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A Guide to Appropriate Technology Institutions

by Angela Sinclair

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A Guide to Appropriate Technology institutions

Angela Sinclair

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Compiled by Angela Sinclair.

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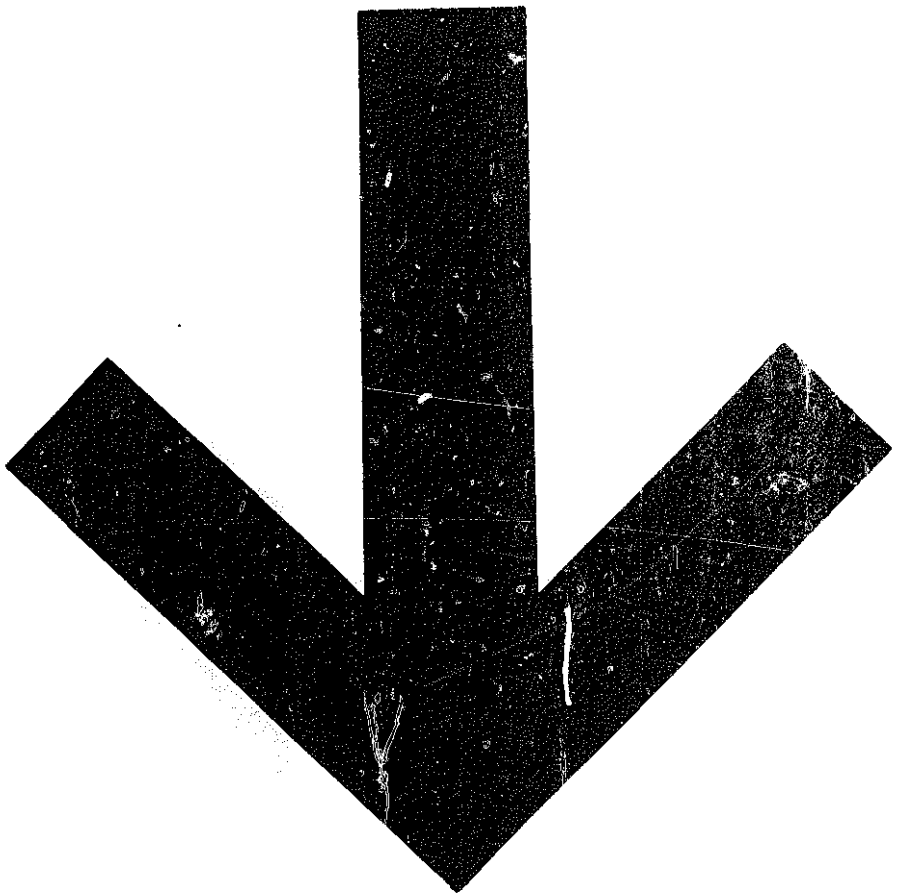

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INTRODUCTION

In recent years, ITDG has been receiving an increasing number of requests for information of an institutional as opposed to a purely technical nature. Through its AT Institutions Programme, it has been able to respond to this demand by collecting and analysing relevant information (often through visits to institutions) and disseminating this in different formats to meet different needs. Three types of publication are so far available. First, there arc the detailed studies of those individual AT Institutions which, because of their background, structure, method of work and achievements, seemed worthy of specific investigation. These include such studies as S. Holtermann, *Intermediate Technology in Ghana: The Experience of the Technology Consultancy Centre* (ITIS, Rugby, 1979); M. Carr, *Developing Small-Scale Industries itr India: The Experience of the Birla Institute of Technology's Small Industry Scheme* (IT Publications, 1980); M. Carr, *Intermediate Technology in Boiswana: The Experience of the Botswana Technology Centre* (ITDG Occasional Papers IO, 1984); M. Carr, *Intermediate Technology in Papua New Guinea: The Experience of the South Pacific Appropriate Technology Foundation* (ITDG Occasional Papers 12, 1984). These publications are aimed at assisting governments, institutions and individuals who are interested in or already involved with the institutional aspects of technology development and dissemination, and who want to read at length about experiences with various institutional models elsewhere in the world.

Second, there is a review of AT Institutions which presents the findings of a study of some 60 local, national, regional and inlernational AT Institutions: R. Whitcome and M. Carr, *Appropriate Technology Institutions: A Review* (ITDG Occasional Papers 7, 1982). This classifies and analyses (in general terms) the experiences gained in establishing and operating AT Institutions, and seeks to draw out common themes

and problems rather than describing the history, growth. structure and method of work of each institution. It is aimed at the staff of AT Institutions themselves to examine themselves against the experiences of others, and at governments, NGOs and others who are planning to create or support an AT Institution and wish to have a general overview of the various options open to them, and the advantages and disadvantages of each.

Third, there is a Directory of names and addresses of over 150 AT Institutions and support agencies: *Appropriate Technology Institutions: A Directory* (ITDG, 1983). This is aimed at people who, for a variety of reasons, want a ready source of information on AT in different deveioping and developed countries, and on the various agencies which can be approached for funds for AT programmes.

This compendium, which contains brief up-to-date summaries of the history and growth, objectives, structure and work of about 40 institutions, is the latest in the range of ITDG publications dealing with institutions. It is descriptive rather than analytical, representing in part the raw data upon which the analytical review of AT Institutions was based. It is seen as a response to the demands received for information at a level of detail greater than provided in the AT Directory, and at a broader, less detailed level than provided in the individual country/institution studies.

All organisations in the compendium are known to be actively involved in supporting, either directly or indirectly, the development and application of appropriate technology. There are obviously many more such organisations in existence: the main reason for not including them is that, at the time of writing, insufficient data was available to ITDG to prepare a useful, up-to-date profile. Hopefully, more organisations can be included in future revised versions of the compendium, and any information from readers which would assist in this endeavour is welcome.

The compendium is divided into two major sections:

A. Country Institutions

B. Regional and International Institutions

The majority of entries fall into the first category and they are ordered alphabetically by country of location. Each profile is written to a set outline which has four broad headings. Under

each heading as much as possible of the following information is included:

Background – when and how the institution was started and by whom; how it has developed over the years in terms of size, structure and nature.

Objectives – the major aims and operational objectives of the institution.

Structure and institutional affiliations – the status of the institution; which agencies it belongs to, links with or works with; composition of the board of directors; number and type of staff; sources of funding.

Method of work and fields of activity – the way in which the institution seeks to achieve its objectives, e.g. through information collection and dissemination, training, project development, R&D, etc; types of technologies, projects and programmes on which the institution is working.

Although this compendium should prove to be a useful reference document in its own right, it is suggested that readers may derive greater benefit if it is used along with other publications in the AT Institutions series.

A. COUNTRY INSTITUTIONS

BANGLADESH

Village Education Resource Centre (VERC), Anandapur, Savar

Background

VERC was established in 1977 as a special service project of the Save the Children Fund (SCF) USA and funded by UNICEF. It was approved by the Bangladesh government and considers itself to be an 'exploratory agency in service of government, voluntary and community groups, working to discover paths towards self-reliance'.

