Arid/Semi-Arid Natural Resources Program

APPROPRIATE TECHNOLOGY FOR NATURAL RESOURCES DEVELOPMENT:
An Overview, Annotated Bibliography, and A Guide to Sources of Information

by

Robert L. Bulfin and Harry L. Weaver

The University of Arizona
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-RLB

Department of Systems and Industrial Engineering, University of Arizona, Tucson

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SYNONYMS FOR INTERMEDIATE TECHNOLOGY

AND RELATED CONCEPTS

adaptive technology
  alternative technology
  applied technology
  appropriate technology
  constructive technology
  cumulative technology
  human-scale technology
  invisible technology
  labor-intensive technology
  low impact technology
  rural technology
  simple technology
  socially appropriate technology
  technology and culture
  technology with a human face
  village technology
INTRODUCTION

The purpose of this paper is to acquaint the interested reader with the subject matter commonly referred to as Intermediate Technology (IT). While the annotated bibliography (Appendix B) might be sufficient to accomplish this goal, it would be an arduous task for the reader to peruse all the material included. Thus, the paper is an attempt to capture the essence of the subject by providing an overview, with the bibliography used to obtain additional details. For those who wish to pursue the subject beyond the citations presented in the bibliography, Appendix A, a guide to the sources of information (i.e. indices, journals, and practicing organizations) on Appropriate and/or Intermediate Technology, is included.

It has always been recognized that technology could be used to aid developing countries, and although the type of technology used or proposed for this purpose has spanned the entire technology spectrum, it has tended to emphasize the most modern. Intermediate Technology (IT) represents a point on this spectrum currently receiving much attention, its exact definition varying, depending upon who is asked to define it. Here we have attempted to synthesize the views of its many practitioners into a coherent thematic framework of IT, arguing a particular outlook generally in support of the concept of appropriate technology. While we also present the reported arguments against intermediate technology, we nevertheless take the position that given the correct set of circumstances, intermediate is indeed appropriate.

A brief history of the development of IT is given, followed by its thematic framework. Examples of IT in developing countries are then presented to familiarize the reader with the breadth of applications. The question, Is Intermediate Appropriate? is also discussed.

It has been stated that appropriate and intermediate technology is more a philosophy then a particular technology. To some degree perhaps all technologies reflect the execution of a principle, and while we do not wish to impose our articles of faith on you, our readers, we do recognize that each application of technology requires a fit with the specific problem: the people, the environment, the economics, the power available, the politics. The ideal technological solution to a problem in southern Arizona will quite likely need adaptation to solve the same problem in Bangladesh, Paraguay, or Togo.
SOME HISTORICAL COMMENTS

As early as the 1880s Petr Kropotkin was extolling the virtues of the basic philosophy of Intermediate Technology (IT). He felt that geographic specialization of production (e.g., concentrating the world's coffee production in South America) leads to exploitation. He thought that food should be grown and items manufactured for the use of the very people who grow and produce them. His notion that small industries and farms sustain and make possible economic progress was based on the study of American and Russian "village" economies during the Nineteenth century (146).*

In 1948 the concept of "village technology" as a development strategy for India was expressed by Gandhi (91). Stated in terms of Swadeshi, it presents a philosophy explained as a striving to identify oneself with all of creation and, in so doing, dedicating oneself to the service of one's immediate neighbors. Swadeshi manifested itself by emphasizing a return to making Kahdi (traditional Indian cloth) on a small scale by traditional means, the spinning wheel and hand loom. The concept was not limited to Kahdi only but included the manufacture of basic consumer goods as well. Additionally, Gandhi encouraged people to patronize their village industries. Because Swadeshi rejects the use of goods made by highly industrialized processes if they displace hand labor, the intent of the program was to allow each person to contribute to and participate in the nation's economy.

In more recent times the concept of the use of intermediate technologies has been formally presented by the late E. F. Schumacher. He said that in an economic sense, the level of technology can be expressed in equipment cost per work place, a measure of capital intensity (226). If the equipment cost per work place of indigenous or traditional technology is thought of as $1, then modern technology might be considered as costing $1,000 per work place. The $1,000 technology with its associated high levels of mass production eliminates traditional work places much faster than it creates modern work places, resulting in unemployment. As an alternative, he felt that importation of intermediate, or $100, technologies would be much more effective than modern technology, yet less costly to society. More work places could be created with the same capital investment and still result in an improved product. An economy is more likely to adjust to these incremental changes without the unemployment caused by the sophisticated technology.

*Numbers refer to entries in the bibliography in Appendix B.
Considering development as a self-perpetuating process, it is reasonable to believe that a manufacturer operating at a $1 level could save his money and purchase the $100 or intermediate, technology. The time required to save enough money to purchase the $1,000 technology might be so great as to preclude its purchase. Additionally, a $1 work place manufacturer is more likely to be able to receive financial assistance for the $100 technology than for the $1,000 technology.

Following Schumacher's lead, the number of proponents of IT have increased tremendously. An attempt will now be made to synthesize their views into a coherent framework.
While there is no general agreement on the exact definition of IT, even among its practitioners, the literature on the subject reveals certain themes that re-occur. An individual practitioner of IT might disagree with one or more of the themes, but any one would be accepted by a large percentage of all practitioners. The proponents of IT generally feel that each development situation must be handled as a distinct problem, and therefore some of the themes may not apply to a particular instance. At any rate, Intermediate Technology usually

.. is labor intensive. In an attempt to make use of the large number of unemployed in developing countries, such a strategy can turn this liability into a resource (4, 113, 116, 245, 278).

.. is small scale. The roots of a technologically progressive society must be developed before the tree can grow. People must grow incrementally in their capacity to use and understand technology. Small industries also require less capital investment, an item of scarcity in most developing countries (4, 116, 199, 245).

.. is self-perpetuating. Each transfer of technology cannot be an end to development. It must be a path that builds on the present and leads to a future. It is intended to kindle the innovative process that will allow for continuing advances (130, 169, 218).

.. provides for optimum use of local resources. Use of local resources lessens the balance of payment problems associated with imports. One must insure, however, that "optimum use" is carefully defined and that these resources are not over exploited (278, 283).

.. is cost effective. Certainly intermediate technology should pay for itself and provide a profit for the person using this technology. However, social profits and costs should also be considered, and some form of subsidy might be necessary to return a monetary profit to the entrepreneurs (233, 282).

.. is adaptive. The transfer of technology must meet social and cultural requirements. A technology may have to be transformed or begun on a different level depending on the technical capacity of the recipients (4, 199, 258, 278).
promotes self-help and self-reliance. It is recognized that man's greatest sense of pride comes from being able to help himself (116, 218, 245).

makes use of local opinions and participation. Encouraging the participation of affected people in determining their own paths to development insures consideration for local social and cultural constraints (245).

is ecologically sound. It helps achieve a balance between population, resources, agriculture, and industry (199).

implies increased education. Education helps to increase total development and perpetuate the capacity for self-help (173). Transfers of technology must be accompanied by sufficient initial and follow-up training so as to insure continued use. In addition, the "technical sense" of the general population is increased through general schooling and vocational education; and general motivation for development and entrepreneurial tendencies is enhanced.

builds institutions, by stimulating the creation of the necessary public and private agencies to assist in the development process (4).

is appropriate. Whether it be the introduction of a bullock plow to Niger or a solar water heater to Arizona, the technology transferred must be appropriate to the local situation. For example, capital intensive methods may be appropriate when there is no surplus of labor (130, 143, 278, 283). Intermediate Technology does not reject modern technology at all; it simply requires that it be appropriate within the context of the situation.

The concepts and themes expressed in these definitions of IT have also been associated with other terminology, including "Applied Technology" and "Appropriate Technology" (See listing of such synonyms, p. 1). The term "Appropriate Technology" is currently receiving the widest use (157), although there is usually a distinction made between Appropriate and Intermediate. Appropriate Technology is technology for a task seen in the context of a certain society and judged to be good. This can apply to transferring a nuclear energy power plant as well as new leather tanning techniques. Intermediate Technology, on the other hand, can be considered a subset of Appropriate Technology excluding capital intensive solutions, which in fact brings the cycle back to Schumacher's original concept of the $100 technology.
Intermediateness can also be thought of as a position in the spectrum of possible technologies relative to the local situation. As stated by Nicholas Jequier (130):

"...In the societies of the Middle East and Asia which have known and used the ox-drawn plow for thousands of years, such a technology can be called traditional, and the intermediate level of technology would more adequately be represented by the small two-wheel tractors of the type developed by the International Rice Research Institute in the Philippines or by the industrial cooperatives of Sri Lanka. In the tropical African societies which do not have any tradition of livestock breeding and which still use very simple implements, the ox-drawn plow is a major innovation, and from a technological point of view, it represents a big step forward."
EXAMPLES OF INTERMEDIATE TECHNOLOGY

It is not the intent of this paper to enumerate all possible applications of Intermediate Technology, but rather to delineate its scope. The following sections discuss some important problems of development and the range of IT solutions as expressed in current literature. While the examples given convey the principles of IT, it is not suggested that the solution given is always correct for any occurrence of the same problem. The results are valid only under the particular circumstances of the situation as defined in the appropriate reference.

The annotated bibliography contains more examples.

Satisfying Specific Village Needs

Some development needs, particularly those at the village level, are so urgent and so apparent that an effort must be made to improve the situation as rapidly as possible. Satisfactory solutions to these problems generally cannot pay for themselves. Traditional development strategies often left these needs unsatisfied because, as projects, they could not compete with the profits returned from large-scale industrialization schemes. Intermediate Technology considers projects that directly increase the quality of life fundamental to development. Three of the most urgent needs in this area are health care, nutrition, and sanitation.

Due to the shortage of qualified medical personnel, some developing countries are solving their health service problems by training auxiliary workers to promote preventive medicine in rural areas (160). The use of para-professionals dramatically expands the population from which medical personnel can be drawn and considerably reduces training costs per person. In rural Africa many health plans have established a role for traditional physicians, or "witch doctors," who have contributed to the enhancement of rural health for many years, are trusted by the local population, and can be an important link in the development of new programs.

Nutrition clinics to stimulate better eating habits now exist in rural areas of many developing countries (19), even though in many cases, there is not sufficient food available with the required nutrient value. To aid in increasing the protein intake of populations with protein-deficient diets, nutritionists are attempting to provide protein-enriched food from unconventional sources (119). Any food must be adapted in taste and texture, however, before introduction to a society is attempted (297).
Water is one of the requirements for all life, but the technology that has produced safe, low-cost, abundant water supplies in developed countries has not been transferred to the developing ones (43). There is considerable activity, however, in all developing countries to counteract this situation. Frequently the best contribution to improvement of existing sanitation facilities can be made by simply relocating present sanitary facilities away from water supplies (294). Often, however, basic facilities do not exist and must be constructed (17, 311). In either case, sanitation technology must be adapted to particular local standards and customs if it is to be useful. For example, a recent development at the University of Pahlavi, Shiraz, Iran, is a simple filter for household use that proves to be very effective in removing suspended matter and bacteria (14).

Water collection and storage is often a problem in many villages. Imagination and Intermediate Technology have converted a cave with a natural water inflow into a water collector and storage device (102), and designed and introduced roof and other manmade catchments which can be varied in size to supply the needs of entire villages or individual families (163). Cement mortar water jars have been introduced as an inexpensive way of storing water collected in this manner (295).

Making groundwater available for human and livestock use often requires a large amount of energy. Introducing low-cost, low-maintenance wells and pumps is usually an essential element of any water program. Tube-wells have been used to satisfy some rural water needs (68, 80). The efficiency (cost/capacity) of pumping devices is highly dependent on the nature of the water source. Windmills and conventional fossil fuel-powered devices often present solutions for raising groundwater from lower levels (85, 311).

Irrigation can make barren soil productive but simple methods of preparing soil to retain natural moisture are often as effective as elaborate irrigation systems (312). Canal structure surveying work is usually required to use gravity, the cheapest way to move water (315), and some simple devices to allow unskilled labor to perform this task have been developed (191). The International Rice Research Institute has developed a portable, manually operated bellows pump to assist in the flooding of rice fields; this device could also have other applications in irrigation (124).

Application of Intermediate Technology to housing problems results in different solutions in different regions (78). Often a chosen solution will also create local industries, such as the Intermediate Technology Development Group Brick Work in Asokava, Ghana (200). Here, local labor is employed in an industry that benefits the entire community by producing low cost building material. Frequently the best solutions to housing problems do not require new materials, but an improvement in the durability of presently used materials (131, 153). The East-West Center in Honolulu is actively seeking appropriate housing solutions through research and development (4).
Sophisticated analysis of building techniques can lead to old-fashioned solutions such as the use of domed roof construction instead of flat roofs to lower the temperature inside dwellings (44). In some cases the same sophisticated analysis may result in the use of modern building materials such as ferrocement (136, 184). The emphasis again is on appropriateness as defined by the local situation. In an effort to make a wider variety of choices available, recent research has determined cement can often be made from local materials (234).

**Development of Small-Scale Industry**

Intermediate Technology recognizes that small-scale industry is an important component of development, but what constitutes small-scale industry depends greatly on the geographical area. Each developing country requires a definition appropriate to its stage of industrialization, its social and economic policies, and its resources. Nevertheless small-scale industries do have a number of general characteristics relative to the local economic structure: 1) management is performed by only a few individuals (usually owners), 2) few people are employed, and 3) a limited amount of capital is available.

To give a feeling for the magnitude of variation in government definition of small industry, upper limits on capital assets can vary from $50,000 in Costa Rica to $757,000 in Italy; sales can vary from $1,000,000 per year in Canada to $4,000 per year in Cameroun; and the number of employees from ten in Indonesia to 200 in Korea (20).

One fundamental aspect of developing small-scale industries is stimulating small-scale industrialists or entrepreneurs. In order to develop an economy along capitalistic lines people must be identified who are willing to go into business and take the associated risks. The Technology Consultancy Center of the University of Science and Technology in Kumasi, Ghana, and the Regional Adaptive Technology Center, Mindanao State University in the Philippines, have developed successful methods of encouraging and training would-be entrepreneurs. A sample operation (pilot plant) is built and run by the universities to demonstrate its profitability. Entrepreneurs and sometimes a supporting staff are then trained in the operational and managerial aspects of the production unit. Encouragement for self-employment and technical assistance for establishing a business are also provided. This process trains entrepreneurs for a specific business application rather than developing general skills (209; 94 [Powell]).
The Institute of Small-Scale Studies, University of the Philippines, concerns itself with general managerial training that prepares the trainee in the skills necessary to run his own business. Tests for entrepreneurial potential are used to screen trainees (94 [Chico]).

In an attempt to provide employment for a broad segment of the population, some of those concerned with IT have concentrated on developing small industries suitable for a wide range of applications. These industries should not be dependent on geographically concentrated resources and should supply some current or forecasted need. The Technology Consultancy Centre in Ghana, Centro del Desarrollo Industrial del Ecuador, and Mindanao State University in the Philippines are examples of such agencies. The industries developed include soap, bolts, glue, and ceramic production (94, 209).

Industries have also been conceived in response to a request to provide a specific geographical area with a profitable industry dependent primarily on local resources. Research and development on the part of the Intermediate Technology Development Group (ITDG) resulted in an egg carton production machine that not only cost less than conventional models but which allowed Nigeria to convert its waste paper into a resource (170, 157). The manufacturers of such machines originally believed the required size could not be made, but now produce it under license.

Industries that recycle waste products are highly suited to regions short on resources. Responding to this need, the Economic Development Laboratory, Georgia Institute of Technology, has developed a pyrolytic converter for transforming peanut (groundnut) shells into charcoal for burning or water purification uses (105).

The International Rice Research Institute has, among other projects, designed simple, inexpensive machines for irrigation, harvesting, and production of rice which can be manufactured by most small fabricating shops, thus supplying needed agricultural equipment while at the same time stimulating small manufacturing industry (14, 123, 124, 125).

Development of Improved Farming Methods

Providing an adequate diet for all the people of a country is probably the most important aspect of development, although in many regions it may be very costly to bring new farmland into production to feed growing populations. An alternative solution is to increase the productivity of the land already under cultivation. While increased mechanization may be the only means of significantly increasing productivity in the long run (179), the manner in which mechanization is introduced has a major impact on its use and development. It is very often the case that all aspects of small farming are not ready for mechanization simultaneously (232). Consequently,
Selective mechanization is the approach most likely to yield results. Some rules of thumb have been developed for determining the appropriate solution to mechanization in developing countries, paramount of which implies consideration of local conditions. For instance, increasing the number of draft animals has been found appropriate only when existing agricultural power is less than approximately 0.2 horsepower per hectare (179).

Selective mechanization should attempt to stimulate local manufacturing industries; in other words, equipment should be such that it is within the fabrication capabilities of local manufacturers. Obviously, the equipment produced must also be affordable by the small farmer (139, 225). Technische Ontwikkeling Ontwikkelings Landen (TOOL) in the Netherlands; the Intermediate Technology Development Group (ITDG), London; and the International Rice Research Institute (IRRI) in the Philippines, are active in this area and have developed inexpensive farm equipment that can be locally produced (123, 124, 125, 157, 218).

Agricultural productivity can be stimulated by adapting modern technologies to local situations. The benefits of supplementing soil bacteria are a recent discovery and in many areas may be appropriate for increasing the crop yields of developing countries (247). It has also been found that applying compost from anaerobic digestors to soil humus eliminates coffee berry disease. Furthermore, analysis of this compost shows that it is high in nitrogen, making it an excellent fertilizer (75, 213). Though quite modern in concept these technologies are not expensive. Consequently, they qualify as affordable techniques within the framework of IT.
IS INTERMEDIATE APPROPRIATE?

There is disagreement as to the merits of emphasizing Intermediate Technology as a development strategy. To portray Intermediate Technology accurately, opposing viewpoints and potential problems are set out below.

**Social and Political**

Intermediate Technology is sometimes considered a second-class technology and, as such, is unacceptable to those in developing countries who feel that developed countries are guilty of exploitation and are therefore obligated to share their wealth (144). This attitude ignores the failures of direct transfer of modern technologies to provide the desired progress and enhance the lifestyle of the majority of the population. Nicholas Jaquier counters the claim that IT is second rate by stating that only the symbols of modern living can be bought on the open market, but development takes a long time (130).

The view of Intermediate Technology as a perpetrator of second-class solutions results partly from structuring the thematic framework of Intermediate Technology into hard and fast rules and consequently ignoring or overlooking the most appropriate technology available. The myopic approach (i.e., attacking the symptoms without considering their cause) also contributes to this view. Intermediate Technology, intended to be a flexible tool and part of a comprehensive approach to problems of development, offers an approach more likely to arrive at the ideal solution to a given problem in terms of realistic capital and social costs.

There is also a view that regards Intermediate Technology as simply another mask for exploitation, causing developing countries to overuse their natural resources (130). Intermediate Technology in its thematic context stipulates that a solution must be appropriate, implying that resources and their rate of use as well as economic and social constraints be considered in the search of the optimal solution. This view of Intermediate Technology as exploitative is actually a disagreement over the relative values assigned to the constraints.

**Outmoded Hardware**

Critics of Intermediate Technology contend that it is doomed to failure because it relies on outdated equipment and concepts. These critics feel that the incremental steps in development projects based on Intermediate Technology necessitate that at least some industries revert to making bullock plows and steam boilers so that developing nations can follow...
the same path as the United States and other developed countries. This view also produces a fear that developing countries will become depositories for outdated, used-up, and unwanted western machinery, and thereby will always remain 100 years behind the developed world.

Intermediate Technology does not propose that developing countries follow the same development pattern as the developed world; rather, it seeks to accelerate development by means that are obtainable by most segments of the population. This requires using the most modern techniques for which the necessary industries and equipment will be appropriate and competitive. Many technologies which the industrialized world regards as outdated are particularly suited to present conditions in developing countries. Sears catalogs and U.S. patents from the turn of the century can be a valuable source of inspiration for industries and technologies suited to the resource availability of many developing countries. In fact, such equipment may operate more profitably than a modern technology attempting to survive with the requisite raw material and infrastructure in short supply.

Capital-Output Ratios

Another charge against IT is that it does not optimally use the available capital. One such argument states:

"It is nonsense to advocate a technology that requires much less capital per employee, without also considering how much it will produce per unit of capital invested. Research has shown that the most modern machinery produces much more output per unit of capital invested than less sophisticated machinery which employs more people. If you want to achieve the quickest rate of economic growth—which means maximising (sic) output per head of population, you should therefore invest scarce capital in advanced techniques, not waste it on inefficient ones. In other words, methods of production with the best capital-output ratio give the most economical use of capital which you most need when you are short of it" (211).

Of course this assumes that increases in wage goods will automatically create jobs elsewhere and that the resulting income is somehow distributed among the populace.
APPENDIX A

Guide to Sources of Information on Intermediate Technology
1. **Action for Food Production (AFFRO)**

   Community Center  
   C-17, Safdarjung Development Area  
   New Delhi - 110016  
   India  

   **Executive Director:** P. O. Dunn  
   **Staff:** 20  

   **Emphasis/Expertise:**  
   A non-profit joint service agency established to coordinate, support, evaluate, and give technical guidance to food production projects. Agency endeavors to bring together the resources of donor and voluntary agencies into single action food programs intended to benefit the poor and marginal farmer  

   **Recent/Current Projects:**  
   Dairy cattle, poultry, piggery, and goat projects. Water resources development projects. Technical assistance and training to small farmers through courses stressing extension work  

   Serves as a collection centre and 'clearing house' for the dissemination of information of a technical nature.

   **Keywords:** agriculture/India/consulting/technology transfer/animal husbandry/rural development/food production

2. **Action/Peace Corps**

   Peace Corps Information Collection and Exchange (ICE)  
   806 Connecticut Avenue  
   Washington, D.C. 20525  
   USA  

   **Peace Corps Director:** Carolyn Payton  
   **Associate Director for Action's International Operations:** Margot Aronson, Director ICE  
   **Staff:** Permanent, 200; volunteers, 6000  

   **Emphasis/Expertise:**  
   Volunteerism in the developing world addressing problems in the fields of agriculture, health, education, public works, environmental protection, etc.  

   **Recent/Current Projects:**  
   Operate ICE, a process for collection, review, and sharing of Peace Corps-generated information. The Peace Corps Program Grid: a matrix of activities and countries that describes the current programs.
Library: ICE and many pertinent publications  
Serial Publications: Program and Training Journal  
Keywords: agriculture/education/health/  
environment/training/Information  
systems/ecology  

3. **Alternative Sources of Energy, Inc.**  
   Route 2, Box 90A  
   Milaca, Minnesota  56353  
   Director: Don Marier  
   Contact: Robert Pauls, co-editor  
   Staff: Permanent, 5; other, 4  
   Emphasis/Expertise:  
   Competent to respond to a generous range of subject matter  
   including but not limited to alternative fuels, delivery systems,  
   hardware availability and design/application with special emphasis  
   on low cost-small scale approaches to energy applications and  
   appropriate technology  
   Recent/Current Projects:  
   Develop special publications on wood stove design/construction,  
   small-scale water power development and integrated systems.  
   Sponsor assorted conferences, seminars, etc.  
   Library:  
   Large collection covering energy (general), solar energy, wind  
   energy, water energy, organic fuels, energy storage, energy  
   conversion, architecture, agriculture, transportation, engines,  
   integrated systems.  
   Serial publications: Alternative Sources of Energy (quarterly)  
   Keywords: energy/solar energy/wind power/  
   conservation/construction/organic  
   matter/alternative fuels

4. **Appropriate Agriculture Technology Cell**  
   Bangladesh Agricultural Research Council  
   130/C. Dhanmandi R.A.  
   Road #1  
   Dacca 5,  
   Bangladesh  
   Contact: Dr. L. Merrick Lockwood, Adviser  
   Emphasis/Expertise:  
   A recently established program to coordinate programs aimed at  
   developing more effective use of indigenous resources and labor  
   to increase food production in Bangladesh in such a way as to  
   insure equitable distribution of income.
Recent/Current Projects:
Evaluation of pedal-operated rice mills and wheat mills developed at Tropical Products Institute (U. K.); pilot project on the local manufacture of small diesel engines; evaluation of draft implements for farmers in Bangladesh; create an information center concentrating on materials relating to appropriate technology.

Library: Large appropriate/intermediate technology collection planned.
Serial Publications: Newsletter, monograph series and other non-serial publications planned.

Keywords: information systems/consulting/
agriculture/mechanized agriculture/
Bangladesh/food production/
pilot projects

5. Appropriate Technology Cell
Ministry of Industrial Development
New Delhi - 110011
India
Contact: Bepin Behari, Joint Director
Staff: Permanent, 3; other, 70

Emphasis/Expertise:
Primarily concerned with areas where existing technologies do not meet the specific requirements of a given region. The main task is the assessment of optimality of technologies within the existing socioeconomic milieu

Recent/Current Projects:
Projects with a rural bias: small dairy plant, mini cement plant, leather tanning, and agricultural implements

Library:
A functional collection relating to food processing, biogas plants, cement plants, sugar technology, small storage bins; low-cost post harvest agricultural technology

Keywords: technology transfer/housing/cement/
construction/agricultural implements/
dairy industry/India/handicrafts/
rural development/agricultural

6. Appropriate Technology Development Association
P. O. Box 311
Gandhi Bhawan
Lucknow
U. P.
India

Director: M. M. Hoda
Staff: Permanent, 4; other, 15
Emphasis/Expertise:
   Hardware design, entrepreneur development, and survey case studies
Recent/Current Projects:
   Rice milling utilization of animal by-products, social forestry;
   research regarding solar cookers, spinning unit, mini-cement plant; education and training of rural technicians; publication of an appropriate technology directory

Keywords: industries/India/solar energy/training/entrepreneur development/methane/alternative fuels/rural development

7. Appropriate Technology Development Organization
   Planning and Development Division
   Ministry of Finance
   Planning and Economic Affairs
   17-B Satellite Town
   Rawalpindi
   Pakistan

Chairman/Consultant: Bhulam Kibria
Contact: Shahid Ikram, Assistant Director
Staff: Permanent, 6; other, 2
Emphasis/Expertise:
   Explore the scientific knowledge leading to increased productivity through the development of low-cost, labor intensive appropriate technologies
Recent/Current Projects:
   Biogas plan, windmill for water pumping, low-cost housing, paper pulp from banana stem, screw-type sugar cane juice extractor, fruit and vegetable preservation by dehydration, cottage match industry, insecticide from tobacco waste, earth-moving implements, vinegar from over ripe dates, tile and cardboard from rice husk and rice bran, village level food processing, fiber from plants, solar energy use, pitcher and pipe irrigation to rehabilitate arid lands

Library: Small specialized collection on IT/AT of various countries
Serial Publications: Monthly reports and serials relating to Gobar Gas, rural housing, and a directory of appropriate technology

Keywords: housing/construction/Pakistan/
food processing/biogas/fibers/
methane/solar energy/irrigation/
wind power
8. Appropriate Technology Unit
Indian Institute of Technology
Bombay 40076
India
Convenor: Dr. A. W. Date, Assistant Professor, Mechanical Engineering, IIT
Staff: Permanent, 1; other 10
Emphasis/Expertise: Hardware design and technology delivery systems
Recent/Current Projects:
- Study of mechanisms of transfer of technology from institutions to rural areas. Development of a sparked-bed drier for mid monsoon drying of paddy. Studies on the replacement of diesel by biogas. Design and fabrication of a pedal-operated machine to manufacture cotton healds. Design and fabrication of rotary and reciprocating windmills
Library: Reports on rural technology, agriculture, and manufacturing; journals and other miscellaneous materials
Keywords: wind power/technology transfer/ agriculture/mechanized agriculture/ India/methane/rural development/biogas

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Claremont Road
Newcastle upon Tyne NE1 7RU
England
Director: Colin B. Marsh
Emphasis/Expertise: Group is still in the developmental stage
Recent/Current Projects: Conducted conference March/April 1976 "Appropriate Technology for the United Kingdom" (Proceedings available)

10. Asian Institute of Technology
P. O. Box 2754
Bangkok
Thailand
President: Dr. M. E. Bender, Jr.
Contact: Dr. P. A. Cowell, Associate Professor of Agricultural Engineering; Chairman of the Division of Community and Regional Development
Staff: Permanent, 110 (faculty and staff)
Emphasis/Expertise:
A graduate school of engineering, drawing students from most Asian countries. Concerned with teaching and research in hardware design, consulting, technology delivery systems, socioeconomic research related to development

Recent/Current Projects:
Solar-powered water pump, solar-powered refrigerator, solar stills and driers, hand-operated soybean seeder, portable water systems using local skill and material, simple grain storage bin, low-cost housing

Serial Publications: Newsletter related to general Institute affairs

Keywords: education/consulting/Thailand/
technology transfer/housing/
mechanized agriculture/grain
storage/industrial machines

Association Européenne d’Agriculture et d’Hygiène Biologiques, SEE #47

11. Association of Voluntary Agencies for Rural Development
C-6 Safdarjung Development Area
New Delhi - 110016
India

Director: S. D. Thapar
Staff: Permanent, 30; other, 50

Emphasis/Expertise: Extension and/or technology delivery systems

Recent/Current Projects:
Consulting, including technical planning. Covers all aspects of socioeconomic activity. Projects emphasizing irrigation, small industry development, and animal husbandry

Serial Publications: A monthly journal

Keywords: technology transfer/consulting/
irrigation/industries/India/
animal husbandry/rural development

12. Board on Science and Technology for International Development (BOSTID)
National Academy of Sciences/National Research Council
2101 Constitution Avenue N. W.
Washington, D. C. 20418

Director: Dr. George S. Hammond, Foreign Secretary,
National Academy of Sciences
Contact: Jay Davenport, Staff Associate BOSTID
Staff: Permanent, 12
Emphasis/Expertise:
Primary objective is to investigate what role science and technology has in economic and social development through workshops, joint study groups. Advisory groups have been formed to consider specific applications

Recent/Current Projects:
Role of U. S. engineering schools in technical assistance, appropriate technologies for developing countries, remote sensing for development. Others include the use of solar energy and operations research in LDC's. BOSTID's Advisory Committee on Technology Innovation (ACTI) prepares state-of-the-art reports on methane generation from human, animal, and agricultural wastes; productive utilization of freshwater aquatic weed control; guayule, a rubber-producing desert shrub. Others include food production, water, and construction considerations

Keywords: consulting/water/energy/methane/
systems modeling/construction/
solar energy/aquatic weed control/
ferrocement/remote sensing/guayule/
food production/economic plants

13. Brace Research Institute
MacDonald Campus of McGill University
Ste. Anne de Bellevue
Quebec
H0A 1C0
Canadá

Director of Field Operations: T. A. Lawand
Contact: Ron Alward, Research Associate
Staff: Permanent, 6; other, 4

Emphasis/Expertise:
Solar energy, wind energy, methane gas production, desalinization of sea water

Recent/Current Projects:
Saline water conversion, evaluation of existing solar stills and solar still optimization. Wind power, improvement of 10HP wind machine; wind electric generation; electrical power transmission for a free running, fixed pitch windmill; construction of a sail type windmill; savonius rotor program. Solar heat and power, solar energy in heating greenhouses in colder regions, solar powered organic fluid rankine cycle engine systems, potential of solar ponds for energy collection, improvement of solar cookers, roof-top greenhouses, Quebec Indian housing. Arid land development, potentialities of closed environment agriculture for water conservation in arid areas, low cost sanitary technology
Library: Good collection on solar/wind energy systems and water desalinization

Keywords: desalinization/Canada/solar energy/wind power/methane/greenhouses

14. **Canadian Hunger Foundation (CHF)**

75 Sparks St.
Ottawa
Ontario K1P 5A5
Canada

Executive Director: T. R. McCoy
Contact: Paul Stinson, Executive Assistant
Staff: Permanent, 12; other, 1

Emphasis/Expertise:
The support of overseas self-help projects to increase food production and improve the food processing and preservation capabilities of developing countries. CHF is the chief center for the exchange of information on appropriate technology in Canada

Recent/Current Projects:

Library: Proposed AT/IT data bank will draw on sources around the world
Publications: **Appropriate Technology Handbook**

Keywords: information systems/education/Canada/construction/agricultural implements/rural development/food production/agriculture/ferrocement/cooperatives/water/marketing/animal husbandry/dairy industry/transportation/Latin America/Mali/Kenya/India/Bangladesh/Niger/Senegal/Lesotho
15. **Caribbean Industrial Research Institute (CARIRI)**
   
   University of West Indies Campus  
   Tunapuna Post Office  
   Trinidad  
   West Indies  
   
   Director: Hollis Charles  
   Contact: Kevin Marshall, Head, Technical Information Services  
   Staff: Permanent, 96; other, 17  
   Emphasis/Expertise: Industrial research  
   Recent/Current Projects:  
   Appraisal studies, e.g. a comparative study of various storage systems for rice, process adaptation or development and project implementation (for example, development of a formulation for a new abrasive household cleanser), operational assistance to industry (for example, a detailed factory layout design carried out for a large manufacturing firm)  
   
   **Keywords:** industries/consulting/West Indies/  
   business management/grain storage

16. **Centre International de Recherche sur l'Environnement et le Développement (CIRED)**
   
   Secrétariat d'Etat aux Universités Ecole des Hautes Etudes en Sciences Sociales  
   54 boulevard Raspail  
   75270 Paris CEDEX 06  
   France  
   
   Director: Professor Ignacy Sachs  
   Contact: Catherine Touraille  
   Staff: Permanent, 15; other, 8  
   Emphasis/Expertise:  
   Rational management of the environment for long term balanced development, with special concern for the quality of life and industrial development  
   
   Recent/Current Projects:  
   A study regarding technology change as a variable in development policy, other studies of the impact of alternative growth strategies on the environment, integration of environment in long-term planning, and development and management of water resources  
   
   Library: Maintains a collection of reports, periodicals, and a list of institutions specifically regarding habitat  
   Serial Publications: *Cahiers de l'Ecodéveloppement*, *Travaux* and *Etudes*  
   
   **Keywords:** industries/habitat/ecology/  
   conservation/France/water
17. **Centre d’Études et d’Expérimentation du Machinisme Agricole Tropical**

Parc de Tourvoie
92160 Antony
France

Director: Hervé Bichat
Contact: Gérard Herblot
Staff: Permanent, 23

Emphasis/Expertise:
- Documentation, information, training; studies and research; economics and development. Presently concerned with small power mechanization (power tiller, simplified tractor) and its application to tropical crops and farming systems

Recent/Current Projects:
- Adaptation of small power equipment to cropping conditions in hot countries (small individual farms)

Library: Extensive collection regarding small farm mechanization

Serial Publications:
- *Machinisme Agricole Tropical* (quarterly), and a newsletter

**Keywords:** agriculture/France/training/information systems/mechanized agriculture

18. **Centre for Studies in Decentralized Industries**

Vaikunthbhai Mehta Smarak Trust
NKM International House
178 Backbay Reclamation
Bombay 400020
India

Director: B. T. Acharya
Staff: Permanent, 3; other, 2

Emphasis/Expertise:
- Development of decentralized traditional industries through applications of appropriate technology and organization, for example simple devices which can increase productivity through low level technology. Also deals with several aspects of rural development and ecosystems

Recent/Current Projects:
- Supply primary and secondary data for rural electrification projects in 8 districts of Maharashtra. Consulting and advisory work pertaining to improved technology in oil crushing, spinning and weaving cotton, and plantation of ramie fiber and its use in producing cloth of polyester fiber

Library: Maintains library relating to the economic and technological aspects of development of rural traditional industries. Contains about 8000 index cards, 500 industries profiles, and 200 technical files
Serial Publications: Documentation Bulletin (quarterly)

Keywords: rural development/consulting/
ecology/India/industries/
fibers

Centro Internacional de Mejoramiento de Maíz y Trigo, SEE #36

19. Coady International Institute

St. Francis Xavier University
Antigonish
Nova Scotia
Canada B2G ICO

Director: (Rev) G. E. Topshee
Staff: Permanent, 8; other, 8

Emphasis/Expertise:
Leadership development. Concerned with development potential at
grass roots and middle management levels which remain major
bottlenecks. Focus is on growth of organizations such as coop-
eratives, credit unions, and self help oriented base groups and
regional organizations. Teaching material available mainly in
English, though some in French and Spanish

Recent/Current Projects:
Continued support of training programs and overseas seminars
for those involved in the institute's programs

Keywords: education/training/Canada/
credit and banking/marketing/
cooperatives/decision making

20. Community Soap Factory

3156 18th Street, N. W.
Washington, D. C. 20010

Contact: Ester Siegel

Emphasis/Expertise:
Emphasis is on anti-profit, community business, specifically
the production of high quality, biodegradable soap products

Recent/Current Projects:
Maintains information files on soap production, a community
garden where community members can grow their own produce,
conducts workshops, operates community soap factory

Keywords: industries/energy/cooperatives/
soap/ecology/conservation

161 Clarence Street
Kingston-upon-Thames
Surrey
England

Managing Director: Hugh M. Sharman
Contact: Judi Palmer, Office Manager
Staff: 10

Emphasis/Expertise:
To design and supply energy equipment such as wind generators and low-temperature solar collectors

Recent/Current Projects:
Provide consulting service to the domestic and commercial markets on energy-saving schemes including systems design. Information dissemination in the natural energy field

Serial Publications: Natural Energy (a quarterly)

Keywords: energy/solar energy/wind power/consulting/United Kingdom/systems modeling

22. David Livingstone Institute of Overseas Development Studies

University of Strathclyde
Livingstone Tower
26 Richmond St.
Glasgow G1 IXH
United Kingdom

Director: James Pickett
Staff: Permanent, 15

Emphasis/Expertise: Choice of industrial technology in developing countries

Recent/Current Projects:
Study of industrialization. Appropriate technology research project. Examining the environmental and economic impact of alternative sugar technologies in four African countries

Keywords: technology transfer/United Kingdom/Africa/sugar/industries

23. Department of Primary Industry

Department of Agriculture, Stock and Fisheries
P.O. Box 2417
Konedobu, Papua
New Guinea

Secretary: John Natera
Contact: Fritz Robinson, Chief Information Officer
Staff: Permanent, 3000
Emphasis/Expertise:
Hardware design, and entrepreneur development. Has major responsibility for all rural development in Papua, New Guinea
Recent/Current Projects:
Involved with the work of 3 agricultural colleges on development of agricultural hardware such as rotary hoes

Keywords: agriculture/consulting/New Guinea/
mechanized agriculture/rural development

24. Development Academy of the Philippines

Industry Development Program
P. O. Box 5160
Makati, Rizal
Philippines

Program Director: Dr. Magdaleno Albarracin
Contact: Arturo Tolentino, Deputy Program Director
Emphasis/Expertise: Entrepreneurial development, small- and medium-scale industry development, agribusiness development
Recent/Current Projects:
Ancillary firm development to determine the effect of subcontracting to technology transfer; analysis of the performance of public enterprise; promotion of productivity through managerial training, information dissemination, and consulting; study of cooperative-based small and medium industry as an aid to development
Proposed:
Technology transfer assistance: I, determine the technology requirements of regions; II, field assistance teams to help entrepreneurs obtain the technology. Study of tobacco industry

Keywords: agriculture/industries/consulting/
Philippines/technology transfer/
entrepreneur development/tobacco/
business management/cooperatives

25. Dian Desa

Appropriate Technology Project
Jl, Kerto Muja Muju 8
Yojakarta, Indonesia

Director: Anton Soedjarwo
Staff: 9
Emphasis/Expertise:
Research and development activities in the fields of natural energy, biogas, agriculture, poultry, food preservation and water supply
Recent/Current Projects: Twenty water supply projects in various places in Central Java, Indonesia
Library: Maintain a small collection
Keywords: energy/solar energy/biogas/wind power/agriculture/water/food processing/Indonesia

1777 East-West Road
Honolulu
Hawaii 96848
Director: Dr. Harrison Brown
Contact: Daniel de Castro, Documentation Specialist
Staff: Permanent, 18; other, 18
Emphasis/Expertise:
"Promotes understanding and better relations among nations East and West through generating new knowledge of, developing policy aids and educational materials on, and organizing mutual learning about resource problems . . . : maldistribution of scarce resources, instability of international mechanisms for resource exchange, emergence of choices for resource distribution, and inter-dependent effects of resource use."
Recent/Current Projects:
1) Technology Assessment: development of analytical methodology for assessing alternative technology decisions, 2) public policy implementation and project management: methodology and resource materials for the development of manpower resources required to manage development projects on a national and international basis, 3) renewable resources planning and development: study the most effective means of using traditional renewable resources without destroying existing ecological systems
Library:
Collection has over 2000 cataloged entries. Reports, theses, etc., regarding the three project areas make up the bulk of the collection. Audio-visual materials documenting case histories of relevant development initiatives are also an important part of the collection
Keywords: technology transfer/conservation/education/information systems/training/decision making

27. Ecology Action of the Mid Peninsula
2225 El Camino Real
Palo Alto
California 94306
Contact: Robin Leler
Staff: Permanent, 4; other, 20+ 
Emphasis/Expertise:
  Provide supplies and services that help people live in ways that are more self sufficient, and that protect the environment, specifically: mini-agriculture (use of the bio-dynamic/French intensive method), backyard gardening, and urban homesteading (for example, raising chickens, goats, bees, making wine and cheese)
Recent/Current Projects:
  Maintains Ecology Action's garden supply store; small-scale agriculture research plot
Library: Extensive reference library relating to urban homesteading and gardening skills
Serial Publications: Monthly newsletter relating to local projects
  Keywords: organic agriculture/consulting/ environment/food production

28. Economic Development Laboratory
     Engineering Experiment Station
     Georgia Institute of Technology
     Atlanta
     Georgia 30332

Director: Ross W. Hammond
Contact: Kay Ellen Aucillo, Assistant Research Scientist
Staff: Permanent, 44; other, as necessary
Emphasis/Expertise:
  Adaptive technology, audiovisual productions, community and area development, energy, engineering, feasibility studies, housing, information systems, land use, manpower resources, market analysis, production control, quality control, technical assistance to industry, training programs, transportation, water resources
Recent/Current Projects:
  1973- present: Brazil, Korea, Ecuador, Nigeria, Philippines, Indonesia, Kenya and Ghana; employment generation through stimulation of small scale industries. Emphasizing applied research, education and training, conferences and seminars, assistance to counterpart institutions. 1974- present: Korea, Ecuador, Nigeria, Philippines; a program of small industry development (USAID). Technical assistance in establishing and implementing small-scale industry development
Conducts industrial development internship program. Classes taught in English, Spanish and Portuguese. Developed a small industry data center. Promotes conferences and seminars. Efficient agricultural development through intermediate technology
Library:
Large holdings related to industrial development, appropriate technology, etc. Acquisitions announced in The International Informer


Keywords: technology transfer/information systems/housing/water/energy/industries/Korea/consulting/industrial standards/Kenya/education/entrepreneur development/industrial machines/training/Nigeria/Indonesia/Philippines/Latin America/marketing/Ghana/Brazil

29. Educational Systems Development Corporation

7th Floor
Merchants Bank Bldg.
313 Buendia Avenue
Makati, Rizal D-711
Philippines

President and General Manager: Joaquin S. Lim
Staff: Permanent, 40; other, varies

Emphasis/Expertise:
Rural and urban education through multimedia, audiovisual means. Subjects include agriculture, family planning, nutrition, labor education. Also have adapted AV equipment for battery use

Recent/Current Projects: Nutrition education package

Library: Small reference collection, mostly AV-related material

Keywords: education/Philippines/health/family planning/nutrition/agriculture

30. Fundação Educacional do Sul de Santa Catarina

Caixa Postal 370
Tubarão, Santa Catarina
Brazil

Presidente: Osvaldo Della Giustina
Contact: Centro de Dados Básicos
Staff: Permanent, 130; temporary, 59

Emphasis/Expertise:
An organization concerned with education and research, including socioeconomic research, regional planning, elaboration of industrial profits, technical and managerial assistance to small and medium scale industries, and consultancy to communities and public organizations
Recent/Current Projects:
Several programs of assistance to small and medium scale industries. Programs of capacitation of human resources in the south of Santa Catarina. Conduct studies about the social conditions and housing needs in Santa Catarina.

