year: Far Eastern studies in Bangalore, India. Fieldwork: Southwest U.S. - Native Americans; Eastern Australia - Aborigines; Yucatan, Mexico.

MAX L. KROSCHEL

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Occidental, California 95465

707-874-3060

AREAS OF EXPERTISE:

1. Individual Onsite Waste Management
2. Composting Toilets and Greywater Systems
3. Agricultural Waste Management - Large-Scale Composting
4. Methane Digesters - Small and Intermediate-Scale
5. Small-Scale Water Supply Storage and Distribution Systems

BRIEF OF EXPERIENCES:

Max was a Peace Corps volunteer in Ecuador for 3-1/2 years. His work was with Rural Infrastructure projects: design and construction of several small bridges and buildings; design of sewage drainage and treatment system for small jungle community; coordination and implementation of research and development project in rural sanitation and waste recycling; application of compost toilets, methane digesters and solar water heaters. Currently, he is General Manager, Farllones Institute Rural Center and is conducting a research and development project in composting toilets and greywater systems as well as some educational programs ranging from one or 2-day weekend workshops to 5 and 10 week residential programs with "hands-on" skills training in appropriate technology. Also, he is assisting in a small water supply development project in Oaxaca, Mexico and has been a guest lecturer in Methane Digesters at U.C. Davis and College of Marin.

CURRENT PROJECTS:

The Integral Solar Bathroom, and various applications of solar energy to composting toilets and human waste recycling. Grant funded project through Department of Energy's small grants program. Further projects

include greywater treatment and distribution for subsurface irrigation; greywater irrigation in solar greenhouses; vermicomposting; and use of bio-intensive growing beds for wastewater treatment and disposal.

TYPICAL SKILLS AND ACHIEVEMENTS:

--BS, Civil Engineering, University of Texas at Austin.

--Graduate student: environmental engineering, University of Texas.

--Peace Corps language and cross-cultural training, Ponce, Puerto Rico - Spanish language

--Blacksmithing and tool-making workshop: Alexander Weygers, Carmel, California

--Speaker: National Sanitation Foundation, 4th Annual Conference on Individual Onsite Waste Water Alternative. Paper published in the proceedings: "Experiences with Compost Toilets".

--Articles in Farallones Institute Annual Reports 1976 and 1977.

--Article in Energy Primer, revised edition, on composting toilets.

BROT A. COBURN

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Seattle, Washington 98102

206-325-8760

AREAS OF EXPERTISE:

1. Bio-Gas
2. Nepal and India
3. Solar Cookers
4. Micro-Hydroelectric Generators
5. Indigenous Technologies, Firewood Replacement Technologies

BRIEF OF EXPERIENCES:

After college, Brot served in the Peace Corps from 1973-75. His work was as a vocational agriculture instructor for the Education Ministry of Nepal. He taught students some improved methods of cultivation, and assisted villagers in small scale reforestation and village development projects. Also during this time, he was awarded a small School Partnership Fund grant, sponsored by the School of Education, Stanford University, to pioneer Nepal's first two farmstead bio-gas digestors. During 1976 before returning to the Peace Corps field work, he spent a year researching appropriate technologies for developing countries. From 1976-1978 he worked with the Government of Nepal's Division of Soil Science and Agricultural Chemistry. He was the principal investigator for AID project, "Study of Energy Needs in the Food System". He designed and supervised the construction of an innovative women's community latrine/ bio-gas digestor system and organized a bio-gas training program for Peace Corps volunteers. Also, Brot evaluated the present rural domestic energy dilemma of Nepal and assisted the local people in formulating low technology alternatives. Throughout this time, he engaged in extensive correspondence with foreign development personnel on the technical,

political and social aspects of technology adaptation.

CURRENT PROJECTS:

He has just completed a brief consultancy for the World Bank and has written a background statement on sanitation in Nepal which will be used for reference in their Nepal component of UNDP Global low-cost Water and Sanitation Program. This program is designed to bring water and improved sanitation to all people by the year 2000.

Finally, he is submitting a "Proposal for Appropriate Technology Involvement in the National Parks of Nepal" to AID. It would involve doing a twenty month fuel consumption survey and field application of appropriate technologies in villages of Nepal's National Parks.

SKILLS AND ACHIEVEMENTS:

He received his BA in Social Relations in 1973 form Harvard College. He is fluent in Nepalese; and competent in French, Hindi, and Gurung. The following are his publications:

Karki, A.B., and Coburn, B.A. "The Prospect of Bio-gas as One of the Sources of Energy in Nepal." In Proceedings of the Tenth World Energy Conference. Istanbul, Turkey: September 1977.

Articles in Interaction (November 1976) and in The Rising Nepal (May 1977).

STEVE BLAKE

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Oskaloosa, Kansas 66066

913-597-5603

AREAS OF EXPERTISE:

1. Wind-Energy Resources
2. Site Selection for Wind Machines
3. Residential Wind Machines
4. Cost/Efficiency Analysis

BRIEF OF EXPERIENCES:

The organizing principle of Steve's work has been to build and nurture spirit. To this end, he has been working since 1972 to develop wind energy resources. This work has been done primarily through Sunflower, which is his power company dedicated to the development of wind resources for electrical generation. Sunflower has worked with Brace Research Institute of McGill University. Steve constructed the "Windworks", designed sail windmill which is for use in developing countries. A second project with Brace, he participated in the design and construction of passive solar dwellings for use by the Cree Indians of northern Quebec. Steve also has been contracted by Kansas State University, Kansas State Senate, D.O.E., and VITA. His project with VITA in 1978 was to present a seminar to a group of development workers from Honduras and Guatemala on the use of wind energy. His VITA association dates from 1975. Also in the last year, Steve consulted the World Bank on the economics of wind energy world-wide and assisted the D.O.E. in a demonstration program on residential size wind machines.