Seeing improved technologies as a major factor in solving the needs of rural communities, VERC decided in 1978 to set up a workshop to develop and test village technologies with a view to developing technical training materials for held workers. However, the Village Technology Unit (VTU) found its first approach -developing a variety of prototypes based on villagers' needs – over-ambitious and in many cases duplicating R & D work elsewhere in Bangladesh. The VTU subsequently decided to limit its activities to the area of small and cottage industries; its current work is largely directed to evaluation and improvement of existing prototypes and models rather than to further innovation.

Objectives

VERC's major objective is to aid rural people to achieve self-reliance through the development of new skills, and to gain self-confidence through the experience of development. Recognising a crucial problem in rural development – the communications gap between villagers and development organ-

isations – VERC highlights its objective as 'Communication Support'. Thus it exists to find ways of translating village-expressed needs into action programmes in which villagers play a significant decision-making and participatory role. The VTU is instrumental in assisting the Centre to release and support creative initiative in the rural areas.

Structure and institutional affiliations

VERC is an indigenous non-government organisation and receives strong support from government and non-government bodies within Bangladesh and overseas. Its Board of Directors consists of representatives from government ministries, VERC advisors. affiliated agencies, clients and VERC itself. The Board is empowered to assist with policy and programme priorities, external institutional problems. legal matters and fund raising, and to appoint the Executive Director who is responsible for the execution of VERC's work programme.

4 high proportion of the staff (totalling more than 30) is professional, and includes trainers, researchers and a variety of programme specialists. Additional staff are also contracted when required, to help VERC respond to the needs of different agencies. Functionally, VERC is divided into six service divisions: Communications Support; Development Exchange; Action Research; Assistance to Training Programmes: Development Information Systems; and Technology Innovation Exchange. The VTU is part of the last division.

Funding for the Centre's work is received largely from external sources (e.g. UNICEF, SCF (USA), PACT, ATI, Oxfam. CIDA), while internal general support comes from the Ministry of Local Government, Rural Development and Co-operatives, and from the National Foundation for Human Resource Development (NFHRD), an autonomous body related to the Planning Ministry. In 1980 a proposal was drawn up to effect close collaboration between VERC and the governmental Institute for Appropriate Technology (an arm of BUET). This would enable most R & D functions to be undertaken by the national institute while VERC could emphasise extension and information dissemination.

Method of work and fields of activity

VERC and the VTU adopt a flexible approach when responding to villagers' needs, recognising that villagers often lack time to develop creative skills, or are subject to many social and economic constraints which act as disincentives to economic innovation. Technology development is a problem-solving process beginning with the user. Thus the approach combines training for creative and analytical skills with practical demonstrations of technological alternatives from which villagers can select.

The 'Technology Unit has accordingly developed demonstration, training and extension capabilities. Its first priority is to help motivated village groups analyse their existing technologies, experiment where needed and evaluate the results, emphasising the development of the inventor. As a corollary of this process, the VTU helps to develop prototypes and adapt technologies from other parts of Bangladesh. Its work in the held of small/ cottage industries includes R & D and training in beekeeping, poultry rearing, pisciculture, irrigation, screen-printing and ceramics.

BELGIUM

Collectif d'Echanges poor la Tecbnologie Appropriée (COTA), rue de la Sabbonière 18, B1000, Bruxelles

Background

COTA was established in 1979 as a documentation, information and research centre for Appropriate Technology. It was founded by six Belgian-based NGOs, and represents the French-speaking sector of the NGO community. ATOL (Association for Appropriate Technology in Developing Countries) is its Flemish counterpart which operates independently of COTA.

Objectives

COTA's goal is to promote appropriate technologies in the Third World, particularly those which assist local communities to gain economic and technological autonomy. By using locally available materials, skills and know-how, or by adapting foreign technologies to their needs, the users may work towards self-development and self-reliance.

Structure and institutional affiliations

COTA is a small non-profit organisation with a Board of Governors drawn from the sponsoring founder NGOs (including Iles de Paix, Oxfam, Solidarité Socialiste, Université de la Paix). The Board provides a crucial link with the Belgian government, especially for securing funds. An advisory committee is composed of a panel of experts who can assist with work programmes and with technical enquiries.

Permanent full-time staff are kept to a minimum and beaded by the Secretary-General. Other information and support staff are employed on a year-to-year basis under a government job-creation scheme, while project officers are employed for the duration of a project.

Two-thirds of COTA's funding comes from the Belgian government to cover salaries and to sponsor activities such as induction

courses for volunteers going overseas. The other third of the organisation's costs are met by project feasibility and evaluation studies commissioned by NGOs or donor agencies.

Internationally, COTA is part of the SATIS information network, and has links with many of its member groups.

Method of work and fields of activity

The organisaiion is involved in four types ofactivity: documentation collection; technical enquiries; held projects; and induction courses on AT.

its documentation centre is classified according to the SATIS system under the headings of Man and Society; Energy; Water/ Sanitation; Agriculture, Forestry and Fisheries; Food Production and Processing, Industry; and Building and Construction.

The technical enquiry service is carried out primarily by COTA staff, with help from the Advisory Committee and their network of contacts. COTA replies to enquiries from volunteers overseas, other NGOs, and local communities in developing countries.

Field work is undertaken in support of NGO projects, mostly in French- and Portuguese-speaking Africa, where COTA studies technologies appropriate to the project beneficiaries. COTA also supports the creation of AT centres in the Third World: such a project is underway in Benin.

AT induction courses are organised for Belgium government and other overseas volunteers, also for trainers and others from overseas who are interested in AT.

BOTSWANA

Botswana Technology Centre (BTC), P.O. Box 438, Gaborone

Background

The BTC story starts in September 1975 with a visit to Botswana by the ECA/ITDG Regional Adviser on Small Scale Industry. At this time, although the government and many other individuals and organisations in the country were interested in rural industrialisation and appropriate technology, very little was actually happening by way of practical implementation. The main need appeared to be for an enabling and catalytic agency which would encourage existing institutions and provide them with the means of implementation.

The Botswana Development Corporation (BDC) responded enthusiastically io a proposal for a Technical Centre in view of its concern to tackle small-scale rurai development as well as the medium-scale urban enterprises upon which it had hitherto concentrated. A detailed project proposal was accepted for funding by the EEC/European Development Fund (EDF); the BTC was established as a legal entity in April 1977, and a carefully selected manager was installed in 1979. Although this initial four-year period may appear protracted, the care that went into initial project identification and staff recruitment was a key Factor in the BTC's eventual success: it is now the country's primary focus for technology choice and application.

Objectives

BTC's primary focus is the identification of technologies appropriate to Botswana's needs and circumstances, stressing employment creation in rural areas and paying particular attention to the 'software' aspects of technology application.