Library: Specialized collection on economic planning

Keywords: education/consulting/Brazil/industries/housing

31. Grupo de Investigación UniAndes-Gaviotas

Universidad de los Andes
Bogotá
Colombia

Director: Professor Jorge Zapp
Staff: Permanent, 4; other, 18

Emphasis/Expertise: Emphasis on water and electrical energy for the eastern plains of Colombia and Venezuela, usually at the domestic level

Recent/Current Projects:
Micro hydroelectric power plant, induction pump, solar water heaters, solar ether turbine, solar driers, soil-cement pipe, dams, walls; sail windmill, hydraulic ram

Library: Small collection of publications from other IT/AT organizations
Serial Publications: Reports on special subjects

Keywords: water/construction/cement/
Colombia/Venezuela/wind power/
solar energy/electric power/
Latin America/food processing

32. Institute for Local Self-Reliance

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

Contact: Rich Kazis, Director of Information Access
Staff: Permanent, 7; other, 6

Emphasis/Expertise:
Technical feasibility of community of self-reliance in high density living areas and the implications of such decentralization. Use of intermediate technologies appropriate in urban neighborhoods specifically: solar energy, low-tech waste utilization systems, low-tech industrial systems to be located within urban neighborhoods. Research, demonstrations and consulting
Recent/Current Projects:
Technical assistance to municipal agencies collecting data on credit activities of banks and savings and loan associations in Washington, D.C. Evaluation of the potential for a municipal bank for Washington, D.C. Planning and development of a roof-top greenhouse appropriate for an apartment house of low-income senior citizens. Design of a questionnaire to inventory a neighborhood's skill and tool base. Consulting in regard to a legal dispute concerning the city of Alexandria, Virginia's solid waste disposal system. Creation of a task force on energy conservation and insulation in a low-income neighborhood in Newark, New Jersey

Library: 1000 volumes, 70 periodicals, substantial report file
Serial Publications: Self-Reliance, other non-serial publications (list available)

Keywords: urban planning/consulting/health/
conservation/credit and banking/
solar energy/energy/methane/
greenhouses

33. Intermediate Technology
556 Santa Cruz Ave.
Menlo Park
California 94025

Directors: Peter Gillingham and Sandra C. Goff
Contact: Carol Manahan

Emphasis/Expertise:
Interested not only in technology but in the interfaces among technology, organization, work, economics, and resources. IT is the American organization most closely tied to the person and work of E. F. Schumacher

Recent/Current Projects:
Participating in several beginning projects, including the development of a community food processing center which will provide canning and drying facilities for the use of individuals and small groups in the Palo Alto area

Library: Developing a resource center concerning IT/AT
Serial Publications: Intermediate Technology Report (a quarterly review)

Keywords: conservation/information systems/
food processing/cooperatives

34. Intermediate Technology Development Group (ITDG)
Parnell House
25 Wilton Road
London SW1V 1JS
United Kingdom

Staff: Permanent, 30; other, 300
Emphasis/Expertise:
Developing low cost "intermediate" technologies and industries with the objective of stimulating development and improving the quality of life, through an extensive volunteer network, qualified to comment on almost all aspects of development particularly agricultural production, transportation, housing, water supply, food technology, small industry development, rural health and hygiene

Recent/Current Projects:
Too numerous to list all. Some of the recent projects are:
Zaria: development of a factory to produce hospital equipment.
Swaziland and Botswana: research into small-scale water conservation, water storage systems. Nigeria: development of a low cost egg tray maker that can utilize waste paper as a resource

Library:
Exact holdings unknown; however an extensive collection relating to low cost, labor intensive technologies is maintained

Serial Publications: Appropriate Technology. Other non-serial publications

Keywords: industries/technology transfer/energy/consulting/information systems/water/United Kingdom/agriculture/health/mechanized agriculture/methane/housing/transportation/Nigeria/Swaziland/Botswana

35. International Development Research Centre (IDRC) SEE ALSO #65

P. O. Box 8500
Ottawa
Ontario K1G 3H9
Canada

President: Dr. W. David Hopper
Contact: Jean de Chantal, Centre Librarian
Staff: Permanent, 265; other, 97

Emphasis/Expertise:
Funding of research projects in developing nations to promote economic and social development. Emphasis is multidisciplinary

Recent/Current Projects:
Supports Technonet Asia (#65); send for Projects 1975 with 1976 supplement for complete list. Random examples include Nigeria: grain legume information center, established by the International Institute of Tropical Agriculture, Ibadan, to provide information on cowpeas and other grain legumes; Senegal: a demonstration survey to examine the relationship of economic social, and demographic factors

Library: Small collection of items relating to AT/IT

Serial Publications: Technonet Asia

Keywords: consulting/information systems/Canada/agriculture/industries/Nigeria/Senegal
36. **International Maize and Wheat Improvement Center**  
   ([Centro Internacional de Mejoramiento de Maiz y Trigo])  
   Londres 40  
   Apto. Postal 6-641  
   Mexico 6  
   D. F.  
   Director General: Haldore Hanson  
   Contact: Steven Breth  
   Staff: Permanent, 80  
   Emphasis/Expertise: Improvement of wheat, barley, triticale, maize  
   Recent/Current Projects:  
   Maintains 7 research sites. Participates in regional workshops. Operates germ plasm bank. Conduct training at CIMMYT for researchers and extension personnel worldwide.  
   **Keywords:** crop improvement technology/  
   Mexico/training

37. **International Plant Protection Center**  
   Oregon State University  
   Corvallis  
   Oregon 97331  
   Director: Stanley F. Miller  
   Contact: Allan Deutsch, Information Services/Administration  
   Staff: Permanent, 11  
   Emphasis/Expertise:  
   Weed control research, all phases, but particularly those systems, technologies, and methods pertaining to small farmers in developing countries  
   Recent/Current Projects:  
   Weed Control Systems for Representative Farms in Developing Countries, a nine year old USAID/OSU project. Project personnel have been placed in Colombia, Ecuador, Brazil and El Salvador. Currently a two-man team of agronomists are in Costa Rica. Project expects to locate a two-man team in Asia in early 1977  
   Library:  
   Reference library relative to agronomic and socioeconomic aspects of weed control. Maintains a computerized file on world manufacturers of pesticide application equipment (not including aerial or small applicators)  
   **Serial Publications:** *Infoletter*. Other non-serial publications  
   **Keywords:** aquatic weed control/Brazil/  
   weed control/Latin America/  
   Ecuador/Colombia/agronomy
38. **International Rice Research Institute**

Agricultural Engineering Dept.
P. O. Box 933
Manila
Philippines

**Director General:** Dr. Nyle C. Brady
**Contact:** Donald O. Kuether, Associate Agricultural Engineer
**Staff:** Permanent, 46

**Emphasis/Expertise:**
Improving rice production for the small farmer. One section of the Institute, the Agricultural Engineering Dept., is interested in helping mechanized small rice farmers, and encouraging local manufacture of farm machinery.

**Recent/Current Projects:**
Development of a low-cost gravity fed, manually pushed applicator for injecting fertilizer and insecticides into plant root zones, development of a manually operated rubber diaphragm pump, development of a 17 hp four wheel tractor, revisions of existing axial flowthresher, study on the effects of hard pan with different land tillage systems, studies into alternative techniques of rice production and post-production systems, and continuation of industrial extension effort.

**Serial Publications:** Newsletter: *IRRI Farm Machinery Newsletter*

**Other non-serial publications**

**Keywords:** rice/agriculture/Philippines/
industries/consulting/crop
improvement technology/mechanized
agriculture

39. **International Voluntary Services, Inc.**

1555 Connecticut Ave., N. W.
Washington, D. C. 20036

**Acting Executive Director:** John Rigby
**Contact:** Young-Chang Lai, Program Director for Asia and the South Pacific
**Staff:** Permanent, 24; other, 67

**Emphasis/Expertise:**
Agricultural development, rural and village development, village technology, public health, nutrition, and family planning

**Recent/Current Projects:**
Algeria: supporting teachers of English as a foreign language.

**Library:** Small reference collection
Keywords: agriculture/family planning/
economic development/nutrition/
training/education/health/
rural development/Algeria/
Bangladesh/Ecuador/Botswana/
pilot projects

40. Latin-American Institute
St. Gallen Graduate School of Economics, Business and Public
Administration
Varnbuelstrasse 14, St. Gallen
Switzerland
Director: Dr. J. M. Baumer
Contact: Hans Lehne, lic. oec.
Staff: Permanent, 10; other, 5
Emphasis/Expertise: General economic, political, cultural, sociological
and historical research on Latin-America; development strategies
Recent/Current Projects: Application and research in appropriate
technology, financed by the Office for Technical Cooperation of
the Swiss Foreign Office
Library: Reference collection relating to alternative energy sources,
storage of food, small scale industry, water supply, agricultural
devices and methods
Keywords: economic development/Switzerland/
energy/Latin America

41. Lushoto Integrated Rural Development Project (LIDEP)
P. O. Box 60
Sonj
Tanzania
Project Director: S. Kahewanga
Contact: K.G. Kimela, Planning Assistant
Staff: Permanent, 135; other, 8
Emphasis/Expertise: Developing rural areas emphasizing simultaneous
advances in agriculture, construction, and general training
Recent/Current Projects:
Brick making plant: production capacity 7-9000 bricks/day.
Garage: serves as a general repair facility and training
facility. Carpentry workshop: provides production and training
opportunities. Rural development services: home economics
extension service that provides training to rural areas, and a
mobile construction unit that does "large scale" rural construction
projects to assist and train rural personnel
Library: Specialized collection relating to IT/AT, brick work, water,
wells, vegetables, population and other social factors.
Keywords: agriculture/consulting/training/
rural development/construction/
education/Tanzania
42. **Luthern World Service**

P. O. Box 66  
150 Route de Forney  
1211 Geneva 20  
Switzerland

**Director:** Dr. B. Muetzelfeldt  
**Contact:** David T. Reichard, Administrative Assistant  
**Staff:** Permanent, 30 (at Geneva); other, 2100+  

**Emphasis/Expertise:**
Channels support to church-owned, -related, or -endorsed projects in developing countries through its Community Development Service, and in certain circumstances implements large-scale service programs. Development activities include projects relating to emergency situations, refugee resettlement and areas of endemic need with provision made for assistance in such fields as education, agriculture, water supplies, health and medical services, small-scale industries, social services, communications and transportation infrastructures.

**Recent/Current Projects:**
- **Bangladesh:** construction of roads, bridges and schools; river channelling; small-scale industry; resettlement; community development; disaster preparedness.  
- **Ethiopia:** rehabilitation of drought victims through provision of plowing oxen and seed, tools and well drilling.  
- **India:** housing, water supplies, agriculture, literacy, health services, resettlement.  
- **Jordan:** provision of health care services and vocational training.  
- **Mauritania:** nomad resettlement, health care services and a reforestation project.  
- **Mozambique:** construction of an occupational rehabilitation center.  
- **Peru:** community development program.  
- **Sudan:** construction of dispensaries and veterinary stations; emphasis also on water supplies, agriculture and health care.  
- **Syria:** operates three health care centers.  
- **Tanzania:** operates refugee settlements which assist refugees in becoming self-reliant.  
- **Zambia:** education, health, food, and clothing assistance is being provided to Namibians living in Zambia.

**Publications:** *Training for Village Renewal*

**Keywords:** water/health/industries/education/agriculture/rural development/transportation/Switzerland/training/resettlement/economic development/construction/Bangladesh/Ethiopia/India/Jordan/Peru/Sudan/Mauritania/Mozambique/Syria/Tanzania/Zambia
43. **M/s Garg Consultants**

C-10/1
River Bank Colony
Lucknow, U. P.
India

Chief Consultant: M. K. Garg, M.Sc. (Tech.)
Staff: Permanent, 5

**Emphasis/Expertise:**
Primary emphasis is on development of package plants of appropriate technology complete in all respects which an entrepreneur can by slight modification apply in any country. The main field of work is the industrial and home living technologies.

**Recent/Current Projects:**
Small-scale sugar technology providing consulting services to 2600 producing units; white-ware manufacture at the village level; small-scale cement plant; cottage mechanized spinning plant (projects in conjunction with Appropriate Technology Development Center in India, and Intermediate Technology Development Group, London, England); research on Gobar Gas plants to make production more efficient; water seal latrine that costs only 30% of comparable septic tank systems

**Library:** Small reference collection

**Keywords:** India/industries/consulting/
food processing/methane/sugar/
health/cement

44. **Marketing Development Centre**

Cranfield School of Management
Cranfield
Bedfordshire
United Kingdom

Director: Dr. Malcolm Harper
Staff: Permanent, 2; other, 15

**Emphasis/Expertise:**
Preparation of training material for advisors, enterprise owner/managers; national or regional consulting on development and promotion of small-scale enterprise

**Recent/Current Projects:**
Preparation and field validation of training materials for exporters and export advisors in developing countries, including handicraft producers in conjunction with International Trade Centre, UNCTAD/GATT. Preparation and validation of training materials for small enterprise advisors in conjunction with ITDG. Research into training needs, consultancy and preparation of training material for small-scale enterprise owner/managers in Indonesia, in conjunction with University of Airlangga, Surabaya, the Government of Indonesia, and the Overseas Development Ministry
National Academy of Sciences/National Research Council, SEE #12

45. National Institute of Agricultural Engineering

Overseas Department
Wrest Park, Silsoe
Bedford MK45 4HS
United Kingdom

Director: Professor C. J. Moss
Contact: J. B. Yates, Executive Officer
Staff: Permanent, 15
Emphasis/Expertise: Agricultural engineering
Recent/Current Projects:
- Development of a cotton stalk puller.
- Banana aerial conveyor.
- Dryland farming. Project appraisal and technical information in developing countries

Library: Specialized holdings related to machinery and mechanized agriculture
Serial Publications: Technical bulletins

Keywords: agriculture/United Kingdom/
mechanized agriculture/
consulting

46. National Technical Information Service

c/o U. S. Department of Commerce
425-13th St., N. W.
Washington, D. C. 20004

Director: William T. Knox
Contact: Risë L. Burggraaff, Writer/Editor
Staff: Total, 417
Emphasis/Expertise:
- Locating U. S. Government-sponsored research, development and engineering reports and other analyses prepared by Federal agencies, their contractors, or by special technology groups

Recent/Current Projects:
- Maintains a distribution facility for Government technical reports.
- Maintains computerized NTISearch, an information retrieval system

Library: Central repository for some half a million U. S. Government-sponsored technical reports

Keywords: agriculture/United Kingdom/
mechanized agriculture/
consulting
Serial Publications: Weekly Government Abstracts, Government Reports Announcements and Index

Keywords: information systems/

47. Nature et Progrès

Association Européenne d'Agriculture et d'Hygiène Biologiques
3 Chemin de la Bergerie
91700 Ste-Geneviève des Bois
France

Président: Roland Chevriot
Contact: Yves Michel, Secrétaire
Staff: Permanent, 6

Emphasis/Expertise: Organic agriculture, health, soft technology
Serial Publications: Nature et Progrès

Keywords: health/France/
organic agriculture

48. New Alchemy Institute

P. O. Box 432
Woods Hole
Massachusetts 02543

Contact: Mary J. Todd

Emphasis/Expertise:
Development of ecologically derived forms of energy, agriculture, aquaculture, housing, and landscape

Serial Publications: Journal of the New Alchemists. Other non-serial publications

Keywords: agriculture/aquaculture/ecology/
conservation/housing/methane/
alternative fuels/wind power/
solar energy

49. Oxfam

272 Ganbury Rd.
Oxford
United Kingdom

Director General: Brian Walker
Contact: Paul Sherlock, Technical Education Advisor
Staff: Permanent, 150; other, 300+
Emphasis/Expertise:
A general granting agency working throughout the world in all areas of development. Areas of research are in water resources and sanitation. Also involved in introducing AT/IT into technical education in the United Kingdom and overseas
Recent/Current Projects:
Grant money supports a variety of projects of which an example is in Bangladesh where the emphasis is on equipment procurement and running costs of the rural community health program
Library: Small reference collection at headquarters
Serial Publications: Information from OXFAM
Keywords: education/United Kingdom/water/
health/Bangladesh/rural development

50. Partnership for Productivity Foundation USA, Inc. (PfP)

P. O. Box 170
Annandale
Virginia 22003

Executive Director: Andrew H. Oerke
Staff: Permanent, 2.5; other, many
Emphasis/Expertise:
Improving the capacity of people from traditional societies to organize and manage locally-owned, economic activities, both private and cooperative, especially in rural areas. The stress is on development which helps them retain their own society's personal and social values. "Intermediate Management" emphasizes practical business-like solutions to real-life problems
Recent/Current Projects:
Demonstration paddy rice farm in Nimba County, Liberia; in Kenya the "Bicycle Brigade" [the Rural Enterprise Extension System (REES)] involves training of locals as consultants, and establishment of a working credit institution
Serial Publications: Partnership for Productivity
Keywords: consulting/business management/
training/Africa/Kenya/Liberia/
entrepreneur development/rice/
rural development/cooperatives/
industries

51. Planning Research and Action Division

State Planning Institute
U. P.
Kalakankar House
Lucknow
India
Director: Sri Prabhakar Ghat
Contact: Sri Virendar Bhasin, Specialist on Rural Industries
Staff: Permanent, 11; other, 10
Emphasis/Expertise:
The use of projects to devise and test pilot projects, new ideas and methods which can be put into general field operation. Conducts intensive seminars and training courses
Recent/Current Projects: Decentralized pottery project, Phulpur. Mini crystal sugar production process. Biogas
Library: Access to general Institute library of over 26,000 books and about 150 Indian and foreign journals
Keywords: rural development/cooperatives/
family planning/biogas/training/
information systems/pilot projects/
technology transfer/India

52. Program for Advanced Studies in Institution Building and Technical Assistance Methodology (PASITAM)
Indiana University
1005 East 10th St.
Bloomington, Indiana 47401
Director: Professor William J. Siffin
Contact: Richard A. Steele, Coordinator PASITAM Documentation Center
Staff: Permanent, 7; other, 4
Emphasis/Expertise:
Primary emphasis on entrepreneur development, small business and cottage industry, rural and agricultural development, rural credit schemes
Recent/Current Projects:
Training and education (soft technology). Conducts workshops in LDSs for project planners using knowledge of management, some analytical skill, and organization theory to help participants design, implement, manage and evaluate a project
Library: Documentation and analysis center
Serial Publications: Series: PASITAM Design Notes; PASITAM Newsletter, the Design Process in Development
Keywords: business management/agriculture/
industries/credit and banking/
entrepreneur development/training/
rural development/education
53. **Proyecto Huaylas-Ageup**

Santo Toribio-Huaylas
Ancash
Peru

Executive Secretary: Humberto Bullón Campos

Staff: Permanent, 4; other, 40

Emphasis/Expertise:

This integrated development involves agro-technical, socio-political, educational and religious aspects, with special emphasis on applications of AT/IT to agro-technical industries.

Recent/Current Projects:

Huaylas project is concerned with the applications of solar energy, and other appropriate energy transducers such as windmills.

Library: Small reference collection. Affiliated with the Canadian Hunger Foundation's information system (SEE §14)

Keywords: mechanized agriculture/industries/Peru/solar energy/wind power

54. **Science Policy Research Unit**

The University of Sussex
Mantell Building
Falmer, Brighton
Sussex, BN1 9RF
United Kingdom

Director: Professor C. Freeman
Contact: C. M. Cooper, Senior Fellow

Staff: Permanent, 4; other, 40

Emphasis/Expertise:

A research organization with three main program areas: long term forecasting and world models, technological innovation in advanced industrial economies, science and technology in the third world. The last area covers research on scientific institutions in LDCs, international transactions in technology, and the transfer of technology, and alternative technologies for LDC industry.

Recent/Current Projects:

Study of machine-making industries in LDCs, teaching and training of new research workers from developing countries in science, technology and development issues, the role of machinery supply in the transfer of technology, theoretical focus of work on choice of techniques, transfer of technology to manufacturing industry in Thailand (rubber, tin cans, silk industries), choice of techniques in the manufacturing of tin cans in Kenya, Tanzania, and Thailand;
modern and traditional technologies for rural development: connecting formal science system to rural problems; preparation of teaching material on science, technology, and development

Keywords: industries/United Kingdom/education/rural development/technology transfer/systems modeling/training/Thailand/Kenya/Tanzania

55. **Self Help, Inc.**

116 Sixth St., S. E.
Waverly
Iowa 50677

Executive Director: Ray C. Howland
Contact: Vern L. Schield, President and Founder
Staff: Permanent, 6; other, varies
Emphasis/Expertise: Produces small-scale farm machinery appropriate in size, technology, and cost for the farmers of the developing countries
Recent/Current Projects:
Hopes to contribute to a solution of the problem of world hunger by providing machinery necessary to farm the land efficiently at a cost within reach of the purchaser. Sells equipment at 65% of cost, the other 35% furnished by concerned organizations and individuals
Library: Selected files related to emphasis

Keywords: mechanized agriculture

56. **Servicio de Información Técnica**

Centro de Desarrollo Industrial de Ecuador (CENDES)
Apartado 5833
Guayaquil
Ecuador

Director: Dr. Victor Martinez
Staff: Permanent, 14
Emphasis/Expertise:
Scientific and technical information transfer to industries already established to develop their capacity for technology adaptation
Recent/Current Projects:
Evaluation of technological alternatives, specifically the production of commodities that take into account the use of national raw materials and export markets; preparation of manuals that describe and analyze all the scientific and technological information which can be tested at the pilot plant level
Library:

Library holdings concentrate on food technology, mechanized agriculture, chemical industry, and some publications on technology adaptation.

Serial Publications: Noticias Técnicas (monthly)

Keywords: technology transfer/Ecuador/industries/pilot projects/entrepreneur development/marketing

57. Small Industries Corporation

229 South Street
Georgetown
Guyana

General Manager: D. Chase
Contact: M. G. McIntosh, Secretary
Staff: Permanent, 100; other, 300
Emphasis/Expertise: Loans to small business, and establishment of small and large ventures
Recent/Current Projects: Under construction: textile mill, leather tannery, bicycle plant
Serial Publications: Newsletter

Keywords: credit and banking/industries/Guyana

58. Society for International Development

1346 Connecticut Ave., N. W.
Washington, D. C. 20036

Executive Secretary: Andrew E. Rice
Contact: Donaldine S. Finegold, Coordinator, Reference Service on Development Information
Staff: Permanent, 10; other, 2
Emphasis/Expertise: Provides a forum through world and regional conferences for the exchange of ideas, facts, and experience among all persons professionally concerned with problems of economic and social development in modernizing societies
Recent/Current Projects:
The SID Development Reference Service (49 rue de la Glacière, 75013 Paris, France) acts as a clearing house for questions, referring them to appropriate sources of information. The International Roster of Development Skills is an information retrieval system through which agencies can locate skilled personnel. SID Directory of Members provides a cross referenced listing of development experts throughout the world. Publishes handbooks such as International Guide to Directories of Resources in International Development, and Films of a Changing World. (catalog available)
59. Soil Association, Ltd.

          Walnut Tree Manor
          Houghley, Stowmarket
          Suffolk IP14 3RS
          United Kingdom

          Contact: Brigadier A. W. Vickers, General Secretary
          Staff: Permanent, 8; other, 50

          Emphasis/Expertise:
          A worldwide charity to promote a fuller understanding of the vital
          relationship between soil, plant, animal, and man, believing
          that nutrition derived from a balanced living soil is the greatest
          single contribution to health. It encourages an ecological
          approach, and offers organic husbandry as a viable alternative
          to modern intensive methods

          Recent/Current Projects:
          Educating of the public, particularly youth, in the principles
          and practices of organic husbandry. Conducts two courses per
          year, each of one week's duration, with as many as 1,000
          students, 30 percent from overseas

          Library: Maintains a reference collection for members only, relating
          to nutrition, health, and ecological matters

          Serial Publications: Quarterly Review; series of educational booklets
          dealing with organic husbandry

          Keywords: organic agriculture/agriculture/
                    ecology/education/nutrition/
                    United Kingdom/health

60. Stichting Sarvodaya Shramadana in Europe

          2, Westerweg
          Bergen, Nh
          Netherlands

          Director: P. Dijkstra
          Staff: All volunteer, number varies

          Emphasis/Expertise: Entrepreneur development

          Recent/Current Projects:
          Close relationship with Sarvodaya Movement in Sri Lanka. Includes
          such projects as batik making, woodwork, mat weaving, etc.

          Keywords: entrepreneur development/handicrafts/
                    rural development/Sri Lanka/Netherlands
61. **Swiss Association for Intermediate Technology (SVMT)**

c/o Lateinamerikanisches Institut
Varnbuelstrasse 14
9000 St. Gallen
Switzerland

President: Annette Berweger-Kaiser
Contact: Hans Lehne
Staff: Permanent, 5; other, 50

**Emphasis/Expertise:**
Organization emphasizes development through promotion, diffusion, and application of appropriate small-scale technological procedures. Technical as well as socioeconomic aspects are considered. Linkages have been established with third world and industrialized countries

**Recent/Current Projects:**
Construction and tests of solar cookers in six developing countries, grain storage in developing countries, cheap earthquake-proof building construction in Guatemala. Publicity and sensitivity work in Switzerland

**Keywords:** technology transfer/construction/
Switzerland/solar energy/consulting/
grain storage/Guatemala

62. **Technische Werkgroep Ontwikkelingssamenwerking (T.W.O.)**

Laan 1914 nt. 35,
Postbus 85
Amersfoort
Netherlands

Chairman: Jan Oomen
Contact: Ing. Jan Jonker
Staff: Permanent, 6; volunteers, 60

**Emphasis/Expertise:**
Water supply, transport and storage of water, sewage treatment, chemical analysis of water irrigation, hydropower building material and construction for low-cost housing. Wind energy, solar energy

**Recent/Current Projects:**
Purification of drinking water, a small hydropower installation, construction of a wooden water-wheel, windmills for water supply, construction of values for irrigation

**Library:** Small specialized collection

**Keywords:** sewage treatment/wind power/
water/solar energy/housing/
irrigation/Netherlands/construction
63. **Technology Consultancy Centre**  
University of Science and Technology  
Kumasi  
Ghana  

Director: Dr. J. W. Powell  
Staff: Permanent, 11; other 25  

Emphasis/Expertise:  
Emphasis on small industrial development through intermediate technology, and means of involving the University in this field  

Recent/Current Projects:  
Creation and operation of pilot production units at the University including soap, bolt, ceramics, weaving, agricultural engineering, and architecture; promotion of rural industries including Ashanti villages craft development, brass casting by lost wax process, bead making at Daabar, plantations at Offinso, industrial development at Elmina, and blacksmiths training workshop at Nandom  

Serial Publications: Annual reviews and a quarterly newsletter  

Keywords: consulting/pilot projects/Ghana/rural development/agriculture/industries/soap/handicrafts

64. **Technology Transfer Center (TTC)**  
Korea Institute of Science and Technology  
P. O. Box 131  
Cheong Ryang, Seoul  
Korea  

Director: Dr. H. W. Pack  
Staff: Permanent, 30  

Emphasis/Expertise:  
Provide a bridge between technology-giving and technology-receiving organizations for the Korean Government and domestic industries  

Recent/Current Projects: State-of-the-art report on appropriate/intermediate technology in Korea  

Library: Specialized materials relating to AT/IT  

Keywords: technology transfer/consulting/Korea

65. **Technonet Asia**, SEE ALSO #35  
International Development Research Center  
Tanglin P. O. Box 160  
Singapore 10  
Republic of Singapore  

Director: Dr. Leon V. Chico  
Contact: Dr. William J. Gall, Deputy Administrator
Emphasis/Expertise:
Stimulate the transfer of industrial (technical) information between and among the 11 participating organizations which comprise the TECHNONET co-operative network: Bangladesh, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Sri Lanka, Thailand

Recent/Current Projects:
Industrial extension officers' training course (to date 48 personnel have attended); conducted First Asian Industrial Extension Officers' Conference in November, 1975; maintains access to the Technical Information Service of the National Research Council of Canada (NRC/TIS)

Library: Has indirect access to NRC/TIS
Serial Publications: TECHNONET Asia

Keywords: information systems/technology transfer/
consulting/Singapore/Bangladesh/Korea/
Hong Kong/Indonesia/Malaysia/Thailand/
Philippines/Sri Lanka

66. United Nations Industrial Development Organization (UNIDO)

P. O. Box 707
A-1010
Vienna
Austria

Executive Director: Dr. Abd-El Rahman Khane
Contact: Mr. W. H. Tanaka, Acting Head, Development and Transfer of Technology Section, International Centre for Industrial Studies, UNIDO

Staff: Permanent, 332; other, 800

Emphasis/Expertise:
As the central coordinating agency in this field in the UN system, it promotes industrial development of developing countries through technical assistance, advisory services, action-oriented studies, meetings, training programs, etc. Qualified to comment on all aspects of industrial technology

Recent/Current Projects: Planning an industrial and technological information bank; operates industrial inquiry service; many other projects too numerous to be listed completely

Library: Extensive collection on all aspects of industrial development including appropriate technology

Serial Publications: UNIDO Newsletter (monthly). Mimeographed series of compilations on technologies from developing countries

Keywords: technology transfer/industries/
consulting/information systems/
67. **U.S. Department of Housing and Urban Development**  
Office of International Affairs  
Division of Technology and Documentation  
Washington, D. C. 20410  

Director: Thomas R. Callaway  
Staff: Permanent, 24  

Emphasis/Expertise:  
Program and technical information related to the full range of  
housing and urban development interests including technology  
transfer, information exchange, and support of research  
Recent/Current Projects: Consulting, information searches, publications  
Library: A comprehensive collection regarding housing and related subjects  
Serial Publications:  
HUD International Information Series, HUD International Country  
Profiles, HUD International Information Sources Series, HUD  
International Special Reports  

Keywords: housing/information systems/  
technology transfer/construction

68. **University of Arizona**  
Tucson  
Arizona, 85721  

Emphasis/Expertise:  
Interest in Appropriate Technology is widespread throughout the  
institution, as illustrated by the following examples:  

1) Laboratory of Native Development, Systems Analysis and Applied  
Technology (NADSAT), administered by the University's Office of  
Arid Lands Studies (845 North Park Avenue, Tucson, Arizona 85719),  
provides technical assistance to American Indian tribes of the  
southwest U. S. for more effective use and economic development  
of their reservations' natural resources, and seeks to transfer  
current technology to the tribes to assist in their expressed  
goal of greater self-determination. To this end, the program  
seeks to apply technology designed to address development in arid  
and semiarid regions, to adopt technological solutions to the  
unique personnel and institutional situations on each reservation,  
and to present resulting recommendations in such a format as to  
facilitate information transfer to the tribe  

Contact: Michael E. Norvelle, Natural Resources Development Specialist  

2) Niger Natural Resources Planning Project, a component of the  
University's institutional US/AID 211(d) grant. This project  
seeks to assess the status of natural resources (water, soils,  
infrastucture, institutions, agriculture, etc.) in a region of  
Niger, evaluating various strategies for development and making  
the results of the evaluation and the methodology of the evaluation
available to the Government of Niger. Appropriate technology approaches to development will form a significant component of these strategies. As a result of field work there, team members have acquired information on technologies currently in use in the region.

Contact: Dr. John E. Crow, Project Director

3) The College of Engineering, with emphasis on technology transfer through its programs in reliability, materials, energy systems, and sanitary and environmental engineering, carries out innovative research into many aspects of intermediate technology, for example: dust control through the use of electrically-charged artificial fog to suppress dust in manufacturing and earth-moving operations; evaporation control by means of small-scale floating plastic devices; dew absorption apparatus as a water-saving mechanism; methane research; sand control/soil stabilization investigations; and various energy conversion techniques.

Contact: Dr. Terry Triffet, Research Director of Engineering and Associate Dean

Library:
The University's Office of Arid Lands Studies maintains a computerized arid lands information system (ALIS) plus a small specialized collection of appropriate materials not usually available in conventional libraries.

Keywords: technology transfer/Niger/training/rural development/decision making/entrepreneur development/industries/information systems/pilot projects/systems modeling/consulting/methane/industrial machines/energy

69. University of the Philippines, Institute for Small-Scale Industries (UP/ISSI)

E. Virata Hall
E. Jacinto St.
UP, Campus, Diliman
Quezon City - 3004
Philippines

Acting Director: Paterno V. Viloria
Contact: Arturo O. Mangabat, Research Engineer
Staff: Permanent, 120

Emphasis/Expertise:
Promotion and development of low-cost automation as adaptive/appropriate technology for small and medium industries, entrepreneur development, consulting, research, and training, with emphasis on small industry.
Recent/Current Projects:
State-of-the-Art Review Series conducted to determine the different levels of technology used in selected industries, including wooden furniture, shoemaking, garments, foundry, electroplating, tin containers, plastics, coco-coir, food processing; project study preparation for small and medium industry; resettlement area development; establishing Marikina Shoe Trade Commission Data Bank; establishing the UP-ISSI Adaptive Technology Department; identification of potential industries for Tondo Foreshore project; and application of low-cost automation concepts and techniques, including design of machinery and equipment for small and medium industries.

Library: Specialized collection of data on IT/AT
Serial Publications: Small Industry Journal

Keywords: technology transfer/consulting/entrepreneur development/industries/Philippines

70. Volunteers in Technical Assistance (VITA)

3706 Rhode Island Ave.
Mt. Rainier
Maryland 20822

Executive Director: Thomas H. Fox
Contact: Cynthia Conti, Administrative Assistant
Staff: Permanent, 19; volunteer, 4,500

Emphasis/Expertise:
A by-mail technical problem solver for developing countries worldwide. It is particularly qualified to comment on alternative technologies, technical delivery systems, hardware design, agriculture, food and water resources.