CURRENT PROJECTS:

He is working with ALCOA in constructing a working scale model of ALCOA's preproduction Darrius wind electric system. Also, he just provided the recommendations with regard to reconditioning an existing

hydroelectric system for parallel generation with the National Electrical System of Costa Rica.

SKILLS AND ACHIEVEMENTS:

Steve received his BA in Philosophy from University of Kansas in 1968 and his MA in Geography in 1974. He has travelled extensively in the rural areas of Guyana, Brazil, Colombia, Costa Rica, Nicaragua, Honduras, El Salvador and Belise. He speaks Spanish fluently. In 1972 he founded Sunflower, a power company, dedicated to the development of wind resources for electrical generation; and also the Appropriate Technology Group (ATG), which is a non-profit organization working for the development of wind energy resources in developing countries. Since 1975, he has lived in a small house in the country with a hand pump for water and a wood stove for heat. The following are some of his writings:

"Wind Driven Water Pumps; Economics, Technology, Current Activities"; a report prepared for the World Bank; December, 1978.

"Geographical Parameters Affecting the Selection of Sites for Wind Energy Conversion Systems"; Master's Thesis, Department of Geography-Meteorology, Kansas University; June, 1974.

"A Framework for Selecting and Evaluating Sites for Small Wind Energy Conversion Systems"; a paper presented at the Sixth American Wind Energy Association Conference; Boulder, Colorado; May, 1977.

"Savonins Rotor Wind Turbines"; Wind Power Digest. Fall, 1975.

"Report on the Sail Windmill Development Program", Brace Research Institute Report No. L-87; April 1975.

HENRY W. ESBENSHADE

International Tree Crops Institute
Route 1, Box 378
Woodland, California 95695

916-662-8375

AREAS OF EXPERTISE:

1. Propagation and nursery development
2. Planting and management of agro-forestry systems
3. Multi-cooperator agro-forestry systems
4. Small-scale intensive farming on marginal lands
5. Apiculturalist, including queen breeding

BRIEF OF EXPERIENCES:

He was born on a family citrus farm and his interests in agriculture have continued. He served as an extension agent for the Ministry of Agriculture in Sierra Leone during two years of Peace Corps work; thereafter, worked with European farmers who have been innovative in appropriate technology and ecological agriculture. He returned to complete an MA in geography at the University of California, Davis, with special emphasis on agro-forestry in Mediterranean environments. His primary concern has been with the varied cultural uses of marginal and eroding lands throughout the semi-arid and arid world. He represented the International Tree Crops Institute at the U.N. Conference on Desertification (Nairobi, 1977) and subsequently conducted a survey with the assistance of the Ministry of Rural Development in Lesotho, Southern Africa, on the potentials for developing an agro-forestry system of management for their eroding croplands. Returning to U.S.A., Henry worked with the University of California Agricultural Economic Department as Staff Research Associate on evaluation of desertification impacts.

CURRENT PROJECTS:

He is developing an agro-forestry nursery and research center in California which will become a possible model for other regions, serving as a member of committee developing a windbreak handbook for the state of California in cooperation with U.S. Soil Conservation Service. Also, he is collaborating with a mechanical engineer in design, construction and use of a small-scale low-energy demanding carob pod kibbling device which will be used on a ranch in Mexico (testing of initial design began with '78 carob harvest). Henry serves as the President of Davis Appropriate Technology Group, which is currently renovating a typical suburban home, adding solar heaters, crop driers, greenhouse, etc., and is partner in a diversified vegetable and orchard crops business.

TYPICAL ACHIEVEMENTS:

Energy Fair coordinator for University Extension conference with Dr. E. F. Schumacher.

David Appropriate Technology Group, founder.

Davis Farmers' Market, founder.

Friends of the Earth, board member.

Co-author: "The Development of Tree Crops for Agroforestry Systems" presented at Seventh World Forestry Congress, Djakarta, Indonesia (1978).

Co-author: "Multipurpose Tree Crops: Their Potential Role in Agriculture and the Conservation of Rural Environments" presented at International Federation of Organic Agric. Movements Conference on Basic Techniques in Ecological Agriculture, Montreal, Canada (1978).

THOMAS B. FRICKE

2284 Ivy Lane
Santa Cruz, California 95062

AREAS OF EXPERTISE:

1. Ecosystem Management
2. Intensive Horticulture
3. Organic Farming
4. Freelance Journalism

BRIEF OF EXPERIENCES:

After finishing his BA in Urban Design, he spent two years as a Village Technical Volunteer and Vocational Therapist in Bali, Indonesia, through Volunteers in Asia. He helped train health care personnel with projects involving methane digestors, solar heaters, intensive agriculture schemes, and sanitation projects. Following these two years, he spent 1976 working as a staff member at Ecology Action on their on-going project, a Biodynamic/French Intensive research garden. He also worked as a systems technician at the Integral Urban House of Farallones Institute which included construction and maintenance of food production systems, waste nutrient recycling, and renewable energy sources. Moving to the east coast, he worked as a journalist and photographer at Small Farm Research Group in Harborside, Maine. His main work was the documentation of the European Organic Farm Tour.