In the final agreement between the government of Botswana and the EEC it was stated that the Botswana Technology Centre would serve and co-ordinate all appropriate endeavours throughoat Botswana, and that its major objectives should be:

- to evaluate the possibilities of new technologies adapted to local conditions, especially in rural areas;
- to assist in the application ofsuitable technologies; and
- to assist in the creation of new industries.

In order to accomplish these objectives it was expected that the Technology Centre would:

- work in close contact with government ministries, parastatal organisations and interested private institutions in the infra-structural, industrial and agro-industrial fields for the purpose of identifying suitable fields for the introduction of new technical solutions;
- establish channels of communication with institutions outside Botswana dealing with technological matters:
- organise seminars and other meetings, publish and distribute newsletters and circulars, project papers and drawings on applied technologies;
- give assistance towards practical implementation of the results of its work, including the setting up of pilot projects and production facilities, and the training of local staff: and
- commission external consultants, if necessary, to assist the staff of the Technology Centre on specific technological matters.

Structure and institutional affiliations

The BTC ranks as a parastatal in its own right and has strong government representation on its Board, and close operational links with the Ministry of Finance and Development Planning (MFDP), the Ministry of Commerce and Industry (MCI) and the Ministry of Mineral Resources and Water Affairs (MMRWA). Because of its co-ordinating role and catalytic nature. it also has close working relationships 'with many of the parastatal and private agencies involved in small industryismall farms programmes. Two national bodies most important to BTC's work are the MFDP, which grants substantial funding to the Centre; and the Rural Industries Innovation Centre (RIIC), which is a programme within the parastatal Rural Industries Promotions (RIP) and is Botswana's primary AT hardware development

centre. The care taken in deciding upon its structure and institutional affiliation is also important, since its status as an autonomous unit has yielded flexibility, while the backing of the MFDP has undoubtedly been useful in helping the Centre to establish credibility in a wide range of activities and to gain and maintain the ear of the government.

While the Board of Directors oversees general policy matters and senior staff recruitment, the Centre's manager commands considerable independence in operational matters. Although for the first year he worked aione reviewing and establishing links with existing AT-related institutions and setting up initial projects. the Centre now employs some 15 permanent staff and several short-term personnel working from the headquarters in Gaborone.

The Centre's core expenditure is now funded by the MFDP: core funds provided by the EEC/EDF ceased after the initial three-year 'pilot' oeriod. Project funds are also forthcoming from government sources, but external donors have piayed a major roie in this respect. in particular USAID, SIDA and the German government. In addition, the manager's knowledge of the international AT network and UN Science and Technology Programmes has enabled the Centre to establish good working relations with a number of overseas agencies which have helped strengthen its capabilities in information exchange and technology transfer.

Method of work and fields of activity

BTC has very successfully adopted an approach whereby it can achieve a great deal through skilful use of the resources of other appropriate agencies in the country. However, its total work programme judiciously mixes the co-ordinating role with its own project work.

There are basically four types of work in which BTC is involved:

- documentation, information, technical enquiries;
- project development;
- training, seminars, etc.; and
- advocacy, policy advice.

The manager's connections with external agencies facilitated the former task. Through this network the Centre was able to establish a national library and a technical enquiry service. Since the staff expansion in 1981 this service has been stimulated by brochure distribution, exhibitions at trade fairs, running of competitions at schools and talks to community groups, etc.

Apart from a multitude of smaller projects (ranging from agricultural tools and bicycle carts to rabbit breeding), the BTC has been involved in initiating three major projects. The longest of these is the Botswana Renewable Energy Technology (RET) Project.

The main objective of this project is to foster the adoption of deliverable RETs designed to alleviate major problems facing low-income Botswana through appropriate extension mechanisms; and to support the development and demonstration of RETs. Priority areas are: water supply; fuel and wood supply: and the provision of health support facilities at village level.

The second project, the Botswana Food Laboratory, aims to develop economically viable food products based on local agriculture or wild foods. Its activities relate to practical applied product development and testing, and laboratory staff are also made available to advise investors interested in setting up commercial production of the products that have been developed.

The third project, the Producer Gas and Coal Use Project, aims to enable the use of local coal in producer gas generators and by small-scale industry and rural users through the introduction of mechanical processing technologies. This should create both direct and indirect rural employment and lead to substantial savings in coal and petrol imports.

Training, apart from staff development, has focused on inputs to local courses and seminars, especially those for extension workers and overseas volunteers.

Finally, in the held of advocacy, BTC has had a significant impact on government policy towards technology, exerting pressure for changes in fiscal, monetary and other policies to encourage technology dissemination. The manager is now routinely invited to government meetings concerned with technology options. and both government and the UNDP regularly channel visiting missions through BTC.

CANADA

Brace Research Institute, McDonald College of McGill University, Ste Anne de Bellevue, Quebec HOA ICO

Background

Major James H. Brace left the residue of his estate to McGill University, tinder the terms of his will, following his death in April 1956. The Director of Planning at McGill surveyed the entire field of possible operations for the Brace bequest and submitted his findings in September 1959. This report formed the basis for further work under the bequest. The current organisation was finalised in January 1961 and given the name of Brace Research Institute.

Under its first director (1960-71) the Institute established its Experiment Station in Barbados and undertook its principal technical developments. Following a major review of activities, a new policy was established in June 1972. This divided the operation into two separately budgeted divisions: one developing contacts and projects in the field; the other conducting research and development activities at the Institute. In 1979. the Institute was again reorganised to cover R & D work both overseas and on Canadian-based projects.

In order to undertake these programmes and participate more actively in developments both overseas and at home, the Institute staff has been expanded. This has involved the training of new staff members, not only in areas of Brace expertise but also in its philosophy and methodology of approach. Matching this increase in staff has been an increase in financial resources through additional contract research. Research grants extended to university staff and students have also increased the availability ofoutside financial resources for the Institute's operations.

The Institute has become increasingly recognised in international circles for its pioneering activities in small-scale desalination systems, water supply systems, the use of renewable energies at the community level, as well as in the general field of Appropriate Technology as a *modus operandi* in development. It is now recognised as one of the leading international research

ccntres for solar and wind energy utilisation, especially with regard to solar distillation, and for the development of wind turbines.

Objectives

Since its inception, the Institute has followed a consistent policy directed towards the fulfilment of the aims set down by Major En-ace. He specified that the money should be used 'for the purposes of providing for and carrying on research for the development of methods or means of eliminating or reducing the salt content of sea water so that it may be used economically and effectively for irrigation, and with due regard to the foregoing primary purpose, for purposes of research into methods of irrigation or other means for making desert or arid land available and economically useful for agricultural purposes'. It was his desire that the results of this research would be made freely available to all the peoples of the world.

The policy decision made in 1959 was to concentrate on the problems of water and power scarcity affecting individual persons and small communities in arid, developing areas. This policy contained certain key objectives:

- to help resolve the pressing problems of poorer rural populations;
- to identify technologies appropriate to the cultural, social and political context in which the equipment is to function;
- to provide rural communities with options so that they may resolve their own technological problems with systems, methods, energies and materials under their own control;
- to utilise local resources (energy, materials and manpower) so that the technology may contribute to the deveiopment and maintenance of local community infrastructure; and
- to assist the formation and strengthening of similarly oriented institutions in developing countries.