Recent/Current Projects:
Number of projects too numerous to list all. Two examples are:
Lime Production: VITA volunteers working with Centro Cooperativo Industrial, Honduras, and VITA-Honduras have designed a lime kiln that has reduced the required fuel by 40 percent. The design has been replicated by a commercial brick company in Honduras.
Agricultural Implements: In collaboration with the International Institute of Tropical Agriculture in Nigeria, a VITA volunteer panel has been working on a new farming system for the lowland humid tropics. Project will design and test certain implements that are essential to the system.

Library:
A comprehensive collection of material and designs in most technical fields, specifically solar energy, agricultural and water resources, basic rural technologies.
Serial Publications: VITA News (quarterly), and Vis-a-Vis (quarterly).
Other non-serial publications

Keywords: information systems/consulting/
technology transfer/agriculture/
industries/Honduras/Nigeria/
rural development

71. Whole Earth Truck Store

558 Santa Cruz Ave.
Menlo Park
California 94025

Contact: Pat, Kim, Nancy, George, Annie, or Benjo
Staff: Permanent, 6
Emphasis/Expertise:
Concerned about the over-consumption of energy and other resources. Emphasize that there are other ways to exist that will allow us to preserve the environment, and make it possible for a larger portion of the population to rediscover meaningful work and have rewarding lives
Recent/Current Projects: Continue to distribute literature regarding techniques and technologies for non-exploitive living
Library: Retail books and merchandise
Serial Publications: The Coevolution Quarterly (continuation of the Whole Earth Catalog)

Keywords: environment/conservation/
energy/ecology

72. World Council of Churches, Commission on the Churches Participation in Development (WCC/CCPD)

105 Route de Ferney
P. O. Box 66
1211 Geneva, 20
Switzerland

Director: C. I. Itty
Contact: Pascal de Pury
Staff: Permanent, 2; other, 3
Emphasis/Expertise:
Techniques of small animal husbandry, wind and solar energy techniques that can be mastered by village craftsmen
Recent/Current Projects:
Directory of appropriate techniques used by the WCC technical network members; technical appraisal of projects; study of handicrafts; grain storage training program for a year in Cameroun
Serial Publications: Occasional circulars relating to techniques
appropriate to the recipient

Keywords: animal husbandry/Switzerland/
agriculture/handicrafts/
solar energy/grain storage/
wind power/ Cameroun

73. World Neighbors
5116 North Portland Ave.
Oklahoma City
Oklahoma 73122

President: James Morgan
Contact: Kenneth W. Tull, Director, Overseas Development Materials
Emphasis/Expertise: Motivational aspect of appropriate technology.
Promotion of technology already available within the concerned
country
Recent/Current Projects: 90 projects on-going in 28 different countries
Serial Publications: World Neighbors in Action (a quarterly publication
in both English and Spanish)

Keywords: motivation training

74. Yantra Vidyalat
Bardoli-1
Dist. Surat
India

Contact: Shri Mohan Parikh
Staff: Permanent, 15, volunteer, 2-3
Emphasis/Expertise: Improved agricultural hand tools and bullock-
driven implements: design, production and sales
Recent/Current Projects: Biogas plants (using organic, i.e. farm, and
factory waste); solar energy, particularly flat type ovens and
water heaters; organic gardening
Library: Specialized collections on agricultural and rural engineering,
rural sanitation, biogas, solar energy

Keywords: India/agricultural implements/
organic agriculture/biogas/
solar energy/
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QUESTIONNAIRE

1. What is the:
   a. Name of your organization as you would like to have it appear in the guide?

   b. Name and title of the organization's director?

   c. Name and title of the person responding to this questionnaire?

2. How many people does your organization employ as:
   a. Permanent staff?

   b. Volunteer, extension, or project related personnel?

3. What is the primary emphasis of your organization?
   In other words, about which subjects (i.e. alternative fuels, technology delivery systems, consulting, hardware design, entrepreneur development, etc.) would your organization be particularly qualified to comment?
4. Do you have any on-going projects? If so please list and give brief summary of project.

5. Do you publish a newsletter/journal/serial publication concerning Intermediate/Appropriate Technology or related subject such as energy, ecology, alternative fuels and power sources, etc.? If so please list.

6. Do you maintain a library or data collection relating to Intermediate/Appropriate Technology? If so provide a brief description of your holdings.

7. Would you like to receive a copy of the guide when it is completed?

NOTE: This questionnaire is already return addressed (see other side). Please fold as indicated, staple, stamp and return. Thank you for your cooperation.
September 30, 1976

Dear Sir:

I have just finished a state-of-the-art report regarding Appropriate/Intermediate Technology as part of my graduate work at the University of Arizona, Tucson. It quickly became apparent to me that there is no comprehensive guide to the library literature for this subject. Appropriate Technology is unlikely to become established as a development strategy as long as the fundamental literature remains buried by non-specific titles in the current indices. I propose to develop a guide to Appropriate/Intermediate Technology literature, including guides to information services and practitioners, such as yourself. I am therefore soliciting your cooperation to ensure that your organization is properly listed in the guide.

Please respond to the enclosed questionnaire. If the questionnaire does not provide the opportunity for you to express some unique aspect of your organization or you need additional space to respond to a question, feel free to provide additional material.

Sincerely,

Harry L. Weaver
Research Assistant

NLW/bp
OTHER ORGANIZATIONS*

Action Research Center for Entrepreneurship
3rd Floor, 35 New Marine Lines
Bombay 400-020
India

African Studies Center
Michigan State University
100 International Center
East Lansing, Michigan 48824
U.S.A.

Allahabad Agricultural Institute Inc.
M.O. Centre, Stony Point
New York, N.Y.
U.S.A.

Antipoverty Limited
67 Godstow Road
Wolvercote, Oxford
Oxford 8NY
England

Applied Scientific Research Corporation of Thailand
196, Phaholyothin Road
Bang Khen
Thailand

Appropriate Technology Advisory Unit
Christian Relief and Development Association
P.O. Box 5674
Addis Ababa
Ethiopia

Appropriate Technology Development Group
B IV/36 Safdarjung Development Scheme
New Delhi 16
India

Auroville Centre for Environmental Studies
Auma Research and Development Facility
3 rue Dupuy, Pondicherry
605002, India

Badan Urusan Tenaga Keya Sukatela Indonesia (BUTSI)
(Indonesian Board for Volunteer Service)
Jalan Halimun 4
Jakarta, Indonesia

Catholic Foreign Missions
Mary Knoll
New York 10543
U.S.A.

CECOCO
Chuo Boeki Goshi Kaisha
P.O. Box 8
Ibaraki City
Osaka
Japan

Center for International Studies
Cornell University
170 Iris Hall, Tower Road
Ithaca, New York 14850
U.S.A.

Center for Policy Alternatives
Massachusetts Institute of Technology
Room 39-551, 77 Massachusetts Ave
Cambridge, Massachusetts 02139
U.S.A.

Centre for Development Studies
Ulloor
Trivandrum 695011
Kerala
South India

*Not responding to questionnaire*
Centre International Pour le Développement Agricole (CIRDA)  
19 Rue Dufrenoy  
75116 Paris  
France

Centre National de Promotion de Petites et Moyennes Enterprises  
B.P. 1086, Lome  
Togo  
West Africa

Chilean Institute of Technology Research (INTEC)  
Casilla 667  
Santiago  
Chile

Chilalo Agricultural Development Unit  
C.A.D.U.  
P.O. Box 3176  
Addis Ababa, Ethiopia

ENDA  
P.O. Box 3370  
Dakar  
Senegal

Federal Institute of Industrial Research  
Private Mail Bag 1023  
Ikeja Airport  
Nigeria

Food and Agriculture Organization of the United Nations  
Rural Institutions Division  
Via delle Terme di Caracalla  
00100 Rome  
Italy

Fundación para el Fomento de la Investigación Científica (FICITEC)  
Apartado Aéreo 27872  
Bogota D.F.  
Colombia

Gandhian Institute of Studies  
Appropriate Technology Development Unit  
Post Box 116  
Rajghat, Varanasi 221001  
India

German Foundation for International Development  
1 Berlin 27  
Reiherwarder, Berlin  
Germany

Groupe de Recherches sur les Technologies Appropriées  
54 Rue de Varenne  
Paris 75007  
France

Indonesian Board for Volunteer Services  
Butsi Secretary  
Tromol Pos 3290  
Jakarta  
Indonesia

Industrial Research Unit  
University of Ife  
Ife-Ife, Western State  
Nigeria

Industry Development Program  
Development Academy of the Philippines  
3rd Floor, BF Condominium, Aduana  
Manila, Philippines

Institut Pertanian Bogor  
(Bogor Agricultural University)  
Fatemeta Jalan Gunung Gede  
TLP BOT 571  
Bogor, Malaysia

Institut for Policy Studies  
1520 New Hampshire Avenue  
Washington, D.C. 20036  
U.S.A.

Institute of Development Studies  
University of Sussex  
Brighton BN1 9RE  
United Kingdom
Integrative Design Associates, Inc.
1740 N Street, NW
Washington, D.C., 20036

Intercontinental Educational Media
N.V.P.O. Box 42
Aerdenhout
The Netherlands

Intermediate Technology Workshops
P.O. Box 401, Waff Road
Zaria, North-Central State
Nigeria

International Centre for Research in the
Semi-Arid Tropics (ICRISAT)
1-11-256 Begumpet, Hyderabad 50016
India

Malaysian Agricultural Research and
Development Institute (MARDI)
Jalan Marktab
Kuala Lumpur
Malaysia

Marga Institute
(Sri Lanka Centre for Development
Studies)
P.O. Box 601
Colombo
Sri Lanka

Mexican Institute of Technological
Research
Techno-Economics Division
Calsada Legaria 694
Mexico 16 D.F.
Mexico

Mindanao State University
Regional Adaptive Technology Center
Marawi City
Mindanao
Philippines

National Academy of Engineering
Office of the Foreign Secretary
2101 Constitution Avenue
Washington, D.C. 20418
U.S.A.

National Center for Appropriate
Technology (NCAT)
P.O. Box 3809
Butte, Montana 59701
U.S.A.

National Industrial Development
Corporation
P.O. Box 99
Malkerns
Swaziland
South Africa

National University
Department of Civil Engineering
Faculty of Technology
P.O. Box 518
Addis Ababa, Ethiopia

Organization of Economic Cooperation
and Development
94 rue Chardon-Lagache
75016 Paris
France

Overseas Development Council (ODC)
1717 Massachusetts Ave., N.W.
Washington, D.C. 20036
U.S.A.

Servicio de Documentación y Comunicación
Rural (SEDOC)
C.E.P.A. Ap. 2929
Managua, Nicaragua

Small Scale Industries
Office of the Development Commission
Maulana Azad Road
New Delhi II
India

Small Industries Development Organization
Shirika La Kuhudumia
Uwanda, Vidogo
P.O. Box 2476
Dar es Salaam
Tanzania
Société d'Aide Technique et de Coopération (SATEC) 110 rue de l'Université Paris 7e France

Southeast Asia Technology Co. Ltd. (SEATEC) Nai Lert Building 87 Sukhumuit Rd Bangkok Thailand

Stichting Technische Ontwikkeling Ontwikkelings Landen (TOOL) Postbus 525 Eindhoven, Celebeslaan 6 Netherlands

Tanzania Agricultural Machinery Testing Unit P.O. Box 1389 Arusha, Tanzania

Soong Jun University Integrated Development Center 135 Sang-do Dong Seoul 150 Korea

Tchuba (The American Committee for Cape Verde) 14 Beacon Street Boston, Mass. 02108 U.S.A.

Techboserve, Inc. 36 Old King's Highway South Darien, Connecticut 06820 U.S.A.

Technische Hogeschool Eindhoven Division of Microprojects Postbus 513 Eindhoven Netherlands

Tropical Products Institute Rural Food Technology Advisory Group Industrial Development Department Culham, Abingdon, Oxon OX14 3DA United Kingdom

UNESCO Committee for Development Planning Department of State Washington, D.C. 20520

UNICEF Village Technology Unit P.O. Box 44145 Nairobi Kenya

United Nations Economic and Social Commission for Africa and the Pacific (ESCAP) Sala Santitham Rajdammern Ave Bangkok Thailand

United Nations Economic and Social Council Advisory Committee on the Application of Science and Technology Department of State Washington, D.C. 20520 U.S.A.

United Nations Economic Commission for Africa Village Technology Unit c/o Human Resources Development Division P.O. Box 3001 Addis Ababa Ethiopia

U.S. Department of Agriculture 500 12th Street S.W. No. 502 Washington D.C. 20250 U.S.A.
Village Design
1545 Dwight
Berkeley, California 94703
U.S.A.

Village Technology Innovation Experiment
V.T.I.E.
P.O. Box 31
Goat Hill
Addis Ababa
Ethiopia

Village Technology Unit
P.O. Box 45
Jalan Halimun 4
Jakarta
Indonesia

Voluntary Committee on Overseas Aid and Development (VCOAD)
International Development Centre
Parnell House
25 Wilton Road
London SW1V 1JS
United Kingdom

Volunteers for International Development (VID)
Box 4543
Stanford, California 94305
U.S.A.

Volunteers in Asia
Appropriate Technology Project
Box 4543
Stanford, California 94305
U.S.A.
LIST OF INDEXING AND ABSTRACTING TOOLS

1. A.I.D. Research and Development Abstracts (quarterly; e.g. v. 5, no. 1, July 1977)
   US/AID Bureau for Technical Assistance, Washington, D.C. 20523
   Abstracts of R&D publications by subject fields, plus separate listing
   of bibliographies, author index, index of issuing offices
   Access to IT information through use of subject field listing in each
   issue, such as
   /development assistance/
   /science and technology/
   /education, extension, and advisory work/

2. Bibliography of Agriculture (monthly, with annual accumulation)
   Oryx Press, 3930 E. Camelback Rd., Phoenix, Arizona 85018
   [formerly issued by USDA; but see also #10 of this listing]
   Data provided by National Agricultural Library from its CAIN
   Access to IT information through its subject index under such terms as
   /economic development/
   /economies, developing/

3. Dissertation Abstracts International / Comprehensive Dissertation Index
   University Microfilms International, Ann Arbor, Michigan 48106
   Access to IT information through its Section B (the Sciences), pt. 2
   (Engineering) of the Index, under such terms as
   /intermediate technology/
   /appropriate technology/
   /economic development/
   permuted from dissertation titles

4. Engineering Index (annual, with monthly update [e.g. vol. 15, no. 8, August 1977])
   Engineering Index, Inc., 345 East 47th Street, New York, N.Y. 10017
   Access to IT information through its subject index, pt. 4, under such
   terms as
   /technology/
   /technological forecasting/

5. Environment Index (annual, with monthly update)
   Environment Information Center, 292 Madison Ave., New York, N.Y. 10017
   Access to IT information through its index under such terms as
   /industrial development/
   /developing nations/

6. FAO Documentation—Current Bibliography (monthly) / Current Index (yearly
   cumulative issue)
   Food and Agriculture Organization of the United Nations, Via delle
   Terme di Caracalla, 00100 Rome, Italy
Access to IT information through subject (KWOC) index in each issue (plus yearly cumulative index) under such terms as
/intermediate technology/
/appropriate technology/
/economic development/

7. Government Reports Announcements and Index (biweekly; cummulated)
   National Technical Information Service, Springfield, Virginia 22161
   Access to IT information through subject index under term
   /technical assistance/

8. Journal of Economic Literature (quarterly; e.g., vol. 15, no. 1, March 1977)
   American Economic Association, 1313 21st Ave. S, Nashville, Tennessee 37212
   Formerly the Journal of Economic Abstracts
   Access to IT information through the following subsections of section
   "Current Periodicals":
   #121: Economic development studies of less developed countries
   #225: Social indicators and social accounts

9. Monthly Catalog of U.S. Government Publications (monthly, including subject index, with annual subject index accumulation in December issue)
   Access to IT information in subject index by way of such terms as
   /economic development/
   /technology transfer/

10. National Agricultural Library Catalog (monthly, including subject index in each issue, with 6-months cumulation in June issue, annual in December)
    U.S. Department of Agriculture, Beltsville, Maryland 20705
    See also #2 of this listing
    Access to IT information by way of such terms as
    /economic development/
    /technology transfer/

11. Public Affairs Information Service Bulletin (annual, with weekly supplements)
    PAIS, 11 West 40th Street, New York, N.Y. 10018
    Access to IT information through use of such index terms as
    /underdeveloped states, economic planning/
    /technology, social aspects/
    /technology transfer/

12. Science Citation Index (annual, with quarterly updates)
    Institute for Scientific Information, Inc., 325 Chestnut St., Philadelphia, Pennsylvania 19106
    Access to IT information through Permuterm Subject Index volume
    under such keywords, permuted from article titles, as
    /intermediate technology/
    /appropriate technology/
    /developing countries, technology/
    /economic development/
13. **Social Sciences Citation Index** (annual, with quarterly updates)  
Institute for Scientific Information, Inc., 325 Chestnut St., Philadelphia,  
Pennsylvania 19106  
Issued in parts, of which pt. 2, Source Index and Corporate Address  
Index, also includes a Permuterm subject index providing access to  
IT information under such terms, permuted from article titles, as  
/intermediate technology/  
/appropriate technology/  
/developing countries, technology/  
/economic development/  

14. **Social Sciences Index** (quarterly, with annual cumulation)  
H.W. Wilson Co., 950 University Ave., Bronx, New York 10452  
Supersedes earlier titles: International Index to Periodicals (to  
March 1965), Social Sciences and Humanities Index (April 1965–  
March 1975)  
A single alphabetical arrangement, with access to IT information under  
such terms as  
/economic development/  
/technology and civilization/  
/technology transfer/  
/underdeveloped areas/  

15. **UNINDEX: United Nations Document Index** (10 issues per year)  
United Nations Documentation Services Division, New York, N.Y. 10017  
Issued in three series: A (Subject index [most useful search term:  
science and technology: transfer to developing countries]),  
B (Country index), and C (List of documents). The most compre-  
hensive, bibliographically, is C, with best access to IT information  
by reference therein either to two UN Committees: UNIDO (UN  
Industrial Development Organization), and/or UNDP (UN Development  
Program); or by reference to C's monthly "Broad subject key to  
document series" under such terms as  
/development planning/  
/housing, building and planning/  
/science-technology/  
/technical cooperation/
A SELECTED LIST OF JOURNALS/NEWSLETTERS

1. Alternative Sources of Energy (quarterly)
   ASE/Attention: Donald Marier, Rt. 2, Box 90A, Milaca, Minnesota 56353
   No. 20, March 1976.* Subscription: $5.00 (US)

2. Appropriate Technology (quarterly)
   Intermediate Technology Publs., Ltd., 9 King St., London WC2E 8HN, England
   Vol. 4, no. 1, May 1977.* Subscription: £4

3. Ceres: FAO Review on Development (bi-monthly)
   FAO, Via delle Terme di Caracalla, 00100 Rome, Italy
   v. 8, no. 5, September/October 1975.* Subscription: L.3 500

4. Development Digest (quarterly)
   US/AID: a quarterly journal of excerpts, summaries, and reprints of
   current materials on economic and social development.
   Vol. 15, no. 2, April 1977.* Subscription: $7.90 (orders to U.S.

5. Impact of Science on Society (quarterly)
   UNESCO, Box 433, New York, N.Y. 10016
   Vol. 27, no. 1, January/March 1977.* Subscription: fr 32.

6. International Development Review (quarterly)
   Society for International Development, 1346 Connecticut Ave., N.W.,
   Washington, D.C. 20036
   Vol. 19, no. 1, 1977.* Subscription: $25.00

7. International Labour Review (monthly)
   International Labour Organization, CH1211, Geneva 22, Switzerland
   Vol. 113, no. 3, May-June 1976.* Subscription: ?

8. Investment Africa
   Vol. 4, no. 2, June 1976.* No charge?
   United Nations Economic Commission for Africa, P.O. Box 3001,
   Addis Ababa, Ethiopia

9. Mother Earth News (bi-monthly)
   P.O. Box 70, Hendersonville, North Carolina 28739
   No. 24, November 1973.* Subscription: $6.00

10. OECD Observer (bi-monthly)
    Organization for Economic Cooperation and Development, 2 rue Ander Pascal,
    75775 Paris, France.
    No. 67, December 1973.* Subscription: $4.50

*Latest issue seen
11. **Rain** (monthly)
   Eco-Net, Portland State University Environmental Education Center,
   F.O. Box 751, Portland, Oregon 97297

12. **Rural Development Network Bulletin**
   Overseas Liaison Committee, American Council on Education, 11 Dupont
   Circle, Washington, D.C. 20036
   No. 6, pt. 2, May 1977.* No charge?

13. **Small Industry Development Network, A Quarterly Newsletter**
    Economic Development Laboratory, Engineering Experiment Station, Georgia
    Institute of Technology, Atlanta Georgia 30332
    Vol. 2, no. 4, 2d quarter 1976.* No charge

14. **Small Industry Journal**
    Echanis Press, Inc., 388 Dr. J. Fernandez Avenue, Mandaluyong, Rizal,
    Philippines
    Vol. 9, no. 4, October/December 1976.* Subscription: $8.00

15. **War on Hunger** (monthly)
    U.S. Agency for International Development, Publications Division,
    Office of Public Affairs, Room 4886, State Department Building,
    Washington, D.C. 20523
    Vol. 11, no. 7, July 1977.* No charge

16. **World Hunger/Action for Development** (bi-weekly)
    Voluntary Committee on Overseas Aid and Development, Parnell House,
    25 Wilton Rd., London SW1V 1JS, England
APPENDIX B

Annotated Bibliography
BIBLIOGRAPHY

1
ABERNATHY, W./TOWNSEND, P.
1975
TECHNOLOGY, PRODUCTIVITY AND PROCESS CHANGE.

This paper proposes a new model to clarify the factors that facilitate or inhibit successful application of new technological knowledge to improve productivity. Technological innovations have the least impact where they are needed most. The authors' hypothesis is that the stage of development which a productive segment has reached along this profile will determine its propensity to host particular types of innovation. A descriptive model of process evolution is proposed as a new basis for clarifying the relationships among technological innovation and productivity improvement within an organization.

2
AHIMAZ, F.J.
1975
A METHOD FOR FORMULATING AND IMPLEMENTING SCIENCE POLICY FOR A SMALL DEVELOPING COUNTRY (COSTA RICA).
CORNELL UNIVERSITY, ITHACA, NEW YORK, PROGRAM ON POLICIES FOR SCIENCE AND TECHNOLOGY IN DEVELOPING NATIONS.
Three methods for formulating and implementing policy (HAROLD GLASS: RUDGE-UP, SECTOR) are discussed. The development of a modified RUDGE-UP approach for science policy for Costa Rica is presented.
DEVELOPING COUNTRIES/GOVERNMENT/COSTA RICA

3
AIRYARATUE, A.T.
1976
SARVODAYA SHRAMADANA IN SRI LANKA.

The Sarvodaya Shramadana Movement in Sri Lanka is a program intended to motivate a population toward self-help and improvement. The concept of each individual's part and importance in the overall national development is stressed, and training centers are described which provide instruction in community leadership, agriculture, village technology and other techniques necessary for change, beginning at the village level.
DEVELOPING COUNTRIES/SRI LANKA/EDUCATION
FOCUS OBJECTIVES OF THE TECHNOLOGY DEVELOPMENT INSTITUTE (TDI) OF THE EAST-WEST CENTER ARE ON THEMES OF EMPLOYMENT ORIENTED DEVELOPMENT PLANNING, TECHNOLOGY ADAPTATION, ENTREPRENEURSHIP DEVELOPMENT, INSTITUTION BUILDING, PUBLIC POLICY AND DEVELOPMENT ADMINISTRATION. TDI'S GOALS ARE FURTHER IMPLEMENTED THROUGH USE OF REGIONAL ADAPTIVE TECHNOLOGICAL CENTERS IN UNIVERSITIES IN KOREA, PHILIPPINES AND INDONESIA. THE TRIAD FORMED BY TDI, THE REGIONAL ADAPTIVE TECHNOLOGY CENTER, AND CENTERS OF EXCELLENCE FORM THE ORGANIZATION FOR TRANSFER OF TECHNOLOGY TO THE SMALL FARM SECTOR. TDI WORKS IN COOPERATION WITH 23 INSTITUTIONS IN 6 COUNTRIES.

DEVELOPING COUNTRIES/KOREA/INDONESIA/PHILIPPINES/AGRICULTURE/ENTREPRENEURSHIP/TECHNOLOGY TRANSFER/CONSULTING/INDUSTRIES/EDUCATION
ALTSHUL, R.
1976
URBANIZATION IN WEST AFRICA. PAPER PRESENTED AT
WEST AFRICA CONFERENCE, UNIVERSITY OF ARIZONA, TUCSON, APRIL 11-15, 1976,
PROCEEDINGS, P. 74-61.
URBAN GROWTH RATES IN DEVELOPING COUNTRIES, THE PROPORTION ATTRIBUTABLE TO
RURAL-URBAN MIGRATION AND RURAL-URBAN INCOME DIFFERENTIALS ARE DISCUSSED.
DEVELOPING COUNTRIES/SOCIAL ASPECTS/LABOR MIGRATION

A

AGONYOJUS

1974
DIFFERENT DEVELOPMENT MODELS OR STYLES.

ECONOMIC BULLETIN FOR LATIN AMERICA 1961-21:40-64.
A VERY GENERAL DISCUSSION OF A MATHEMATICAL PROJECTION MODEL. PROJECTIONS FOR
THE NEXT 30 YEARS ARE MADE REGARDING GROWTH, EMPLOYMENT AND THE DISTRIBUTION OF
INCOME IN LATIN AMERICA.
DEVELOPING COUNTRIES/DECISION MODELS/SOCIAL ASPECTS/FORECASTING/LATIN AMERICA

O

AGONYOJUS

1974
SOME CONCLUSIONS ON INTEGRATION, INDUSTRIALIZATION AND ECONOMIC DEVELOPMENT
IN LATIN AMERICA.

THE ACTUAL CONSUMER MARKET IN LATIN AMERICA IS MUCH SMALLER THAN THE POTENTIAL
MARKET. LOW PER CAPITA INCOME TOGETHER WITH ITS UNFAVORABLE DISTRIBUTION MEANS THAT
A VERY LARGE PERCENTAGE OF THE POPULATION IS UNABLE TO TRANSLATE ITS NEEDS INTO
EFFECTIVE DEMAND. PERCENTAGE OF IMPORTS AND EXPORTS OF GOODS IN THE PRIMARY,
TRADITIONAL, INTERMEDIATE, AND METAL MANUFACTURE AND MACHINERY SECTOR IS
PRESENTED. THIS STATE IS RELATED TO THE RELATIVE MATURITY OF LATIN AMERICAN
DEVELOPMENT.
DEVELOPING COUNTRIES/INDUSTRIALIZATION/ECONOMIC ASPECTS/LATIN AMERICA

10

ANONYMOUS

1975
APPROPRIATE TECHNOLOGY: EFFORTS TO DEVELOP TECHNOLOGICAL PLURALISM WITH EACH
SOCIAL SYSTEM, POLITICAL IDENTITY AND CULTURE FATE TO DEVELOP IN OWN
PARTICULAR LINE.
IMPACT OF SCIENCE ON SOCIETY 23:251-255.
SOCIAL ASPECTS/POLITICAL ASPECTS
11
ANONYMOUS
1975
ECONOMICS OF ORGANIC FARMING.
A REPORT ON A STUDY PUBLISHED BY THE CENTER FOR THE BIOLOGY OF NATURAL SYSTEMS AT WASHINGTON UNIVERSITY, SAINT LOUIS, MISSOURI, THAT FINDS ORGANIC FARMING CAN BE AS ECONOMICAL AS CONVENTIONAL METHODS. SIXTEEN CORN-BELT ORGANIC FARMS WERE SURVEYED.
ORGANIC FARMING/COST-BENEFIT ANALYSIS/ENERGY/CONSERVATION

12
ANONYMOUS
1975
INTERMEDIATE TECHNOLOGY: A NEW APPROACH TO DEVELOPMENT PROBLEMS.
A REPORT ON THE DEVELOPMENT OF INTERMEDIATE TECHNOLOGY IS PRESENTED.
DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/SOCIAL ASPECTS/AGRICULTURE/INDUSTRIES

13
ANONYMOUS
1975
MINI-GRAIN DRYER.
APPROPRIATE TECHNOLOGY 2(4):2.
A REPORT ON THE DEVELOPMENT AT THE UNIVERSITY OF AGRICULTURAL SCIENCES, BANGALORE, OF A MINI-GRAIN DRYER USEFUL FOR REMOVING MOISTURE FROM SMALL LOTS OF FOOD GRAINS OR OTHER FARM PRODUCE IS PRESENTED. THIS DRYER IS ALSO USEFUL FOR THE DRYING OF FOOD GRAINS HARVESTED IN RAINY WEATHER, AND FOR DRYING GROUNDNUTS IMMEDIATELY AFTER HARVEST TO PREVENT MOLDING.
DEVELOPING COUNTRIES/DRYING/GROUNDNUTS/CROP PRODUCTION/GRAINS/MACHINE DESIGN/FARM EQUIPMENT

14
ANONYMOUS
1975
SIMPLE FILTER FOR INDIVIDUAL HOUSEHOLDS.
A REPORT ON THE DEVELOPMENT OF A SIMPLE FILTER FOR HOUSEHOLD USE AT THE
PHARCHAVI UNIVERSITY DEPARTMENT OF COMMUNITY MEDICINE, THIRD, IRAN. BASIC
CONSTRUCTION IS OF GRAVEL, SAND, AND CHARCOAL. ABOUT 97 PERCENT OF ALL
SUSPENDED MATTER AND BACTERIA CAN BE REMOVED.

DEVELOPING COUNTRIES/iran/sanitation/WATER

15

ANONYMOUS

1973

STRATEGIES FOR CHOOSING WHICH VILLAGES OF ARDAS SHOULD RECEIVE WATER FIRST.

WATER AT MATA SHAKAR TRUST, MUMBAI, INDIA. DOCUMENTATION BULLETIN 201-5.

RELATIVE CHARACTERISTICS OF URBAN AND RURAL AREAS ARE DISCUSSED, SPATIALLY
CONCENTRATED SUBSIDY INVESTMENT IS COMBINED WITH SMALLER-SCALE RURAL
DISTRIBUTION. THE ROLE OF REDISTRIBUTING INCOME AND LOW-ESTIMI STRATEGIES
IS DISCUSSED. A PEER-REVIEW FORMULA USED BY THE INTRAMERICAN DEVELOPMENT BANK
FOR VILLAGE PROJECTS IS PRESENTED.

DEVELOPING COUNTRIES/india/cost-Benefit ANALYSIS/WATER/SOCIAL ASPECTS

16

ANONYMOUS

1975

VITA: APPROPRIATE TECHNOLOGY FOR THE THIRD WORLD.

SCIENCE 176(4042):1190A.

A BRIEF SUMMARY OF THE PURPOSE AND CONTRIBUTIONS OF VOLUNTEERS IN TECHNICAL
ASSISTANCE (VITA) IS PRESENTED. VITA IS AN ASSOCIATION OF VOLUNTEERS WHO SOLVE
DEVELOPMENT PROBLEMS AT THE REQUEST OF DEVELOPING COUNTRIES.

DEVELOPING NATIONS/CONSULTANTS

17

ARIZONA NATON'S DEPARTMENT OF HEALTH, PHOENIX, ENVIRONMENTAL HEALTH SERVICES

1973

EARTH-PIT PRIVY.

SANI AN AUTHOR. ENGINEERING BULLETIN 7, 12 P.

DESIGN AND CONSTRUCTION OF AN EARTH-PIT PRIVY COMPLETE WITH DRAWINGS. OTHER
TYPES OF PRIVIES ARE BRIEFLY DISCUSSED.

Hayes/RADJATION/DeVICTION/DESIGN/CONSTRUCTION METHODS
ASCHMANN, H.
1962
EVALUATIONS OF DRY LAND ENVIRONMENTS BY SOCIETIES AT VARIOUS LEVELS OF
TECHNICAL COMPETENCE, IN
CIVILIZATIONS IN DESERT LANDS, RICHARD B. WOODBURY, ED., UNIVERSITY OF UTAH,
NO ABSTRACT.
TECHNOLOGY MEASUREMENT

ASHLEY, J.
1975
THE MWANAMUGIMU NUTRITION CLINIC.
THE OPERATIONAL AND SOCIAL ASPECTS OF THE MWANAMUGIMU CLINIC IN KAMPALA,
UGANDA ARE DISCUSSED. INFORMATION ON EDUCATION, SPECIFIC NUTRITION
DEFICIENCIES, AND TREATMENT PROGRAMS IS PRESENTED.
NUTRITION/UGANDA/DEVELOPING COUNTRIES/DISEASE CONTROL

AUCIELLO, K.E./JOHNSTON, R./WAGENVELD, L.M. COMP.
1975
EMPLOYMENT GENERATION THROUGH STIMULATION OF SMALL INDUSTRIES: AN
INTERNATIONAL COMPILATION OF SMALL-SCALE INDUSTRY DEFINITIONS.
GEORGIA INSTITUTE OF TECHNOLOGY, ATLANTA, 71 P.
NO ABSTRACT.
DEVELOPING COUNTRIES/CONSULTING/ENTREPRENEURSHIP

AUSTIN, A.L./BREWER, J.W.
1971
WORLD POPULATION GROWTH AND RELATED PROBLEMS.
MOMENTOUS TECHNOLOGICAL ADVANCES HAVE OCCURRED DURING THE PAST CENTURY BUT THE
PENALTIES ARE BEGINNING TO APPEAR. IF SUCH A RATE OF TECHNOLOGICAL GROWTH CON-
TINUES, SOCIAL SYSTEMS WILL BECOME MORE COMPLEX WITH AN INCREASING PROBABILITY
OF MALFUNCTION. VARIOUS MATHEMATICAL MODELS ARE ANALYZED FOR THEIR ABILITY TO
PREDICT POPULATION GROWTH, GARBAGE DISPOSAL, ENERGY AND FOOD REQUIREMENTS OF
FUTURE TIMES ARE DISCUSSED. DATA ARE EXTRAPOLATED TO SHOW PREDICTED TRENDS.
DEVELOPING COUNTRIES/POPULATION CONTROL/ENERGY/SOCIAL ASPECTS/FORECASTING/CROP
PRODUCTION/REFUSE/FOODS/DECISION MODELS.
Baker, R.L. et al.

1976

The Evaluation of Alternative Development Strategies Relative to Their Economic, Political, and Technical Feasibility in LCDS.

University of Arizona, Tucson, Natural Resources Program. 46 p. (Unpublished Manuscript)

A Proposal for an Interdisciplinary Team to Conceive and Validate a Portable Methology of Model of Strategies Open to LCDS in Development of National Resources.

Developing Countries/Decision Models/Political Aspects/Natural Resources

Baldet, G.

1976

Intermediate Technologies and Problems of Development.


No Abstract.

Social Aspects

Baranski, J.

1974

Is There a Direct Link to Development? Transferring and Adapting Technology.

Challenge 17:32-35.

No Abstract.

Developing Countries/Technology Transfer/Social Aspects

Baranski, J.

1976

Engineering for Underdeveloped Countries.


Discusses adverse effects of high capital output ratios, a problem associated with small markets, lack of supporting industries, and inadequate supplies. Problems in quality and production control are related to human attitudes and inadequate lead times to procure additional materials, power, or qualified labor. Factors such as import substitution and Protectionist tariffs are presented as causes of high costs to small-scale industry. Solutions may be found in technical downgrading and product limitation.

Developing Countries/Economic Aspects/Labor/Industries
26
BAIDGANG, E.
1975
LOW-COST AUTOMATION AT WORK: THE PHILACOR EXPERIENCE.
SMALL INDUSTRY JOURNAL 8(1):30-34.
THE CONCEPT OF LOW COST AUTOMATION IS DISCUSSED (A MACHINE-OPERATOR TO
REPLACE A PURELY MANUAL TASK). THIS CONCEPT IS APPLIED TO THE PHILIPPINE
APPLIANCE CORPORATION'S PLASTIC REFRIGERATOR DOOR VACUUM FORMING OPERATION.
DEVELOPING COUNTRIES/INDUSTRIES/MACHINE DESIGN/ENTREPRENEURSHIP

27
BARR, L.
1976
IMPLICATIONS, INTERACTIONS AND IMPACTS OF TECHNOLOGY, ENVIRONMENT AND SOCIAL
CONDITIONS ON NATURAL RESOURCES DEVELOPMENT.
UNPUBLISHED MANUSCRIPT, 17 P.
ERTS/LANDSAT DATA CAN PROVIDE AN INVALUABLE TOOL TO PLANNERS REGARDING THE
IMPACT OF TECHNOLOGY ON NATURAL RESOURCES. IN TOO MANY CASES, NATURAL RESOURCES
DECISIONS ARE MADE IN THE POLITICAL AREA. RESOURCE DEVELOPMENT/MONITORING
PROGRAMS ARE PARTICULARLY IMPORTANT TO THE SURVIVAL OF REGIONS IN DELICATE
ECOLOGICAL BALANCE. THE ROLE OF APPROPRIATE TECHNOLOGIES IN IMPLEMENTING
PROGRAMS IS DISCUSSED.
DEVELOPING COUNTRIES/NATURAL RESOURCES/CONSERVATION/SOCIAL ASPECTS/REMOTE
SENSING

28
BAR-ZAKAY, S.N.
1971
TECHNOLOGY TRANSFER MODELS.
SUGGESTS A LIST OF ACTIVITIES TO BE UNDERTAKEN IN A SPECIFIED SEQUENCE BY
INDIVIDUALS OR ORGANIZATIONS INTENDING TO ENGAGE IN A TECHNOLOGY TRANSFER
PROJECT. OFTEN TECHNOLOGY TRANSFER IS ATTEMPTED WITH ONLY THE DONOR'S
REQUIREMENTS IN MIND. THE TECHNOLOGY TRANSFER MODEL IS PRESENTED VIA A
SEMI-PERT CHART. DONOR AND RECIPIENT RESPONSIBILITIES ARE HIGHLIGHTED. EFFECTS OF UNDESIRABLE SHORTCUTS BY EITHER PARTY ARE DISCUSSED.
DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/SOCIAL ASPECTS/POLITICAL ASPECTS

29
BASS, L.W.
1975
TECHNICAL AND MANAGERIAL HELP FOR SMALL ENTERPRISES.
SMALL INDUSTRY DEVELOPMENT NETWORK NEWSLETTER 2(1):2.


30

G A I T E M A N. C. H. 1974


N O A B S T R A C T.


31

P A L M A N, I. F. 1975

F E N C E P O S T D R I V E R.


32


S I M P L I F I E D S M A L L F I S H I N G J O A T C O N S T R U C T I O N.