CURRENT ACTIVITIES:

He is the Project Research Coordinator for the Santa Cruz Farm Project of the University of California. He is responsible for field operations of the research project, "Environmental Monitoring of an Intensive Organic Horticulture System", which is sponsored by N.C.A.T. In some other work, he is currently consulting the United Indian Planners Association of Washington, D.C. on a program for self-reliance on Native

American reservations, especially by using AT in food production. He also does volunteer consulting with Socarro Valesco, Instituto Nacional Indigenista of Mexico. Most of this work concentrates on community composting, intensive gardening, and resource access.

SKILLS AND ACHIEVEMENTS:

He earned an MS in Ecosystems Management in June 1978 from Antioch University/West. He is fluent in German and English, and proficient in Spanish and Indonesian. During 1977 he undertook an intensive apprenticeship in toolmaking and blacksmithing as well as studying/working on housing construction at an Owner-Builder Center. Mr. Fricke also has experience as a freelance journalist and travelling correspondent in most South American countries. Since 1977 he has been associated with VITA as a volunteer consultant. The following is a partial list of publications which he has authored.

Fricke, Thomas B., Pedoman Membangun Digestor, a practical methane plant construction manual, 25 pages, Pekanbaru, Sumatra, Indonesia; October 1975 (In Indonesian).

_____ "Methane and Agriculture Sections", Appropriate Technology Sourcebook, 2nd Edition, a Volunteers in Asia Publication, Stanford, California; November 1976. (Contributing Editor) 3rd Edition, Stanford, California; February, 1979. (Contributing Editor)

Fricke, Thomas B. and Javits, Tom, "Grey Water Use in the Home Garden", 20pps., Farallones Institute, Berkeley, California; February, 1977.

Fricke, Thomas B. and Javits, Tom, "Greywater Guidelines", RAIN Magazine, pps. 12-14, Portland, OR; March, 1977.

Fricke, Thomas B. and Bunnell, Sterling, "An Urban Savonius Aquaculture System", in Wind Power Digest, pps. 10-14, Bristol, Indiana; Fall 1977 Issue.

_____ "Urban Wind Power--The Savonius Rotor", in Farallones Institute Annual Report, p. 25, Occidental, CA; January 1978.

DANIEL A. HUNTINGTON

META Publications
P. O. Box 128
Marblemount, Washington 98267

206-873-4303

AREAS OF EXPERTISE:

1. Information Networking
2. Professional Business Management
3. Procedures for AT Publications and Cataloguing
4. AT Structural Design and Construction

BRIEF OF EXPERIENCES:

He received his BA from Yale University and his MBA from Michigan State University. For two and one half years, he was a Peace Corps Volunteer in Guatemala (1967-70). He worked in a community development program on the management, production and marketing for an 80-member rabbit cooperative. He is experienced in small business development and operation; started several restaurants, an arts and craft shop; mail-order business, and has provided graphics, marketing and bookkeeping services. He was instrumental in forming a local consumers' cooperative of sixty families. (This project included the writing of incorporation papers), a forestry contract cooperative (90 members) and a non-profit community action corporation. He designed and helped to build a 2500 square foot restaurant from the ground up. He was especially responsible for architectural design, electrical and plumbing systems, kitchen layout, and walk-in refrigeration construction. At present, he is maintenance person for these.

CURRENT PROJECTS:

Currently, he directs and operates (META) Publications. He co-manages with nine other individuals a cooperatively owned restaurant which is open May through October each year. He is in the midst of

designing and building a house-shop-office complex for himself which will have both passive solar and wood heating systems. He engages in other miscellaneous income-generating activities including accounting and graphics services for local businesses in this rural community.

SKILLS AND ACHIEVEMENTS:

He is a professional accountant with business management experience as well. He speaks fluent Spanish and basic German, and has travelled extensively including Europe, Central America, Caribbean and northeast South America. He commands practical skills in carpentry, plumbing, electric installations, construction, concrete work, appliance repair and maintenance gardening. At present, he serves as a Director of the Center for Appropriate Regional Development which concentrates on community action and education programs centered around appropriate technological development in the northwestern section of Washington State.

IANTO EVANS

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Eugene, Oregon 97402

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AREAS OF EXPERTISE:

1. Ecological Land Use
2. Appropriate Construction Technology
3. Solar Collectors and Technology
4. Fuel-Conserving Stoves
5. Alternative Teaching Methods

BRIEF OF EXPERIENCES:

For a total of four years, he was the landscape planner to New Towns Commission of Oregon. During 1976 and 1977, he was the Director of the Appropriate Technology project, Estación Choquí, in Guatemala. This project dealt with sandmass stoves, solar water heaters, low-cost earthquake resistant housing. He has also done studies on landscape evolution and how human use changes rural and urban locations. These studies were conducted in Guatemala, Ireland, Wales, England, North America and Mexico. After their earthquake in 1976, he served as a Reconstruction Supervisor in Guatemala.