Structure and institutional affiliations

The overall responsibility of the Institute is vested (by the terms of the bequest) in the Dean of the Faculty of Engineering. who is

advised by the Chairmen of the Engineering Departments of the Faculty. This committee continues, in conjunction with Brace Research Institute staff, to administer the Brace Research funds and research grants.

The institute's Director is responsible for implementing and overseeing the work programme, assisted by a small full-time academic staff. Additional staff are also acquired on a part-time basis, and the Institute may work closely with staff in other engineering departments at the university on specific research projects.

The Institute continues to collaborate with other organisations with simiiar objectives in different parts of the world, and participates in international secretariats such as TRANET aimed at uniting and co-ordinating the activities of the many groups now active. In more recent years, the Institute has played an increasing role in liaison with the Canadian and Quebec governments, as well as with local commercial and industrial interests with regard to overseas programmes, policies and operations. As a matter of policy, the institute has always maintained close relations with the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC), Ottawa. Canada; various agencies of the United Nations, USAID and other national and international organisations with similar interests.

Method of work and fields of activity

The primary activiticsofthe Institute are in the following areas:
- saline water conversion for community water supply and the use of water under arid zone conditions;
- the utilisation of solar. wind and biomass energies;
- arid zone development with regard to water, energy and agriculture for smal! communities; and
- appropriate technology and its methodology.

Efforts deal on the one hand with research into problems advancing the basic body of knowledge, and on the other hand with development and application. They are. of course. often intertwined. The Institute makes maximum use of a wide series of associates all over the world. who have either worked or studied al Brace and who maintain close liaison.

The Institute addresses itself to the problems of water scarcity in arid areas as a priority. At the same time as developing technological options to relieve water scarcity, the Institute is increasingly developing methodologies of approach which would assist local researchers, organisations and workers in the field to apply appropriate technologies and systems to increase the productivity and well-being of indigenous populations,

Members of staff participate in conferences and symposia, in order to understand better the problems faced in these areas and to support individuals and organisations in developing areas in their efforts. Participation in missions for national and international organisations serves to strengthen existing ties with sister organisations overseas and helps create new bonds with other groups. Through advising local governments overseas on policies in areas of interest to the Institute, and through the encouragement and support of indigenous institutions, it has been possible to be of assistance in laying the foundations for the introduction ofappropriate technological systems into a number ofdeveloping areas.

The Institute also provides specialised training for short term visitors from developing areas. This area of activities has continued to grow. Students from universitiy faculties undertake projects of relevance to developing areas. During the summer vacations the Institute plays a significant role in training students for work in areas related to the Institute's objectives. These students and trainees come from a wide variety ofdisciplines.

The Brace library contains collections of reference material on desalination, solar energy and wind power utilisation, each amongst the most comprehensive and thoroughly indexed source of information available in its respective discipline. More recently extensive information has been gathered on greenhouse agriculture and Appropriate Technology. This facility enables the Institute to maintain an information, technical enquiries and publications service which is utilised by individuals and organisations in Canada and throughout the developing world.

COLOMBIA

Centro Las Gaviotas, Paseo Bolivar 1090, Bogota

Background

The Centre for Integrated Rural Development of Las Gaviotas was established in the late 1960s in an underpopulated lowland region of Colombia. 400km south of Bogota. The scheme planned to develop the area in phases. First, a service centre (Las Gaviotas) was constructed; then a factory to process the forest products (principally based on the extraction of oil from native palms). An area was reserved for cattle raising and for agriculture to produce essential food crops. Third, a human settlement was established around the centre; and the settlement of families within the areas served by the centre was planned. The hope was to provide central services to a population of 2,000 families within a 60-70km radius from Gaviotas. If this pilot project was successfully completed, then the belief was that the same scheme could be repeated with many centres throughout the whole region.

Two years after the scheme's inception the founder. a sociologist, realised that he would need the help of scientists and technologists in analysing the problems of the area and finding practical solutions. Thus, he obtained the co-operation of a number oftechnical organisations in Colombia- in particular the University of los Andes in Bogota. From 1972 to 1978, Las Gaviotas and the University worked together under a formal agreement to research and develop technologies appropriate to the locality and the settlers. Since 1978 the Centre has had sufficient technological expertise to continue its work without formal or regular inputs from other bodies.

Objectives

The long-term aim of the project was to show how the population of this region could be increased from 100,000 to 5 million (through resettlement) without destroying the ecology of the region. Given the poor quality of soil and grasses (making

FRANCE

Technological Research and Exchange Graup (GRET), 30 rue de Charonne, 75011 Paris

Background

In 1976. following the return of a small group of French government field volunteers, GRET was founded to improve the flow of technical information to and development of appropriate technologies for rural communities in the Third World. It was created by the Technical Co-operation Department of the French Ministry of Foreign Affairs, which continues to be a major funder together with other government ministries and agencies. It is staffed mainly by engineers with expertise in agriculture, energy, health, food processing, construction materials and small-scale industries. In addition to R&D facilities, GRET offers a variety of information exchange services and has set up some decentralised structures (e.g. the GRET Mediterranean Centre), and some technical sections work closely with French academic Institutions.

At its inception, GRET's work was oriented to French volunteers overseas. Although providing a service to this group remains important, the organisation has expanded its network to include non-French speaking groups, and has recently begun to focus more on AT development for economically disadvantaged groups in France itself.

Objectives

GRET's goal is to provide aiternative technology for community-centred development. Criteria used in assessing the appropriateness of a technology include the extent of popular know-how, physical environmental conditions, and the potential for local control of the technology/process.

Towards this goal, the organisation aims to improve and support the technical development of appropriate technology; communications between research centres and those involved with rural development in the held; and understanding of the

significance of technical choices for social and economic development.

Structure and institutional affiliations

GRET is a private, non-profit organisation formed under the statutes of French law 190 1. Its governing Council is composed of three kinds of representatives: NGOs, staff delegates and government ministries (e.g. Foreign Affairs, Co-operation and Development, Research and Industry, Urbanism and Housing) or agencies (AFME the French agency for energy). These official bodies are important funders with whom GRET negotiates an annual budget for its different programmes. Other NGOs like GERES at the University of Provence, ALTERSIAL at the Ecole Nationale Supérieure des Industries Agricoles et Alimentaires collaborate with GRET and undertake R&D work in renewable energy and agricultural processing, respectively.

The group core is based in Paris, run by the Office of the Secretary General, and salaried staff number some thirty full- and part-time engineers, economists, trainers, support staff, etc. GRET is structured in two broad divisions-Communication and Exchange; and Technical Research/Support – each of which is subdivided into several units with specialist functions.

Both divisions have been instrumental in forging links with institutions overseas: GRET is a member of SATIS, and collaborates with UNESCO in training sessions; project teams have identified and work with collaborating AT institutions, particularly in Africa, India and South and Central America.