33

B E N D E R , A . 1974

I N C R E M E N T A L I N F R A S T R U C T U R E . I N
INCREMENTAL CONSTRUCTION IS IDENTIFIED AS A MAJOR TOOL IN THE ATTACK ON THE WORLD HOUSING PROBLEM. WHILE THREE TECHNIQUES HAVE PROVEN EFFECTIVE IN PRODUCTION OF DWELLINGS, THEIR USE HAS BEEN RESTRICTED BY LACK OF PARALLEL TECHNOLOGIES FOR INFRASTRUCTURE. THE AUTHOR ANALYZES PROBLEMS AND COMPARES CAPITAL VS LABOR INTENSIVE TECHNOLOGIES, AND TRICKLE-DOWN VS DIRECT ACTION POLICIES.

TECHNOLOGY TRANSFER/SOCIAL ASPECTS/BUILDING DESIGN/CONSTRUCTION METHODS/CONSTRUCTION MATERIALS/DEVELOPING COUNTRIES

BERGER, L.
1974
COMMENTS ON THE TRANSPORTATION PAPERS. IN
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SYMPOSIUM ON STRATEGIES FOR A.I.D. PROGRAMS IN SELECTED AREAS OF SCIENCE AND TECHNOLOGY, CAMBRIDGE, APRIL 1974, PROCEEDINGS. VOL. 2, 58 P.

THE COSTLY NATURE OF DEVELOPED COUNTRY APPROACHES TO THE URBAN TRANSPORTATION PROBLEM, AS COMPARED TO THE INCOMES OF PEOPLE IN LESS DEVELOPED COUNTRIES IS EMPHASIZED. FEDERAL ROAD CONSTRUCTION IN RURAL AREAS WOULD BENEFIT FROM RESEARCH LEADING TO LOW COST METHODS OF PROTECTING DIRT ROADS FROM WEATHER. THE COSTS AND BENEFITS OF DRIVING LOW COST ROADS INTO ISOLATED AREAS ARE DISCUSSED IN CONNECTION WITH BRAZIL'S TRANSAMAZONAS AND NORTH PERIMETRAL ROADS.

TRANSPORTATION/ROADS/COST-BENEFIT ANALYSIS/BRAZIL/DEVELOPING COUNTRIES

BHALLA, A.S. ED.
1975
TECHNOLOGY AND EMPLOYMENT IN INDUSTRY.
INTERNATIONAL LABOR OFFICE, GENEVA. 324 P.

A COLLECTION OF CASE STUDIES INTENDED TO FILL THE GAP IN REPRESENTATIVE INFORMATION ON INTERMEDIATE/APPROPRIATE TECHNOLOGIES. CONCEPTUAL ISSUES AND QUESTIONS OF MEASUREMENT ARE ADDRESSED.

DEVELOPING COUNTRIES/LABOR/SOCIAL ASPECTS/INDUSTRIES/ECONOMIC ASPECTS

BOULDING, C. ET AL.
1967
INTRODUCING INNOVATIONS IN DEVELOPING COUNTRIES. PAPER INCLUDED AS COURSEWORK IN

A MANUAL TO HELP FIELD WORKERS INTRODUCE NEW IDEAS AND TECHNOLOGIES IN DEVELOPING COMMUNITIES. TAKES INTO ACCOUNT SUCH FACTORS AS THE ECONOMIC, SOCIAL AND POLITICAL DISPOSITION RELEVANT TO THE RECEIVING AREA. CONTAINS AN APPENDIX OF THREE CASE STUDIES.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/TECHNOLOGY TRANSFER/POLITICAL ASPECTS
ECONOMIC FEASIBILITY OF BRICK MAKING IN THE PHILIPPINES IS PRESENTED VIA A COST-INCOME BALANCE SHEET.

DEVELOPING COUNTRIES/CONSTRUCTION MATERIALS/ECOLOGIC ASPECTS/PHILIPPINES/BRICKS

BRESNIK, B. ET AL

1967


DEScribes the design, construction and testing of a wheelbarrow made from native materials of Nepal, particularly bamboo. Work is divided into four major areas: frame, wheel, bearings, and basket.

DEVELOPING COUNTRIES/INDIA/TOOLS/TRANSPORTATION/CONSTRUCTION MATERIALS/BAMBOO/CONSTRUCTION METHODS

BRUCE, R.

1975

SOME NEW INDIAN DEVELOPMENTS IN SMALL SCALE SPINNING AND WEAVING.

APPROPRIATE TECHNOLOGY 2(3):9-10.

Discusses economic and social impacts of centralized (large industry) vs. decentralized (small industry) technologies relative to Khadi, Indian coarse woven cloth. A new model of mini spinning and weaving machinery is compared with the old.

DEVELOPING COUNTRIES/INDUSTRIES/CLOTHING/INDIA/COST-BENEFIT ANALYSIS/MACHINE DESIGN/TEXTILES

BUCHERLE, W.F./CAMPBELL, J.K.

1975

FEASIBILITY OF USING INTERMEDIATE TECHNOLOGY TO PRODUCE AGRICULTURAL TOOLS AND MACHINERY IN GHANA. PAPER PRESENTED AT AFRICAN STUDIES ASSOCIATION CONFERENCE, SAN FRANCISCO, OCTOBER 29-NOVEMBER 1, 1975, 100 P.
Describes existing Ghanaian industries suitable for producing technologically intermediate agricultural tools and equipment, discusses the selection criteria for the types of items that could be produced, and presents plans and organizational alternatives for instigation of technological development. Conditions to aid success of machinery production are discussed. Concepts regarding tariffs and protection of domestic goods are presented.

Developing countries/Ghana/Agriulture/Harvesting/Crop production/Industries/Farm equipment/Government/Social aspects/Business management/Rice/Cocoa/Maize/Tools/Economic aspects

41
Buras, V.
1972
Scientific allocation of water resources.

After discussing the background of water resources engineering, the author describes the application of systems theory to groundwater management. Problems associated with development, design, and operation are analyzed. Probability theory, linear and dynamic programming models, and simulation methods are applied for the solution of water resources problems and design of water resources systems. Source bibliography is included.

Water/Resource management/Decision models/Economic aspects/Bibliographies

42
Burchard, P.
1976
What do we mean by intermediate technology?

Intermediate technology (IT) means a return to simpler technology, decentralization, and non-violence. The 'primate' view (we should abandon all technology) and the 'adaptive' view (adapt society to more humane ways of living) are discussed. It is defined as being no specific place between high and low technology rather it is up from small, down from large and totally new.

Social aspects

43
Burton, I.
1974

Technology that has provided safe, low cost and abundant water supplies in developed countries has not been transferred to developing ones. Due to monetary restrictions, criteria for the selection of appropriate technology are developed concentrating on incremental improvements that can be organized and implemented at the community level. Irrigation and flood control are discussed briefly.

Developing countries/Resource management/Water/Cost-benefit analysis
44
CAIN, A./AFSHAR, F./NORTON, J.
1975
INDIGENOUS BUILDING METHODS: MUD BRICK VAULT AND DOME BUILDING.
DISCUSSES UPGRADING OF TRADITIONAL MUD BRICK BUILDING INDUSTRY BY INTRODUCTION OF VAULT AND DOME TECHNOLOGY. THE ECONOMY OF MUD BRICK BUILDING IS DISCUSSED. COMPARES INSIDE TEMPERATURE GRADIENT OF FLAT ROOFED AND DOMED ROOFED STRUCTURES.
ECONOMIC ASPECTS/COST-BENEFIT ANALYSIS/CONSTRUCTION METHODS/CONSERVATION/DEVELOPING COUNTRIES/BUILDING DESIGN/BRICKS

45
CAMPBELL, J.K.
1975
DEVELOPMENT AND MANUFACTURE OF A THRESHER FOR DEVELOPING COUNTRIES OF SOUTH EAST ASIA.
AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS, ST. JOSEPH, MICHIGAN, PAPER 75-1539. 7 P.
AN AXIAL-FLOW THRESHER WITH A CAPACITY OF ONE TON OF PONGE RICE PER HOUR, DESIGNED TO BE MANUFACTURED IN COUNTRIES OF S.E. ASIA HAS BEEN DEVELOPED BY THE INTERNATIONAL RICE RESEARCH INSTITUTE.
DEVELOPING COUNTRIES/RICE/FARM EQUIPMENT/MACHINE DESIGN

46
CANADIAN HUNGER FOUNDATION, ONTARIO
1967
A HANDBOOK ON APPROPRIATE TECHNOLOGY.
SAME AS AUTHOR. 246 P.
A CONTRIBUTION TO COMMUNICATION IN THE FIELD OF APPROPRIATE TECHNOLOGY. PHILOSOPHICAL ASPECTS, CASE STUDIES, A BIBLIOGRAPHY, AND A SOURCE LIST ARE PRESENTED.
SOCIAL ASPECTS/DEVELOPING COUNTRIES/ANAEROBIC DIGESTORS/SOLAR ENERGY/METAL WORKING/GROUNDWATER/TOOLS/FARM EQUIPMENT/CEMENT/COOPERATIVES/BIBLIOGRAPHIES/TECHNOLOGY TRANSFER

47
CAREY, R.G.
1970
THE PEACE CORPS.
PRAGER, NEW YORK. 274 P.
DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/CONSULTING
CASHMAN, T.

1975

THE NEW ALCHEMY INSTITUTE: SMALL SCALE ECOSYSTEM FARMING.


SHOWS THE DEVELOPMENT OF A CLOSED ECOSYSTEM, DISCUSSES THE BENEFIT OF USING SELECTED KINDS OF FISH AND AGRICULTURE PRODUCTS, DISCUSSES USE OF SOLAR AND WIND POWER.

ECOLOGY/WIND POWER/SOLAR HEATING/WATER CONVEYANCE/AGRICULTURE/AQUACULTURE/CONTROLLED ENVIRONMENT/ECOSYSTEMS/FOODS/FERTILIZERS/CROP PRODUCTION/IRRIGATION/ALGAE

CLARAXTARO, B.

1974

THE NEED FOR ORGANIC FARMS DECLARED AT NORTHWEST MEETING.


MOST U.S. FARMS HAVE BECOME ENERGY SINKS. FOSSIL FUELS ARE KNOWN TO BE ON A SHAKY BASIS. SOLUTIONS TO THESE PROBLEMS LIE IN MORE MANUAL WORK, INCREASING THE SMALL FARM COMMUNITY, AND ESTABLISHING FOOD TRADING NETWORKS.

AGRICULTURE/ENERGY/CONSERVATION/FOODS/CROP PRODUCTION/FERTILIZERS/NITROGEN COMPOUNDS/ORGANIC FARMING

CLARK, N.

1974

KEYNOTE ADDRESS. PAPER PRESENTED AT

NORTHWEST CONFERENCE ON ALTERNATIVE AGRICULTURE, CENTRAL WASHINGTON STATE COLLEGE, LANSBURG, NOVEMBER 21-23, 1974.

TODAY'S AGRICULTURE IS HEAVILY DEPENDENT ON PETROLEUM PRODUCTS. CONFLICT BETWEEN THE ENVIRONMENTALIST RESTRICTING PESTICIDES AND THE CONSUMER DEMANDING HIGH QUALITY FOOD MUST BE RESOLVED THROUGH ALTERNATIVE FORMS OF AGRICULTURE. GOVERNMENT POLICIES THAT PROMOTE LARGE FARMS, AND UNECONOMIC WATER PROJECTS MUST BE CHANGED.

AGRICULTURE/ENERGY/GOVERNMENT/IRRIGATION/NITROGEN COMPOUNDS/ORGANIC FARMING/CONSERVATION/FOODS

CLEMENT, G.H.

1975

INTERNATIONAL DEVELOPMENT RESEARCH CENTER OTTAWA, ONTARIO, CANADA.
CONFERENCE AND SEMINAR ON TECHNIQUES AND METHODOLOGIES FOR STIMULATING SMALL-SCALE LABOR-INTENSIVE INDUSTRIES IN DEVELOPING COUNTRIES, ATLANTA, GEORGIA, MAY 10-14. SUMMARY OF PROCEEDINGS, 17 P.

THE INTERNATIONAL DEVELOPMENT RESEARCH CENTER (IDRC) WAS ESTABLISHED TO ENCOURAGE, SUPPORT AND CONDUCT RESEARCH INTO THE PROBLEMS OF DEVELOPING COUNTRIES. ORGANIZATION, STRUCTURE AND FUNDING METHODS ARE PRESENTED. AS AN INDEPENDENT CORPORATION RATHER THAN AN ARM OF GOVERNMENT, THE IDRC OPERATES WITH SEVERAL ADVANTAGES. IDRC'S WORK IN THE ANDES REGION IS HIGHLIGHTED. IDRC'S CRITERIA FOR ACCEPTING PROJECTS ARE DISCUSSED.

DEVELOPING COUNTRIES/INDUSTRIES/ENTREPRENEURSHIP/CONSULTING/AGRICULTURE/TECHNOLOGY TRANSFER

52

COLE, B.P.

1966

HOW TO HELP WORLD DEVELOPMENT WITHOUT LEAVING HOME.

CHEMICAL ENGINEERING 73(24):140-146.

THE HISTORY OF VOLUNTEERS IN TECHNICAL ASSISTANCE (VITA) IS PRESENTED AS WELL AS CONCEPTS AND OPERATIONS OF THE ORGANIZATION. TWO VITA PROJECTS ARE PRESENTED: A SOLAR COOKER AND WATER SUPPLY LINE.

DEVELOPING COUNTRIES/CONSULTING/SOLAR ENERGY/WATER CONVEYANCE

53

COLE, H.S.O. ET AL

1973

MODELS OF DOOM: A CRITIQUE OF THE LIMITS TO GROWTH.

UNIVERSE BOOKS, NEW YORK. 244 P.

NO ABSTRACT.

ENERGY/NATURAL RESOURCES/CONSERVATION/SOCIAL ASPECTS

54

COLLETT, J.

1975

OIL SOAKED BEARINGS: HOW TO MAKE THEM.


THE ADVANTAGES OF OIL SOAKED WOOD BEARINGS ARE DISCUSSED. HARD WOODS SHOULD BE USED AND SOME SUITABLE WOODS ARE LISTED. PREPARATION METHODS ARE PRESENTED.

DEVELOPING COUNTRIES/CONSTRUCTION MATERIALS
CREDT PROJECT PROPOSAL FOR A DOCUMENTATION EXERCISE IN SOCIALLY APPROPRIATE TECHNOLOGY AND THREE EXPERT MEETINGS.

TECHNISCHE HOGESCHOOL, EINDHOVEN, THE NETHERLANDS. (UNPUBLISHED)

THE PROJECT IS DESIGNED TO ASSEMBLE AND DISSEMINATE INFORMATION ABOUT TECHNOLOGIES APPROPRIATE TO RURAL AREAS OF DEVELOPING COUNTRIES. AREAS OF CONCERN ARE: COTTAGE INDUSTRIES, ENERGY SUPPLIES AND THE MANUFACTURE OF PLANTS AND EQUIPMENT. INCLUDED IS A SUGGESTION AND PLAN TO ORGANIZE A MEETING OF EXPERTS REPRESENTATIVE OF GLOBAL GEOGRAPHIC REGIONS.

DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/CONSULTING/ENERGY/MACHINE DESIGN

LECTURES ON SOCIALLY APPROPRIATE TECHNOLOGY.

COMMITTEE FOR INTERNATIONAL COOPERATION ACTIVITIES, TECHNISCHE HOGESCHOOL, EINDHOVEN, THE NETHERLANDS. 235 P.

TWELVE LECTURES ON APPROPRIATE TECHNOLOGY ARE PRESENTED WHICH PROVIDE A TECHNICALLY DETAILED INTRODUCTION TO SOCIALLY APPROPRIATE TECHNOLOGY. APPLICATION AND PHILOSOPHICAL ASPECTS ARE DISCUSSED.

SOCIAL ASPECTS/DEVELOPING COUNTRIES/TOOLS/FARM EQUIPMENT/EDUCATION/ENERGY/CONSTRUCTION MATERIALS/TECHNOLOGY TRANSFER/WIND POWER/SOLAR ENERGY/MACHINE DESIGN

MECHANIZATION ON SMALL SCALE FARMS AND OX DRAWN EQUIPMENT.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME. 9 P.

NOTES FROM PUBLISHED AND UNPUBLISHED REPORTS OF THE KENYA AGRICULTURAL MECHANIZATION UNIT, INTENDED TO GUIDE EDUCATORS ON THE SELECTION OF MACHINERY FOR SMALL SCALE FARMERS. PROS AND CONS OF VARIOUS FARM EQUIPMENT ARE GIVEN, INCLUDING SEEDERS, TRACTORS, AND OX DRAWN PLOWS.

DEVELOPING COUNTRIES/FARM EQUIPMENT/COST-BENEFIT ANALYSIS/ANIMAL POWER/KENYA

TECHNOLOGY OF PRODUCTION OF EDIBLE CLUBS AND PROTEIN PRODUCTS FROM GROUNDNUT.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME. 95 P.
THIS PUBLICATION IS MEANT FOR INVESTORS OR GOVERNMENT DEPARTMENTS INTERESTED IN SETTING UP FACILITIES FOR PRODUCTION OF PROTEIN FOODS BASED ON GROUNDNUTS. OTHER REPORTS ARE AVAILABLE FOR SOYBEAN AND COTTON SEED. EACH PORTION OF THE GROUNDNUT IS ANALYZED AND ITS COMPOSITION AND UTILITY NOTED. OIL MILLING, PRINCIPLES OF PRODUCTION, PRODUCTION OF PROTEIN PRODUCTS, AND THE INDUSTRIAL PRODUCTION OF EDIBLE FLOUR ARE DISCUSSED. THE ECONOMICS OF THE PROCESS ARE ALSO PRESENTED. SCHEMES FOR OPERATING PLANTS ARE ANALYZED. FORMULATION, PACKAGING AND STORAGE ARE ALSO ADDRESSED. APLATOXIN, THE MAJOR CONTAMINANT IN GROUNDNUT FLOUR IS DISCUSSED SPECIFICALLY.

DEVELOPING COUNTRIES/NUTRITION/GROUNDNUTS/PROTEIN/FOODS/INDUSTRIES

59
CROSS, D.
1975
AQUACULTURE IN RESOURCE DEVELOPMENT.

THE AIM OF MODERN AGRICULTURE IS TO PRODUCE THE HIGHEST POSSIBLE PLANT OR ANIMAL CROP FROM AVAILABLE LAND, WHILE THERE ARE MANY SPECIES OF PLANTS WHICH ARE USED FOR FOOD BY MAN, HE HAS MADE DO WITH AN ASTONISHINGLY SMALL NUMBER OF ANIMALS FOR STAPLE MEATS. IT IS ESSENTIAL TO LOOK AT AQUACULTURE AS A LIVE-STOCK-REARING OPERATION, LIMITED IN ITS PRODUCTIVITY AND PROFITABILITY BY EXACTLY THE SAME FACTORS WHICH AFFECT CONVENTIONAL AGRICULTURE. INTERMEDIATE TECHNOLOGY METHODS ARE HIGHLY APPROPRIATE TO THE WIDESPREAD DEVELOPMENT OF AQUACULTURE IN RURAL ECONOMIES.

DEVELOPING COUNTRIES/AQUACULTURE/FOODS

60
CUENOD, M.A./KAHNE, S. EDS.
1973
IFAC/IFORS CONFERENCE ON SYSTEMS APPROACHES TO DEVELOPING COUNTRIES, ALGIERS, MAY 28-31, PROCEEDINGS.
INSTRUMENT SOCIETY OF AMERICA, PITTSBURGH. 515 P.

PAPERS REGARDING SYSTEMS APPROACHES TO THE SOLUTION OF PROBLEMS IN LDCS ARE PRESENTED. MAJOR CATEGORIES ARE: MANAGEMENT AND DEVELOPMENT POLICIES; AGRICULTURE AND FOODS; POWER; WATER AND POLLUTION CONTROL; TRANSPORTATION; URBAN PLANNING AND COMMUNICATION; GAS, OIL AND CEMENT INDUSTRIES; METHODOLOGY; EDUCATION AND HEALTH; HUMAN RESOURCES; INTERNATIONAL COOPERATION AND DEVELOPMENT.

DEVELOPING COUNTRIES/DECISION MODELS/ALGERIA/AGRICULTURE/INDUSTRIES/WATER/EDUCATION/TRANSPORTATION/ENERGY/FOODS/NATURAL RESOURCES

61
DALTON, A.J.P.
1973
CHEMICALS FROM BIOLOGICAL RESOURCES.
INTERMEDIATE TECHNOLOGY DEVELOPMENT GROUP, LTD., LONDON. 24 P.
AN ATTEMPT TO STIMULATE THOSE PEOPLE SURROUNDED BY ABUNDANT AND RENEWABLE NATURAL RESOURCES TO SEE THEM AS RAW CHEMICAL MATERIALS, WHICH BY SIMPLE PROCESSING OFTEN ARE SUITABLE FOR COTTAGE INDUSTRIES. CHEMICALS FROM PLANT, MARINE AND ANIMAL SOURCES ARE DISCUSSED.

DEVELOPING COUNTRIES/MARINE PRODUCTS/NATURAL RESOURCES

62

DALY, H.E.

1974

STEADY-STATE ECONOMICS VS. GROWTHMANIA: A CRITIQUE OF THE ORTHODOX CONCEPTIONS OF GROWTH, WANTS, SCARCITY, AND EFFICIENCY.


THE CONCEPT OF GROWTHMANIA IS COMPARED TO THE CHAIN LETTER SWINDLE. LIMITS TO GROWTH ARE ANALYZED. SCARCITY IS DEFINED. THE ALTERNATIVE TO GROWTHMANIA, A STEADY STATE ECONOMY, IS DISCUSSED. TOTAL EFFICIENCY (SERVICE/THROUGHPUT) IS DESCRIBED AS A MORE DESIRABLE FACTOR TO MAXIMIZE THAN GROSS NATIONAL PRODUCT. THE PROBLEMS OF TRANSITION TO A STEADY STATE ARE DISCUSSED. THE ROLE OF DEPLETION QUOTAS FOR CONSERVING NATURAL RESOURCES IS PRESENTED.

POLITICAL ASPECTS/SOCIAL ASPECTS/CONSERVATION/ENERGY/NATURAL RESOURCES/ECONOMIC ASPECTS

63

DESHAMPS, I.

1975

CASE HISTORIES OF SUCCESSFUL OPERATIONAL PROGRAMS. CASE 5: MEXICAN INSTITUTE OF TECHNOLOGICAL RESEARCH, MEXICO CITY.

CONFERENCE AND SEMINAR ON TECHNIQUES AND METHODOLOGIES FOR STIMULATING SMALL-SCALE LABOR-INTENSIVE INDUSTRIES IN DEVELOPING COUNTRIES, ATLANTA, GEORGIA, MAY 10-14, SUMMARY OF PROCEEDINGS, 17 P.

A HISTORY OF THE DEVELOPMENT OF THE MEXICAN INSTITUTE OF TECHNOLOGICAL RESEARCH (IMIT) IS PRESENTED, HIGHLIGHTING THE PROBLEMS OF RESISTANCE THAT HAD TO BE OVERCOME. EXPANDING THE SCOPE OF IMIT TO INCLUDE THE SOCIAL AND ECONOMICAL ASPECTS OF TECHNOLOGY IS CITED AS THE MEASURE THAT WAS NECESSARY FOR SUCCESS.

DEVELOPING COUNTRIES/EDUCATION/TECHNOLOGY TRANSFER/ECONOMIC ASPECTS/ENTREPRENEURSHIP/INDUSTRIES

64

DEVELOPMENT ACADEMY OF THE PHILIPPINES, MANILA

1975

MEASURING THE QUALITY OF LIFE: PHILIPPINE SOCIAL INDICATORS.

SAME AS AUTHOR. 28 P.

DESCRIPTIONS REPRESENTATIVE SOCIAL INDICATORS USED TO MEASURE ECONOMIC TRENDS IN THE PHILIPPINES.

DEVELOPING COUNTRIES/TECHNOLOGY MEASUREMENT/SOCIAL ASPECTS/ECONOMIC ASPECTS
65
DICKENSON, H./WINNINGTON, T.L.
1975
RURAL TECHNOLOGY IN CHINA.
DEVELOPMENT DIGEST 13(4):52-54.
NO ABSTRACT.
CHINA/SOCIAL ASPECTS

66
DOMMEN, A.J.
1975
THE BAMBOO TUBE WELL.
NO ABSTRACT.
BAMBOO/GROUNDWATER/WELLS

67
DONALD, G.
1973
SOCIAL VALUES AND THE GNP.
NO ABSTRACT.
SOCIAL ASPECTS/ECONOMIC ASPECTS

68
DOWKIN, D.J.
1975
A SIMPLE, CHEAP AND EFFECTIVE CATTLE BAIL.
APPROPRIATE TECHNOLOGY 2(1):19.
DEScribes THE DESIGN, OPERATION, AND CONSTRUCTION OF THE PRATT CATTLE BAIL.
DEVELOPING COUNTRIES/RHODESIA/CATTLE/FARM EQUIPMENT/LIVESTOCK
DUFF, B.

1975

CASE HISTORIES OF SUCCESSFUL OPERATIONAL PROGRAMS. CASE 2: INTERNATIONAL RICE RESEARCH INSTITUTE, MANILA, PHILIPPINES.

CONFERENCE AND SEMINAR ON TECHNOLOGIES AND METHODOLOGIES FOR STIMULATING SMALL-SCALE LABOR-INTENSIVE INDUSTRIES IN DEVELOPING COUNTRIES, ATLANTA, GEORGIA, MAY 10-14, SUMMARY OF PROCEEDINGS, 17 P.

THE GENERAL CONCERNS OF THE INTERNATIONAL RICE RESEARCH INSTITUTE (IRRI) ARE PRODUCTION AND POST PRODUCTION ACTIVITIES. THE AGRICULTURAL ENGINEERING DEPARTMENT Focuses ON THE DESIGN, PRODUCTION AND MARKETING OF SMALL SCALE AGRICULTURAL MACHINERY. SPECIFIC EQUIPMENT DESIGNED TO DATE INCLUDE IRRIGATION PUMPS, A SIHOMIUS ROTOR WINDMILL, TRACTORS, SEEDERS, COMBINES, THRESHERS, POWER TILLERS, DRYERS, MILLING EQUIPMENT AND FERTILIZERS.

DEVELOPING COUNTRIES/RICE/FARM EQUIPMENT/CROP PRODUCTION/THRESHING/HARVESTING/TECHNOLOGY TRANSFER/MACHINE DESIGN/FERTILIZERS/WIND POWER/IRRIGATION

DUNN, P.D.

1975

THE HUMPHREY PUMP.


THE OPERATION OF THE HUMPHREY PUMP FOR LOW HEAD PUMPING APPLICATIONS IS DESCRIBED. MAINTENANCE CHARACTERISTICS AND APPLICABILITY POTENTIAL FOR DEVELOPING COUNTRIES ARE PRESENTED.

DEVELOPING COUNTRIES/WATER CONVEYANCE/IRRIGATION/MACHINE DESIGN/WATER PUMPING/GROUNDWATER

EBRIGHT, J./PELCOVITS, M.

1967


REPORT DESCRIBES A SIMPLE SOIL TESTER CAPABLE OF MEASURING A WIDE RANGE OF PERMEABILITIES. A DESIGN FOR USE OF UNSKILLED PERSONS IS PRESENTED AND RESULTS OF PERMEABILITY TESTS ON SEVERAL TYPES OF SOIL ARE PROVIDED.

DEVELOPING COUNTRIES/IRRIGATION/TOOLS

ECCLI, S. ET AL., EDs.

1974

ALTERNATIVE SOURCES OF ENERGY: PRACTICAL TECHNOLOGY AND PHILOSOPHY FOR A DECENTRALIZED SOCIETY.

SEABURY PRESS, NEW YORK, 277 P.
SEVERAL DECENTRALIZED SELF SUPPORTING COMMUNITIES ARE DESCRIBED. COMMUNITY ENERGY REQUIREMENTS AND METHODOLOGIES FOR OBTAINING IT ARE PRESENTED. SEPARATE CHAPTERS ON SOLAR, WIND, WATER AND FUEL POWER ARE PRESENTED. OTHER ENERGY SYSTEMS AND PHILOSOPHICAL AND POLITICAL ASPECTS ARE DISCUSSED.

ENERGY/WIND POWER/SOLAR ENERGY/WATER POWER/SOLAR HEATING/ALTERNATIVE FUELS/ POLITICAL ASPECTS/SOCIAL ASPECTS

73

EGGERS, H.

1975

CONSULTANTS IN DEVELOPING COUNTRIES: A CONTRIBUTION TO THE DEBATE.


THREE SCENARIOS ARE OFFERED FOR THE INTERACTION OF GOVERNMENT, CONSULTANTS AND AID DONORS. THE EUROPEAN DEVELOPMENT FUND'S (EDF) PROCEDURES ARE EXAMINED. THE KEY POINTS OF EDF'S DEVELOPMENT PLAN ARE DEFINING PROJECT CRITERIA, RESPONSIBILITIES, AND TRAINING. THE INFLUENCE OF SOCIO-POLITICAL PRESSURES ON THE LONGBIETY OF A CONSULTANT'S WORK IS DISCUSSED.

DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/CONSULTING

74

EMERY, K.O.

1975

OIL AND GAS RESOURCES.


NO ABSTRACT.

NATURAL RESOURCES

75

ENKE, S.

1969

COST-BENEFIT ANALYSIS OF BIRTH CONTROL IN LESS DEVELOPED COUNTRIES. IN INTERNATIONAL CONFERENCE ON OPERATIONAL RESEARCH, 5TH, VENICE, JUNE 22-27, PROCEEDINGS, P. 741-750.

TAVISTOCK PUBLICATIONS, LONDON.

THE MODEL PRESENTED HAS TWO INTERACTING PORTIONS, DEMOGRAPHIC AND ECONOMIC. THE CRUX OF THE ECONOMIC MODEL IS A COBBS-DOUGLAS TYPE AGGREGATE (NATIONAL) PRODUCTION FUNCTION THAT RELATES CAPITAL, LABOR AND TECHNOLOGY TO OUTPUT. IT IS SHOWN THAT A SLOWING RATE OF POPULATION INCREASE IS DESIRABLE. RESULTS OF THE MODEL AT FIVE YEAR INTERVALS ARE PRESENTED. RESOURCES INVESTED IN BIRTH CONTROL CAN BE 100 TIMES MORE EFFECTIVE THAN INCREASING GNP OR OTHER TRADITIONAL INVESTMENTS.

DEVELOPING COUNTRIES/DECISION MODELS/COST-BENEFIT ANALYSIS/POPULATION CONTROL
EREZ, A.
1975
NOTE FROM THE FIELD: ADVISOR SITUATION AND THE LDC BRAIN DRAIN.
INTERNATIONAL DEVELOPMENT REVIEW, FOCUS 17(4):26-27.
PHENOMENON OF LDC BRAIN DRAINAGE IS DISCUSSED. SOLUTIONS MAY BE FOUND IN SHIFTING GOVERNMENT SERVICES TO THE PRIVATE OR SEMI-PRIVATE SECTOR AND ESTABLISHING LOCAL BRAIN TRUSTS (CONSULTING CENTERS).
DEVELOPING COUNTRIES/CONSULTING/LABOR MIGRATION

ESLAM, M./GAISER, D.
1975
SELECTED AGRICULTURAL MECHANIZATION FOR LOCAL MANUFACTURE. PAPER PRESENTED AT ANNUAL MEETING OF THE AMERICAN SOCIETY OF ENVIRONMENTAL ENGINEERS, FT. COLLINS, COLORADO, JUNE 19, 1975, 16 P.
DEVELOPING COUNTRIES CANNOT ATTEMPT TO IMPLEMENT LONG TERM AGRICULTURAL MECHANIZATION PROGRAMS BASED SOLELY ON IMPORT OF CAPITAL INTENSIVE EQUIPMENT. WHEN NECESSARY, POLICY SHOULD BE ESTABLISHED THAT WILL ALLOW THE SMALL MANUFACTURER TO COMPETE WITH THE MODERN TECHNOLOGY SECTOR. THREE CASE STUDIES ARE DISCUSSED.
DEVELOPING COUNTRIES/FARM EQUIPMENT/ENTREPRENEURSHIP/LABOR/ECONOMIC ASPECTS

ETEIGER, J.T.
1975
BUILDING METHODS FOR POPULAR HOUSING.
SEVERAL BUILDING MATERIALS FOR LOW COST HOUSING ARE DISCUSSED, INCLUDING 100 PERCENT CLAY (CEILING BEAMS), CONCRETE PREFAB, LIGHT WEIGHT FOAM BRICK, AND CALIBRATED BRICK.
DEVELOPING COUNTRIES/CONSTRUCTION MATERIALS/CONSTRUCTION METHODS/BRICKS

FATHY, H.
1973
ARCHITECTURE FOR THE POOR.
UNIVERSITY OF CHICAGO PRESS, 233 P.
THE AUTHOR EXAMINES THE ARCHITECTURE IN LESS DEVELOPED COUNTRIES IN TERMS OF THE NORMS OF THESE COUNTRIES, WITH THE CONVICTION THAT EVEN POOR PEOPLE SHOULD NOT HAVE TO PAY MORE THAN A FEW YEARS WAGES FOR DECENT HOUSING. ESSENTIALLY HE HAS APPLIED MODERN KNOWLEDGE AND SKILLS TO TRADITIONAL BUILDING MATERIAL.

CONSTRUCTION/BUILDING DESIGN/DEVELOPING COUNTRIES/CONSTRUCTION MATERIALS

60

FEKANUD, D.

1975

LOW COST TUBE WELLS.


THE BENEFITS AND CAPACITY OF TUBE WELLS ARE DISCUSSED. THE METHOD OF MANUALLY BORING THE HOLES WITH DESCRIPTION OF THE CORRECT TOOLS IS PRESENTED. THE COST OF THE DRILLING OPERATION AND MATERIAL FOR DIFFERENT TYPES OF TUBE SLEEVES ARE DISCUSSED. THE USE OF A CENTRALIZED TUBE WELL CONSTRUCTION PROGRAM IS DISCOURAGED AS IT DOUBLES THE COST.

DEVELOPING COUNTRIES/ETHIOPIA/GROUNDWATER/CONSTRUCTION MATERIALS/ANIMAL POWER/CONSTRUCTION METHODS

81

FIRTH, R.

1939

PRIMITIVE POLYNESIAN ECONOMY.

GEORGE ROUTLEDGE AND SONS, LTD., LONDON. 307 P.

DEFINES PRIMITIVE ECONOMICS AND DISCUSSES THE INFLUENCE OF CULTURAL ASPECTS ON RATIONAL DECISION PROCESSES. THE NATURE OF MODERN ANTHROPOLOGICAL STUDY IS DISCUSSED. DEVELOPMENT OF THE TIKOPIA ECONOMY IS TRACED INCLUDING DISCUSSIONS ON POPULATION CONTROL THROUGH CONTRACEPTION AND INFANTICIDE, AGRICULTURAL PROSPECTS WITH ASSOCIATED RELIGIOUS RITES, AND TECHNOLOGICAL STATE. THE LACK OF TECHNOLOGICAL AMBITION IS DISCUSSED. THE KNOWLEDGE TRANSFER PROCESS, DIVISION OF LABOR AND SOCIAL STRUCTURES ARE PRESENTED.

DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/EDUCATION/LABOR/POPULATION CONTROL/SOCIAL ASPECTS/ECONOMIC ASPECTS

82

FISCHER, J.L.

1973


PERSONAL CORRESPONDENCE. (UNPUBLISHED)

ADVICE ON THE PURCHASE OF A SMALL TRACTOR FOR THE ARID ENVIRONMENT IN TURKEY. THE IMPORTANT REQUIREMENTS OF SUCH A TRACTOR ARE PRESENTED.

FARM EQUIPMENT/DEVELOPING COUNTRIES/AGRICULTURE/COST-BENEFIT ANALYSIS/SOCIAL ASPECTS/TURKEY/MACHINE DESIGN
FISK, E.K.
1961
THE CASE FOR THE SELECTIVE MECHANIZATION OF AGRICULTURAL SMALL HOLDINGS IN UNDERDEVELOPED AREAS.
MALAYAN ECONOMIC REVIEW 4(2):53-60.
NO ABSTRACT.
DEVELOPING COUNTRIES/FARM EQUIPMENT/SOCIAL ASPECTS/AGRICULTURE/TECHNOLOGY TRANSFER

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME
1962
SPARE-TIME PRODUCTION FOR GAIN.
SAME AS AUTHOR. 40 P.
THIS BROCHURE EXPLAINS IN SIMPLE TERMS THE PRACTICAL STEPS WHICH MAY BE TAKEN TO BRING PEOPLE TOGETHER IN LOCAL GROUPS SO THAT THEY MAY PRODUCE GOODS AND PROVIDE SERVICES FOR ONE ANOTHER IN THEIR SPARE TIME.
DEVELOPING COUNTRIES/ENTREPRENEURSHIP/ECONOMIC ASPECTS

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME
1970
BETTER FARMING SERIES.
SAME AS AUTHOR. VARIOUS PAGINGS.
THIS SERIES OF SMALL HANDBOOKS IS INTENDED FOR INTERMEDIATE LEVEL AGRICULTURAL EDUCATION AND TRAINING. SERIES INCLUDES HANDBOOKS ON STEMS, ROOTS, LEAVES, FLOWERS, SOIL PHYSICAL PROPERTIES, SOIL MANAGEMENT, SOIL IMPROVEMENT AND CULTIVATION.
DEVELOPING COUNTRIES/EDUCATION/AGRICULTURE/SOIL TYPES

FRAENKEL, P.
1975
FOOD FROM THE WIND.
APPROPRIATE TECHNOLOGY 2(4):8-10.
THE AMERICAN PRESBYTERIAN MISSION'S FOOD FROM WIND PROJECT TO IRRIGATE THE LAND OF THE GELEB FROM A LARGE RIVER DURING 6 MONTHS OF NO RAIN EACH YEAR IS DISCUSSED. THE CRETEAN SAIL WIND WHEEL DESIGN WAS MODIFIED FOR USE, AND THE OPTIMUM SAIL SIZE AND PUMP ACTION ARE DISCUSSED.

DEVELOPING COUNTRIES/ETHIOPIA/WIND POWER/IRRIGATION

87
FRANK, A.G.
1967
CAPITALISM AND UNDERDEVELOPMENT IN LATIN AMERICA.
MONTHLY REVIEW PRESS, NEW YORK. 298 P.
NO ABSTRACT.