CURRENT PROJECTS:

At the Aprovecho Institute, he is currently working on the further development of the "Larena" cookstove and developing designs for tiny houses built with local materials at a low cost. He studies how deforestation for firewood use creates erosion, soil loss, climatic changes and social disruption. On a broader approach, he is conducting an investigation of alternatives to conspicuous consumption, and demonstrating the dignity and fulfillment of simpler, less consumer-based lifestyles.

SKILLS AND ACHIEVEMENTS:

He speaks good Spanish, poor French and can read Italian and Portuguese with difficulty. He provides consultations in several countries on land-use potential, especially land-based communities involving low-technology land stewardship. He is also a Professor of Landscape Architecture at Oregon State University teaching energy-conscious design, neighborhood planning, perception and awareness of the environment. The following are his two major publications: Planning Solar Neighborhoods (co-authored) which is the first book to address the problems of solar energy as a determinant of urban form; and The Owner-Built Lorena Stove, which is a construction manual for sandmass fuel-conserving cookstoves.

DAVID KATZ

1800 Joy Ridge Rd.
Occidental, California 95465

707-874-2334

AREAS OF EXPERTISE:

1. Agricultural Production and Management
2. Biological Agriculture
3. Integrated Pest Management
4. Educational and Training Programs

BRIEF OF EXPERIENCES:

Eight years experience in agriculture including experience as manager of 1000 acre commercial farm, then self-employed on 120 acre family farm. Also experience as consultant on planning and management in a variety of agricultural operations. Considerable management and project development experience as director of the Antioch College West Farm Program and as Executive Director of the Farallones Institute. These positions contributed to a comprehensive working knowledge of technical subjects such as solar design and application, waste water management, agricultural production, light and heavy construction, as well as a high degree of competency in administrative areas such as fiscal planning and management, fundraising, executive decision making, program development of technical assistance and training programs, and working with staff and outside personnel.

Program development work and public service has led to considerable experience in working with government officials in local and federal levels.

CURRENT PROJECTS:

Director of the Center for Sustainable Agriculture, a project that is developing training center for new entry and other small farmers in California. The Center will also be involved in technical assistance work, research and technology development, and in influencing public policy.

TYPICAL ACHIEVEMENTS:

In 1972, he received his BS in Agroecosystem Dynamics from the University of California-Davis and for the following two years lectured there and at Sonoma State University on methane recovery and waste management systems. In 1977 he was a member of the Small Farm Viability Task Force for the State of California as well as a member of the Chancellor's Task Force on Critical Issues for Agriculture in the 1980's for University of California-Davis. He is currently a member of the Reclamation Board for the State of California, elected President of the Board in 1978. Governor Jerry Brown had appointed David to the Board in 1976. He also is fluent in Spanish.

LUCY POULIN

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Orland, Maine 04472

207-469-7961

AREAS OF EXPERTISE:

1. Rural Development
2. Community Organizations
3. Cottage Industry Employment

BRIEF OF EXPERIENCES:

Lucy is the Founder and had been the Manager for 7 years of the Hillside Farms Inc., now called Downeast Equestrian Center, Fairfield, Maine. This is a multi-purpose center training horses and riders. After this, she founded and has managed H.O.M.E. in Orland, Maine. H.O.M.E. is a multi-purpose community organization engaged in social and economic development. She has been involved in this for seven years. She also managed farm development at St. John of the Cross in Bucksport, Maine. It included all phases of sheep farming including construction of barns and living quarters; and operation repair and care of farm machinery.

CURRENT PROJECTS:

She is President of H.O.M.E. and Director of Family Farms Project, which is a rural land trust development in Orland, Maine.

TYPICAL ACHIEVEMENTS:

She studied co-operative management at Coady Institute, Antigonish, Nova Scotia, and took marketing, management and anthropology training at University of Maine at Orono. Presently she is a member of the Maine Commission on the Humanities and Public Policy and the Northeast Action-VISTA Consortium.

CATHERINE TRACY

Box 161A Star Route
Bucksport, Maine 04416

AREAS OF EXPERTISE:

1. Spanish interpreter
2. Counselling
3. Outreach work

BRIEF OF EXPERIENCES:

She began her work in the outreach field in New Jersey as an interpreter among the blacks and Puerto Ricans. When she moved to Maine she was hired as the outreach worker at H.O.M.E. Inc. During the course of her five years in this work, she has handled suicide cases, drug overdoses, family crises, assistance for the elderly, transportation, recruiting for adult basic education programs, child abuse, assistance to families where death has occurred, assistance to AFDC mothers with the state and local town officials, 24 hour baby sitting, child care for families in crisis, and general counselling to those who need it.

CURRENT ACTIVITIES:

She still is in the outreach program at H.O.M.E., which is involved in all of the above and other activities as well.

TYPICAL SKILLS AND ACHIEVEMENTS:

She has no formal training for the kind of work which she is doing except for workshops run by the State Department of Health and Welfare.

She has no patents, publications; her achievements have been the successful assistance that she has given to over 400 clients and families.