Method of work and fields of activity

The Communication and Exchange Division aims to collect available documentation on different technologies and to promote the diffusion of information. Its Documentation Centre is open to the public and houses several thousand reports, documents and periodicals. It is classified according to the SATIS system, and helps the Question/Answer Service to provide a comprehensive and efficient service. GRET's publications include several hundred technical development leaflets: books,

studies and technical files covering a variety of disciplines: and a bimonthly bulletin *RESEAUX – la lettre du GRET.*

To facihtate information diffusion the Division runs an audio-visual service: supports networking activities throughout the world: and participates in the organisation and supervision of training sessions in France on themes of technology and development.

The Technical Research/Support Units have two roles: to evaluate the specialist information collected in any one discipline; and to undertake R&D and become activelv engaged in projects with overseas collaborators. Its seven technical units specialise in renewabie energy; housing/construction; cottage industry machinery; health care and equipment; agriculture; agro-processing: and industrial technology.

FEDERAL REPUBLIC OF GERMANY

German Appropriate Technology Exchange (GATE), GTZ-GmbH, Post Fach 5180, D-6236, Eschborn 1

Background

In the wake of the 1978 World Economic Summit Conference in Bonn, the German government decided to intensify its co-operation with developing countries in the field of technology development. One of the products of this reorientation was GATE. which was set up in 1978 as a specialised section of the Deutsche Gesellschaft Fuer Technische Zusammerarbeit (GTZ). GATE's main function is to promote and disseminate appropriate technologies in developing countries.

Objectives

GATE aims to strengthen problem-orientated communication between interested parties in developing countries and know-how sources in Germany and elsewhere. More specifically, its objectives are:

- to disseminate information on technological solutions for developing countries;
- to identify, prepare and monitor technological pilot projects; and
- to promote the production and dissemination of proven technological solutions in deveioping countries, and to support AT Groups and organisations in developing countries.

Structure and institutional affiliations

GATE is the AT arm of GTZ, which is the government's aid impiementing agency. It is wholly sponsored and funded by two ministries: the Federal Ministry for Economic Co-operation (BMZ) and the Federal Ministry for Research and Technology (BMFT). It is headed by a Director, who is concerned with policy matters and GATE's relations with GTZ, BMZ and BMFT as well as with liaising with major AT institutions outside Germany.

He is responsible for the direction of GATE's three Divisions (Technology Exchange; Research and Development; Co-operation in Technological Development), although management responsibility for operational and project details is assumed by each of the Divisional Heads.

Method of work and fields of activity

The Technology Exchange Division focuses on three types of informational support services to promote and facilitate the uptake of appropriate technologies: it collects, processes and disseminates information on technologies appropriate to the needs of the developing countries; ascertains the technological requirements of Third World countries; and provides access to support in the form of personnel, material and equipment to promote the development and adaptation of technologies for developing countries.

The organisation offers a free information service on appropriate technologies for all public and private development institutions in developing countries, dealing with the development, adaptation, introduction and application of technologies. GATE is an active supporter of the SATIS information network and also offers a quarterly journal which is free ofcharge.

The Research and Development Division conducts and/or promotes research and development work in appropriate technologies and identifies and formulates collaborative programmes with technology centres in Third World countries. It has undertaken collaborative R&D in the areas, for example, of low-cost housing and water/sanitation and is involved in the Special Energy programme, researching and testing different demand-orientated technologies in over ten countries throughout the Third World.

Coooeration in Technological Development takes the form of joint projects with relevant institutions in developing countries and in the Federal Republic of Germany. Its function is to evaluate certain products and processes researched and developed in Germany which have potential for adoption in developing countries.

Overall, GATE gives priority to technologies which can be decentralised in use, are ecologically sound, use local materials and skills, and which may directly benefit the most disadvantaged sections of the population.

GHANA

Technology Consultancy Centre (TCC), University of Science and Technology, University Post Office, Kumasi.

Background

The origin of TCC was the Suame Product Development Group, formed in 1969 by a group of lecturers from the University of Science and Technology, Kumasi. This group aimed to help the small entrepreneurs of the large informal industrial area of Suame, just outside Kumasi, to improve their skills and resources.

in January 1972, following a consultancy visit by ITDG, TCC formally came into existence as an official part of the University of Kumasi's activities. At this time, the staff consisted of an acting director, a secretary and a messenger, with funds of US$3,500 granted by the university for the period to September 1972. During the first year, several agencies were successfully approached for funds and the seeds of several projects were sown. In 1973, there was a substantial increase in the university's subvention and this, with the first of the overseas grants, enabled the real project work to begin, helped by the opening of the Centre's firs! workshop. Since then six light engineering workshops have been established and operate on a commercial basis.

Apart from the development and promotion of technologies for small-scale industries, TCC has also more recently been involved in helping to upgrade traditional rural craft industries through technological developments and technical advice. It has also tried to assist small farmers through the development of appropriate agricultural implements and practices. In the case of small-scale industry development, moves have been made to increase the efficiency with which TCC can carry out its objectives. This has been done by the creation of two Intermediate Technology Transfer Units (ITTU) – one in the Swame Informal Industrial Area and the other in Tamale in the north. These each consist of four to five workshops and production units demonstrating products and processes developed, or adapted to local conditions, by TCC.

Objectives

TCC's original purpose was to make available to the public the technical and scientific expertise of the university and to promote the industrial development of Ghana – with most of its work concentrating on small-scale industries. In recent years, it has also begun to act as an agency for grass roots development in agriculture and existing rural craft industries. A third objective, which has become increasingly important, is that of the dissemination of technologies and processes within a far wider radius of Kumasi than was achieved during TCC's early years. The ITTUs play a crucial role in this respect by setting up demonstration projects and providing extension services in urban and rural communities.

Structure and institutional affiliations

TCC is an autonomous unit within the university but operates more on the lines of a Research Institute. The Director has the status of a Dean of Faculty and has complete freedom to manage the day-to-day business of the Centre. On-campus accommodation is provided by the university, but the Centre runs its own.

Although the Director has considerable freedom of action, he is responsible to the University Council through a Management Committee which is composed of the Vice-Chancellor, the Deans, the Directors of BRRI and FRRI, the Director of TCC, the Chief Accountant, and two members appointed by the University Council.

TCC is also assisted by a Consultative Board consisting of senior university officials plus representatives of relevant Research Institutes and government Ministries, the Ghana Manufacturers Association and other relevant individuals. The Consultative Board is convened at least once a year to advise on general policy.

The operational core of the TCC is run by a staff of only seven professionals (including the Director) with expertise in the fields ofengineering, agriculture and industrial art. It draws on 30 to 40 members of the university faculty for planning and executing its projects and for consultancies, and employs more than 50 technical staff in production units on the campus. The bulk of core

expenditure is financed by an annual subvention from the university and, to a lesser extent, by sales from on-campus workshop units and by consultancies. Funds for individual projects are raised as the need arises; in the past these have been provided by the government of Ghana, overseas NGOs and, increasingly, large international and UN agencies such as USAID and UNESCO.