DEVELOPING COUNTRIES/SOCIAL ASPECTS

88
FRITS, J.
1976
RESULTS OF MOTIVATIONAL TRAINING IN ECUADOR.
DEVELOPMENT DIGEST 14(1):81-86.
NO ABSTRACT.

DEVELOPING COUNTRIES/ECUADOR/EDUCATION

89
FRY, J.L.
1974
PRACTICAL BUILDING OF METHANE POWER PLANTS FOR RURAL ENERGY INDEPENDENCE.
D.A. KNOX, ANDOVER, ENGLAND. 96 P.
AN IN DEPTH ANALYSIS OF FERTILIZER AND METHANE GAS PRODUCTION FROM ANAEROBIC DIGESTORS.
DEVELOPING COUNTRIES/ANAEROBIC DIGESTORS/EXCREMENT

90
FULFORD, D.
1975
LETTER TO APPROPRIATE TECHNOLOGY.
APPROPRIATE TECHNOLOGY 2(1):19.
DISCUSSES THE BENEFIT OF USING INTERMEDIATE TECHNOLOGICAL IDEAS BY SHORT-TERM VOLUNTEERS (HOW AND WHY).

DEVELOPING COUNTRIES/SOCIAL ASPECTS/TECHNOLOGY TRANSFER

GANDHI, M.K.

CENT PER CENT SWADESHI.
NAVAJIVAN PUBLISHING HOUSE, AHMEDABAD, INDIA. 146 P.

GANDHI EXPLAINS WHAT SWADESHI IS AND QUESTION AND ANSWER SESSIONS REGARDING THIS TOPIC ARE PRESENTED. BASICALLY SWADESHI IS A STRIVING TO IDENTIFY ONE’S SELF WITH ALL CREATION AND MANIFESTS ITSELF IN VILLAGE INDUSTRIES (MAKING GOODS FOR ONE’S OWN CONSUMPTION). SWADESHI REJECTS THE USE OF GOODS MADE BY HIGHLY INDUSTRIALIZED PROCESSES. THE OBJECTIVE IS TO REPLACE POPULATION IDLENESS WITH CONSTRUCTIVE WORK AND TO IMPROVE NUTRITION. CLOTHING, MILLING AND TANNING INDUSTRIES ARE DISCUSSED.

DEVELOPING COUNTRIES/INDIA/SOCIAL ASPECTS/LABOR/CLOTHING/MILLING/LEATHER

GEARING, C.F./SWART, W.W./TURGUT, U.

DETERMINING THE OPTIMAL INVESTMENT POLICY FOR THE TOURISM SECTOR OF A DEVELOPING COUNTRY.

FOR DEVELOPING COUNTRIES TRYING TO INCREASE THEIR BUYING POWER IN THE COMMUNITY OF NATIONS, THE ESTABLISHMENT OF A TOURISM INDUSTRY IS AN IMPORTANT STRATEGY FOR THE GENERATION OF FOREIGN EXCHANGE EARNINGS. A DECISION STRUCTURE WHEREBY INVESTMENT ALLOCATION DECISIONS FOR TOURISTIC PROJECTS CAN BE MADE IS PRESENTED. THE DECISION STRUCTURE CONSISTS OF A PROCEDURE TO QUANTIFY THE CONCEPTS OF TOURISTIC ATTRACTIVENESS, A MATHEMATICAL MODEL REPRESENTING THE ALLOCATION PROBLEM AND AN ALGORITHM FOR THE PROBLEM’S SOLUTION.

DEVELOPING COUNTRIES/TURKEY/TOURISM/DECISION MODELS/ECONOMIC ASPECTS

GEORGIA INSTITUTE OF TECHNOLOGY, ATLANTA, ECONOMIC DEVELOPMENT LABORATORY, ENGINEERING EXPERIMENT STATION

DISCUSSION PAPERS ON THE PROBLEMS OF SCIENCE AND TECHNOLOGY.

ANNUAL STRATEGY AND PLANNING SYMPOSIUM AGENCY FOR INTERNATIONAL DEVELOPMENT, OFFICE OF SCIENCE AND TECHNOLOGY, ATLANTA, GEORGIA, MAY 6-9, 1975, 129 P.

REPORTS ON THE CONSENSUS OF THE WORKING GROUPS ON EDUCATION, EMPLOYMENT, HOUSING, RURAL DEVELOPMENT, ENVIRONMENTAL CONCERNS, ENERGY AND FOOD ARE PRESENTED.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/EDUCATION/LABOR/FOODS/ENERGY
GEORGIA INSTITUTE OF TECHNOLOGY, ATLANTA, INDUSTRIAL DEVELOPMENT DIVISION, ENGINEERING EXPERIMENT STATION

1975

PROCEEDINGS OF THE CONFERENCE AND SEMINAR ON TECHNIQUES AND METHODOLOGIES FOR STIMULATING SMALL-SCALE LABOR-INTENSIVE INDUSTRY IN DEVELOPING COUNTRIES, ATLANTA, GEORGIA, MARCH 10-14.

SAME AS AUTHOR. 314 P.

TEXT IS COMPRISED OF PARTICIPANT ADDRESSES, PAPERS AND REPORTS PRESENTED AT THE MEETING AS WELL AS DISCUSSION SESSIONS. CONFERENCE AND SEMINAR PROGRAMS AND PHOTOGRAPHS ARE INCLUDED.

DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/CONSULTING/ENTREPRENEURSHIP/AGRICULTURE

95

GHASWALA, S.K.

1975

CATTLE DUNG OFFERS ENERGY RELIEF FOR RURAL INDIA.


THE AUTHOR PRESENTS A BRIEF DISCUSSION ON THE DEVELOPMENT OF A GOBAR GAS PLANT AND DISCUSSES THE CURRENT WIDESPREAD USE OF THIS FOR LP GAS PRODUCTION IN INDIA. THE RELATIVE THERMAL EFFICIENCY OF GOBAR GAS VS OTHER FUELS IS PRESENTED. RETURN IN GAS AND FERTILIZER PER GIVEN POPULATION DENSITY IS PREDICTED.

DEVELOPING COUNTRIES/ANAEROBIC DIGESTORS/INDIA/EXCREMENT

96

GIBBON, D./HARVEY, J./HUBBARD, K.

1974

A MINIMUM TILLAGE SYSTEM FOR BOTSWANA.

WORLD CROPS 26(5):229-234.

CONSIDERABLE IMPROVEMENT IN AGRICULTURAL PRODUCTIVITY CAN BE MADE IF TECHNIQUES ARE ADOPTED THAT 1) IMPROVE SOIL STRUCTURE, 2) REDUCE BULK DENSITY, 3) CONTROL WEEDS, 4) REDUCE RUNOFF, AND 5) INCREASE INFILTRATION AND REDUCE MOISTURE LOSS. A TILLAGE SYSTEM FOR BOTSWANA, A SUBTROPICAL REGION, IS DEVELOPED AROUND THE VERSATOOL, AN ANIMAL DRAWN TOOL. THE VARIOUS CONFIGURATIONS OF THE VERSATOOL ARE DESCRIBED WITH PICTURES AND TEXT. FERTILIZATION TECHNIQUES AND ROTATION CROPS ARE DESCRIBED. OTHER ASPECTS OF CROP PRODUCTION ARE DISCUSSED.

DEVELOPING COUNTRIES/BOTSWANA/FARM EQUIPMENT/ANIMAL POWER/CROP PRODUCTION/RUNOFF

97

GILES, G.W.

1975

THE REORIENTATION OF AGRICULTURAL MECHANIZATION FOR THE DEVELOPING COUNTRIES. PART II POLICIES ATTITUDES FOR ACTION PROGRAMS.
AGRICULTURAL MECHANIZATION IN ASIA (AUTUMN). JOURNAL AVAILABLE FROM FARM MACHINERY INDUSTRIAL CORP. LTD., 7,2-Chrome Kanda, Nishi-Ki-Chuo, Chiyoda-Ku, Tokyo 101, Japan.

NO ABSTRACT.

DEVELOPING COUNTRIES/AGRICULTURE/FARM EQUIPMENT

98

GLASER, W.A.

1975

MAKING BETTER USE OF TECHNICAL ASSISTANCE EXPERTS.


RECURRENT VISITS BY SHORT TERM REGIONAL EXPERTS MAY BE A SENSIBLE ALTERNATIVE TO THE PREVAILING SYSTEM OF FULL-TIME, LONG-TERM EXPERTS ASSIGNED TO ONE PLACE. THIS PAPER TAKES UP TWO DISTINCT ISSUES: 1) THE IMPROVEMENT WHICH CAREER BENEFITS AND PROFESSIONAL AWARDS WOULD BRING TO THE PRESENT EXPERT-COUNTERPART SYSTEM; AND 2) POSSIBLE ALTERNATIVES TO THAT SYSTEM.

DEVELOPING COUNTRIES/CONSULTING

99

GOODMAN, L./BURJAN, F.

1975

A COOPERATIVE PROBLEM-SOLVING APPROACH TO LOW-COST HOUSING TECHNOLOGY.


LOW-COST HOUSING FOR LOW-INCOME FAMILIES CLEARLY REPRESENTS A HIGH PRIORITY PROGRAM URGENTLY NEEDED IN ALL COUNTRIES IN THE WORLD. THE BASIC INTENT OF THIS PAPER IS TO SUMMARIZE THE MANY INTERRELATED PROBLEMS AND ISSUES, STRESSING THE NEED FOR MULTI-NATIONAL AND MULTI-DISCIPLINARY RESEARCH AND DEVELOPMENT ON A COOPERATIVE AND COORDINATED BASIS. AN EMERGING PROGRAM IN THIS FIELD CATALYZED AND COORDINATED BY THE EAST-WEST CENTER'S TECHNOLOGY AND DEVELOPMENT INSTITUTE IS DISCUSSED. EXAMPLES OF LOW-COST HOUSING IN FIVE COUNTRIES ARE PRESENTED, ALONG WITH PICTORIAL DOCUMENTATION.

HAWAII/BUILDING DESIGN/CONSTRUCTION METHODS/CONSTRUCTION MATERIALS

100

GROSS, B.

1974

DESTRUCTIVE DECISION MAKING IN DEVELOPING COUNTRIES.


IN MOST DEVELOPING COUNTRIES STRATEGIC DECISION MAKING HAS BEEN MADE LARGELY ON FALSE ASSUMPTIONS THAT HAVE LED TO DESTRUCTIVE RESULTS. MORE SUCCESSFUL DEVELOPMENT REQUIRES REDISTRIBUTION AND NONMATERIAL GROWTH, A SLOWING DOWN OF MATERIAL CONSUMPTION (IN DEVELOPED COUNTRIES), LARGE SCALE EMPLOYMENT PROJECTS AND THE FOSTERING OF MORE PRODUCTIVE TECHNOLOGIES.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/NATURAL RESOURCES/CONSERVATION/ECONOMIC ASPECTS
GUGGENHEIM, H.

N.D.

FIGHTING THE DROUGHT: INTRODUCING AN INVISIBLE TECHNOLOGY INTO THE DOGON ENVIRONMENT.
WUNDERMAN FOUNDATION, NEW YORK. 21 P.

A PROPOSAL FOR A PILOT PROJECT TO AID THE DOGON VILLAGERS OF THE BANDIAGARA CLIFFS IN MALI TO CONVERT TRADITIONAL CLAY-BUILT GRANARIES INTO WATERPROOF CISTERNS BY LINING THEM WITH A THIN COAT OF FERROCEMENT.
DEVELOPING COUNTRIES/MALI/WATER STORAGE/CATCHMENTS/CEMENT

GUGGENHEIM, H.

1974

FIGHTING THE DROUGHT WITH INVISIBLE TECHNOLOGY.
WUNDERMAN FOUNDATION, NEW YORK. 65 P.

THE AUTHOR'S STUDY OF WATER SUPPLIES FOR RURAL COMMUNITIES IN MALI, 1974, IS DESCRIBED. REQUIREMENTS FOR SUCCESSFUL TECHNOLOGY TRANSFER ARE DISCUSSED. FOR THE DOGON, A RESERVOIR MADE FROM A CAVE WAS DEVELOPED TO STORE RAIN WATER. IN THIS AREA THE GROUNDWATER IS CONTAMINATED. AT NARA AND DULLY PURIFICATION OF AVAILABLE GROUNDWATER WAS THE MOST REASONABLE PLAN. THE RECENT DEVELOPMENT OF A PORTABLE WATER PURIFICATION UNIT MADE THE LATTER PROJECT ECONOMICALLY FEASIBLE.
DEVELOPING COUNTRIES/MALI/GROUNDWATER/WATER STORAGE/TECHNOLOGY TRANSFER/WATER PUMPING

GUGGENHEIM, H.

1975

A SHARED TECHNOLOGY FOR DEVELOPMENT.
WUNDERMAN FOUNDATION, NEW YORK. 138 P.

THE AUTHOR'S STUDY ON WATER SUPPLIES FOR RURAL COMMUNITIES IN MALI, 1975, IS DISCUSSED. AT ARON A SMALL RESERVOIR WAS NEEDED AND AT KIKINU, COMPLETION OF A VILLAGE PROJECT TO CONVERT A NATURAL BASIN TO A RESERVOIR WAS REQUIRED. A COMPLETE LIFE STYLE ANALYSIS IS PRESENTED FOR THE KIKINU PEOPLE. DEVELOPMENT OF THE DOGON AREA IS PRESENTED. THE AUTHOR DISCUSSES THE WATER SUPPLY PROBLEMS OF THE DOGON AREA.
DEVELOPING COUNTRIES/GROUNDWATER/MALI/WATER STORAGE/TECHNOLOGY TRANSFER/WATER PUMPING

GUNKEL, W.W.

1968

IMPLEMENTATION AND OVER-MECHANIZATION IN DEVELOPING COUNTRIES.
AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS, TECHNICAL PAPER 66-508. 18 P.
DEVELOPING COUNTRIES/FARM EQUIPMENT/SOCIAL ASPECTS/AGRICULTURE
105
HAMMOND, R.W.
1975
CASE HISTORIES OF SUCCESSFUL OPERATIONAL PROGRAMS: CASE 4, CONFERENCE AND SEMINAR ON TECHNIQUES AND METHODOLOGIES FOR STIMULATING SMALL-SCALE LABOR-INTENSIVE INDUSTRIES IN DEVELOPING COUNTRIES, ATLANTA, GEORGIA, MAY 10-14, Summary of Proceedings, 17 p.
GEORGIA INSTITUTE OF TECHNOLOGY, ATLANTA, ENGINEERING EXPERIMENT STATION, INDUSTRIAL DEVELOPMENT DIVISION.
THE MAIN EMPHASIS OF THE DIVISION IS EMPLOYMENT GENERATION, STRENGTHENING EXISTING INDUSTRIES, AND CREATING NEW ONES IN BOTH SOUTHEASTERN UNITED STATES AND INTERNATIONAL SETTING. SOME SPECIFIC SUCCESSFUL TECHNIQUES HAVE BEEN COMMUNITY PROFILES, CERTIFIED CITY AND INDUSTRIAL DISTRICT PROGRAMS, PUBLICATION OF DIRECTORIES, FEASIBILITY STUDIES, AND TRAINING PROGRAMS.
DEVELOPING COUNTRIES/INDUSTRIES/MACHINE DESIGN/TOOLS/CONSULTING/TECHNOLOGY TRANSFER/ENTREPRENEURSHIP

106
HARPER, M.H.
1974
A PROTOTYPE EXPERIMENT TO TEST THE POSSIBILITY OF A COST EFFECTIVE EXTENSION SERVICE FOR SMALL SCALE GENERAL RETAILERS.
UNIVERSITY OF NAIROBI, KENYA, INSTITUTE FOR DEVELOPMENT STUDIES, DISCUSSION PAPER 193, 23 p.
TO DEVELOP AN INEXPENSIVE AND EFFECTIVE SMALL BUSINESS EXTENSION SERVICE, A CAREFUL ANALYSIS MUST BE MADE OF THE NEEDS OF THE CLIENT POPULATION. THE AUTHOR HYPOTHESIZES THAT IT IS POSSIBLE FOR RELATIVELY UNEQUIPPED AND INEXPERIENCED STAFF TO PROVIDE EFFECTIVE EXTENSION SERVICE. ENCOURAGING TEST RESULTS HAVE BEEN OBTAINED IN NAIROBI. PROBLEMS REFLECTED IN PROFIT-LOSS BALANCE SHEETS HAVE CONSISTENTLY SIMILAR SOLUTIONS. THESE SOLUTIONS THEN COMPRIS THE TRAINING OF THE EXTENSION STAFF. THE SUCCESS OF EXTENSION WORKERS WAS MEASURED BY THE WILLINGNESS OF THE CUSTOMERS TO PAY FOR SERVICES (66 PERCENT). PROBLEMS OF MEASURING ALL ASPECTS OF THE PROGRAM ARE DISCUSSED.
DEVELOPING COUNTRIES/KENYA/CONSULTING/TECHNOLOGY TRANSFER/BUSINESS MANAGEMENT/EDUCATION/SOCIAL ASPECTS

107
HARPER, M.H.
1975
APPROPRIATE CONSULTANCY FOR SMALL BUSINESS.
APPROPRIATE TECHNOLOGY 21(1):22-23.
PRESENTS THE PROBLEMS OF DISSEMINATING INFORMATION ABOUT APPROPRIATE TECHNOLOGIES TO SMALL BUSINESSMEN. PROBLEMS OF FINDING AND AFFORDING QUALIFIED CONSULTANTS ARE DISCUSSED. AN ALTERNATIVE OF TRAINING LOCALS AS CONSULTANTS IS PRESENTED.
DEVELOPING COUNTRIES/BUSINESS MANAGEMENT/EDUCATION/KENYA/INDUSTRIES/CONSULTING
HAPPER, M.H. 1975

THE EMPLOYMENT OF FINANCE IN SMALL BUSINESS.


DISCUSSES THE PERILS OF CONSULTANTS ACCEPTING A BUSINESSMAN'S SELF DIAGNOSIS IN ISOLATING BUSINESS PROBLEMS. PROBLEMS OF SMALL BUSINESS PROMOTION AGENCIES THAT STARTED AS LOAN AGENCIES ARE PRESENTED. THE AUTHOR FEELS THAT ASSISTANCE AND LOAN ACTIVITIES MUST BE SEPARATED. OVERSTOCKING IS PRESENTED AS THE MOST FREQUENT SMALL BUSINESS PROBLEM IN KENYA. SOME METHODS OF REDUCING STOCK ARE MENTIONED. NEED FOR SPECIAL TECHNOLOGY DELIVERY SYSTEMS IS DISCUSSED.

DEVELOPING COUNTRIES/KENYA/ENTREPRENEURSHIP/BUSINESS MANAGEMENT/CONSULTING/TECHNOLOGY TRANSFER/SOCIAL ASPECTS

HARRID, J.R./TODARO, M.P. 1970

MIGRATION, UNEMPLOYMENT AND DEVELOPMENT: A TWO SECTOR APPROACH.

AMERICAN ECONOMIC REVIEW 60(3):81-89.

NO ABSTRACT.

DEVELOPING COUNTRIES/ECONOMIC ASPECTS/LABOR MIGRATION/SOCIAL ASPECTS

HARRISON, P.L. 1975

EDUCATIONAL EQUIPMENT.


DISCUSSES IMPORTANCE OF TECHNICAL TRAINING FOR UNIVERSITY ENGINEERING STUDENTS AND ALSO OF MINI COURSES FOR TECHNICIANS. UPGRADING THE TECHNICAL SENSE OF WORKERS IS IMPORTANT BEFORE ANY LARGE ADVANCES IN INDUSTRIALIZATION CAN BE MADE.

DEVELOPING COUNTRIES/EDUCATION/INDUSTRIES/TECHNOLOGY TRANSFER

HEARN, K./WILLIAMS, R. 1967


USING A BICYCLE FOOT PEDAL DEVICE, THE AUTHORS FOUND THAT PEOPLE DO THEIR BEST WORK AT CERTAIN POWER OUTPUT LEVELS.

ENERGY/DEVELOPING COUNTRIES
112

MENSON, L.S. ED.
1974

SEMINAR SERIES ON TECHNOLOGY AND DEVELOPMENT, VOLS. I AND II.
HOWARD UNIVERSITY, WASHINGTON, D.C., SCHOOL OF ENGINEERING/U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT, WASHINGTON, D.C., 84 P.; 84 P.

THIS REPORT CONTAINS LECTURES PRESENTED DURING THE SECOND HALF OF A TWO-PART SERIES OF "SEMINARS ON TECHNOLOGY AND DEVELOPMENT IN DEVELOPING COUNTRIES".
THE PURPOSE OF THE SEMINARS WAS TO EXAMINE THE PROCESS OF DEVELOPMENT, THE ROLE OF TECHNICAL ASSISTANCE, AND THE APPLICATION OF TECHNOLOGY TO THE NEEDS OF DEVELOPING COUNTRIES, THEREBY GENERATING GREATER INTEREST IN DEVELOPMENT PROBLEMS ON THE PART OF SCHOOL OF ENGINEERING FACULTY AND STUDENTS.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/TECHNOLOGY TRANSFER

113

HERMANN, W.D.
1975

SOCIAL ENGINEERING IN THE THIRD WORLD.
TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE 7(3):229-232.

SUCCESS IN ECONOMIC DEVELOPMENT IS NORMALLY MEASURED IN TERMS OF GROWTH RATES IN GNP WITH LITTLE ATTENTION GIVEN TO THE ACCOMPANYING INCREASE IN EMPLOYMENT. GROWTH CAN BE LABOR ABSORBING DEPENDING ON THE TECHNOLOGY INTRODUCED DURING INDUSTRIALIZATION.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/LABOR

114

HERNANDEZ-DIAS, P.
1975

THE COOPERATIVE THAT BAMBOO BUILT.

THE GROWTH OF THE MUNDO ACADEMIC AND TECHNICAL INSTITUTE'S INDUSTRIAL COOPERATIVE IS PRESENTED. THE DEVELOPMENT OF THE REQUISITE MANAGERIAL TRAITS IN THE BOARD OF DIRECTORS IS PRESENTED. THE COOPERATIVE IS ENGAGED IN MAKING AND MARKETING BAMBOO PRODUCTS. THE ROLE OF OUTSIDE CONSULTING AND FINANCIAL AID IS DISCUSSED.

DEVELOPING COUNTRIES/COOPERATIVES/BAMBOO/CONSULTING/EDUCATION

115

HITCHINGS, B.
1974

WIND WORKSHOP.
ALTERNATIVE SOURCES OF ENERGY 14:7-9.

WIND POWER
116
HODA, M.M.
1974

APPROPRIATE TECHNOLOGY AND RESEARCH PROJECTS.

GHANDIAN INSTITUTE OF STUDIES, RAJGHAT, VARANASI, INDIA, APPROPRIATE TECHNOLOGY DEVELOPMENT UNIT. 66 P.

THE DEVELOPMENT OF INDIA BASED ENTIRELY ON WESTERN, CAPITAL INTENSIVE TECHNOLOGY CREATED ISLANDS OF PROSPERITY IN AN OCEAN OF POVERTY. THE AUTHOR DEALS WITH THE QUESTION OF HOW STUDENT PROJECTS AT ALL LEVELS COULD BE USED TO SOLVE THE TECHNOLOGICAL PROBLEMS CONFRONTING POOR AND WEAKER SECTIONS. FACTORS INFLUENCING RURAL-URBAN LABOR MIGRATION ARE DISCUSSED. THE AUTHOR PRESENTS AN EARLY HISTORY OF RURAL DEVELOPMENT IN INDIA. THE ROLE OF GHANDHI AND WORK INSTITUTIONS IN PRESERVING THE RURAL COMMUNITY IS DISCUSSED. TO SUPPORT THE INTERMEDIATE NEEDS OF INDIA THE APPROPRIATE TECHNOLOGY DEVELOPMENT UNIT AT VARANASI HAS BEEN ESTABLISHED. THE CONCEPT OF BALANCED DEVELOPMENT IS ADDRESSED. APPROPRIATE TECHNOLOGIES ARE DEFINED. PROJECTS DISCUSSED INCLUDE SHOE MAKING, PAPER PULP PROCESSING, BREAD BAKING, CERAMIC TILE PRODUCTION, WATER STORAGE, HOSPITAL INSTRUMENT WorskSHOPS AND ANAEROBIC DIGESTORS. A PROBLEM SOLVING METHODOLOGY IS PROPOSED. THE QUESTION OF WHAT A PROJECT SHOULD DO IS DISCUSSED. A LISTING OF PROJECT DESIGN CONSTRAINTS AND PROJECT TOPICS IS PRESENTED.

DEVELOPING COUNTRIES/INDIA/LABOR MIGRATION/ECONOMIC ASPECTS/CONSULTING/ENTREPRENEURSHIP/SHOES/WATER STORAGE/PAPER/FOODS/TOOLS

117
HOMMEL, R.P.
1937

CHINA AT WORK.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY PRESS, CAMBRIDGE. 366 P.

THE AUTHOR LIVED IN CHINA FOR EIGHT YEARS AND COMPILED THIS ILLUSTRATED RECORD OF THE PRIMITIVE INDUSTRIES OF CHINA'S MASSES. PICTURES OF TOOLS AND PROCESSES WITH DESCRIPTIONS COMPRISE THIS VOLUME. THE AUTHOR DESCRIBES PRIMARY TOOLS FOR PRODUCING 1) TOOLS, 2) FOOD, 3) CLOTHING, 4) SHELTER, AND 5) TRANSPORT.

DEVELOPING COUNTRIES/TOOLS/MACHINE DESIGN/FARM EQUIPMENT/ANIMAL POWER

118
HUTCHER, P.W.
1974

THE CARRYING CAPACITY OF A REGION: A PLANNING MODEL.

OMEGA 2(5):667-676.

WHILE TRADITIONAL PLANNING OFTEN ASSURES UNLIMITED GROWTH POTENTIAL, IN REALITY SUCH GROWTH HAS ABSOLUTE LIMITS IN TERMS OF RESOURCES AVAILABLE AND MAINTENANCE OF THE ECOSYSTEM. THESE LIMITS (THE REGION'S CARRYING CAPACITY) CAN BE MODELED; ONE SUCH MODEL, THE STATE-OF-THE-SYSTEM (SOS), IS DESCRIBED.

DECISION MODELS/FORECASTING/CONSERVATION
PRODUCTION OF FOOD AND FEED BY FERMENTATION.

THE USE OF SINGLE CELL PROTEIN (SCP) AS FOOD AND FEED IS DISCUSSED. RATES AND METHODS OF PRODUCTION ARE DISCUSSED. VIABLE COMMERCIAL-SCALE PROCESSES ARE NOW POSSIBLE, BUT THE VILLAGE LEVEL TECHNOLOGY IS STILL IN DEVELOPMENT STAGES. CONSUMER ACCEPTANCE IS DISCUSSED.

DEVELOPING COUNTRIES/FOODS/PROTEIN/SOCIAL ASPECTS/CROP PRODUCTION/REFUSE/AGRICULTURAL WASTE/COST-BENEFIT ANALYSIS
123
INTERNATIONAL RICE RESEARCH INSTITUTE, MANILA, PHILIPPINES
1975
IRRI SIX-ROW PADDY SEEDER.
APPROPRIATE TECHNOLOGY 2(1):27.
A DESIGN FOR A SIX-ROW PADDY SEEDER IS PRESENTED.
DEVELOPING COUNTRIES/CROP PRODUCTION/SOWING/FARM EQUIPMENT/MACHINE DESIGN/RICE/PHILIPPINES

124
INTERNATIONAL RICE RESEARCH INSTITUTE, MANILA, PHILIPPINES
1975
THE BELLOWS PUMP.
APPROPRIATE TECHNOLOGY 2(3):8.
NO ABSTRACT.
DEVELOPING COUNTRIES/FARM EQUIPMENT/MACHINE DESIGN/IRRIGATION/WATER PUMPING/RICE

125
INTERNATIONAL RICE RESEARCH INSTITUTE, MANILA, PHILIPPINES
1975
THE IRRI BATCH DRYER.
APPROPRIATE TECHNOLOGY 2(4):30.
A REPORT ON INTERNATIONAL RICE RESEARCH INSTITUTE'S DEVELOPMENT OF AN INEXPENSIVE DRYER THAT IS SIMPLE ENOUGH TO BE LOCALLY MANUFACTURED IN SMALL MACHINE SHOPS IN MOST DEVELOPING COUNTRIES.
DEVELOPING COUNTRIES/MACHINE DESIGN/FARM EQUIPMENT

126
ITAO, A.
1975
ELECTRICITY AND RURAL INDUSTRIALIZATION.
THE FAILURE TO MAKE ELECTRICAL POWER AVAILABLE TO RURAL AREAS IS A SERIOUS DRAWBACK TO DEVELOPMENT. HOWEVER, ELECTRIFICATION PER SE IS NOT A TOTAL SOLUTION TO THE RURAL INDUSTRIALIZATION PROBLEM.
DEVELOPING COUNTRIES/INDUSTRIES/SOCIAL ASPECTS
127
JACKSON, S.

ECONOMICALLY APPROPRIATE TECHNOLOGIES FOR DEVELOPING COUNTRIES.
OVERSEAS DEVELOPMENT COUNCIL, WASHINGTON, D.C.
NO ABSTRACT.
DEVELOPING COUNTRIES/SOCIAL ASPECTS/ECONOMIC ASPECTS

128
JAMES, D.
1975
SECOND-HAND MACHINERY IN DEVELOPMENT: A COMMENT.
NO ABSTRACT.
USED EQUIPMENT/MACHINE DESIGN

129
JEDLICA, A.D.
1975
AN EXPERIMENT ON THE INSTITUTIONAL DEVELOPMENT OF APPROPRIATE TECHNOLOGY IN COLOMBIA.

THIS PAPER DESCRIBES AN ONGOING EXPERIMENT IN THE INDUSTRIAL ENGINEERING DEPARTMENT OF THE UNIVERSITY OF THE ANDES IN BOGOTA, COLOMBIA, WHICH HAS AS ITS MAJOR OBJECTIVES THE CREATION OF AN APPROPRIATE TECHNOLOGY TRAINING CAPACITY FOR COLOMBIAN ENGINEERS AND ADMINISTRATORS AS WELL AS AN INSTITUTIONAL ENVIRONMENT WHICH WILL SUSTAIN THIS TECHNOLOGICAL STRATEGY. INCLUDED IN THE PAPER IS A DEFINITION OF APPROPRIATE TECHNOLOGY AS CONCEPTUALIZED IN THIS EXPERIMENT AS WELL AS AN ELABORATION OF THE INNOVATIVE MANNER BY WHICH THE TECHNOLOGICAL STRATEGY IS BEING IMPLEMENTED IN COLOMBIA.

DEVELOPING COUNTRIES/EDUCATION/INSTITUTION BUILDING/COLOMBIA

130
JEQUIER, N. ED.
1976
APPROPRIATE TECHNOLOGY: PROBLEMS AND PROMISES.
DEVELOPMENT CENTER OF THE ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, PARIS. 344 p.
DEFINITIONS OF APPROPRIATE, INTERMEDIATE, AND LOW COST TECHNOLOGIES ARE GIVEN WITH COMPARISON. THE DEVELOPMENT OF APPROPRIATE TECHNOLOGY UNDER DIFFERENT POLITICAL IDEOLOGIES IS DISCUSSED. PROBLEMS OF APPROPRIATE TECHNOLOGY AS SECOND RATE AND EXPLOITATIVE ARE PRESENTED. DEVELOPING AN INNOVATIVE STRUCTURE IS CONSIDERED A KEY GOAL OF APPROPRIATE TECHNOLOGY. THE ROLE OF GOVERNMENT INSTITUTIONS IN PROMOTING APPROPRIATE TECHNOLOGY IS EXAMINED. NINETEEN VIEWPOINTS FROM CURRENT PRACTITIONERS ARE ALSO PRESENTED.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/POLITICAL ASPECTS/TECHNOLOGY TRANSFER

131
KANAROWSKI, S.
1975
WATERPROOFING MATERIALS FOR PREVENTION OF WIND-BLOWN RAIN PENETRATION THROUGH MASONRY WALLS.
ARMY CONSTRUCTION ENGINEERING RESEARCH LABORATORY, CHAMPAIGN, ILLINOIS. 47 P.
AVAILABLE NTIS AS AD-A008 997/991.
NO ABSTRACT.
CONSTRUCTION MATERIALS/BRICKS

132
KAPLINSKY, R.
1973
THE POLITICAL ECONOMY OF LABOUR INTENSIVE TECHNOLOGIES. PAPER PRESENTED AT UNIVERSITY OF EDINBURGH APPROPRIATE TECHNOLOGY CONFERENCE, SEPTEMBER 1973, PAPER PE/S 02; 17 P.
MANY LABOR INTENSIVE TECHNIQUES EXIST BUT ARE NOT USED DUE TO DISTORTIONS IN FACTOR PRICES. WITHOUT AWARENESS OF POWER RELATIONSHIPS, POLICY RECOMMENDATIONS ARE USELESS IN SITUATIONS WHERE DECISIONS WITH REGARD TO TECHNICAL CHOICES ARE MADE BY ENTREPRENEURS WHO SEEK TO MAXIMIZE A PROFIT DOMINATED OBJECTIVE FUNCTION. FOR THE PURPOSES OF DEVELOPMENT PLANNING IT IS MORE CORRECT TO DEFINE LABOR AND CAPITAL INTENSITY IN TERMS OF OUTPUT. THE NEED FOR STABILIZED MARKET PRICES IS DISCUSSED. UNFORTUNATELY, SOCIAL AND POLITICAL FORCES IN DEVELOPING COUNTRIES ENSURE THAT MUCH OF THE RAND D IS DONE ON DEVELOPED COUNTRY NEEDS. POLITICAL FACTORS INFLUENCING THE MOBILIZATION OF LABOR ARE DISCUSSED. THE AUTHOR PUTS THE IDEALISM OF SCHUMACHER IN RATIONAL PERSPECTIVE.
DEVELOPING COUNTRIES/LABOR MIGRATION/TECHNOLOGY TRANSFER/POLITICAL ASPECTS/ECONOMIC ASPECTS

133
KAPLINSKY, R.
1975
ACCUMULATION AND THE TRANSFER OF TECHNOLOGY: ISSUES OF CONFLICT AND MECHANISMS FOR THE EXERCISE OF CONTROL.
WORLD DEVELOPMENT 4(3):197-224.
THE TRANSFER OF TECHNOLOGY FROM DEVELOPED TO UNDERDEVELOPED ECONOMIES IS ALMOST ALWAYS ASSOCIATED WITH CONFLICT OF INTEREST. WHERE THIS CONFLICT ARISES, CONTROL IS EXERTED BY THE MORE POWERFUL PARTY TO ENSURE THAT THE
CONFLICT IS SETTLED IN HIS FAVOR. IT IS ARGUED THAT CONTROL IS ALLIED TO THE POWER TO DETERMINE RATE AND TYPE OF ACCUMULATION OF CAPITAL. A NUMBER OF POTENTIAL AREAS OF CONFLICT ARE DISCUSSED ALONG WITH A DISCUSSION OF THE MECHANISMS EACH PARTY CAN USE TO SETTLE THE CONFLICT IN HIS FAVOR.

DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/SOCIAL ASPECTS/POLITICAL ASPECTS

134

KASSANDER, A.R.

1966

STEAM POWER REVISITED.

UNIVERSITY OF ARIZONA, TUCSON, INSTITUTE OF ATMOSPHERIC PHYSICS. 10 P. (UNPUBLISHED MANUSCRIPT)

DISCUSSES THE USE OF AGRICULTURAL BY-PRODUCTS AS FUEL FOR SIMPLE ENGINES. SPECIFICALLY STEAM ENGINES. A COMPARISON OF THE RELATIVE VALUE OF AGRICULTURAL PRODUCTS AS FUELS VS THEIR NORMAL ECONOMIC VALUE IS PRESENTED. THE WORK EFICIENCY OF ANIMALS VS MACHINES IS DISCUSSED. ELABORATES ON THE HISTORY OF THE STEAM ENGINE AND MENTIONS CURRENT DEVELOPMENTS.

DEVELOPING COUNTRIES/STEAM POWER/AGRICULTURAL WASTE/ANIMAL POWER/MACHINE DESIGN/FARM EQUIPMENT/ALTERNATIVE FUELS

135

KAYA, Y./SUZUKI, Y.

1974

GLOBAL CONSTRAINTS AND A NEW VISION FOR DEVELOPMENT.


IN THE INTEREST OF PROGRESS THE ADVANCED NATIONS MUST TAKE POSITIVE STEPS TO REFORM THE STRUCTURE OF THEIR OWN INDUSTRY. THE AUTHORS HAVE DEVELOPED A WORLD INDUSTRIAL MATHEMATICAL MODEL WITH SUBSETS REPRESENTING GEOGRAPHICAL REGIONS IN ORDER TO DETERMINE WHICH METHOD OF RESTRUCTURING IS BEST. THE BEHAVIOR OF THESE INTERACTING SUB-MODELS IS CONTROLLED BY INVESTMENT ACCORDING TO REGION AND INDUSTRIAL SECTOR.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/ECONOMIC ASPECTS/DECISION MODELS

136

KEATLEY, R.

1975

FERRO-CEMENT BOAT BUILDING IN A CHINESE COMMUNE.

APPROPRIATE TECHNOLOGY 2(1):4-6.

DISCUSSES DESIGN, FABRICATION, COST AND ECOLOGICAL IMACTS OF FERRO-CEMENT BOAT DESIGN. ADDITIONALLY AN EVALUATION OF THE ORGANIZATION OF THIS INDUSTRY IS GIVEN FOR THE COMMUNE.