KENNETH D. SMITH

1572 49th Street
Sacramento, California 95819

916-456-9470 or 322-9654

AREAS OF EXPERTISE:

1. Biogas Systems
2. Wood Combustion, especially small scale residential
3. Solar Greenhouses

BRIEF OF EXPERIENCES:

After receiving his BBA from the University of Texas at Austin in 1971, he did graduate work in solar energy and conservation for communities at the School of Architecture and Planning in Austin. During 1973-74 he was assistant director at the Laboratory for Maximum Potential Building Systems at the University. He coordinated students in the design, construction and operation of a waste recycling system. He often gives lectures and seminars on this topic. For the last four years Ken has been involved with AT projects for solar technology and biogas systems in Washington, Oregon, and Montana. He also serves as Director of Operations and a Board member of the Ecotope Group in Seattle, Washington. Ecotope is a non-profit corporation which does research and development of solar energy applications.

CURRENT PROJECTS:

Since 1978, he has been the Manager of Design Team in the Governor's Office of Appropriate Technology in Sacramento, California. The Design Team is a six member professional group with the primary function of assisting and encouraging state agencies to implement resource conserving technologies, including solar, wind, biomass, material recycling and waste treatment applications. He is also involved in projects for retrofitting a commercial greenhouse for solar heat recovery and conducting a mobile biogas demonstration.

ACHIEVEMENTS:

He has developed the preliminary plan and construction of a 100,000 gallon methane demonstration project in 1974-75. In Bothell, Washington, he designed and constructed a solar heated greenhouse for the Energy, Food and You Program. The following year, 1977, he developed the first program for preferential loans for solar energy applications in the nation. The same year he helped to write the F.E.A. Energy Conservation Plan in biomass conversion assessment. The following is only a partial list of his publications:

Smith, K.D., "Operation of an Anaerobic Digester at the Washington State Dairy Farm", Energy From Biomass And Waste, Symposium Papers, Institute of Gas Technology (IGT), Chicago, IL (Aug. 1978)

Smith, K.D., "Methane Systems: Principles and Practice," Energy Primer, Solar, Water, Wind, and BioFuels (Updated and Revised May 1978), Dell Publishing Co., N.Y., 10017

Gage, T. and Smith, K.D., "Efficient Heating with Wood", Energy Primer, Solar, Water, Wind, and BioFuels (Updated and Revised May 1978), Dell Publishing Co., N.Y., 10017

Johnson, L.L., Reichmuth, H.S. and Smith, K.D., The Prospect of Solar and Wind Power as Energy or Water Conservation Measures in the Columbia River Basin, Prepared for Skidmore, Owens and Merrill, Portland, OR and Bonneville Power Administration, Ecotope Group, Seattle, WA, March 1975.

Smith, K.D., "75 KW Windcycle", Alternative Sources of Energy, May, 1974.

DR. ELEANOR M. SABOSKI

College of Environmental Design
University of Colorado
Boulder, Colorado 80309

303-492-5015 or 492-7711

AREAS OF EXPERTISE:

1. Biology/Toxicology
2. Ethnobotany
3. Greenhouses--Use and Design
4. Nature as a Design Model

BRIEF OF EXPERIENCES:

She earned her BS in Botany in 1965 and her MS in Biology in 1967 from State University of New York at Albany. She taught elementary school before joining the Peace Corps in 1963 and going to Bangladesh for 2 years. After completing her PhD in Botanical Sciences from University of Hawaii and some post-doctoral research in Honolulu, she began teaching at the College of Environmental Design at University of Colorado. Her involvement with AT was begun strictly by circumstance. Due to her background and knowledge of the limits to natural resources, she became involved with AT. Her teaching covers Ecology/Resource Analysis, Materials and Nature as a design model.

CURRENT PROJECTS:

She is involved with the development of a retrofitting project called "House of Essentials." She is designing a greenhouse seminar program involving the design and function of high altitude greenhouses. This program will be published in a manual this year.

ACHIEVEMENTS:

In 1974, she was awarded a travel grant by the Pacific Tropical Botanical Society of Lauai, Kauai, Hawaii, and in the following year received an Environmental Research Grant at the University of Hawaii. In Colorado, she is a member of the Animal Rights Group which works on the relocation efforts for black-tailed prairie dog colonies which are threatened by destruction.

JOHN McBRIDE

N.C.A.T.
Box 3838
Butte, Montana

406-723-5474 (w) 494-3769 (h)

AREAS OF EXPERTISE:

1. Technology Assessment
2. Energy Conservation Technology
3. Research Management and Administration

BRIEF OF EXPERIENCES:

John earned two graduate degrees which dealt with the environment, chemistry and physics. During these years, he was Coordinator of Student Environmental Research Center at University of Montana. He designed and directed several air and water pollution studies. Later John participated as an Administrative Officer in a National Science Foundation study on the environmental and socio-economic impacts of coal development in Eastern Montana. In 1976-1977 he was Project Manager in the development of the Montana Energy Conservation Plan for MERDI.

CURRENT PROJECTS:

He is Director of the Technical Research Staff for N.C.A.T. The staff consists of about thirty indivudals from the Montana Energy Institute (MERDI) and they conduct research and provide technical assistance to N.C.A.T. and its programs.

TYPICAL ACHIEVEMENTS:

John studied mathematics as an undergraduate at Westminster College of Pennsylvania and finished his BS in 1968. After this he completed two more degrees; an MS in Chemistry and Physics in 1971 and an MS in Environmental Studies in 1973. Both masters are from University of Montana at Missoula. He has written numerous publications related to appropriate technology, environmental impacts and energy development.