Method of work and fields of activity

TCC's industrial development work falls into three broad categories: technical and commercial advice to industry and government; development and testing of new products; and the commercial operation of production uniis on the campus and in the ITTUs.

In practice, it responds in a variety of ways to requests from small businesses. Many small manufacturers come to TCC to get their products tested or analysed before they go into production, or to ensure that they will meet the requirements of the Ghana National Standards Board. Others are directed to consult TCC by banks to which they have applied for loans to start or expand a business. Others come for advice on the supply of raw materials or on choice of equipment. Thus, over the past decade, TCC has advised on the manufacture of a wide range of products including wood charcoal, envelopes, sugar and chalk; and has done chemical analysis of soap, glue, bleach and many other substances. Many requests are passed on to appropriate members of the university faculty, who take on the work as consultants, charging fees to those who can afford to pay.

Other requests have led to the development of new products and industries. Among the small industries which the centre has helped to establish on the basis of intermediate technologies it has developed specifically for this purpose are: glue, soap, animal feed from brewer's spent grain, and nuts and bolts. Development work is carried out in the TCC's own well-equipped workshop. In some cases, the prototype or technique is transferred straight to the entrepreneur. In other cases, where the technology is more complicated (soap, nuts and bolts), full-scale trials are carried out in a pilot plant built on the university campus.

Diffusion cf these technically tested prototypes to small entrepreneurs has been slower than hoped for. This has been mainly due to the changeable, but predominantly adverse, economic conditions in Ghana. Generally, the environment favours commerce rather than production, so that small entrepreneurs willing to invest in a manufacturing plant arc not numerous. The Centre also feels that its location on the university campus creates a barrier not easily crossed by would-be entrepreneurs from further afield. Hence it is hoped that the ITTUs, located within urban communities, will eliminate problems of access to advice and aid the diffusion process.

GUATEMALA

Centro de Estudios Mesoamericano Sobre Tecnologia Apropiada (CEMAT), 18 Calle 22-25, Zone 10, Apartado Postal 1160, Guatemala City.

Background

In the aftermath of the 19'76 earthquake, an unlikely combination of professionals – an architect, an economist, a sociologist, a microbiologist and an acupuncturist – banded together to form CEMAT as an independent non-profit AT centre. As its first task, together with the National Reconstruction Committee, it developed a building material cheap enough for rural use and tough enough for an earthquake zone. The result, named "Cematita", was initially produced in a factory located in a predominantly Indian district of 24 villages, bringing employment to many of the 14,000 inhabitants and forming the basis for the building of new homes for the rural poor.

As new houses went up, other needs became obvious, such as latrines and improved cooking and heating facilities. CEMAT thus moved into the development and dissemination of technologies to meet these needs.

Objectives

The Indian communities of the Altiplano, where CEMAT's work is concentrated, are amongst the poorest in the country. The land base is under pressure from a variety of environmental and economic factors – agricultural subsistence from small and fragmented plots is common – and community life is weakened further as the most able-bodied migrate to work on the large estates of the more fertile coastal region. In this context, CEMAT has adopted an integrated approach to rural development, taking economic, technical and social aspects into consideration. Specifically. its objectives are:

- to promote and systematise the transference of appropriate technical knowledge from countries with more technological expertise to Guatemala and the region;

– to promote and systematise local scientific investigations and appropriate techniques throughout the region:
– to develop and implement appropriate technology projects and training systems for popular groups; and
– to promote the exchange of experiences related to appropriate technology at national, regional and international levels.

Structure and institutional affiliations

CEMAT's original staff of four has increased to 40 (although not all full-time) with funds being provided for core and project support by a host of international NGOs and government and UN agencies including NOVIB, IDRC, CUSO, CIDR, ATI, VITA. GRET, GATE/GTZ, TOOL, UNESCO and FAO. In accordance with the law, it has a board of directors (eight people) and a General Assembly (13 people). The organisation, which is completely independent ofgovemment. consists of three sections: the technical unit, which is the largest of the three and includes all the technical staff; the operations unit, which comprises the regional supervisors for each part of the country in which CEMAT is operating: and the administration unit, which looks after finance, personnel. etc. CEMAT is by no means office-bound and a great part of its effort is in the field with rural or small-town farnilies. They work through their rural staff, called "promoters" who are native to the Indian areas in which they work, and who, moving from village to village, teach the new techniques.

Method of work and fields of activity

In all, CEMAT has an interesting and well integrated methodology for identifying, developing. adapting and disseminating improved technologies, based on co-operation between the centre and the held in both the software and hardware aspects of any programme. For instance CEMAT has no workshop facilities of its own, but has access to the facilities at the university in Guatemala City. In addition, rural "promoters" are frequently brought into Guatemala City for in-job training and exposure to new ideas. Rural outreach is based on community-identified needs and community participation, to build on rural skills and aid technology diffusion.

Work on domestic stoves typifies this approach: on the basis of tests carried out both at the university in Guatemala City and in selected rural areas, it was decided that the Lorena stove design offered major gains in cutting down dry wood consumption. Subsequently a programme of diffusion was initiated in the following way: visits were made, to interested communities by CEMAT staff to discuss the community's needs with the *campesinos*. Afterwards, CEMAT would present some alternatives to the problems identified (such as the Lorena stoves which both improve the kitchen and save firewood). At the community's request, and if the participants were willing to pay, CEMAT organised a training course on Lorena stove construction: the dates and scheduling of the course being determined by the participants so as not to interrupt their regular work.

Such courses serve two purposes. The stoves built during the duration of the course act as demonstration models of the technology. At the same time the course participants learn how to construct the stove for themselves in their own houses, and perhaps two or three out of ten participants will develop sufficient expertise and confidence to become general builders of Lorena stoves for other members of the community. From 1977, when CEMAT first started building Lorena stoves, to mid-1980, CEMAT trainees had built 1800 units in the three regions where CEMAT had organised courses. A similar number were reported to have been built by people trained by other institutions.

CEMAT's work programme involves the two broad areas of information exchange and technological development. On the information side, a range of manuals and technical abstracts is published by the centre, and their development of training methods and materials aims to give educational support to all technical projects. The documentation centre houses well over I.000 papers, publications, journals, etc., most of which relate to CEMAT's major areas. They have recently adopted the SATIS data system, because of their strong belief in the value of AT networks as a useful means of locating suitable technologies of use to rural Guatemala.

To facilitate the exchange of information and experience CEMAT produces a newsletter in Spanish, English and French every quarter which is sent all over the world. In order to

promote its widest circulation, subscription rates are kept very low and the newsletter runs at a considerable financial loss. On the technological side, CEMAT focuses on research and development of low-cost construction materials and techniques. non-conventional energy systems, and on community and rural health. It has not, however, attempted to cover too wide a range of technologies and its current programme concentrates on only four technical subject areas: domestic stoves; biogas digesters and latrines; medicinal plants; and "Cematita" production. Other technologies under consideration involve solar energy applications, textile processing and low-cost roofing materials.