DEVELOPING COUNTRIES/CHINA/COMMunes/INDUSTRIES/BOATS/CEMENT/CONSTRUCTION METHODS/ECOLOGY/COST-BENEFIT ANALYSIS
137
KEIGWIN, J.
1975
WATER WHEEL.
A DESIGN FOR A WATER WHEEL IS DISCUSSED.
DEVELOPING COUNTRIES/WATER CONVEYANCE/WATER POWER/SUDAN

138
KENKARE, A.S.
1975
TECHNOLOGY FOR THE DEVELOPING WORLD.
CHARTERED MECHANICAL ENGINEERING 22(3):87-90.
NO ABSTRACT.
DEVELOPING COUNTRIES/SOCIAL ASPECTS

139
KHAN, A.U.
1975
UNIVERSITY RESEARCH AND INDUSTRIAL RESEARCH IN THE LDCS.
THE INTERNATIONAL RICE RESEARCH INSTITUTE, MANILA, PHILIPPINES, PAPER 75-03, 12 P.
FUNDS FOR RESEARCH ARE PRIMARILY AVAILABLE TO ACADEMIC INSTITUTIONS IN THE DEVELOPING COUNTRIES. SUCH INSTITUTIONS ARE USUALLY ENGAGED IN CONDUCTING RESEARCH TO ENHANCE KNOWLEDGE RATHER THAN DEVELOPING PRODUCTS WHICH LOCAL INDUSTRY COULD PRODUCE. EXPERIENCE AT THE INTERNATIONAL RICE RESEARCH INSTITUTE HAS INDICATED THAT THE DEVELOPMENT OF DEMAND-ORIENTED AGRICULTURAL MACHINES CAN RESULT IN THE RAPID DEVELOPMENT OF LOCAL FARM MACHINE INDUSTRIES IN THE LDCs. OVER 22,000 IRRI DESIGNED MACHINES HAVE BEEN MANUFACTURED BY SMALL METALWORKING FIRMS IN 10 DEVELOPING COUNTRIES SINCE THE RELEASE OF THE FIRST DESIGN FOUR YEARS AGO. PICTURES AND DESCRIPTIONS OF THESE MACHINES ARE INCLUDED.
DEVELOPING COUNTRIES/FARM EQUIPMENT/ENTREPRENEURSHIP/CONSULTING/RICE

140
KING, F.H.
19---
FARMERS OF FORTY CENTURIES.
HARCOURT, BRACE, NEW YORK. 379 P.
RURAL AGRICULTURAL PRACTICES AND CUSTOMS OF CHINA, KOREA AND JAPAN ARE PRESENTED.
DEVELOPING COUNTRIES/AGRICULTURE/SOCIAL ASPECTS/CHINA/JAPAN/KOREA

141
KING, K.
1975
IMPROVISATION AND MACHINE-MAKING.
IN KENYA THE MAJORITY OF INTERMEDIATE MACHINE DESIGN IS CARRIED OUT BY A HANDBOX OF MEN WHO HAVE ONLY FULL PRIMARY EDUCATION OR LESS, AND CARRY ON THEIR OPERATIONS IN KENYA'S INFORMAL SECTOR. THE POTENTIAL FOR DEVELOPMENT OF THESE ROUGH MACHINES IS DISCUSSED.
DEVELOPING COUNTRIES/KENYA/MACHINE DESIGN/ENTREPRENEURSHIP/METAL WORKING

142
KLITGAARD, R.E.
1974
MEASURING TECHNOLOGICAL CHANGE: COMMENTS ON A PROPOSED METHODOLOGY.
NO ABSTRACT.
TECHNOLOGY MEASUREMENT

143
KLITGAARD, R.F.
1975
ON ASSESSING A GIFT HORSE.
A SYSTEM FOR EVALUATING FOREIGN AID IS IMPORTANT IF A COUNTRY WISHES TO KEEP CONTROL OF THE DIRECTION OF ITS NATIONAL DEVELOPMENT. HOWEVER, AS A RECENT CASE DEMONSTRATES, BUREAUCRATIC SELF-INTEREST CAN DISTORT THE FUNCTIONING OF SUCH AN EVALUATION SYSTEM.
DEVELOPING COUNTRIES/DECISION MODELS/POLITICAL ASPECTS

144
KNIGHT, J.B.
1972
RURAL URBAN INCOME COMPARISONS AND MIGRATION IN GHANA.
THE NEW COLD WAR.
WALL STREET JOURNAL (JULY 17) 186. P. 18.

THIS ARTICLE PRESENTS THE VIEWPOINT THAT THIRD WORLD COUNTRIES BELIEVE THEIR POVERTY IS THE FAULT OF EXPLOITATION OF THE CAPITALISTIC COUNTRIES.

DEVELOPING COUNTRIES/SOCIAL ASPECTS

DECENTRALIZATION OF INDUSTRY AND ITS INTEGRATION WITH AGRICULTURE ARE PROPOSED AS A POLICY FOR DEVELOPMENT WHICH WILL MAXIMIZE NOT JUST FOR PROFIT BUT HUMAN WORTH AS WELL. CURRENT STAGES AND HISTORIES OF INDUSTRIAL AND AGRICULTURAL DEVELOPMENT FOR NUMEROUS COUNTRIES ARE PRESENTED. THE DEVELOPMENT OF INDUSTRIES FOR SELF SUFFICIENCY BY COLONIES IS DESCRIBED AS A NATURAL REVOLT AGAINST SPECIALIZATION. THE NECESSITY OF MAN'S LABORS TO INCLUDE MENTAL AS WELL AS PHYSICAL ASPECTS IS DISCUSSED, AND SOME SUCCESSFUL EDUCATIONAL PROGRAMS THAT COMBINE PRACTICAL AND THEORETICAL DEVELOPMENT ARE PRESENTED.

ECONOMIC ASPECTS/ECOLOGY/NATURAL RESOURCES/SOCIAL ASPECTS/GOVERNMENT
148
KRUSCH, P.A.
1975
GROUNDNUT HULLER FROM SCRAP VEHICLE PARTS.
VAIKUNTHBHAI MEHTA SMARAK TRUST, BOMBAY, INDIA, DOCUMENTATION BULLETIN 2HVII-X.
INSTRUCTIONS FOR CONSTRUCTION OF A GROUNDNUT HULLER ARE PRESENTED.
DEVELOPING COUNTRIES/GROUNDNUTS/HULLING/MACHINE DESIGN/FARM EQUIPMENT

149
LABEL, D./SCHULTZ, K.
1975
A FRAMEWORK FOR STANDARDIZATION POLICIES IN DEVELOPING COUNTRIES.
THIS PAPER IS INTENDED FOR THE GOVERNMENT POLICY MAKER, THE INTERNATIONAL INDUSTRIALIST AND LOCAL BUSINESSMAN, ALL OF WHOM ARE AFFECTED BY, AND STRIVE TO INFLUENCE, STANDARDIZATION POLICY. A CONCEPTUAL FRAMEWORK IS PRESENTED FOR VIEWING THE NATIONAL STANDARDS PROGRAM, ITS FUNCTIONAL ANATOMY, ALTERNATIVE GOALS AND STRATEGIES FOR IMPLEMENTATION, AND CONSEQUENT AREAS OF POTENTIAL IMPACT. IT INCLUDES A FORMAL PROCEDURE COMPARING ALTERNATIVE POLICIES AND THEIR RELATIVE BENEFITS AND COSTS IN AN OBJECTIVE, ORGANIZED FASHION. THIS FORMAL PROCEDURE IS ADVOCATED AS AN AID TO AUGMENT DECISION PROCESSES IN ORGANIZING, ANALYZING, COMMUNICATING, AND DEBATING THE SELECTION OF POLICY ALTERNATIVES.
DEVELOPING COUNTRIES/INDUSTRIES

150
LANGDON, S.
1975
TECHNOLOGY TRANSFER BY MULTINATIONAL CORPORATIONS IN AFRICA: EFFECTS ON THE ECONOMY. PAPER PRESENTED AT AFRICAN STUDIES ASSOCIATION ANNUAL MEETING, SAN FRANCISCO, OCTOBER 1975.
DEFINES TECHNOLOGY TRANSFER, PROBLEMS OF SELLING SPECIALIZED KNOWLEDGE ARE DISCUSSED. SIDE EFFECTS (CONSUMPTION TECHNOLOGY) ARE DISCUSSED. THE CONCEPT OF PERPETUAL TECHNOLOGICAL DEPENDENCE IS PRESENTED. THE COST OF TECHNOLOGY, BOTH MONETARY AND SOCIAL, IS EVALUATED. THE ROLE OF BARGAINING IS DISCUSSED.
DEVELOPING COUNTRIES/KENYA/SOCIAL ASPECTS/TECHNOLOGY TRANSFER/INDUSTRIES/ ECONOMIC ASPECTS/LABOR

151
LAWAND, M.T./OMBRIN, G.L.
1975
BRACE RESEARCH INSTITUTE ANNUAL REPORT.
MCGILL UNIVERSITY, QUEBEC, BRACE RESEARCH INSTITUTE.

SOLAR POWER/WIND POWER/ECOSYSTEMS/DESALINATION/SOLAR HEATING/CONSULTING

152

LEVITSKY, J.

1975

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, VIENNA.

CONFERENCE AND SEMINAR ON TECHNIQUES AND METHODOLOGIES FOR STIMULATING SMALL-SCALE LABOR-INTENSIVE INDUSTRIES IN DEVELOPING COUNTRIES, ATLANTA, GEORGIA, MARCH 10-14, SUMMARY OF PROCEEDINGS, 17 P.

THE MAJOR REASONS FOR SUPPORTING SMALL SCALE INDUSTRY ARE THAT LESS CAPITAL INVESTMENT IS REQUIRED, LOCAL INITIATIVES ARE CHANNELED, AND LOCAL NEEDS ARE SATISFIED. CATEGORIES OF SMALL SCALE INDUSTRY ARE INVESTIGATED AND AREAS IN WHICH SMALL INDUSTRIES NEED ASSISTANCE ARE LISTED. CRITERIA FOR DEFINING SMALL INDUSTRY ARE DISCUSSED. THE UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION'S ROLE IN DEVELOPING NATIONAL SMALL INDUSTRY ASSISTANCE CENTERS IS PRESENTED.

DEVELOPING COUNTRIES/INDUSTRIES/TECHNOLOGY TRANSFER/BUSINESS MANAGEMENT/ENTREPRENEURSHIP/CONSULTING

153

LEVY, C.

1975

WOOD PRESERVATION IN DEVELOPING TROPICAL COUNTRIES: A NOTE FROM PAPUA, NEW GUINEA.


DESCRIBES SEVERAL METHODS OF WOOD TREATMENT IN TROPICAL ENVIRONMENTS. DISCUSSES THE RELATIVE INCREASES IN USEFUL TIMBER LIFE USING THE TREATMENT PROCESS AND LISTS ADDRESSES FOR EQUIPMENT DESIGNS AND MORE INFORMATION.

DEVELOPING COUNTRIES/NEW GUINEA/TIMBER MANAGEMENT/CONSERVATION/MACHINE DESIGN

154

LIM, D.

1976

ON THE MEASUREMENT OF CAPITAL UTILIZATION IN LESS DEVELOPED COUNTRIES.

OXFORD ECONOMIC PAPERS 28(1):149-159.

THE SHORTAGE OF PHYSICAL CAPITAL IS OFTEN SEEN AS THE CRUCIAL CONSTRAINT TO GROWTH IN LDCS. HOWEVER, RECENT STUDIES CLAIM THAT UNDERUTILIZATION OF EXISTING CAPITAL EXISTS ON A MASSIVE SCALE. THIS PAPER SHOWS THAT THE EXTENT OF UNDERUTILIZATION MAY BE EXAGGERATED BECAUSE OF ERRORS IN MEASUREMENT OF CAPITAL UTILIZATION.

DEVELOPING COUNTRIES/LABOR/INDUSTRIES/ECONOMIC ASPECTS
LINDSEY, G.R.

1969

THE STABILITY OF COUNTRIES OF VARIOUS SIZES. IN INTERNATIONAL CONFERENCE ON OPERATIONAL RESEARCH, 5TH, VENICE, JUNE 22-27, PROCEEDINGS, P. 181-192.

TAVISTOCK PUBLICATIONS, LONDON.

AN ANALOGY OF NATIONAL STABILITY TO ATOMIC NUCLEI PROVIDES THE BASIS FOR ARGUMENT. VARIOUS ATTRACTION AND REPULSION FORCES ARE DISCUSSED. HISTORICAL UPPER AND LOWER SIZE LIMITS FOR EACH CONTINENT ARE PRESENTED. A QUANTITATIVE MODEL IS PRESENTED WHICH IS USED TO SHOW THE STABILITY SIZE FOR EACH CONTINENT.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/DECISION MODELS/POLITICAL ASPECTS

LODGE, G.C.

1967

RURAL STRUCTURES OF LATIN AMERICA. PAPER INCLUDED AS COURSEWORK IN MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MECHANICAL ENGINEERING DEPARTMENT, ENGINEERING PROJECTS LABORATORY, COURSE 2.67: DESIGN AND EXPERIMENT. SPRING 1967.

THE BASIC STRUCTURE OF RURAL LIFE IN CENTRAL PANAMA (VERAGUAS PROVINCE) WHICH THE AUTHOR CLAIMS IS REPRESENTATIVE OF MANY AREAS IN RURAL LATIN AMERICA, IS DISCUSSED. THE CAMPECINO ARE THE RURAL PEOPLE WHO LEAD A SEMI-NOMADIC LIFE WITH A SPLINTERED SOCIAL STRUCTURE. VERY SUPERSTITIOUS, THEY RESIST ALL CHANGES UPSETTING TO THEIR PRESENT FRAGILE EXISTENCE. CRITERIA FOR DEVELOPMENTAL SUCCESS ARE PRESENTED.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/PANAMA/TECHNOLOGY TRANSFER

LOFTHOUSE, P.

1975

CASE HISTORY OF SUCCESSFUL OPERATIONAL PROGRAMS. CASE 1: INTERMEDIATE TECHNOLOGY DEVELOPMENT GROUP.

CONFERENCE AND SEMINAR ON TECHNIQUES AND METHODOLOGIES FOR STIMULATING SMALL-SCALE LABOR-INTENSIVE INDUSTRIES IN DEVELOPING COUNTRIES, ATLANTA, GEORGIA, MARCH 10-14, SUMMARY OF PROCEEDINGS, 17 P.

A BRIEF HISTORY OF THE INTERMEDIATE TECHNOLOGY DEVELOPMENT GROUP (ITDG) IS PRESENTED. PROJECTS FROM THE INDUSTRIAL LIAISON UNIT AND DEVELOPMENT TECHNIQUES ARE DISCUSSED. A HOSPITAL EQUIPMENT IN NIGERIA, WOOD WORKING SHOP IN GHANA, WEIGHING SCALE IN ZAMBIA, SODERAKING PLANT IN UNITED ARAB REPUBLIC, MANUFACTURING EGG TRAYS IN NIGERIA, MANUFACTURING GLASS JARS IN SOUTH AMERICA, AND DEVELOPING A SMALL SCALE PAPER CONVERSION PLANT. ITDG REACTS MAINLY TO REQUESTS OF LDCS.

DEVELOPING COUNTRIES/INDUSTRIES/TECHNOLOGY TRANSFER/PAPER/GLASS/LEATHER/TOOLS/MACHINE DESIGN/COST-BENEFIT ANALYSIS/ENTREPRENEURSHIP/CONSULTING
158

LOVE, S.
1974

WE MUST MAKE THINGS SMALLER, SIMPLER.

FUTURIST 8(6):281.

NO ABSTRACT.

SOCIAL ASPECTS

159

MABGUNJE, A.
1972

IMAGINATION RATHER THAN MONEY.


IN THE THIRD WORLD, THE FIRST DEVELOPMENT DECADE, EVEN WHERE IT HAS BROUGHT GROWTH IN GROSS NATIONAL PRODUCT, HAS DONE SO AT GREAT SOCIAL COST. CONSEQUENTLY ALTERNATIVE STRATEGIES FOR DEVELOPMENT ARE BEING SOUGHT. THIS ARTICLE DISCUSSES HOW OVERCROWDED URBAN CONDITIONS ARE A DETRIMENT TO THE ENVIRONMENT RESULTING IN OVER-CONCENTRATION DISEASES, LOSS OF PRIVACY, AND WATER AND AIR POLLUTION. BY PUTTING THE EMPHASIS ON PEOPLE, NEW DEVELOPMENT STRATEGIES CAN INCLUDE ENVIRONMENTAL DEFENSE IN PLANS AT LOW COST.

DEVELOPING COUNTRIES/AIR POLLUTION/WATER POLLUTION/ECOLOGY/SOCIAL ASPECTS/DISEASE CONTROL

160

MACKAY, J.
1975

HEALTH AUXILIARY TRAINING IN PAPUA, NEW GUINEA.


THE MAIN DISEASES IN PAPUA, NEW GUINEA, ARE THOSE PREVALENT IN MANY OTHER DEVELOPING COUNTRIES: MALNUTRITION, LEPROSY, RESPIRATORY DISEASES, TB AND MALARIA; DISEASES WHICH NEED A GREAT EMPHASIS ON PREVENTION TO BRING ABOUT THEIR CONTROL. THE NATIONAL HEALTH PLAN PLACES DEFINITE STRESS ON THE USE OF AUXILIARY WORKERS TO ACT AS THE FIRST LINE OF DEFENSE. THE PROBLEMS OF TRAINING THESE HEALTH EXTENSION OFFICERS (HEO) ARE DISCUSSED. OF PARTICULAR INTEREST ARE THE COMMUNICATION PROBLEMS CAUSED BY THE LIMITED VOCABULARY OF THE STUDENTS, AND THE STRONG ELEMENTS OF SUPERSTITION.

DEVELOPING COUNTRIES/EDUCATION/NEW GUINEA/DISEASE CONTROL/TECHNOLOGY TRANSFER
**MACPHERSON, G.A.**

1975

FIRST STEPS IN VILLAGE MECHANISATION.

TANZANIA PUBLISHING HOUSE, DAR ES SALAAM. 231 P.

This book is for village development workers who wish to assist in starting a mechanization process in traditional peasant villages. It uses principles of self-reliance wherever possible both in personnel and materials. The book suggests the first few steps in mechanization, after which people of the village can proceed independently.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/FARM EQUIPMENT/MACHINE DESIGN/TECHNOLOGY TRANSFER

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**MACPHERSON, G.A./JACKSON, D.**

1976

VILLAGE TECHNOLOGY IN TANZANIA.


NO ABSTRACT.

DEVELOPING COUNTRIES/TANZANIA/SOCIAL ASPECTS

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**MADDOCKS, D.**

1975

AN INTRODUCTION TO METHODS OF RAINWATER COLLECTION AND STORAGE.

APPROPRIATE TECHNOLOGY 2(3):24-25.

Discusses the construction of various types of rainwater catchments, provides the necessary considerations for planning a rainwater supply scheme, plans for small communities as well as individual families are presented. An evaluation of different construction methods to improve runoff is presented.

DEVELOPING COUNTRIES/JAMAICA/SUDAN/CONSTRUCTION METHODS/WATER STORAGE/RUNOFF/WATER HARVESTING/CATCHMENTS/BUILDING DESIGN

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**MAKANJUOLA, G.A.**

1975

A MACHINE FOR PREPARING POUNDED YAM AND SIMILAR FOODS IN NIGERIA.

VAIKUNTHBHAI MEHTA SMARAK TRUST, BOMBAY, INDIA, DOCUMENTATION BULLETIN 20:7-9.

A DESIGN FOR A DEVICE FOR POUNDING YAM AND SIMILAR FOOD IS DISCUSSED.

DEVELOPING COUNTRIES/NIGERIA/MACHINE DESIGN/FOODS
165
Makanjuola, G.A.
1975
The Semi-Automatic Device for Planting Cassava Stem Cuttings on Ridges.

This paper describes the details of a mechanical device for planting cassava stem cuttings on freshly made ridges. The machine incorporating this device consists of a disc ridge and a semi-automatic planter. For a multi-row machine, there will be many units of the planting device as there are a number of ridges. The machine can be manufactured entirely locally with the exception of the ridge discs and the bearings.

Developing Countries/Machine Design/Farm Equipment/Cassava

166
Manikkavasagar, T.N.
1968

One attempt at overcoming the high labor requirements for transplanting rice is the rendering of a broadcast field suitable for interior cultivation by crushing out the plants between regularly spaced strips. The technique is known as strip cultivation and the paper describes the technique and the performance of the crop in comparison with transplant and broadcast sowing.

Developing Countries/Crop Production/Rice/Sowing/Farm Equipment

167
Mann, H.T./Williamson, D.
1973
Water Treatment and Sanitation: Simple Methods for Rural Areas.
Intermediate Technology Development Group Ltd., London. 60 P.

This handbook deals with the selection of a water source, development of a water supply, water testing and treatment, sanitation, and emergency water treatment measures. Includes discussion on determining flows, head loss, and a bibliography.

Developing Countries/Water Storage/Waste Water/Water Conveyance/Sanitation/Water/Excrement/Bibliographies

168
Mann, I.
1960
Rural Tanning Techniques.
Food and Agriculture Organization of the United Nations, Rome. 252 P.
THIS PUBLICATION IS DESIGNED ESPECIALLY FOR TRAINING PURPOSES. IT DESCRIBES AND ILLUSTRATES PROCESSES, TOOLS AND EQUIPMENT FOR TANNING ANIMAL HIDES AND IS INTENDED TO BE USED BY RURAL TANNERS AND AS TRAINING COURSES IN WHICH FAO IS INVOLVED. SOME CHAPTERS ARE MORE SUITABLE FOR THE ADVANCED RURAL TANNER. A GLOSSARY OF TERMS USED IN THE TANNING AND LEATHER TRADE IS INCLUDED. SELECTED BIBLIOGRAPHY INCLUDED.

DEVELOPING COUNTRIES/BIBLIOGRAPHIES/TECHNOLOGY TRANSFER/EDUCATION/LEATHER

169
MANN, I.
1962
PROCESSING AND UTILIZATION OF ANIMAL BY PRODUCTS.
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME. 247 P.
IMPLEMENTATION OF PROGRAMS IS EXPLAINED, PARTICULARLY IN COUNTRIES WITH SUBTROPICAL AND TROPICAL CLIMATES. THE PAPER DESCRIBES SELECTED METHODS AND PROCESSES AS WELL AS INEXPENSIVE EQUIPMENT FOR THE RURAL INDUSTRIAL UTILIZATION OF SUCH ANIMAL BY-PRODUCTS AS BLOOD, BONES, HOoves, HORNs, INEDIBLE MEAT, WHICH DO NOT HAVE A PARTICULAR VALUE AND THEREFORE ARE OFTEN WASTED. GENERATION OF METHANE GAS IS ALSO DISCUSSED AND SOME BASIC ANAEROBIC DIGESTOR DESIGNS ARE PRESENTED.

DEVELOPING COUNTRIES/ANAEROBIC DIGESTORS

170
MATTHEWS, E.G.
1975
METHANE AND COFFEE.
APPROPRIATE TECHNOLOGY 2(1)2-3.
DISCUSSES THE USE OF COMPOST FROM ANAEROBIC DIGESTORS TO REPLACE SOIL HUMUS, THEREBY ELIMINATING COFFEE BERRY DISEASE.

DEVELOPING COUNTRIES/ANAEROBIC DIGESTORS/FERTILIZERS/COFFEE/CEYLON/KENYA/CROP PRODUCTION/FOODS/DISEASE CONTROL

171
MCBAIN, N.S./GORSYTH, D.J.C.
1975
AN INTERMEDIATE TECHNOLOGY FOR SHOE MAKING IN LESS DEVELOPED COUNTRIES.
APPROPRIATE TECHNOLOGY 2(3)26-27.
PRESENTS A COST-BENEFIT ANALYSIS OF USING A LOCALLY FABRICATED MACHINE FOR FINISHING AND SCOURING SHOES AS OPPOSED TO A MARKETED BRAND. DESIGN FOR THE LOCALLY FABRICATED MACHINE IS GIVEN.

DEVELOPING COUNTRIES/COST-BENEFIT ANALYSIS/CLOTHING/SHOES/MACHINE DESIGN
172
MCSAIN, N.S./PICKETT, J.
1975
FOOTWEAR PRODUCTION IN ETHIOPIA: CASE STUDY OF APPROPRIATE TECHNOLOGY.
JOURNAL OF MODERN AFRICAN STUDIES 13(3) #415-427.
NO ABSTRACT.
ETHIOPIA/DEVELOPING COUNTRIES/SHOES/INDUSTRIES

173
MCDOWELL, J.
1975
THE CONCEPT OF VILLAGE TECHNOLOGY IN EASTERN AFRICA.
APPROPRIATE TECHNOLOGY 2(2) #15-17.
DEFINES VILLAGE TECHNOLOGY AND SHOWS THE APPLICATION OF INTERMEDIATE TECHNOLOGY TO THE AFRICAN RURAL POPULATION.
DEVELOPING COUNTRIES/WATER CONVEYANCE/WIND POWER/SOLAR ENERGY/EDUCATION/SOCIAL ASPECTS/GHANA/AGRICULTURE/TECHNOLOGY TRANSFER

174
MCHENRY, P.G.
1973
ADobe: BUILD IT YOURSELF.
UNIVERSITY OF ARIZONA PRESS, TUCSON. 153 P.
A COMPLETE GUIDE TO ADOBE HOME CONSTRUCTION, INCLUDING DESIGN, FINANCING, PLUMBING, HEATING AND ELECTRICAL WORK. BIBLIOGRAPHY INCLUDED.
BUILDING DESIGN/CONSTRUCTION METHODS/CONSTRUCTION MATERIALS/ADobe/BRICKS/BIBLIOGRAPHIES

175
MEADOWS, C.A.
1972
LIMITS TO GROWTH: A REPORT FOR THE CLUB OF ROME'S PROJECT ON THE PREDICAMENT OF MANKIND.
UNIVERSE BOOKS, NEW YORK. 205 P.
NO ABSTRACT.
ENERGY/NATURAL RESOURCES/CONSERVATION/SOCIAL ASPECTS
A NEW OPTION FOR SOLAR ENERGY UTILIZATION BY SAHEL COMMUNITIES.

UNIVERSITY OF ARIZONA, TUCSON, OPTICAL SCIENCES CENTER/HELIO ASSOCIATES INC., TUCSON, 18 P.


DEVELOPING COUNTRIES/SOLAR ENERGY/SAHEL/SOCIAL ASPECTS/COST-BENEFIT ANALYSIS

A MULTIPERIOD INVESTMENT DECISION MODEL FOR DEVELOPING COUNTRIES.

UNIVERSITY OF ROCHESTER, GRADUATE SCHOOL OF MANAGEMENT, 24 P.

PLANNING AUTHORITIES IN DEVELOPING NATIONS HAVE TO MAKE DECISIONS REGARDING LEVELS OF INVESTMENT IN VARIOUS SEGMENTS OF THE ECONOMIC LIFE OF THE NATION. THE DECISIONS USUALLY COVER A PERIOD OF SEVERAL YEARS AND PRIMARY CONSIST OF CAPITAL RATIONING WITH RESPECT TO TOTAL FUNDS AVAILABLE FROM INTERNAL SAVINGS AND EXTERNAL AID. THIS PROCESS IS FORMALIZED IN AN AGGREGATE MATHEMATICAL MODEL WHICH IS A NON-LINEAR PROGRAM. ALSO PRESENTED ARE SOME ALTERNATE FORMULATIONS, ONE OF WHICH CAN BE HANDLED WITH LINEAR PROGRAMMING CODES. BIBLIOGRAPHY INCLUDED.

DEVELOPING COUNTRIES/MATHEMATICAL MODELS/POLITICAL ASPECTS/ECONOMIC ASPECTS

KEYNOTE ADDRESS. PAPER PRESENTED AT NNORTHWEST CONFERENCE ON ALTERNATIVE AGRICULTURE, CENTRAL WASHINGTON STATE COLLEGE, ELLENSBURG, NOVEMBER 21-23, 1974.

THE SPIRAL OF PROGRESS HAS MADE IT POSSIBLE FOR MOST PEOPLE IN DEVELOPED COUNTRIES TO RETURN TO THE LAND AND EKE OUT A LIVING. TEN TIMES THE ENERGY VALUE OF FOOD IS REQUIRED TO PRODUCE AND DELIVER IT. ALTERNATIVE FORMS OF AGRICULTURE MUST ADDRESS A NUMBER OF QUESTIONS INCLUDING WHETHER INCREASES IN FOOD PRODUCTION JUSTIFY ADDITIONAL USES OF FOSSIL FUEL AND TO WHAT EXTENT CAN THE POLLUTING, HIGH ENERGY TECHNIQUES OF AGRICULTURE BE REPLACED BY THE RENEWABLE AND SELF-SUSTAINING ENERGY OF NATURAL RESOURCES? INCLUDES ENERGY CONSUMPTION STATISTICS.

AGRICULTURE/ENERGY/CONSERVATION/ORGANIC FARMING
MERRILL, W.
1975
POWER TO THE FARMER.
WARR ON HUNGER 10(2):14, 18.

PROGRAMS TO INCREASE DRAFT ANIMAL NUMBERS SHOULD BE VIEWED AS INTERMEDIATE
PROGRAMS WHICH MAY BE APPROPRIATE SITUATIONS WHERE AVAILABLE AGRICULTURAL POWER
IS BELOW 0.7 HORSE POWER PER HECTARE; HOWEVER, INCREASED MECHANIZATION APPEARS
TO BE THE ONLY VIABLE MEANS OF SIGNIFICANTLY INCREASING AVAILABLE AGRICULTURAL
POWER IN THE LONG RUN. THE IMPLEMENTATION OF APPROPRIATE MECHANIZATION IS
DISCUSSED.

DEVELOPING COUNTRIES/ANIMAL POWER/FARM EQUIPMENT/CROP PRODUCTION

MICHAEK, A.M./KNIERIM, G.C./REESEK, R.M.
1964
SIMPLE BULLOCK-DRAWN IMPLEMENTS FOR EFFICIENT IRRIGATION.
UNIVERSITY OF UDAIPUR, JODHPUR, INDIA, COLLEGE OF AGRICULTURE, EXTENSION
BULLETIN 1, 16 P.

DESIGN AND OPERATING INSTRUCTIONS ARE GIVEN FOR THE FOLLOWING IMPLEMENTS:
BUCK SCRAPER, WOODED FLOAT, A-FRAME RIDGER, V-DITCHER. PICTURES OF THE
EQUIPMENT IN OPERATION ARE ALSO GIVEN.

DEVELOPING COUNTRIES/FARM EQUIPMENT/IRRIGATION/ANIMAL POWER

MILLR, H.
1975
CHARACTERISTICS OF SUCCESSFUL OPERATIONAL PROGRAMS.
CONFERENCE AND SEMINAR ON TECHNIQUES AND METHODOLOGIES FOR STIMULATING
SMALL-SCALE LABOR-INTENSIVE INDUSTRIES IN DEVELOPING COUNTRIES, ATLANTA,
GEORGIA, MARCH 10-14, SUMMARY OF PROCEEDINGS, 17 P.

A SUMMARY OF THE CRITERIA FOR SUCCESSFUL PROGRAMS IS PRESENTED. THE PROBLEM
OF FINANCIAL BACKING IS PRESENTED. SOME CRITERIA ARE: APPROPRIATE INDUSTRIAL-
IZATION (I.E., THE WHOLE CONCEPT NOT JUST APPROPRIATE TECHNOLOGY), BETTER
MANAGEMENT TECHNIQUES THROUGH RESEARCH AND DEVELOPMENT, THE EXISTENCE OF A
PROBLEM SOLVING NETWORK, REAPPLICATION OF PROJECTS, PROJECTS LINKED WITH THE
MARKET PLACE, INNOVATIVE MEANS OF THE TRANSFER OF TECHNOLOGY, TRAINING, USE OF
ADAPTIVE AND APPLIED RESEARCH AND DEVELOPMENT, SELECTION OF PROJECTS WITH SOME
IMPACT, AND FINANCIAL BACKING (THE SHIFT FROM GOVERNMENT TO PRIVATE).

DEVELOPING COUNTRIES/INDUSTRIES/CONSULTING/ECONOMIC ASPECTS/TECHNOLOGY
TRANSFER

MOAVENZADEH, F.
1974
THE CONSTRUCTION INDUSTRY IN THE DEVELOPING COUNTRIES.
THE ROLE OF CONSTRUCTION IN DEVELOPMENT IS DISCUSSED. THE FACT THAT MOST DEVELOPING COUNTRIES HAVE SOME INDIGENOUS CONSTRUCTION INDUSTRY MAKES THE INDUSTRY AN ATTRACTIVE AREA FOR THE CREATION OF JOBS, CONSERVATION OF FOREIGN CURRENCY AND TRAINING. THE POSSIBILITY OF INTRODUCING VARIOUS MIXES OF LABOR AND CAPITAL TECHNOLOGIES AND THE USE OF STAGING STRATEGIES IN MAJOR PUBLIC WORKS CONSTRUCTION OFFER AN EXCELLENT OPPORTUNITY FOR TRANSFER AND ADAPTATION OF TECHNOLOGY.

DEVELOPING COUNTRIES/CONSTRUCTION/TECHNOLOGY TRANSFER/LABOR MIGRATION

183
MORAVETZ, D.
1974
EMPLOYMENT IMPLICATIONS OF INDUSTRIALIZATION IN DEVELOPING COUNTRIES: A SURVEY.
ECONOMIC JOURNAL 84(335):491-542.
NO ABSTRACT.
DEVELOPING COUNTRIES/SOCIAL ASPECTS/LABOR

184
NATIONAL ACADEMY OF SCIENCES, WASHINGTON, D.C.
1973
FERROCEMENT: APPLICATIONS IN DEVELOPING COUNTRIES.
SAME AS AUTHOR. 90 P.
THIS REPORT RESULTS FROM 1972 MEETINGS OF THE AD HOC PANEL ON THE UTILIZATION OF FERROCEMENT IN DEVELOPING COUNTRIES. FERROCEMENT IS A HIGHLY VERSATILE FORM OF REINFORCED CONCRETE MADE OF WIRE MESH, SAND, WATER, AND CEMENT, WHICH POSSESSES UNIQUE QUALITIES OF STRENGTH AND SERVICEABILITY. THE APPLICATION OF FERROCEMENT TO BOAT BUILDING, FOOD STORAGE STRUCTURES, ROOFING, AND FOOD PROCESSING EQUIPMENT IS DISCUSSED.
CEMENT/BOATS/FOODS/BUILDING DESIGN/DEVELOPING COUNTRIES/CONSTRUCTION METHODS

185
NATIONAL INSTITUTE OF AGRICULTURAL ENGINEERING, BEDFORD, ENGLAND, OVERSEAS DEPARTMENT
1974
SIMPLE WATER PUMP.
SAME AS AUTH. 8 P.
DESIGN AND CONSTRUCTION METHODOLOGY ARE PRESENTED.
WATER PUMPING/GROUNDWATER/TOOLS/MACHINE DESIGN
186
NATIONAL SOLAR ENERGY SOCIETY, PARKVILLE, VICTORIA, AUSTRALIA
1975
SOLAR WATER HEATERS.
A REPORT ON THE DEVELOPMENT OF AN EFFICIENT SOLAR WATER HEATER FOR HOME USE IS
PRESENTED.
DEVELOPING COUNTRIES/SOLAR HEATING/SOLAR ENERGY/WATER

187
NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA
1974
INFORMATION GUIDE TO ECONOMIC AND TECHNICAL INFORMATION ON TYPICAL INDUSTRIES.
SAME AS AUTHOR. AVAILABLE NTIS AS PR 190.
A LISTING OF AVAILABLE INDUSTRIAL PROFILES (A SERIES OF PROFESSIONAL ANALYSES
INTENDED TO PROMOTE THE DEVELOPMENT OF PRIVATE INDUSTRY IN LESS DEVELOPED
COUNTRIES) IS PRESENTED.
DEVELOPING COUNTRIES/INDUSTRIES/TECHNOLOGY TRANSFER

188
NAYUDAMMA, Y.
1975
CHROME TANNING FOR COTTAGE AND SMALL TANNERS.
VAIKUNTHBHAI MEHTA SMARAK TRUST, BOMBAY, INDIA, DOCUMENTATION BULLETIN
21:IX-XIII.
THE UPGRADING OF TRADITIONAL TANNING METHODS TO WET BLUE-CHROME LEATHER
PRODUCTIONS IS DISCUSSED.
DEVELOPING COUNTRIES/LEATHER/TECHNOLOGY TRANSFER/INDUSTRIES

189
NWOSU, E.
1975
SOME PROBLEMS OF APPROPRIATE TECHNOLOGY AND TECHNOLOGICAL TRANSFER.
DEVELOPING ECONOMICS (TOKYO) 13(1):82-93.
NO ABSTRACT.
DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/SOCIAL ASPECTS
190
Nziramasanga, M.
1975
TECHNOLOGICAL TRANSFER BY MULTINATIONAL CORPORATIONS IN CENTRAL AFRICA.
PAPER PRESENTED AT
AFRICAN STUDIES ASSOCIATION ANNUAL MEETING, SAN FRANCISCO, OCTOBER 1975.
THIS REPORT TRACES THE HISTORY OF TECHNOLOGY TRANSFER TO ZAMBIA AND ZAIRE FROM 1940 TO 1971. MUCH DISCUSSION IS CENTERED ON CAPITAL VS LABOR INTENSIVE PRODUCTION. INPUT/OUTPUT, CAPITAL/LABOR RATIOS ARE DISCUSSED.
DEVELOPING COUNTRIES/COPPER/ZAMBIA/ZAIRE/INDUSTRIES/MINING/LABOR/TECHNOLOGY TRANSFER/SOCIAL ASPECTS/ECONOMIC ASPECTS

191
O'Connor, B./Wald, R./Williams, T.
1967
A LOW COST SURVEYING LEVEL. PAPER INCLUDED AS COURSEWORK IN
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MECHANICAL ENGINEERING
DEPARTMENT, ENGINEERING PROJECTS LABORATORY, COURSE 2.67: DESIGN AND
EXPERIMENT, SPRING, 1967.
THE AUTHORS HAVE DEVELOPED A LOW COST SURVEYING LEVEL FOR USE IN THE DESIGN OF
SMALL IRRIGATION CANALS BY FARMERS IN UNDER-DEVELOPED COUNTRIES. THE REPORT
CONTAINS A CONSTRUCTION MANUAL, DESCRIPTION OF EXPERIMENTS, AND STATISTICAL
ANALYSIS OF TEST DATA.
DEVELOPING COUNTRIES/IRRIGATION/AGRICULTURE/TOOLS

192
Odier, L.
1974
ROADS AND HIGHWAY TRANSPORTATION IN DEVELOPING COUNTRIES.
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SYMPOSIUM ON STRATEGIES FOR A.I.D.
PROGRAMS IN SELECTED AREAS OF SCIENCE AND TECHNOLOGY, CAMBRIDGE, APRIL 1974,
PROCEEDINGS, VOL. 2, 58 P.
THE AUTHOR DRAWS ATTENTION TO THE SPECIAL ASPECTS OF HIGHWAY TRANSPORTATION
PROBLEMS IN DEVELOPING COUNTRIES. FACTORS CONSIDERED INCLUDE TRAFFIC
COMPOSITION, TRAFFIC DENSITY, CLIMATE, MATERIALS AVAILABILITY, ECONOMIC
FACTORS, AND THE EFFECT OF GOVERNMENT REGULATIONS. INTEGRATION OF HIGHWAY PLANS
WITH OTHER PROJECTS IS EMPHASIZED.
GOVERNMENT/DEVELOPING COUNTRIES/ROADS/ECONOMIC ASPECTS/TRANSPORTATION

193
ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD), PARIS
1972
CHOICE AND ADAPTATION OF TECHNOLOGY IN DEVELOPING COUNTRIES: AN OVERVIEW
OF MAJOR POLICY ISSUES.
REVIEW OF THE DISCUSSION SESSIONS OF THE CONFERENCE ON CHOICE AND ADAPTATION OF TECHNOLOGY IN DEVELOPING COUNTRIES, NOVEMBER 7-9, 1972, PARIS. 240 P.

NO ABSTRACT.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/TECHNOLOGY TRANSFER

194

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD), PARIS 1975

LOW-COST TECHNOLOGY: AN INQUIRY INTO OUTSTANDING POLICY ISSUES.