RONALD J. KRUPICKA

P. O. Box 102
Hartington, Nebraska 68739

402-254-6893

AREAS OF EXPERTISE:

1. Forestry and Natural Resources (Soils, Water, Range Plants)
2. Small Scale Farming
3. Community and Regional Planning
4. Alternative Energy
5. Extension and Transfer of Information

BRIEF OF EXPERIENCES:

He was born, raised and worked on father's small diversified farm near Niobrara, Nebraska. BS in Forestry University of Missouri-Columbia, MS in Natural Resources U. of Nebraska, and Masters of Community and Regional Planning candidate U. of Nebraska, classwork completed and presently writing thesis. He assisted in a training program for Natural Resources Districts by helping them in the development of their one and five year plans. He conducted research into the conflicting land uses in Nebraska. Under a grant from Title V of the Rural Development Act of 1972 a 3 year education effort was undertaken to inform the citizens of Nebraska about Land Use Issues. He was responsible for making the arrangements for the workshops, recruiting resource personnel, researching the issues, and conducting discussion groups made up of Nebraska citizens.

CURRENT PROJECTS:

He is co-director of the Small Farm Energy Project for the Center for Rural Affairs. Under a research and demonstration grant from the Community Services Administration, a three year project is under way to transfer alternative energy innovations of all types to twenty-four full-time, low income, small, conventional farms located in Cedar County,

Nebraska. Daily activities include education, design, construction, research, and administration.

TYPICAL ACHIEVEMENTS:

He has travelled by auto from Alaska to Florida and has visited twenty European countries and nine South American countries by bus and train.

DAVID OLSEN

New School for Democratic
Management
589 Howard Street
San Francisco, California 94105

AREAS OF EXPERTISE:

1. Assessment of Organizational Needs
2. Management for Small Organizations
3. Micro and Macro Economic Analysis
4. Political Theory and Strategy

BRIEF OF EXPERIENCES:

After teaching in a California high school in 1969-70, David spent two years with the Africa Research Group of Cambridge, Massachusetts. His research and speaking focused on multi-national corporations, development economics, social theory, and U.S. foreign policy. During 1974 he taught political philosophy at Tufts University and the following year served as Research Director of the Human Affairs Program at Cornell University. While at Tufts, he was a Board Member of the Haymarket Foundation which disbursed over $250,000 a year to non-profit cooperatives. It was here where he saw the high failure rate among alternative business organizations due to their lack of business-management skills. This experience, his economic and political knowledge and his belief in the credibility of democratic management in business led him into his present activity, The New School for Democratic Management (N.S.D.M.).

CURRENT:

He is the Founder and Executive Director of N.S.D.M. in San Francisco. He is also the chief financial and administrative officer of this school which is pioneering the development of socially committed business education.

ACHIEVEMENTS AND SKILLS:

He received his AB in Humanities from University of California at Berkeley in 1968 and six years later received his MA in English from

University of Massachusetts in Boston. In the early 1970's he travelled extensively in Africa through the Africa Research Group. He speaks French and has a reading capability in German, Italian and Spanish. The following are some of his important publications:

Books

Race to Power: the Struggle for Southern Africa. Co-author with the Africa Research Group. Doubleday, 1974. (First published by ARG, 1971.)

Magazine Articles

"On Controlling Technology," Skeptic: the Forum for Contemporary History (May-June 1974), p. 66.

"American Power and Southern African Liberation," Presence (Africa), Vol. iv, No. 3 (1971), p. 12. (Co-author with Africa Research Group.)

"La 'Vietnamization' Economique du Tiers Monde," AfricAsia No. 14 (April 1970). (Co-author with Africa Research Group.)

"The Challenge Ahead: New Shapes, New Ways," Executive, Spring 1977.

Pamphlets

"International Dependency in the 1970's: How America Underdevelops the World," Africa Research Group, 1970.

CHARLES WING

Cornerstones
54 Cumberland Street
Brunswick, Maine 04011

207-729-0540

72 Jordan Avenue
Brunswick, Maine 04011

207-729-3501

AREAS OF EXPERTISE:

1. Self-Help Housing
2. Passive Solar Heating
3. Solar Greenhouses
4. Retrofitting
5. Energy Audits

BRIEF OF EXPERIENCES:

From 1966-69, he was a Research Associate at MIT during which time he developed a surface-ship gravity meter for the Office of Naval Research. After this, he served as Principal Investigator for NASA Apollo 17 experiment, Lunar Traverse Gravimeter. It was during his teaching tenure at Bowdoin College that house construction became an interest. In 1973, he taught a Senior Seminar in which the professor must teach a subject about which he knows nothing. Charles chose housing. At that time he met John Cole, and together they founded The Shelter Institute in 1973. The institute trains individuals on how to design and build an efficient appropriate house. In 1976, he started Cornerstones School for Energy-Efficient Building in Brunswick, Maine.

CURRENT:

He is director of Cornerstones and is also writing his third and fourth books on owner-builder passive solar plans and how to insulate your home. He is developing a commercially marketable attached solar greenhouse for the North East Solar Energy Center as well as organizing a system to handle 200 to 300 energy audits per week for a consortium of oil dealers.