GUYANA

Institute of Applied Science and Technology (IAST), University Campus, Turkeyen, P.O. Box 791, Greater Georgetown

Background

In 1974 the Guyanese government established the National Science Research Council (NSRC) as a mechanism to co-ordinate scientific and technological activities in Guyana and to maximise the use of scarce financial and human resources, The Council is an advisory body to the government on policies for the development of science and technology.

It has five specialist research committees in the fields of medicine, agriculture, forestry, man and the biosphere, and science and technology. These committees seek to identify gaps in existing knowledge and subsequently develop project proposals aimed at filling these gaps for submission to/through NSRC. Each committee is supposed to have a researcher attached to it who is a full-time staff member of the Council.

The science and technology committee was instrumental in getting IAST established in 1978 by the Ministry of Economic Planning on the advice of NSRC. It became fully operational in 1979, located in its own offices and laboratories in the same building which houses the NSRC Secretariat on the university campus. IAST can be looked upon as the "action arm" of NSRC and was, in fact, set up to provide research and development facilities directly under the Council's jurisdiction.

Objectives

IAST does not call itself an AT Institution, but in practise it would seem to qualify as being such. It is concerned mainly with technologies which utilise local skills and resources and which assist the government's aims of import substitution and export promotion. The over-all aim of the Institute is to assist with the development of commercial technologies which can form the basis of profitable rural industries.

Structure and institutional affiliations

NSRC has a board of 30 people who come from the various government ministries. state agencies involved in production, the bauxite industry, the sugar industry, the sciences, the university and consumers. The Vice-Chancellor of the university is Chairman of the Board. It also has a Secretariat consisting of approximately eight professional and 17 support staff. The full Board is required to meet at least twice a year and rarely meets more often. In between meetings its work is carried out by an Executive Committee which comprises the Chairman and Chief Executive of NSRC plus eight eitcted representatives from the full Board. The Executive Committee meets about six times a year, and receives reports and recommendations from the Chief Executive and the Specialist Research Committee of NSRC.

IAST currently has a professional (mainly technical) staff of 25 – one of whom IS an Industrial Liaison Officer acting as a link between IAST and Guyanese industry. It also has its own large laboratory/workshop and some access to university facilities.

Much of IAST's financial support comes from the Office of the President, and substantial funds for equipment and personnel have also been received from UNDP. Other regional and international support for its programmes has come from agencies such as the CDB and the Commonwealth Science Council.

Method of work and fields of activity

IAST's research and development work on potentially commercial technologies is usually carried as far as the pilot project stage. Thereafter it proposes that viable technologies are passed on to state or private industries for production, so that the Institute rarely functions as a rural extension agency. One exception to this has been its involvement with improved charcoal production in rural Guyana-a project which was inherited from the NSRC's forestry committee.

The largest research programme undertaken has been into alternative energy systems. covering solar, wind. methane and pedal power. It has also been involved in extraction of essential oils, charcoal production, briquetting of nut shells. rice husk

cement, mineral processing and ceramics. Some of the developments, e.g. in the ceramics section, are leading to the establishment of new industrial enterprises.

INDIA

II. Appropriate Technology Development Association (ATDA), P.O. Box 311, Gandhi Bhawan, Lucknow 226001, Uttar Pradesh

Background

In 1972 the AT Development Unit was set up as a wing of the Gandhian Institute of Studies in Varanasi. This initiative resulted from a growing collaboration between Indian planners and ITDG; the Unit was. in fact, inaugurated by E. F. Schumacher during a visit to India. In its early years the Unit functioned largely as a research and information body but with a strong interest in AT applications. In 1976 it moved to Lucknow and became the Appropriate Technology Development Association (ATDA). The masons were twofold: on the one hand it was felt that the university environment was inappropriate for applied project work in the rural areas and, on the other. in Lucknow the organisation was able to acquire the services of a first-class, experienced rural technologist who became instrumental in developing ATDA's project arm.

Today. ATDA is one of the main centres for the development and dissemination of AT in India. Unlike many AT institutions. it concentrates on developing just a few types of decentralised productive systems which are identified as being replicable throughout rural India. Its main thrust is towards rural industrialisation at an appropriate scale, the success of which depends on development not only of improved technology but also of sound commercial management and delivery systems. Once such a system has been developed ATDA promotes its adoption elsewhere until the dissemination process is self-perpetuating. It maintains practical support to the industry until the technology is accepted as commercially viable by entrepreneurs (suppliers and users) across the country. The organisation's first notable success has been in the increased productivity of mini-sugar enterprises as a result of the widespread adoption of an improved shell furnace system developed by ATDA. This technology is now also being transferred overseas, to Nepal and overseas to Kenya.

Objectives

Within the overall goal of regenerating income-earning activities and capital accumulation in the rural areas, ATDA aims:

- to promote the development of AT, especially for the weaker sections of the community and in underdeveloped areas; in particular to develop technically feasible and economically viable models by scaling up basic village technologies, by scaling down large-scale technologies and by identifying alternative decentralised energy source;
- to carry out surveys and analytical studies in various technologies with a view to identifying suitable fields for action-oriented pilot experimentation for the development of AT models;
- to initiate, on its own or in collaboration with other agencies, establishment of pilot projects and research/studies for testing and proving the feasibility of proposed AT models;
- to hold seminars, symposia and workshops on ideas and problems of AT, and to organise training programmes on proven models;
- to publish literature and to act as a clearing house for dissemination of work done on AT by ATDA and other national and international agencies; and
- to prepare project reports and blueprints and to provide know-how consultancy and advisory services leading to turn-key jobs on proven models of AT.

Structure and institutional affiliations

ATDA is constituted under the 1860 Societies Registration Act as a non-profit organisation and operates under an annually elected Executive Committee whose members represent government and non-government bodies, trades unions, research institutes and industry. This Committee, which meets quarterly, delegates responsibility for staff and operations to a sub-committee, consisting of the non-executive Chairman, Director (Projects) and Director (Communications), which exercises day-to-day control over the running of ATDA. The two Directors work full time and since 1979 have enjoyed a large degree of

autonomy in running their respective divisions, each of which develops its own projects and employs its own professional and administrative support staff

ATDA has close institutional links with a variety of organisations in India and overseas, which are important both financially and in the operational development of AT models. For instance. ATDA has undertaken some project work in collaboration with Gandhian and Khadi institutions, and has received financial support from both the Union government and the State (UP) Science Council. Continued close association with ITDG has provided another means of access to technical assistance and to overseas sources of funds.

Before 1980, when much of ATDA's project work was still in preparation, the organisation was funded wholly by Christian Aid. Since then it has received substantial financial support from the USA (ATI), UK (ITDG), Germany (Bread for the World), Switzerland (Swissaid) and Holland (ICCO), as well as smaller grants from a number of trusts and foundations.

Method of work and fields of activity

ATDA's Projects Division has adopted a pilot project approach to the development of AT in India. This method develops and promotes technology packages on the basis of (a) proper product selection: (b) the specification of technically and economically viable production processes; and (c) identification of the right type oforganisation for owning and operating the technology.