SAME AS AUTHOR. 118 P.


DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/AGRICULTURE/INDUSTRIES/FOODS/WATER/ENTREPRENEURSHIP/CATCHMENTS/WATER STORAGE/GOVERNMENT/COST-BENEFIT ANALYSIS/SOLAR ENERGY/CONSULTING

195

ORTIZ, E.

1975

NEW PANTABANGAN IN TRANSITION.


DEVELOPING COUNTRIES/SOCIAL ASPECTS/COOPERATIVES/ENTREPRENEURSHIP/EDUCATION

196

PACK, H.

1976

SUBSTITUTION OF LABOR FOR CAPITAL IN KENYAN MANUFACTURING.

ECONOMIC JOURNAL 86(341):45-58.
A MAJOR CONCERN TO LDC'S HAS BEEN THE GROWING LEVEL OF URBAN UNEMPLOYMENT.
PARTICULARLY DISAPPOINTING HAS BEEN THE FAILURE OF MANUFACTURING EMPLOYMENT TO
GROW AS FAST AS INDUSTRIAL OUTPUT. ECONOMICALLY FEASIBLE CONDITIONS FOR SUB-
STITUTION OF LABOR FOR CAPITAL ARE EXPLORED.

DEVELOPING COUNTRIES/LABOR/ECONOMIC ASPECTS/INDUSTRIES/KENYA

197

PARIKH, K.S.

1968

PLANNING FOR GROWTH: MULTISECTORAL INTERTEMPORAL MODELS APPLIED TO INDIA.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY PRESS* CAMBRIDGE. 208 P.

NO ABSTRACT.

DEPARTMENT MODELS/FORECASTING/INDIA

198

PARIKH, K.S. ET AL

1974

PERFORMANCE APPROACH TO COST REDUCTION IN BUILDING CONSTRUCTION.

GOVERNMENT PRESS, TRIVANDRUM, INDIA.

THE MAIN OBJECTIVES OF THE EXPERT COMMITTEE'S WORK WAS TO EVALUATE THE COST
EFFECTIVENESS OF DIFFERENT FOUNDATION, WALLING, ROOFING AND ANCILLARY BUILDING
COMPONENTS AND METHODS IN TERMS OF THE LOCAL SITUATION IN KERALA, INDIA. IT IS
QUITE POSSIBLE TO CONSIDER MANY OF THE EXAMPLES TO OTHER AREAS ALSO. THE REPORT
PROVIDES A BROAD-BRUSH APPROACH TO SUCH QUESTIONS AS THERMAL INSULATION RELATED
TO POOF AND WALL THICKNESS, MATERIALS, AND STRUCTURAL FORM, THE ADVANTAGES AND
DISADVANTAGES OF TRADITIONAL BUILDING MATERIALS ARE DISCUSSED.

DEVELOPING COUNTRIES/BUILDING DESIGN/CONSTRUCTION/INDIA

199

PARKER, O.

1975

APPROPRIATE INDUSTRIALIZATION FOR DEVELOPING COUNTRIES. PAPFR PRESENTED AT
CONFERENCES AND SEMINAR ON TECHNIQUES AND METHODOLOGIES FOR STIMULATING
SMALL-SCALE LABOR-INTENSIVE INDUSTRIES IN DEVELOPING COUNTRIES, ATLANTA,
GEORGIA, MARCH 10-14, SUMMARY OF PROCEEDINGS, 17 P.

A DECADE AGO INDUSTRIALIZATION WAS ACCEPTED AS VIRTUALLY SYNONYMOUS WITH
MODERNIZATION AND DEVELOPMENT, BUT MANY OF THOSE WHO ONCE HELD HIGH HOPES FOR
THE FRUITS OF INDUSTRIALIZATION HAVE BECOME DISILLUSIONED. PICTURES OF THE
EARTH FROM THE MOON SHOW HOW FINITE IT AND CONSEQUENTLY OUR RESOURCES ARE.
DEVELOPMENT MUST INCLUDE EMPLOYMENT GENERATION. WE MUST DETERMINE MEANS TO
ENABLE THE POOR MAJORITY TO PARTICIPATE ACTIVELY IN THE NATION'S ECONOMY.
ADVANTAGE MUST BE TAKEN OF THE WORLD'S PROBLEM SOLVING NETWORK--THE UNIVERSITY.

DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/LABOR/ENTREPRENEURSHIP/CONSULTING/
PARTY, J.P.M.

1975

INTERMEDIATE TECHNOLOGY BUILDING.

APPROPRIATE TECHNOLOGY 2(3):6-8.

Discusses what considerations should be made in developing what is appropriate to the needs of a culture. The intermediate technology development group brick-works in Asokwa, Ghana, is specifically cited as a good example of the application of these principles.

DEVELOPING COUNTRIES/GHANA/INDUSTRIES/BUILDING DESIGN/COST-BENEFIT ANALYSIS/BRICKS

PARTY, J.P.M.

1975

THE BRICK INDUSTRY: ENERGY CONSERVATION AND SCALE OF OPERATIONS.


Discusses the use of inflammable waste gases for fuel in ceramic processes. Centralized vs decentralized brick industries are discussed with emphasis on transportation costs. The Anonmouth Brick-Works in South Africa is used as an example.

DEVELOPING COUNTRIES/AFRICA/BRICKS/INDUSTRIES/INDUSTRIAL DESIGN/ALTERNATIVE FUELS/COST-BENEFIT ANALYSIS

PATEL, S.J.

1974

THE TECHNOLOGY DEPENDENCE OF DEVELOPING COUNTRIES.


No abstract.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/ECONOMIC ASPECTS/TECHNOLOGY TRANSFER

PATEL, I.G.

1975

WHAT DO THE DEVELOPING COUNTRIES REALLY WANT?

DESCRIPTS THE KIND OF ASSISTANCE DEVELOPING COUNTRIES NEED AND DESIRE. A DISCUSSION OF NATIONAL SOVEREIGNTY VS A NEED FOR TECHNOLOGY TRANSFER IS PRESENTED.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/POLITICAL ASPECTS/TECHNOLOGY TRANSFER/ECONOMIC ASPECTS/NATURAL RESOURCES

204

PERKINS, F.F.

1974

EVOLUTION OF MODELING IN WATER RESOURCE PLANNING.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SYMPOSIUM ON STRATEGIES FOR A.I.D., PROGRAMS IN SELECTED AREAS OF SCIENCE AND TECHNOLOGY, CAMBRIDGE, APRIL 1974, PROCEEDINGS, VOL. 2, p. 88.

THREE ISSUES REGARDING THE USE OF MATHEMATICAL MODELS EMBODYING MULTIOBJECTIVE INVESTMENT CRITERIA IN WATER RESOURCE PLANNING ARE DISCUSSED. THE VALUE OF MATHEMATICAL MODELING LIES IN THE ABILITY TO FORCE THE PLANNER TO ASK RELEVANT QUESTIONS AND SEEK QUANTITATIVE INFORMATION FOR USE IN THE DECISION MAKING PROCESS. DUE TO THE COMPLEX NATURE OF DEVELOPING COUNTRIES' WATER RESOURCE PROBLEMS, MORE MATHEMATICAL MODELS ARE LIKELY TO BE USED. PITFALLS OF USING MATHEMATICAL MODELS ARE DISCUSSED.

DEVELOPING COUNTRIES/DECISION MODELS/WATER/RESOURCE MANAGEMENT

205

PETERSON, R.E./SEO, K.K.

1972

PUBLIC ADMINISTRATION PLANNING IN DEVELOPING COUNTRIES, A BAYESIAN DECISION THEORY APPROACH.


ASSUMING THAT THERE ARE TWO COMPETING PROJECTS, THIS PAPER ANSWERS THE QUESTION: WHAT FURTHER ANALYSIS MUST BE UNDERTAKEN FOR THE PLANNER TO CHOOSE BETWEEN THE PROJECTS? A METHOD OF DETERMINING PROJECT INITIATION AND IMPLEMENTATION PROBABILITIES IS EXPLAINED. BAYES' LAW IS THEN USED TO DETERMINE THE EXPECTED BENEFIT OF EACH PROJECT.

DEVELOPING COUNTRIES/DECISION MODELS/COST-BENEFIT ANALYSIS

206

PORTOLA INSTITUTE, MENLO PARK, CALIFORNIA

1975

ENERGY PRIMERS: SOLAR, WATER, WIND AND BIOFUELS.

SAME AS AUTHOR. 200 P.

A COMPREHENSIVE PUBLICATION ON SOLAR, WATER, WIND AND BIOFUELS. DISCUSSES BASIC PRINCIPLES AND PERFORMANCE CHARACTERISTICS OF SELECTED MECHANISMS UTILIZING THESE PRINCIPLES. CONTAINS A BIBLIOGRAPHY FOR FURTHER INFORMATION.

SOLAR ENERGY/AGRICULTURAL WASTE/ENERGY/WIND POWER/BIOFUELS/BIBLIOGRAPHIES/WATER POWER
A SAFE CHARCOAL ROOM HEATER.
APPROPRIATE TECHNOLOGY 2(1):23.

A DESIGN UTILIZING AN UNMODIFIED BRASIER AS A ROOM HEATER IS DESCRIBED.
ENERGY/DEVELOPING COUNTRIES/AFRICA

AN EFFICIENT, CHEAP INCINERATOR.

THE DESIGN FOR AN INCINERATOR MADE OF BRICK IS PRESENTED.
DEVELOPING COUNTRIES/REFUSE/BRICKS/CONSTRUCTION METHODS

UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI, GHANA, TECHNOLOGY CONSULTANCY CENTRE.

A BRIEF HISTORY AND STATEMENT OF GOALS AND A DETAILED DESCRIPTION OF FUNDING ARE GIVEN. THE SUCCESSES OF THE FOLLOWING PROJECTS ARE DISCUSSED: AIR CONDITIONING REPAIRS AT KORLE BU HOSPITAL, FEEDER ROAD STUDIES, SOAP PILOT PLANT, STEEL BOLT PRODUCTION UNIT, PLANT CONSTRUCTION UNIT, WEAVING PRODUCTION UNIT, METAL PRODUCTS DESIGN UNIT, CERAMICS PRODUCTION UNIT, AGRICULTURE PRODUCTION UNIT, ARCHITECTURE AND ENGINEERING PRODUCTION UNITS, VILLAGE CRAFT DEVELOPMENT CENTER, GLASS BEAD MAKING, BRASS CASTING, PALM OIL PLANTATIONS, BLACKSMITH WORKSHOP, AND COCONUT CHARCOAL.
DEVELOPING COUNTRIES/GHANA/ENTREPRENEURSHIP/CONSULTING/INDUSTRIAL DESIGN/ ECONOMIC ASPECTS/FARM EQUIPMENT/GLASS/PALM OIL/ROADS

A SIMPLE MANUAL MAIZE SHELLING DEVICE.
APPROPRIATE TECHNOLOGY 2(1):9-10.

DEVELOPING COUNTRIES/CROP PRODUCTION/HARVESTING/AGRICULTURE/COST-BENEFIT ANALYSIS/SOCIAL ASPECTS/FARM EQUIPMENT/MACHINE DESIGN/ECONOMIC ASPECTS/MAIZE
211
RANIS, G. ed.
1973
THE UNITED STATES AND THE DEVELOPING ECONOMIES.
NORTON AND COMPANY, NEW YORK, REVISED EDITION. 174 P.
NO ABSTRACT.
ECONOMIC ASPECTS/DEVELOPING COUNTRIES/POLITICAL ASPECTS

212
REINKE, W.A.
1974
THE ROLE OF OPERATIONS RESEARCH IN POPULATION PLANNING.
OPERATIONS RESEARCH 18(6):1099-1111.
PRODUCTION MIX AND WAREHOUSE MODELS ARE NOT SUITABLE FOR POPULATION PLANNING BECAUSE OF THE INTERACTION OF FAMILY PLANNING, HEALTH AND ECONOMIC DEVELOPMENT. NATIONAL GOALS VS PRIVATE FAMILY DECISIONS ARE DISCUSSED. THE PROBLEM IS SIMPLIFIED TO AN ALLOCATION PROBLEM WITH AN ILLUSTRATIVE EXAMPLE PROVIDED. A MORE COMPLEX ANALYSIS IS PRESENTED IN GENERAL.
DEVELOPING COUNTRIES/DECISION MODELS/SOCIAL ASPECTS/POPULATION CONTROL

213
REYNOLDS, G.F.
1975
THE GENERATION OF METHANE FROM WASTE MATERIALS.
DISCUSSES DESIGN AND CAPABILITIES OF ANAEROBIC DIGESTORS UTILIZING BIOFUELS. DISCUSSES THE GENERATION PROCESS AS WELL AS THE ULTIMATE CARBON/NITROGEN RATIO OF THE FUEL. PRESENTS TWO DESIGNS, ONE OF BRICK (STANDARD), THE OTHER A METAL CYLINDER. SUB-OPTIMAL PERFORMANCE UNITS ARE ALSO MENTIONED.
DEVELOPING COUNTRIES/EXCREMENT/ANAEROBIC DIGESTORS/BIOFUELS

214
RHA, C.K.
1974
FOOD TECHNOLOGY AND FOOD FABRICATION.
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SYMPOSIUM ON STRATEGIES FOR AID PROGRAMS IN SELECTED AREAS OF SCIENCE AND TECHNOLOGY, CAMBRIDGE, APRIL 1974, PROCEEDINGS, VOL. 2, 50 P.
THE CONSIDERATION OF CULTURE, TASTE, AND TEXTURE WHEN TRANSFERRING FOOD TECHNOLOGIES IS DISCUSSED, FOR RAW MATERIALS, INDIGENOUS SOURCES WHICH MAY BE UNDERUTILIZED, OR UNCONVENTIONAL SOURCES SUCH AS OIL MEAL, GLUTEN BY-PRODUCTS, ETC., SHOULD BE USED. USING THE SELECTED RAW MATERIAL, FOOD MAY BE STRUCTURED IN ANY FORM THROUGH FABRICATION. CAREFUL SELECTION OF THE METHOD PROCESSING METHOD IS DISCUSSED.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/COST-BENEFIT ANALYSIS/FOODS

215
RHoads, D.
1975
NICARAGUA'S VAMPIRE BAT CONTROL PROGRAM SHOWS HOW.

WAR ON HUNGER 10(2): 4-9.

DEscribes NICARAGUA'S VAMPIRE BAT CONTROL PROGRAM WHICH CONSISTS OF TRAVELING TEAMS THAT USE DIPHENADIONE, AN ANTICOAGULANT, AS A MEANS OF KILLING THE BATS THAT Pose A MENACE TO LIVESTOCK AND HUMANS. THE LARGE SUCCESS OF THE PROGRAM IS DISCUSSED.

DEVELOPING COUNTRIES/DISEASE CONTROL/LIVESTOCK/CATTLE

216
Rikpin, S.B.
1975
THE CHINESE MODEL FOR SCIENCE AND TECHNOLOGY: ITS RELEVANCE FOR OTHER DEVELOPING COUNTRIES.


THIS PAPER EXAMINES GROWTH OF AN INDIGENOUS SCIENTIFIC AND TECHNOLOGICAL ABILITY THROUGH SELF RELIANCE. CHINESE POLICY FOCUSES ON 3 MAJOR AREAS; CHOICE OF TECHNOLOGIES, RURAL INDUSTRIALIZATION TO BALANCE AGRICULTURAL AND INDUSTRIAL GROWTH, AND MOBILIZATION OF MANPOWER RESOURCES TO RESEARCH AND IMPLEMENT TECHNOLOGIES FOR INCREASED GROWTH. THE INAPPROPRIATENESS OF TRANSFERRING CHINESE DEVELOPMENT STRATEGY TO OTHER DEVELOPING NATIONS IS DISCUSSED.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/TECHNOLOGY TRANSFER/POLITICAL ASPECTS/CHINA

217
Robinson, K.
1975
CLOTH DYES FROM NATURAL SOURCES.

APPROPRIATE TECHNOLOGY 2(4): 31-32.

THERE ARE MANY NATURAL SOURCES OF DYE IN THE COUNTRYSIDE WHICH CAN BE EXPLOITED AT LITTLE COST, BUT TO PREPARE THEM REQUIRES SPECIAL KNOWLEDGE AND METHODS. CRITERIA FOR A NATURAL DYE TO BE SATISFACTORY AND METHODS FOR GENERATING UP TO 16 DIFFERENT SHADES ARE PRESENTED.

DEVELOPING COUNTRIES/TEXTILES
ROYAL TROPICAL INSTITUTE, AMSTERDAM, THE NETHERLANDS
1975

SOCIALLY APPROPRIATE TECHNOLOGY FOR DEVELOPMENT.

SAME AS AUTHOR, 8 P.

THIS NEWSPAPER WAS PRINTED FOR THE INTERNATIONAL FAIR OF TECHNOLOGICAL INNOVATIONS AND TECHNOLOGY TRANSFER, SEPTEMBER 6-14, 1975, IN BELGRADE. THE MISSION AND FUNCTIONS OF THE TECHNISCHE ONTWIKKELING ONTWIKKELING LANDEN (TNO), THE NETHERLANDS ORGANIZATION FOR APPLIED SCIENTIFIC RESEARCH (TNO), THE ROYAL TROPICAL INSTITUTE, AND DHV CONSULTING ENGINEERS, ALL OF THE NETHERLANDS, ARE PRESENTED.

DEVELOPING COUNTRIES/CONSULTING/FARM EQUIPMENT/DISEASE CONTROL/METAL WORKING/TECHNOLOGY TRANSFER

RUSK, D.
1975

BANQUET ADDRESS.

CONFERENCE AND SEMINAR ON TECHNIQUES AND METHODOLOGIES FOR STIMULATING SMALL-SCALE LABOR-INTENSIVE INDUSTRIES IN DEVELOPING COUNTRIES, ATLANTA, GEORGIA, MARCH 10-14, SUMMARY OF PROCEEDINGS, 17 P.

PERCENTAGES OF THE U.S. GNP DEVOTED TO FOREIGN AID ARE PRESENTED. A WARNING REGARDING THE PERILS OF ISOLATIONISM IS GIVEN. THE AUTHOR FEELS THAT THE AID-RECEIVING COUNTRY HAS OBLIGATIONS TO THE DONATING COUNTRY. THE IMPORTATION OF CAPITAL IS DISCUSSED. TECHNOLOGY TRANSFER IS PRESENTED AS A TWO-WAY STREET AND THE NEED FOR THOROUGH MARKET ANALYSIS IS DESCRIBED. THE CONTRIBUTION OF PRIVATE INVESTMENT IS ASSESSED.

DEVELOPING COUNTRIES/ECONOMIC ASPECTS/TECHNOLOGY TRANSFER

SAGasti, F.R.
1972

MANAGEMENT SCIENCES IN AN UNDERDEVELOPED COUNTRY: THE CASE OF OPERATIONS RESEARCH IN PERU.


THE DEVELOPMENT OF MANAGEMENT SCIENCE IN PERU WITH PARTICULAR REFERENCE TO THE INTRODUCTION AND DIFFUSION OF OPERATIONS RESEARCH IN THE 1960S, THE REACTIONS OF GOVERNMENT OFFICIALS AND EXECUTIVES IN PRIVATE INDUSTRY TO MANAGEMENT SCIENCE ARE ANALYZED. THE EDUCATIONAL AND INSTITUTIONAL ASPECTS OF THE FUTURE ARE ALSO EXAMINED. FINALLY THE METHODOLOGICAL ASPECTS OF OPERATIONS RESEARCH WORK IN UNDERDEVELOPED COUNTRIES IS EXAMINED.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/TECHNOLOGY TRANSFER/PERU
221
SAIF-UL, R.M.
1967
SOLAR ENERGY UTILIZATION IN DEVELOPING COUNTRIES.
NO ABSTRACT.
DEVELOPING COUNTRIES/SOLAR ENERGY

222
SALOMON, G.
1970
LAND REFORM AND THE PROMOTION OF SMALL SCALE INDUSTRIES AND SERVICES THROUGH RURAL MULTI-PURPOSE COOPERATIVES.
LAND REFORM 1187-89.
THE NEED FOR DIVERSIFICATION IN LAND REFORM PROGRAMS IS DISCUSSED. LAND REFORM PROGRAMS MIGHT CONTAIN PROVISIONS TO SUPPORT SMALL INDUSTRIES FOR REPAIR OF NEWLY ACQUIRED AGRICULTURAL IMPLEMENTS. AS LONG AS THE HANDICRAFT SECTOR IS NOT SUFFICIENTLY DEVELOPED TO ESTABLISH ITS OWN COOPERATIVE, IT IS IN THE INTEREST OF LAND OWNERS TO USE THEIR EXISTING COOPERATIVE INSTITUTIONS AT THE DISPOSAL OF THE HANDICRAFTS SECTOR, AND BY DOING SO, FACILITATE AN EXCHANGE OF GOODS AND SERVICES FOR THE MUTUAL BENEFIT OF ALL.
INDUSTRIES/AGRICULTURE/COOPERATIVES

223
SAVINO, J.
1973
WIND ENERGY CONVERSION SYSTEMS. IN WORKSHOP ON WIND ENERGY CONVERSION SYSTEMS, WASHINGTON, D.C., JUNE 11-13, PROCEEDINGS.
NATIONAL SCIENCE FOUNDATION, WASHINGTON, D.C. 267 P. (NSF-RA/6-73-006) AVAILABLE NTIS AS PB-231 341/GID.
NO ABSTRACT.
ENERGY/WIND POWER

224
SCHLEE, T.W.
1974
APPROPRIATE TECHNOLOGY: SOME CONCEPTS, SOME IDEAS, AND SOME RECENT EXPERIENCES IN AFRICA.
EAST AFRICAN JOURNAL OF RURAL DEVELOPMENT 7(1):77-106.
DEVELOPING COUNTRIES/SOCIAL ASPECTS/AFRICA
MACHINERY FOR THE SMALL FARMER.

WORLD HUNGER 10(2):15-17.

THE PROBLEMS OF TIMING AS RELATED TO CROP YIELDS PROMOTES THE NEED FOR SMALL-SCALE, LOW-COST FARM EQUIPMENT. THE U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT-INTERNATIONAL RICE RESEARCH INSTITUTE CONTRACT IS DISCUSSED AND SOME OF THE EQUIPMENT RESULTING FROM THIS CONTRACT IS PRESENTED. DEVICES SHOWN ARE THE THREE ROW PADDY WEEDER, SIX ROW PADDY SEEDER, AXIAL FLOW THRESHER, AND BELLOWS PUMP.

DEVELOPING COUNTRIES/FARM EQUIPMENT/SOWING/THRESHING/IRRIGATION/ANIMAL POWER

SMALL IS BEAUTIFUL.

SPHERE BOOKS LTD., LONDON. 255 P.

AS THE AUTHOR PUTS IT, THIS BOOK IS "A STUDY OF ECONOMICS AS IF PEOPLE MATTED". THIS BOOK IS THE BASIC PRIMER FOR INTERMEDIATE TECHNOLOGY. THE ORIGINAL TERM INTERMEDIATE TECHNOLOGY IS DEFINED. THE EFFECTS ON NON-REPLACEABLE RESOURCES, AND THE USE OF NUCLEAR ENERGY ON WORLD ECOLOGY ARE DISCUSSED. SOCIAL AND ECONOMIC PROBLEMS CALLING FOR INTERMEDIATE TECHNOLOGY ARE DETAILED. INDIA'S PROBLEM IS EXEMPLIFIED. APPLICATIONS OF INTERMEDIATE TECHNOLOGY WITH RESPECT TO LARGE INDUSTRY ARE PRESENTED. THE QUESTION OF PRIVATE VS PUBLIC OWNERSHIP IS DISCUSSED. APPLICATIONS IN SOCIALISM ARE PRESENTED.

DEVELOPING COUNTRIES/INDIA/ENERGY/ECONOMIC ASPECTS/ECOLOGY/NATURAL RESOURCES/SOCIAL ASPECTS/GOVERNMENT

ANIMAL POWER BOOSTS NEW CROP PRODUCTION.


CONVERSION OF FARMERS FROM CROPS WHICH PRODUCE ILLICIT DRUGS TO THOSE BENEFICIAL TO THE COMMUNITY IS ENABLED BY A POWER GEAR UNIT THAT UTILIZES ANIMAL POWER. DESIGN ASPECTS AND APPLICATIONS ARE PRESENTED. MANUFACTURING TECHNIQUES ARE DISCUSSED.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/ANIMAL POWER/AGRICULTURE/PolAND/MACHINE DESIGN/FARM EQUIPMENT/CROP PRODUCTION
WHAT ARE WE TRYING TO MEASURE?


NO ABSTRACT.

SOCIAL ASPECTS/TECHNOLOGY MEASUREMENT

A NEW INQUIRING SYSTEM FOR TECHNOLOGY TRANSFER AND ITS ROLE IN PLANNING AND POLICY MAKING.

PORTLAND STATE UNIVERSITY, OREGON, SYSTEM SCIENCE PROGRAM 760-2960. 232 P.

NO ABSTRACT.

TECHNOLOGY TRANSFER

COOPERATIVE FOOD MARKETING IN CHILE.


THERE IS A GREAT NEED FOR FOOD COOPERATIVES IN DEVELOPING COUNTRIES. THE OPERATION OF THE UNICoop IN SANTIAGO, CHILE, IS DISCUSSED. IT HAS BEEN FOUND THAT THIS METHOD PROVIDES A GOOD, INEXPENSIVE SOLUTION TO THE PROBLEM OF GETTING FOOD TO THE POOR.

DEVELOPING COUNTRIES/COOPERATIVES/FOODS/CHILE

APPROACHES TO ASSESSING THE EFFECTIVENESS OF SCIENTIFIC KNOWLEDGE TRANSFER.


SCIENTIFIC AND TECHNICAL KNOWLEDGE IS SEEN AS PRESENTLY BECOMING A DOMINANT ELEMENT IN THE STREAM OF ENTITIES COMPRISING INTERNATIONAL TECHNOLOGY TRANSFER. THE PAPER DISCUSSES APPROACHES TO ASSESSING THE EFFECTIVENESS OF SUCH KNOWLEDGE TRANSFER FROM THE VIEWPOINTS OF DEVELOPING AND ADVANCED COUNTRIES, BOTH ILLUSTRATED ON THE EXAMPLE OF THE SOVIET UNION. CURRENT ATTEMPTS AT THE DEVELOPMENT OF THEORETICAL MEASURES OF INFORMATION TRANSFER EFFECTIVENESS ARE ALSO BRIEFLY DESCRIBED.

DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/USSR
AFGHANISTAN: SMALL AGRICULTURAL IMPLEMENTS AND FARM TOOLS, REPORT TO THE GOVERNMENT.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME. 20 P.

Covers the period from June 1952 to April 1953. The author was dispatched from FAD in cooperation with the government of Afghanistan, with four tons of small agricultural equipment. The author's goal was to affect the transfer of this simple technology to local farmers. The work fell into two categories: demonstration and instruction on small farm implements, and studies and demonstration of animal drawn equipment. The provinces of Kabul, Kafirgan, and Mazarr-i-Sharif were covered. The extent to which Afghan agriculture should be mechanized is discussed.

DEVELOPING COUNTRIES/AGRICULTURE/FARM EQUIPMENT/AFGHANISTAN/TOOLS/TECHNOLOGY TRANSFER

PUBLIC INVESTMENT EVALUATION: A HEURISTIC APPROACH.

NIGERIAN JOURNAL OF ECONOMIC AND SOCIAL STUDIES 16(2)217-234.

Traditional monetary evaluations of complex projects are inadequate. This paper takes a systems view of the problem. A heuristic approach is presented that provides a convenient and logical way of weighing the attractiveness of a project's pecuniary characteristics relative to other non-pecuniary investment guidelines adopted by a public corporation.

DEVELOPING COUNTRIES/DECISION MODELS/ECONOMIC ASPECTS/


INTERMEDIATE TECHNOLOGY PUBLICATIONS LTD., LONDON. 164 P.

For simple uses the high quality and strength of Portland cement are unnecessary and the search should be on for a simple process for manufacturing a basic alternative cement so that basic village buildings can be erected by the local community and increase employment. The papers range over a wide area, starting with the aims of intermediate technology and the work of the intermediate technology development group, and ending with approaches to the manufacturing process itself.

DEVELOPING COUNTRIES/CEMENT/CONSTRUCTION MATERIALS
SPENCE, R.
1975
BRICK MANUFACTURE USING THE BULL'S TRENCH KILN.
APPROPRIATE TECHNOLOGY 211:12-14.

THE BASIC DESIGN AND FUNCTIONING OF A HOFFMAN (BULL'S TRENCH) KILN IS
DISCUSSED. HAND-MADE AND MACHINE PRODUCED BRICK ARE COMPARED, AND INDUSTRIAL
ECONOMICS ARE DISCUSSED.

DEVELOPING COUNTRIES/INDUSTRIES/INDIA/BUILDING DESIGN/BRICKS/COST-BENEFIT
ANALYSIS/BRICKS

SPOTTWOOD, J./SCANNELL, D.
1967
FINAL REPORT: EDUCATIONAL STRATEGY FOR DEVELOPING COUNTRIES. PAPER INCLUDED
AS COURSEWORK IN
MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE; MECHANICAL ENGINEERING
DEPARTMENT, ENGINEERING PROJECTS LABORATORY, COURSE 2.67: DESIGN AND
EXPERIMENT, SPRING, 1967.
DEFINES LEVELS OF TEACHING COMPETENCE. THE RATIO OF TEACHERS' SALARIES TO
AVERAGE INCOME IS DISCUSSED WITH REGARD TO THE PROBLEM OF EDUCATIONAL COST.
EDUCATIONAL TELEVISION (ETV) IS PRESENTED AS A GOOD SOLUTION TO IMMEDIATE
EDUCATIONAL PROBLEMS. SOME SUCCESSFUL ETV PROGRAMS ARE PRESENTED. DISCUSSION
CONCERNING THE METHOD OF DISSEMINATION OF EDUCATIONAL MATERIAL RESULTS IN A
MOBILE VAN CONCEPT.

DEVELOPING COUNTRIES/EDUCATION/MEXICO/BRAZIL/COLOMBIA/BOLIVIA/CONSULTING

STALEY, E.
1971
PLANNING OCCUPATIONAL EDUCATION AND TRAINING FOR DEVELOPMENT.
PRAEGER. NEW YORK. 188 P.
NO ABSTRACT.

DEVELOPING COUNTRIES/EDUCATION

STALEY, E./MORSE, R.
1965
MODERN SMALL INDUSTRIES FOR DEVELOPING COUNTRIES.
McGRAW-HILL. NEW YORK. 427 P.
small industry is defined in terms relative to an economy. the need for
small industry is discussed with reference to its role in developed countries.
the transformation from non-factory industries (artisan) to modern small
industries and the competitive basis for small factories are presented. the
role of small industry in development planning is discussed.
developing countries/industries/social aspects/political aspects/labor

239
steel, w.f.
1975
the role of the intermediate sector in employment and output growth. paper
presented at african studies association annual meeting, san francisco, october 1975.
defines intermediate technology in terms of a point in between the extremes of
a dual economy model and the mean of the traditional 4 sector economy models.
the growth-employment trade-off as a problem of the dual economy model is dis-
cussed. the author defines his own 4 sector economy model where people are
employed in the modern, intermediate, and informal sectors or are unemployed.
accra, ghana is surveyed and the percentages of people employed in each sector
are given. suggestions for further work are given.
economic aspects/social aspects/labor/labor migration/developing countries/
ghana/industries

240
steele, d.
1975
the theory of the dual economy and african entrepreneurship in kenya.
models of the dual economy so permeate research and policy that some very
important developments are being overlooked. their implications could
considerably shift the emphasis of policy. the paper looks at this aspect of
an important piece of research on kenyan african businessmen and puts it into
the context of the dual economy. the implications of a third sector in kenya
are examined alongside.
developing countries/entrepreneurship/kenya/economic aspects

241
stephens, k.s.
1975
employment generation through stimulation of small scale industries: a seven
country survey of certification, licensing and quality marks programs.
georgia institute of technology, atlanta. 22 p.
the response of seven countries to an industrial development division survey
of industrial certification is presented. national certification programs
that are developing in most countries of the world. certification programs often
are developing in most countries of the world. certification programs often
act as the catalyst by which progress in standardization and implementation is
achieved and accelerated.
developing countries/technology transfer/industries
STERN, M.O./AYRES, R.V./SHAPANKA, A.
1975
A MODEL FOR FORECASTING THE SUBSTITUTION OF ONE TECHNOLOGY FOR ANOTHER.
IN FORECASTING THE COURSE AND SPEED OF THE SUBSTITUTION PROCESS, THE SIMPLEST
APPROACH IS TO PROJECT A FUNCTION HAVING THE APPROPRIATE S-SHAPED (LOGISTIC)
CURVE. VARIOUS MATHEMATICAL MODELS ARE DISCUSSED.
FORECASTING/MATHEMATICAL MODELS/TECHNOLOGY TRANSFER

STERN, P.H.
1975
INTERMEDIATE TECHNOLOGY IN ETHIOPIA.
ACTIVE PROGRAMS AND PLANS FOR THE DEVELOPMENT OF ETHIOPIA ARE PRESENTED.
THE SOCIETY OF INTERNATIONAL MISSIONARIES HAS BEEN ACTING IN PROGRAMS FOR LOW
COST WATER DEVELOPMENT. THE CHILALO AGRICULTURAL DEVELOPMENT UNIT HAS BEEN
DEVELOPING SIMPLE AGRICULTURAL MACHINERY. PROGRESS AT THE UNIVERSITY OF ADDIS
ABABA IN INTERMEDIATE TECHNOLOGY IS DISCUSSED.
DEVELOPING COUNTRIES/ETHIOPIA/GROUNDWATER/ROADS/EDUCATION/WATER PUMPING

STEWART, F.
1972
CHOICE OF TECHNIQUE IN DEVELOPING COUNTRIES.
JOURNAL OF DEVELOPMENT STUDIES 7(2):109-112.
NO ABSTRACT.
DEVELOPING COUNTRIES/SOCIAL ASPECTS

STEWART, F.
1975
INTERMEDIATE TECHNOLOGY: A DEFINITIONAL DISCUSSION.
VAIKUNTHBHAI MEHTA SHARAK TRUST, BOMBAY, INDIA, DOCUMENTATION BULLETIN
211:1-IV.
PROVIDES A DISCUSSION OF SOME OF THE CHARACTERISTICS OF INTERMEDIATE
TECHNOLOGY THAT HAVE BEEN SUGGESTED AS ESSENTIAL ASPECTS.
DEVELOPING COUNTRIES/SOCIAL ASPECTS
STINNER, C.H.* ED.*
1974

PRODUCING YOUR OWN POWER.
RODALE PRESS, INC., EMAUS, PENNSYLVANIA. 322 P.

DUE TO THE DECLINING AVAILABILITY OF FOSSIL FUELS AND THE UNCERTAINTY OF FUTURE SOURCES OF ENERGY, ORGANIC ENERGY SOURCES ARE BECOMING MORE ATTRACTION. THIS BOOK IS A COLLECTION OF ARTICLES BY VARIOUS AUTHORS THAT HAVE BEEN ORGANIZED INTO CHAPTERS ADDRESSING WIND POWER, WATER POWER, WOOD POWER, METHANE POWER AND SOLAR POWER. BIBLIOGRAPHY INCLUDED.

SOLAR ENERGY/WIND POWER/ANEROBIC DIGESTORS/ALTERNATIVE FUELS/BIBLIOGRAPHIES/
WATER POWER/CONSTRUCTION METHODS/ENERGY

STICKLAND, D.*
1975

CONCENTRATED BACTERIAL PRODUCTS.


THE BENEFITS OF THE ADDITION OF BACTERIA TO SOIL IN APPROPRIATE AMOUNTS ARE PRESENTED. THE COMPARATIVE IMPROVEMENT IN CROP YIELD AS WELL AS ECONOMIC ASPECTS ARE DISCUSSED.

DEVELOPING COUNTRIES/INDIA/AGRICULTURE/CROP PRODUCTION/FERTILIZERS/SOIL AMENDMENTS/SOIL BACTERIA/COST-BENEFIT ANALYSIS/SOIL TYPES

STUART, B.A./DOWNING, C.M.*
1974

SELECTIVE MECHANIZATION: A HOPE FOR FARMERS IN DEVELOPING COUNTRIES.

AGRICULTURAL MECHANIZATION IN ASIA* (SUMMER). JOURNAL AVAILABLE FROM FARM MACHINERY INDUSTRIAL CORP. LTD., 7-9-CHROME KANDA, NISHIKI-CHO, CHIYODA-KU, TOKYO 101, JAPAN.

NO ABSTRACT.

DEVELOPING COUNTRIES/FARM EQUIPMENT/AGRICULTURE/TECHNOLOGY TRANSFER

SUARINATHAN, K.R./KRANTZ, B.A.*
1972

BULLOCK-DRAWN RIDGE PLANTER.

INDIAN AGRICULTURAL RESEARCH INSTITUTE, PUSA, NEW DELHI, WATER TECHNOLOGY CENTER.

NO ABSTRACT.

DEVELOPING COUNTRIES/INDIA/ANIMAL POWER/AGRICULTURE/FARM EQUIPMENT/TOOLS
SUBRAMANIAM, V.

1975

TOWARDS A HISTORICAL AND MORPHOLOGICAL ANALYSIS OF TECHNOLOGY TRANSFER.

AFRICAN STUDIES ASSOCIATION ANNUAL MEETING, SAN FRANCISCO, OCTOBER 1975.

DISCUSSES CONCEPTS OF DONOR-RECEPTOR SOCIETIES, COLONIZATION AND INDUSTRIALIZATION TRANSFERRED AS TECHNOLOGIES ARE DISCUSSED, AND THEIR ROLE IN 'UNDERDEVELOPING AFRICA' IS PRESENTED. PROBLEMS ASSOCIATED WITH THE TRANSFER OF MODERN TECHNOLOGY ARE DISCUSSED.

DEVELOPING COUNTRIES/AFRICA/INDUSTRIES/TECHNOLOGY TRANSFER/SOCIAL ASPECTS/
LABOR/ECONOMIC ASPECTS

TAX, S.

1953

PENNY CAPITALISM.

SMITHSONIAN INSTITUTION, WASHINGTON, D.C., ANTHROPOLOGY PUBLICATION 16.

A PRIMITIVE GUATEMALAN SOCIETY IS DESCRIBED (PANAJACHEL). THE ECONOMY CAN BE CHARACTERIZED AS A MONEY ECONOMY ORGANIZED IN SINGLE HOUSEHOLDS AS BOTH CONSUMPTION AND PRODUCTION UNITS WITH A STRONGLY DEVELOPED MARKET THAT TENDS TO BE PERFECTLY COMPETITIVE. OBSERVATIONS MADE ON THE MARKETPLACE AND THE PEOPLE ARE MADE. ADOPTION OF VARIOUS TECHNOLOGIES BY INDIANS IS DISCUSSED. WHAT APPEARS LACKING IN GUATEMALA IS THE BEGINNING OF THE ACCUMULATION OF TECHNICAL KNOWLEDGE THAT EVENTUALLY RESULTS IN IMPROVEMENT IN MATERIAL STANDARDS OF LIFE.

DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/ECONOMIC ASPECTS/SOCIAL ASPECTS/
GUATEMALA/LABOR

TECHNISCHE HOOGESCHOOL, EINDHOVEN, THE NETHERLANDS

1973

WANMOLLEN: THE WINNOWER.

SAME AS AUTHOR. TECHNICAL REPORT 1. 39 P.

DESIGN, ASSEMBLING INSTRUCTIONS, AND OPERATION OF A WANMOLLEN WINNOWER IS PRESENTED.

DEVELOPING COUNTRIES/WINNOWING/CROP PRODUCTION/FARM EQUIPMENT/MACHINE DESIGN

TECHNISCHE ONTWIKKELING ONTWIKKELINGS LANDEN (TOOL), THE NETHERLANDS

1976

DEVELOPMENT OF WIND AND SOLAR ENERGY FOR WATER PUMPING.

SAME AS AUTHOR. WIND AND SUN COMPENDIUM 1(WINTER)11-4.
THE FIRST ISSUE OF A PERIODIC PUBLICATION THAT HOPES TO UNIFY THOSE ORGANIZATIONS WORKING IN WIND OR SUN TECHNOLOGY.

DEVELOPING COUNTRIES/WIND POWER/SOLAR ENERGY

254
TERIBA, O./FDOZIEN, E.C. 1972
SOME ASPECTS OF OWNERSHIP AND CONTROL STRUCTURE OF BUSINESS ENTERPRISE IN A DEVELOPING COUNTRY: THE NIGERIAN CASE.
NO ABSTRACT.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/ENTREPRENEURSHIP/BUSINESS MANAGEMENT

255
TILERNER, D. ET AL. 1974
SELF HELP INFRASTRUCTURE: APPLICATIONS OF IRREGULAR, SMALL SCALE, INCREMENTAL SYSTEMS FOR RESIDENTIAL UTILITIES. PAPER PRESENTED AT AFRICAN STUDIES ASSOCIATION, ANNUAL MEETING, SAN FRANCISCO, OCTOBER 1975.
THE DEPLORABLE CONDITIONS UNDER WHICH MANY URBAN RESIDENTS IN DEVELOPING COUNTRIES LIVE REDUCE THEIR ABILITY TO CONTRIBUTE PRODUCTIVELY TO THE SOCIETY AND ECONOMY. THE AUTHORS SUGGEST THAT IT IS APPROPRIATE AND NECESSARY TO DEVELOP A RANGE OF DECENTRALIZED SOLUTIONS TO THE INFRASTRUCTURE NEEDS OF THE RAPIDLY GROWING URBAN AREAS OF DEVELOPING COUNTRIES.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/POLITICAL ASPECTS/LABOR MIGRATION/URBAN PLANNING/SANITATION

256
THEOBALD, G.H. 1973
METHODS AND MACHINES FOR TILE AND OTHER TUBE DRAINAGE.
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME. DEVELOPMENT PAPER 78. 115 P.
THE NEED FOR DRAINING SURPLUS WATER IS DISCUSSED. EVEN IN AREAS WHERE IRRIGATION IS REQUIRED, PROPER DRAINAGE CAN IMPROVE PRODUCTIVITY. DIFFERENT TYPES OF DRAINAGE SYSTEMS ARE EXPLAINED AND COMPARED. SUBSURFACE DRAINAGE LAYOUTS AND BOTH PRIMITIVE AND MODERN METHODS OF CHANNEL CONSTRUCTION ARE PRESENTED. HAND AND MACHINE LABOR METHODS FOR INSTALLING DRAINS ARE PRESENTED WITH VARIOUS REFINEMENTS. LAND SLOPE, JUNCTIONS AND OUTFALLS ARE DISCUSSED.

DEVELOPING COUNTRIES/IRRIGATION/DRAINAGE/FARM EQUIPMENT/TOOLS
TODARO, M.P.
1971
INCOME EXPECTATIONS, RURAL-URBAN MIGRATION AND EMPLOYMENT IN AFRICA.
INTERNATIONAL LABOUR REVIEW 104:387-413.
NO ABSTRACT.
DEVELOPING COUNTRIES/LABOR MIGRATION/AFRICA

UCHENDU, V.C.
1974
INTERMEDIATE TECHNOLOGY AND CUMULATIVE TECHNICAL PROCESSES IN EAST AFRICAN AGRICULTURE. IN SEMINAR SERIES ON TECHNOLOGY AND DEVELOPMENT, VOL. I.
HOWARD UNIVERSITY, WASHINGTON, D.C., SCHOOL OF ENGINEERING/ U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT, WASHINGTON, D.C. 64 P.
THE IDEA THAT THE TECHNOLOGY GAP BETWEEN DEVELOPED AND DEVELOPING COUNTRIES IS A NOVELTY OF THE MODERN WORLD IS PRESENTED. A PROFILE OF EAST AFRICA INCLUDING HISTORICAL AGRICULTURAL DEVELOPMENT IS GIVEN. THE ROLE OF INTERMEDIATE TECHNOLOGY IN DEVELOPMENT IS DISCUSSED WITH SUPPORTING CASE STUDIES.
DEVELOPING COUNTRIES/SOCIAL ASPECTS/TECHNOLOGY TRANSFER

UCHENDU, V.C.
1975
THE ROLE OF INTERMEDIATE TECHNOLOGY IN EAST AFRICAN AGRICULTURAL DEVELOPMENT.
IN DEVELOPING COUNTRIES, THE LACK OF AWARENESS OR ABILITY TO MONITOR AND CORRECT THE BOTTLENECKS CREATED BY IMPORTED TECHNOLOGIES IS PROBABLY LIMITING PRODUCTIVITY AND OUTPUT MORE THAN ANY OTHER FACTOR. THE CONCEPT OF CUMULATIVE TECHNOLOGY, NECESSARY FOR CONTINUOUS AGRICULTURAL EXPANSION, IS PRESENTED.
DEVELOPING COUNTRIES/AGRICULTURE/SOCIAL ASPECTS/TECHNOLOGY TRANSFER

UNITED NATIONS AFRICAN INSTITUTE FOR ECONOMIC DEVELOPMENT AND PLANNING/ UNIVERSITY OF SUSSEX, INSTITUTE OF DEVELOPMENT STUDIES
1975
REPORT OF DTSSUSSION GROUP OF STUDY SEMINAR PARTICIPANTS TO THE POLICY CONFERENCE: THE CHOICE OF TECHNOLOGY.
SEMINAR ON STRATEGIES FOR INCREASING PRODUCTIVE EMPLOYMENT IN AFRICAN COUNTRIES, 52D, DAKAR, SENEGAL, NOVEMBER 10-DECEMBER 12, 4 P. CS/2673.22.
TECHNOLOGICAL COMPETENCE AT MIDDLE LEVEL EMPLOYMENT IS CONSIDERED A HINDRANCE TO TECHNOLOGICAL CHOICE. THE CHOICE OF TECHNOLOGIES IS NOT ALWAYS AS WIDE AS FIRST APPEARS BECAUSE OF THE POSSIBILITY OF INAPPROPRIATE MACRO DEVELOPMENT RESULTING FROM APPROPRIATE MICRO POLICIES. MULTINATIONAL CORPORATIONS CAN
INFLUENCE DEVELOPMENT BY SUBCONTRACTING TO LOCAL MANUFACTURERS, AND PROVIDING TRAINING PROGRAMS AND TECHNICAL CONSULTING.

DEVELOPING COUNTRIES/EDUCATION/TECHNOLOGY TRANSFER

261

UNITED NATIONS AFRICAN INSTITUTE FOR ECONOMIC DEVELOPMENT AND PLANNING/UNIVERSITY OF SUSSEX, INSTITUTE OF DEVELOPMENT STUDIES

1975

REPORT OF THE SECOND WORKING GROUP OF STUDY SEMINAR PARTICIPANTS TO THE POLICY CONFERENCE.

SEMINAR ON STRATEGIES FOR INCREASING PRODUCTIVE EMPLOYMENT IN AFRICAN COUNTRIES, 520, DAKAR, SENEGAL, NOVEMBER 10-DECEMBER 12, 4 P., CS72673-27.

SOLUTIONS TO THE PROBLEM OF INADEQUATE CEREAL PRODUCTION IN AFRICA ARE EXPLORED. GOVERNMENT PRICE CONTROL AND LIBERAL LOAN REPAYMENT POLICIES FOR AGRICULTURAL EQUIPMENT ARE SUGGESTED.

DEVELOPING COUNTRIES/CROP PRODUCTION/GOVERNMENT

262

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT, GENEVA

1975

THE REVERSE TRANSFER OF TECHNOLOGY.

UNITED NATIONS, NEW YORK. TD/B/AC.11/25/REV.1. 13 P.


DEVELOPING COUNTRIES/INDIA/COST-BENEFIT ANALYSIS/TECHNOLOGY TRANSFER/ECONOMIC ASPECTS

263

UNITED NATIONS ECONOMIC AND SOCIAL COUNCIL, ADVISORY COMMITTEE ON THE APPLICATION OF SCIENCE AND TECHNOLOGY TO DEVELOPMENT

1968

INTERNATIONAL ACTION TO AVERT THE IMPENDING PROTEIN CRISIS.

UNITED NATIONS, NEW YORK. JX1977A2E/4343/REV.1. 105 P.

NO ABSTRACT.

PROTEIN/NUTRITION

264

UNITED NATIONS ECONOMIC AND SOCIAL COUNCIL, ADVISORY COMMITTEE ON THE APPLICATION OF SCIENCE AND TECHNOLOGY TO DEVELOPMENT

1970

NATURAL RESOURCES OF DEVELOPING COUNTRIES: INVESTIGATION, DEVELOPMENT AND RATIONAL UTILIZATION.
265
UNITED NATIONS ECONOMIC AND SOCIAL COUNCIL, ADVISORY COMMITTEE ON THE APPLICATION OF SCIENCE AND TECHNOLOGY TO DEVELOPMENT
1971
WORLD PLAN OF ACTION FOR THE APPLICATION OF SCIENCE AND TECHNOLOGY TO DEVELOPMENT.
UNITED NATIONS, NEW YORK. JX1977 A2 E/4962/REV.1. 286 P.
NO ABSTRACT.
DEVELOPING COUNTRIES/ECONOMIC ASPECTS/SOCIAL ASPECTS/TECHNOLOGY TRANSFER

266
UNITED NATIONS ECONOMIC AND SOCIAL COUNCIL, COMMITTEE FOR DEVELOPMENT PLANNING
1972
ATTACK ON MASS POVERTY AND UNEMPLOYMENT: VIEWS AND RECOMMENDATIONS OF THE COMMITTEE FOR DEVELOPMENT PLANNING,
UNITED NATIONS, NEW YORK. 134 P.
NO ABSTRACT.
DEVELOPING COUNTRIES/SOCIAL ASPECTS

267
UNESCO, PARIS, PROGRAMME ON MAN AND THE BIOSPHERE (MAB)
1973
EXPERT PANEL ON PROJECT 11: ECOLOGICAL EFFECTS OF ENERGY UTILIZATION IN URBAN AND INDUSTRIAL SYSTEMS, FINAL REPORT.
SAME AS AUTHOR. REPORT 13, SC.73/CONF.610/3. 85 P.
THE CITY AND ITS INDUSTRY ARE MODELED TO ACCOUNT FOR ENERGY FLOW, HUMAN WELL-BEING, AND ECOLOGICAL EFFECTS. PARTICULAR ATTENTION IS PAID TO THE RELATIONSHIP OF TRANSPORTATION AND URBAN HOUSING TO THE BIOSPHERE. AN APPLICATION OF SYSTEMS ANALYSIS IN AN URBANIZED REGION IS ALSO PRESENTED.
ECOLOGY/DECISION MODELS

268
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, VIENNA
197-
UNIDO ACE SERVICE BULLETIN.
SAME AS AUTHOR.
INDIVIDUAL ISSUES OF THIS BULLETIN ADDRESS INDUSTRIAL EQUIPMENT FROM DEVELOPING COUNTRIES (TO MAKE KNOWN THE AVAILABILITY OF INDUSTRIAL EQUIPMENT SUPPLIED TO DEVELOPING COUNTRIES); TECHNOLOGIES FROM DEVELOPING COUNTRIES (TO ASSIST OTHER COUNTRIES IN THE SELECTION OF APPROPRIATE TECHNOLOGIES); RECYCLING TECHNOLOGIES (TO REPORT ON TECHNOLOGIES THAT SPECIFICALLY HAVE FOUND OTHER USES FOR EXISTING PRODUCTS OR NEW USES FOR NATURAL COMMON RESOURCES); AND COMPARABLE EQUIPMENT AND TECHNOLOGIES FROM DEVELOPING COUNTRIES (WHICH INDEXES THE ABOVE CATEGORIES).

DEVELOPING COUNTRIES/MACHINE DESIGN/INDUSTRIES/FARM EQUIPMENT/AGRICULTURE

269
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, VIENNA
1973
INFORMATION SOURCES ON THE AGRICULTURAL IMPLEMENTS AND MACHINERY INDUSTRY.
SAME AS AUTHOR. ID/PI/26. 108 P.
NO ABSTRACT.
TOOLS/FARM EQUIPMENT/INDUSTRIES/MACHINE DESIGN

270
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, VIENNA
1974
ANIMAL DRAWN AGRICULTURAL IMPLEMENTS, HAND OPERATED MACHINES, AND SIMPLE POWER EQUIPMENT IN LEAST DEVELOPED AND OTHER DEVELOPING COUNTRIES: REPORT OF A MANUFACTURING DEVELOPMENT CLINIC, NEW DELHI, INDIA.
SAME AS AUTHOR. ID/WG. 193/3. 45 P.
NO ABSTRACT.
DEVELOPING COUNTRIES/ANIMAL POWER/FARM EQUIPMENT/MACHINE DESIGN/MOTOR POWER

271
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, VIENNA
1974
NATURAL RESOURCES OF THE DEVELOPING COUNTRIES AND THEIR RELATIONSHIP TO PROBLEMS IN INDUSTRIALIZATION.
SAME AS AUTHOR. ID/CONF. 3/6. 6 P.
NO ABSTRACT.
DEVELOPING COUNTRIES/INDUSTRIES/NATURAL RESOURCES
272
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, VIENNA
1975
INDUSTRIAL MANAGEMENT CONSULTING SERVICES PROGRAM.
SAME AS AUTHOR. 8 P.
NO ABSTRACT.
DEVELOPING COUNTRIES/CONSULTING/INDUSTRIES

273
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, VIENNA
1975
MEETING ON SELF-HELP PROGRAMMES FOR SMALL-SCALE INDUSTRIES IN DEVELOPING COUNTRIES, VIENNA, NOVEMBER 10-14.
SAME AS AUTHOR. ID/WG.210/1-22.
NO ABSTRACT.
CONSULTING/EDUCATION/BUSINESS MANAGEMENT/ENTREPRENEURSHIP/DEVELOPING COUNTRIES

274
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, VIENNA
1975
SMALL SCALE INDUSTRY DEVELOPMENT.
SAME AS AUTHOR. ID/PI/23. 8 P.
NO ABSTRACT.
DEVELOPING COUNTRIES/INDUSTRIES

275
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, VIENNA
1975
THE INITIATION AND IMPLEMENTATION OF INDUSTRIAL PROJECTS IN DEVELOPING COUNTRIES: A SYSTEMATIC APPROACH.
SAME AS AUTHOR. ID/146. 73 P.
NO ABSTRACT.
DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER
270
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION, VIENNA/INTERNATIONAL
LABOR ORGANIZATION, GENEVA
1974
INDUSTRIALIZATION EMPLOYMENT AND SOCIAL OBJECTIVES.
SAME AS AUTHOR. ID/CNF. 3/9, 23 P.
NO ABSTRACT.
DEVELOPING COUNTRIES/INDUSTRIES/SOCIAL ASPECTS/LABOR

277
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT, WASHINGTON, D.C.
1974
SMALL AND MEDIUM INDUSTRY DEVELOPMENT.
SAME AS AUTHOR. A.I.D. BIBLIOGRAPHIC SERIES, SCIENCE AND TECHNOLOGY 1.
131 P.
NO ABSTRACT.
DEVELOPING COUNTRIES/BIBLIOGRAPHIES

278
U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT, WASHINGTON, D.C./UNIVERSITY OF
ARIZONA, TUCSON, OFFICE OF ARID LANDS STUDIES
1976
PROCEEDINGS OF THE A.I.D. STRATEGY FOR ENVIRONMENT AND NATURAL RESOURCES
DEVELOPMENT: ANNUAL STRATEGY AND PLANNING SYMPOSIUM FOR THE OFFICE OF SCIENCE
SAME AS AUTHOR. (IN PRESS)
NO ABSTRACT.
DEVELOPING COUNTRIES/SOCIAL ASPECTS/TECHNOLOGY TRANSFER

279
U.S. ATOMIC ENERGY COMMISSION, WASHINGTON, D.C.
1974
SOLAR ENERGY BIBLIOGRAPHY.
SAME AS AUTHOR. AVAILABLE NTIS AS TD-3351.
A BIBLIOGRAPHY OF SOLAR ENERGY RELATED LITERATURE IS PRESENTED.
SOLAR ENERGY/BIBLIOGRAPHIES
U.S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D.C.

N.D.

HANDBOOK FOR VOLUNTEERS: CHILD NUTRITION PROGRAMS.
SAME AS AUTHOR. (FNS 10)

NO ABSTRACT.

NUTRITION

UNIVERSITY OF ARIZONA, TUCSON, INSTITUTE OF ATMOSPHERIC PHYSICS

1971

AN APPROACH TO POWER PRODUCTION IN THE DEVELOPING AREAS (A RESEARCH PROPOSAL FOR THE OFFICE OF SCIENCE AND TECHNOLOGY OF THE UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT).
SAME AS AUTHOR. 26 P.

PURPOSE OF THE PROPOSAL IS TO DEVELOP A SIMPLE ENGINE WHICH COULD RUN ON STRAW OR AGRICULTURAL WASTE. DISCUSSES THE ECONOMIC ADVANTAGES OF USING MACHINES INSTEAD OF BEASTS OF BURDEN FOR POWER PRODUCTION. CONSIDERS THE USE OF BOTH NATURAL FUELS AND PROCESSED FOSSIL FUELS. PROPOSES TO INVESTIGATE ECONOMICALLY FEASIBLE, TECHNICALLY VIABLE AND PRACTICALLY APPLICABLE SOLUTIONS. DISCUSSES THE COMPETITION BETWEEN THE BEAST OF BURDEN AND THE HUMAN ELEMENT FOR FOOD.

DEVELOPING COUNTRIES/ALTERNATIVE FUELS/ANIMAL POWER/MOTOR POWER

VAN DER ZWAAN, A.H.

1975

THE SOCIOTECHNICAL SYSTEMS APPROACH.


THE ATTRIBUTES AND SHORTCOMINGS OF THE SOCIOTECHNICAL APPROACH ARE EXAMINED. THE SOCIOTECHNICAL DESIGN MODEL STATES THAT TECHNOLOGY MUST BE SO CONSTRUCTED THAT WITHIN IT TASKS CAN BE CREATED THAT SATISFY THE NEEDS OF WORKING PEOPLE.

SOCIAL ASPECTS/DECISION MODELS/LABOR

VILLEGAS, B.

1974

FOR AN APPROPRIATE TECHNOLOGY.
CERES 7(3):44-47.

DESPITE THE MASSIVE RESOURCES SPENT ON DEVELOPMENT PLANS, LITTLE IS KNOWN ABOUT THE REAL PROBLEMS OF INCOME INEQUALITIES, MASS POVERTY, UNEMPLOYMENT, AND UNDEREMPLOYMENT. HOWEVER, NO LONGER ARE NATIONAL LEADERS WORKING UNDER THE
ILLUSION THAT ECONOMIC GROWTH WILL AUTOMATICALLY SOLVE THE PROBLEM OF MASS POVERTY. A REVIEW OF THE STATE OF KNOWLEDGE REGARDING ECONOMICALLY APPROPRIATE TECHNOLOGIES IS PRESENTED. THE IMPLEMENTATION OF LABOR INTENSIVE VS CAPITAL INTENSIVE PROGRAMS IS DISCUSSED.

DEVELOPING COUNTRIES/ECONOMIC ASPECTS/LABOR/SOCIAL ASPECTS/COST-BENEFIT ANALYSIS

284

VILLEGAS, B.

1975

SO YOU WANT TO HELP THE POOR?

SMALL INDUSTRY JOURNAL 8(11):4-10.

CONCERN FOR THE POOREST AMONG POOR HAS BECOME AN ESSENTIAL AND INDISPENSIBLE INGREDIENT OF ECONOMIC PLANNING DURING THE SEVENTIES. THE ASPECT OF HUMAN RESETTLEMENT IS DISCUSSED, RECOGNIZING THAT MASS POVERTY IS FRUSTRATED BY MAKING THE POOR PRODUCTIVE. VIRTUES OF VOCATIONAL VS GENERAL EDUCATION ARE ASSESSED IN TERMS OF LONG AND SHORT RUN GOALS. THE ROLE OF THE HANDICRAFTS INDUSTRY IS PRESENTED. THE IDEA THAT ENTREPRENEURSHIP IS NOT THE KEY TO INCREASING THE STANDARDS OF THE POOR IS DISCUSSED. A STUDY BY THE CENTER FOR RESEARCH AND COMMUNICATION IS USED AS SUPPORTING EVIDENCE.

DEVELOPING COUNTRIES/ENTREPRENEURSHIP/LABOR MIGRATION/EDUCATION/SOCIAL ASPECTS

285

VOLKOV, M.

1975

THE DEVELOPING COUNTRIES: THE CHOICE OF TECHNOLOGY.

PROBLEMS OF ECONOMICS 16:3:25.

NO ABSTRACT.

DEVELOPING COUNTRIES/SOCIAL ASPECTS/TECHNOLOGY TRANSFER

286

VOLUNTEERS IN TECHNICAL ASSISTANCE (VITA), MT. PANIER, MARYLAND

1970

LOW COST WIND MILL FOR DEVELOPING NATIONS.

SAMF AS AUTHOR. PAPER 20 E.

NO ABSTRACT.

DEVELOPING COUNTRIES/WIND POWER
287
VOLUNTEERS IN TECHNICAL ASSISTANCE (VITA), MT. RANIER, MARYLAND
1970
VILLAGE TECHNOLOGY HANDBOOK.
SAME AS AUTHOR. 387 P.
THIS HANDBOOK IS AIMED AT HELPING VILLAGERS MASTER THE RESOURCES AVAILABLE TO
THEM AND TO BRING THEIR VILLAGES MORE FULLY INTO THE LIVES OF THE NATIONS OF
WHICH THEY FORM A BASIC AND IMPORTANT PART. SIMPLE, ILLUSTRATED INSTRUCTION
FOR WATER RESOURCES, HEALTH AND SANITATION, AGRICULTURE, FOOD PROCESSING AND
PRESERVATION, CONSTRUCTION, CRAFTS AND VILLAGE INDUSTRY AND COMMUNICATIONS ARE
PRESENTED.
DEVELOPING COUNTRIES/WATER/SANITATION/WATER PUMPING/GROUNDWATER/WATER STORAGE/
IRRIGATION/AGRICULTURE/CONSTRUCTION

288
VOLUNTEERS IN TECHNICAL ASSISTANCE (VITA), MT. RANIER, MARYLAND
1975
APPROPRIATE TECHNOLOGY FOR THE THIRD WORLD.
THE METHODOLOGY THAT THE VOLUNTEERS IN TECHNICAL ASSISTANCE USE IN SUPPLYING
TECHNICAL ASSISTANCE IS PRESENTED. A CASE HISTORY INVOLVING A WATER MILL FOR
GRINDING CORN IN MALAWI IS SUMMARIZED.
DEVELOPING COUNTRIES/SOCIAL ASPECTS/WATER POWER/CORN/MALAWI/CONSULTING

289
WADF, N.
1975
NICHOLAS GENEGECGU-ROGER: ENTROPY THE MEASURE OF ECONOMIC MAN.
SCIENCE 190:446-450.
THE APPLICATION OF THE SECOND LAW OF THERMODYNAMICS (ENTROPY) TO ECONOMICS IS
PRESENTED. THE LONGEVITY OF THE WORLD'S NATURAL RESOURCES AND HAN HIMSELF IS
DISCUSSED. PROJECTIONS ARE MADE TO FUTURE WORLD ORGANIZATION.
ECONOMIC ASPECTS/SOCIAL ASPECTS/NATURAL RESOURCES/ POLITICAL ASPECTS/ECOLOGY/
CONSERVATION

290
WAPNERYD, O.
1975
GAMES FOR URBAN AND REGIONAL PLANNING: A PEDAGOGICAL TOOL.
TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE 7(4):397-412.
Dissatisfaction with the normative models developed within urban and regional planning during the sixties has led to an increased interest in the use of games. This technique has been applied as a pedagogical aid in order to bring reality into the classroom. The intent is to create an increased understanding of the existing interaction between the key figures of the social, economic and physical planning process. By using common forecasting methods, future alternatives for a particular sector or special activity can be predicted. Application to three Nordic communes is made.

Forecasting/Communes/Social aspects/Urban planning/Regional planning

291
Watanabe, S.
1974

Reflections on current policies for promoting small enterprises and subcontracting.
International Labour Review 110(5):405-422.

Policy makers have emphasized the role of small enterprises and subcontracting as a means of increasing employment and economizing capital. These aims have not always been met. The author discusses some hitherto neglected economic and institutional aspects of the Indian approach which may have made the process more expensive than necessary.

Developing countries/India/Entrepreneurship/labour/economic aspects

292
Waters, R.C.
1972

The impact of technical progress on unit price of selected products in developing industries.
Technological Forecasting and Social Change 3(4):1475-1479.

No abstract.

Decision models/Technology measurement

293
Watt, S.B.
1975

The Cretan sail windwheel as a power source.
Appropriate technology 2(3):4-5.

Advantages, disadvantages, and expected work capacity of the Cretan sail windwheel are presented. Economics of the sail windwheel vs. the standard fixed wave type are discussed. The inexpensive construction and maintenance costs of the Cretan sail windwheel are highlighted.

Water conveyance/irrigation/groundwater/wind power/developing countries/milling/cost-benefit analysis
VILLAGE SANITATION IMPROVEMENT SCHEME, INDIA.

APPROPRIATE TECHNOLOGY 2(4):15-16.

The advantages of proper excreta disposal are discussed. The construction of a water sealed, soakage pit type privy is presented. Area limitations for use are described.

DEVELOPING COUNTRIES/SANITATION/CONSTRUCTION MATERIALS/CONSTRUCTION METHODS/EXCREMENT/WATER/INDIA

WATT, S.B. 1975

WATER JARS FROM CEMENT MORTAR.

APPROPRIATE TECHNOLOGY 2(2):10-11.

A design for low cost (50 cents U.S./250 litres) is presented as a method of catching and storing rain water in Thailand.

DEVELOPING COUNTRIES/THAILAND/WATER HARVESTING/WATER STORAGE/DISEASE CONTROL/RAINFALL/CEMENT

WATT, S.B./HRUBECKY, H. 1975

ON THE LIMITS TO ENERGY GROWTH.


Although the total rate at which energy is released into the environment by man is only a fraction of one percent as large as the heat absorbed from solar radiation, the continued escalation of energy use could cause global thermal pollution in a surprisingly short time. If the rate of energy use continues to increase as it was over the past ten years, serious climatic changes could result before the end of this century.

FORECASTING/ENERGY

WERMAM, J. 1975

POSSIBLE SOLUTIONS TO THE WORLD FOOD PROBLEM.


Discusses the use of petrochemicals in producing food from the standpoint of both synthesis and energy. The favorable effects of processing agricultural waste are presented. Nutritional aspects are discussed.

CRDP PRODUCTION/FOODS/ENERGY/NITROGEN COMPOUNDS/AGRICULTURAL WASTE/NUTRITION
THE PRINCIPLES OF OPERATION OF THE FLUIDYNF STIRLING ENGINE ARE DISCUSSED.
THE FLUIDYNF ENGINE OPERATES ON A STIRLING CYCLE WITH A WATER PISTON.
ENERGY/WATER POWER/SOLAR ENERGY/MOTOR POWER

THE MAKING OF TOOLS.
VAN NOSTRAND REINHOLD CO., NEW YORK. 93 P.
NO ABSTRACT.
TOOLS/METAL WORKING

THE MODERN BLACKSMITH.
VAN NOSTRAND REINHOLD CO., NEW YORK. 96 P.
NO ABSTRACT.
METAL WORKING/TOOLS

RURAL WATER SUPPLY AND SANITATION IN LESS-DEVELOPED COUNTRIES: A SELECTED
ANNOTATED BIBLIOGRAPHY.
INTERNATIONAL DEVELOPMENT RESEARCH CENTER, OTTAWA, CANADA. 82 P.

PROVIDES INFORMATION ON THE ISSUES INVOLVED IN IMPROVEMENTS TO WATER SUPPLY
AND SANITATION SYSTEMS, THE EXTENT TO WHICH VARIOUS TYPES OF IMPROVEMENT
PROGRAMS REACH AND ARE ACCEPTED BY COMMUNITIES, AND HOW LOCAL COMMUNITIES CAN
BE INVOLVED IN IMPROVEMENT SCHEMES.
DEVELOPING COUNTRIES/WATER/SANITATION/BIBLIOGRAPHIES
WHITE, L.J.

1974

APPROPRIATE TECHNOLOGY AND A COMPETITIVE ENVIRONMENT: SOME EVIDENCE FROM PAKISTAN.

PRINCETON UNIVERSITY, NEW JERSEY, WOODROW WILSON SCHOOL, DISCUSSION PAPER 46, 22 P.

DISCUSSES HOW THE ECONOMIC ENVIRONMENT CAN INFLUENCE THE ENTREPRENEUR'S DECISION REGARDING CAPITAL VS LABOR INTENSIVE OPERATION. THE EXISTENCE OF A COMPETITIVE ENVIRONMENT IN THE DEVELOPING COUNTRY STIMULATES LABOR INTENSITY.

DEVELOPING COUNTRIES/ECONOMIC ASPECTS/ENTREPRENEURSHIP

WILCOCKS, T.

1975

THE HEDGEHOG SPINNER.


THE HEDGEHOG SPINNER IS DESIGNED IN PART TO BRIDGE THE GAP BETWEEN QUALITY AND QUANTITY, AND AT THE SAME TIME TO DISPENSE WITH COMPLICATED PROCESSES AND CONSTRUCTION.

DEVELOPING COUNTRIES/SPINNING/MACHINE DESIGN

WILLIAMS, D.B.

1975

A FOOT POWERED GRAIN THRESHER FOR RICE, SORGHUM, OATS, AND OTHER SMALL GRAINS.

APPROPRIATE TECHNOLOGY 2(2):6-7.

A REPORT ON AN INEXPENSIVE REVIVAL OF THE FOOT POWERED GRAIN THRESHER IS PRESENTED. THIS MODEL DOES NOT ELIMINATE THE NEED FOR WINNOWING, AND IS ALSO SUITABLE FOR MOTOR POWER.

DEVELOPING COUNTRIES/SORGHUM/RICE/OATS/CROP PRODUCTION/GRAINS/HARVESTING/FARM EQUIPMENT/MACHINE DESIGN/MOTOR POWER/ANIMAL POWER/THRESHING

WILSON, G.W.

1974

URBAN TRANSPORTATION PROBLEMS IN DEVELOPING COUNTRIES: THE ROLE OF TECHNOLOGY.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, SYMPOSIUM ON STRATEGIES FOR A.I.D., PROGRAMS IN SELECTED AREAS OF SCIENCE AND TECHNOLOGY, CAMBRIDGE, APRIL 1974, PROCEEDINGS, VOL. 2, 58 P.

BASED ON SEVEN PROPOSITIONS ON PROBABLE FUTURE TRENDS IN URBANIZATION AND TRANSPORTATION IN DEVELOPING COUNTRIES, THE RESPONSE OF LOCAL AND NATIONAL
GOVERNMENTS TO THESE TRANSPORTATION PROBLEMS IS HYPOCHEMIZED. STARTING WITH A REQUEST FOR A LARGE SCALE STUDY BY A FOREIGN CONSULTING FIRM AND ENDING WITH NON-IMPLEMENTATION OF THE FIRM'S CONCLUSIONS, TECHNOLOGY WILL NOT IMPROVE THE SITUATION. A LIST OF TEN POSSIBLE ORGANIZATIONAL MODIFICATIONS IS PRESENTED AND THE LIKELIHOOD OF THEIR IMPLEMENTATION IS DISCUSSED.

DEVELOPING COUNTRIES/TRANSPORTATION/TECHNOLOGY TRANSFER

1975

THE "HEFLBARRON"

APPROPRIATE TECHNOLOGY 2(2):25-28

DISCUSSES DESIGN AND LOAD PLACEMENT ON THE UPDATED CHINESE "HEFLBARRON" MANUFACTURING TECHNIQUES ARE PRESENTED. A DESIGN FOR A RIM PULLER IS PRESENTED.

DEVELOPING COUNTRIES/TRANSPORTATION/CHINA/AFRICA/INDIA/METAL WORKING/TOOL/MACHINE DESIGN

1982

CIVILIZATIONS IN DESERT LANDS

UNIVERSITY OF UTAH, SALT LAKE CITY, DEPARTMENT OF ANTHROPOLOGY, ANTHROPOLOGICAL PAPERS 62, RE P.

NO ABSTRACT.

DEVELOPING COUNTRIES/SOCIAL ASPECTS

1972

REVISITING THE FUTURE OF THE THIRD WORLD

WORLD POLITICS 27(2):1-33.

NO ABSTRACT.

DEVELOPING COUNTRIES/TECHNOLOGY TRANSFER/SOCIAL ASPECTS
WORLD NEIGHBORS, OKLAHOMA CITY, OKLAHOMA

N.D.

AGRICULTURAL IRRIGATION.

SAME AS AUTHOR. 20 P.

THIS BOOKLET REPRODUCES THE PHOTOS AND TEXT OF TWO FILMSTRIPS ON AGRICULTURAL IRRIGATION. 'SOURCES OF WATER' DISCUSSES WHERE TO LOOK FOR WATER AND HOW TO MAKE WATER AVAILABLE FOR CROP IRRIGATION, AND 'GETTING WATER TO THE PLANTS' DISCUSSES HOW TO MOVE IRRIGATION WATER FROM THE SOURCE TO THE CROP.

DEVELOPING COUNTRIES/AGRICULTURE/WATER/WATER CONVEYANCE/IRRIGATION

WORLD NEIGHBORS, OKLAHOMA CITY, OKLAHOMA

N.D.

BETTER HEALTH IS MADE POSSIBLE THROUGH PROPER SANITATION.

WORLD NEIGHBORS IN ACTION 2(4E). 6 P.

A GENERAL DISCUSSION OF HOW TO IMPROVE SANITARY CONDITIONS IS PRESENTED. BASIC CONSTRUCTION PRINCIPLES FOR BOTH PIT AND WATER SEAL TYPE TOILETS ARE GIVEN.

DEVELOPING COUNTRIES/SANITATION/WATER POLLUTION/EXCREMENT

WORLD NEIGHBORS, OKLAHOMA CITY, OKLAHOMA

N.D.

MEETING NEEDS FOR MORE WATER.

WORLD NEIGHBORS IN ACTION 3(1E). 6 P.

A GENERAL DISCUSSION OF HOW TO MAKE WATER SUPPLIES IS PRESENTED. DEVICES CONSIDERED ARE WELLS, SPRINGS, PUMPS, PAMS, WINDMILLS AND LIFTS.

DEVELOPING COUNTRIES/WATER CONVEYANCE/DRAINAGE/IRRIGATION/WATER STORAGE/WIND POWER/MOTOR POWER/GROUNDWATER/WATER PUMPING

WORLD NEIGHBORS, OKLAHOMA CITY, OKLAHOMA

N.D.

WATER MEANS LIFE.

WORLD NEIGHBORS IN ACTION 4(3E). 6 P.
A general discussion of how to retain more water on land is presented. Methods considered include planting cover crops, adding organic matter to the soil, making contour ditches and terraces, building small dams and constructing cisterns. Basic construction principles for dams and cisterns are given.

Developing countries/water storage/water harvesting/water/soil amendments/runoff

Wu, M.
1975
Adoption of the drum thresher for new rice varieties in Asia.

Specifications for a foot powered drum thresher and a paddy drier are presented.

Developing countries/rice/threshing/drying/animal power/farm equipment/machine design

Yun, Y.
1975
Case studies of successful operational programs, case 3: Techno Economics Group, Korea Institute of Science and Technology.

Conference and seminar on techniques and methodologies for stimulating small-scale labor-intensive industries in developing countries, Atlanta, Georgia, May 10-14, Summary of Proceedings, 17 p.

Describes the institute as a multidisciplinary contract research organization emphasizing transfer of technology to local industry. Some projects in small industry have been an optical products manufacturer reorganization, development of flax straw machines, and synthetic fibers for wigs. The institute's new technology delivery program is presented.

Developing countries/BIF/Brazil/industries/entrepreneurship/consulting/technology transfer/business management

Zukas, S.B.
1975
Irrigation and self reliance.

Appropriate technology 21(2):8-9.

A limited experiment in rural development based on self reliance was conducted for the National Council for Scientific Research in 1969. The scheme takes advantage of irrigation by gravity only. Social reasons for selecting the gravity fed system are presented. Crops are limited to certain vegetables, an assessment after three years is given.

Developing countries/Zambia/irrigation/waste water/water conveyance/catchments
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**Notes:**
- The table represents various economic and environmental factors across different countries and sectors.
- Each cell contains a value indicating the proportion or intensity of a particular factor.
- The values range from 0.001 to 0.001, representing minimal to significant contributions.

**Source:**
- The data is from a hypothetical economic and environmental study.
WATER PUMPING
0102  0103  0122
0124  0185  0243
0287  0311

WATER STORAGE
0102  0103  0114
0163  0167  0194
0287  0295  0311

WELLS
0056

WIND POWER
0048  0056
0063  0072  0086
0112  0131  0173
0195  0223  0246
0253  0296  0293

WINNOWING
0111  0252

ZAIRE
0233

ZAMBIA
0190  0315
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Cooperating Colleges and Offices of The University of Arizona in the institutional 211(d) Natural Resources Program:

- Agriculture
- Business and Public Administration
- Earth Sciences
- Engineering
- Liberal Arts
- Medicine
- Mines
- Office of Arid Lands Studies