ACHIEVEMENT:

He received his BS in Physics from Bowdoin College in 1961 and his Sc. D. in Physicial Oceanography from M.I.T. in 1966. He also is a member of Phi Beta Kappa and was a National Merit Scholar. The following are his major publications:

From the Ground Up; co-authored with John Cole, editor of the Maine Times; Atlantic, Little-Brown. Subject: low-cost, energy-efficient for the owner-builder, 1976.

"Insulating Shutters That Work", Organic Gardening and Farming, November, 1977.

"Consider the R-Value", Country Journal, April, 1978.

From the Walls In; Atlantic, Little-Brown, Dec. 1978. Subject: retrofitting of existing housing for energy-efficiency.

SYLVIA BLANCHET

2284 Ivy Lane
Santa Cruz, California 94062

408-476-0180

AREAS OF EXPERTISE:

1. Environmental Education
2. Intensive Horticulture for L.D.C.'s
3. Handicrafts and Cottage Industries
4. Historical Anthropology
5. Environmental Landscaping

BRIEF OF EXPERIENCES:

She has had a diverse array of activities directed towards acquiring skills and expertise in the areas of intensive food production, environmental education for children and adults, and cottage industries. She has been exploring new dimensions for women in particular vis-a-vis appropriate technology, and seeking to stimulate further critical involvement by women in this movement. Responsibilities have included operations manager of an 18th century living history museum, trainee for an agricultural development project for developing countries, environmental educator and curriculum writer for a school district, commercial nursery assistant manager, and working partner in a women's "integral landscaping" cooperative in Berkeley, California.

CURRENT PROJECTS:

1. Originator of an innovative elementary school garden project in Scotts Valley, California.

2. Homesteading in a 5-acre market garden near Santa Cruz, California.

3. Expanding knowledge in natural family planning, natural childbirth, midwivery, and prenata/infant/mother nutrition as a result of own and shared childbirth experiences.

4. Personal cottage industry projects including dried floral arrange-

ments, herbal sachets, innovative marketing techniques, etc.

5. Ongoing projects: consultation with VITA, Farallones Institute, N.C.A.T., etc.

TYPICAL ACHIEVEMENTS:

1. Delegate to a two-month international conference on "Social Aspects of Scientific and Technological Advancement", with representatives from the U.S., U.K., and U.S.S.R., in Britain, 1975.

2. Completed a 16 week housing construction course and a workshop on the construction of passive solar greenhouses in Berkeley, California, 1978.

3. Community Gardens facilitator for low-income people, Santa Barbara, California, 1976, while a Direct Relief Foundation intensive food production trainee for developing countries.

4. Photographer for a two-month European tour of organic farms, with the Small Farms Research Group, Harborside, Maine, 1977.

5. Operations Manager responsible for researching and reconstructing an exact replica of an 18th century colonial farm, Edgemont, Pennsylvania, 1975-76.

WILLIAM OLKOWSKI, Ph.D.
HELGA OLKOWSKI, M.S.

Co-directors, Center for the Integration of the Applied Sciences, John Muir Institute
1307 Acton Street
Berkeley, California 94706

415-524-8404

AREAS OF EXPERTISE:

1. Integrated Pest Management (IPM)
2. Biological Control of Insects
3. Organic Waste Management
4. Small-Scale Food Production

BRIEF OF EXPERIENCES:

For the past ten years, first as Research Associates of the University of California, and recently as directors of a Center of the John Muir Institute, they have been developing alternative methods of pest and waste management for communities and State and Federal agencies. They have specialized in reducing pesticide use in a variety of settings and in demonstrating environmentally sound food production methods utilizing organic wastes.

CURRENT PROJECTS:

They are currently developing integrated pest management systems dealing with insect, weed and rodent problems in four California communities and the State Dept. of Water Resources. They have undertaken a state-wide survey of urban pest problems for the State Dept. of Agriculture, a national survey of natural enemies of shade tree insect pests for the E.P.A., and numerous slide show and writing projects dealing with their field of expertise.

TYPICAL ACHIEVEMENTS:

They were among the group that started the Berkeley Ecology Center. They were responsible for starting the first community-wide recycling center. They started the student garden at the University of California, Berkeley, and the associated class, Urban Garden Ecosystems, to demon-

strate environmentally sound methods of small-scale food production. They were among the founding members of the Farallones Institute and they initiated and guided the development of the Integral Urban House: they have written two books and numerous articles and pamphlets on pest and waste management and food production. They edit and publish a newsletter on IPM. The following is a partial list of these works:

1977. Managing Flies Around Rabbit Systems. North Country Star, February-March, 1977. P. 4.

Olkowski, H. and W. Olkowski. An Easy Plan for Making Hot Compost. Horticulture Magazine, Massachusetts Horticultural Society, Boston, Mass., March, 1977. Pp. 46-48.

Olkowski, W. et al. 1978. Urban Integrated Pest Management, in: Pest Control Strategies. D. Pimental (ed.). Academic Press.

Olkowski, W., H. Olkowski, A. Kaplan, R. van den Bosch. 1978. The Potential for Biological Control in Urban Areas: Shade Tree Insect Pests, In: Perspectives in Urban Entomology. J. W. Frankie and C. S. Koehler. Academic Press.

Olkowski, H., W. Olkowski, K. Davis, L. Laub. 1978. Developing an Integrated Pest Management Program for a School District. Proceedings of the XII Annual Conference of the Association of Applied Insect Ecologists, Newport Beach, California.

Olkowski, W., H. Olkowski and T. Javits. The Integral Urban House, book to be published Summer, 1979 by Sierra Club Books, San Francisco.

Olkowski, H., and W. Olkowski. City Peoples Book of Raising Food, 1975, Rodale Press, Emmaus, Pennsylvania.

PAGE NELSON

Integral Urban House
1516 5th Street
Berkeley, California 94710

415-524-9040

AREAS OF EXPERTISE:

1. Passive Solar Design (Solar Greenhouse Design)
2. Carpentry
3. Ecological Agriculture
4. Information Networking
5. Community Organizing

BRIEF OF EXPERIENCES:

After completing college, Page spent 3 years as an independent carpenter/contractor and traveller in the United States and Mexico. He assisted Earle Barnhart at The Alchemy Institute for one year working on bioshelter passive solar design, wind generators and agricultural forestry. Since December 1978, he has been with Farrallones Institute's Integral Urban House.

CURRENT PROJECTS:

He is House Manager of the Integral Urban House with the responsibility for on-site ecosystem management and coordination of various educational, research and maintenance activities. He is also working with David Katz to establish the Center for Sustainable Agriculture, which will be a new center of Farallones Institute. He is developing an ecological horticulture consulting, design and installation service for the Farallones Institute.

TYPICAL ACHIEVEMENTS:

He received his BA in Anthropology from Yale University and presently is enrolled in the Ecosystem Management MS program of Antioch University.

ELIZABETH COPPINGER

Ecotope Group
2332 East Madison
Seattle, Washington 98112

206-322-3753

AREAS OF EXPERTISE:

1. Anaerobic Digestion
2. Aquaculture
3. Solar Greenhouses
4. Home Energy Conservation
5. Solid Waste and Sewage Treatment Literature

BRIEF OF EXPERIENCES:

She has a degree in chemistry from the University of Washington, and is presently a corporate officer of Ecotope Group, an organization that performs research and education in the areas of energy conservation, renewable energy and appropriate technology. She is managing a technical, mechanical and secretarial staff on a research project of full-scale digestion, and has a working knowledge of digester system designs, operation, hardware, and economics.

This research is conducted as part of the DOE Fuels from Biomass program, so consequently she is in contact with the current research being conducted around the country. She has conducted field research on a passive solar heated aquaculture greenhouse with primary responsibility for the aquaculture system. She has also prepared a publication on alternatives to centralized solid waste and sewage treatment.

CURRENT PROJECT:

Elizabeth Coppinger is currently managing a research project with a full-scale digester on a 200-head dairy farm. Research center on examining the versatility of anaerobic digesters for farms by working to reduce systems capital cost, minimize operation and maintenance time, maximize net energy, and investigating gas handling and utilization systems.

DAVID STEA

2391 Van Ness
Eugene, Oregon 97403

AREAS OF EXPERTISE:

1. Social and Environmental Impact Analysis
2. Urban and Rural Planning
3. Environmental and Engineering Psychology.

BRIEF OF EXPERIENCES:

In the late 1950's, he was a Mechanical and Aeronautical Engineer, and a Human Factors Engineer for the Douglas Aircraft Corporation and the Sandia Corporation. After one year as Engineering Psychologist at Lockheed Space Corporation, he continued his schooling and received his Ph.D. from Stanford in 1964. During these years he also pursued studies in architecture. Since 1964 a large part of his life has been spent teaching psychology, geography, architecture, and urban/rural planning. He had a prime interest in how very small children came to understand, or cognize, the environment around them. This research was crosscultural, and he travelled to several Third World countries. His interest in AT was aroused by experiences with Latin American urban squatters from 1966 through 1970, with desert nomads in 1968 and 1969, and with their innovative use of resources.

CURRENT:

He is now at the School of Architecture and Allied Arts at University of Oregon at the Center for Environmental Research. Since 1974 his major line of activity has been working toward changing the direction of American Indian housing and housing policy. This has caused him to consider the social and cultural aspects of AT more seriously. Another of his AT interests is the importation of innovations developed in the Third World

for possible application in the U.S.A. Since arriving in Oregon he has joined Aprovecho, which is pursuing the same goal.

ACHIEVEMENTS:

He received his BS from Carnegie Institute of Technology in 1957, his MS in psychology from University of New Mexico in 1971, and completed his Ph.D. at Stanford in 1964. He is fluent in French and Spanish, with communicating ability in Portuguese and Italian. He also enjoys technical and journalistic writing and illustration, including cartoons. The following is a partial list of his publications:

Stea, D. La conducta humana y el diseño urbano. Revista de la sociedad Interamericana de Planificacion, 1968 (September), 12-16.

Downs, R. M. and Stea, D. (eds.) Image and Environment: Cognitive Mapping and Spatial Behavior, Chicago: Aldine, 1973.

Stea, D. "Cultural change and the values of environmental designers", in Buvinic, Mayra (ed.) American Values and Habitat: A Research Agenda. Washington, D.C.: American Association for the Advancement of Science, 1976.

Snyder, P. Z., Stea, D., and Sadalla, E. K. Socio-Cultural Modifications and User Needs in Navajo Housing. Journal of Architectural Research, 1976, 5 (3), 4-9.

Sadalla, E. K., and Stea, D. The City and Human Experience (Special issue of Environment and Behavior, Beverly Hills, California: Sage Publications, in press).