The first stage involves surveys and analytical studies to determine the state-of-the-art in a particular technology and whether a pilot scheme can be set up on the basis of information collected. The second stage, planned and implemented in the held, involves an "action-research" feed-back technique whereby the performance of the prototype plant is closely monitored and repeatedly modified while in commercial operation. The third stage (identifying ownership/control mechanisms) runs concurrently with the second and leads to the development of an integrated technology package which can then be made available to prospective entrepreneurs (along with complete designs, and economic and technical specifications) on a turn-key basis.

Projects so far undertaken in this manner are in three main areas: textiles, sugar and cement. The first concentrates on cotton textiles and combines the development of a central pre-processing factory with the upgrading of traditional spinning techniques at a decentralised household level, with the spinners using high-quality processed cotton (called roving) supplied by the factory. The project is designed to put a traditional craft industry on a competitive commercial footing.

The sugar project is geared to upgrade the various technological components and stages of Open Pan Sulphitation (OPS) techniques used by mini-sugar enterprises, and to improve their overall productivity and product quality. To date, ATDA's work on the shell furnace to improve evaporation has met with considerable success, and the technology is now in the dissemination stage. Further work includes the development of an efficient expeller used to extract the juice from the cane.

ATDA's newest AT model. now being tested in the held, is an ATDA-owned/operated mini-cement plant, producing 25 tons of Portland cement per day. It is an ambitious project for which a small-scale version of a conventionally large-scale technology has been designed for rural production and supply of high-quality cement, Other project areas which ATDA has been involved in to a limited extent include: animal-powered pumping systems; and preliminary surveys of small-scale hydro-power and of oil-milling systems.

The Communications Division is largely concerned with the "software" aspects of AT, but has also undertaken its own held projects. These have included wool spinning and work on domestic' solar cookers. Its main activity, however, lies in information dissemination, promoting AT through publications and by means of other information networks. In respect of the latter, the Division produces a quarterly newsletter (*ApTech*) and the Director makes regular contributions and presentations to seminars and symposia in India and overseas.

Its publications include directories (e.g. of agricultural tools and equipment); the results of surveys conducted by ATDA (e.g. on rural energy) and a number oftechnical guides and bulletins as well as occasional discussion papers.

2. Rural Technology Institute (RTI), 2nd Floor, 'C' Block, Patnagar Ynhna Bhavan, Sector 16, Gandhinagar 382016, Gujarat

Background

RTI was set up in 1979 by the government of Gujarat in close collaboration with ITDG. The need for such an institute was identified by a number of individuals from government, non-government and business organisations with an increasing awareness that certain gaps existed in the held of rural development despite the efforts of a variety of agencies, working towards state industrialisation and agricultural development. The main task of RTI has been to identify and service those gaps – particularly in the area of technological development for the self-employed informal sector, for which (unlike the agricultural sector) no network exists for supply, production, processing and marketing.

The Institute's work started rather slowly, with delays in appointing permanent staff and a governing body. However, by mid- 1980 a nucleus staff was operating; as their numbers increase and gather greater expertise, the Institute's sphere of activities will be able to widen.

Objectives

At its inception. RTI drew up a detailed list of objectives, which can be summarised under four broad heads:

- to identify the problems faced by rural artisans engaged in traditional trades and to study the potential for technological innovation in improving the tools, methods and management ofvillage and cottage industries;
- to document existing information on improved tools and methods and to disseminate it to village artisans in their own language or by audio-visual means;
- to sponsor and assist studies and projects for research and development of AT in the rural sector; and
- to establish linkages amongst institutions engaged in the R & D of rural technology and development.

RTI's main strength should be to co-ordinatr held agencies

with expert institutions or individuals. Thus its work, if successful, will contribute more indirectly than directly to rural development, by enabling other agencies to work effectively.

Structure and institutional affiliations

RTI is registered as a non-profit organisation under the Societies Act 1860. Its Governing Body, responsible for policy decisions and senior staff appointments, is composed of three State government representatives and six non-official members also approved by the government. The Director is responsible to the Governing Body for implementing the Institute's work programme and co-ordinating its activities with collaborating institutions. Professional staff are as vet few in number and work under the Director in three divisions – information, projects, and administration.

Funding for core expenditure is approved and granted by the State government; project costs may be funded in a variety of ways – through government bodies or NGOs – or may be borne by the coliabordting agency if RTI has not undertaken executive responsibilities for any project.

Method of work and fields of activity

The main focus so far of RTI's work has been on the identification and documentation of future areas of intervention and of collaborating organisations. Its activities can be grouped under five headings:

– information to rural areas:
– rural industry studies;
-technology application;
-assistance for technology transfer; and
-establishment of its own centre with exhibition and workshop facilities.

To help disseminate information on appropriate technology, RTI publishes a monthly bulletin in Gujarati which is circulated to rural development organisations, and has set up an information cell to put agencies with technical enquiries in touch with expert bodies, A directory of voluntary and technical organisations in Gujarat has been produced.

Several studies of rural industries have been undertaken, to identify possible areas for improved productivity – including one on bamboo crafts and another on embroidery traditionally produced by rural women.

In order to promote successful technologies and adapt those from outside the State, RTI is working closely with the Gujarat Agricultural University and has established links with other Research Institutions in Gujarat, India and abroad. Plans for training programmes are being laid for the manufacture and repair of successful technologies, and RTI intends to set up several demonstration centres around the state in collaboration with the government and non-government agencies working at grassroots level. The technologies under consideration include agricultural implements, rural transport sysiems, wind energy systems and biogas systems. In addition, RTI hopes to obtain technical and financial assistance from other institutions to undertake further R & Din technologies for rural industries.

3. Small Industry Research, Training and Developmert Organisation (SIRTDO), Birla Institute of Technology, Mesra 835215, Ranchi, Bihar

Background

SIRTDO was set up in 1978 as a launching pad for small manufacturing enterprises run by technical graduates of the Birla Institute of Technology (BIT). BIT is situated in a rural area 16km from Ranchi, the centre of India's coal and steel industries and the location of the Heavy Engineering Corporation. Realising the importance of close interplay between technological institutions and industry, BIT took the step of establishing a Department of Industrial Research in 1964.

The Department was to identify areas of research and to develop and commerciahse products and processes within the competence of the staff and of direct interest to neighbouring coal, steel and other heavy industries. However, since markets

were small, large industries were not interested in producing the products developed; and since the products were somewhat sophisticated they were beyond the capabilities of existing small firms. Hence, BIT decided to develop and promote a new type of small industry run by its own technically competent graduates.

Since this scheme was beyond the capacity of the Industrial Research Department, BIT approached its sister organisation, the Birla Institute of Scientific Research (BISR), for assistance and received funds to set up service facilities, equipped and staffed, for the purpose of motivating and helping technical graduates to take up small industries based on BIT's technological developments. Following this, a major commercial bank agreed to finance the small units without the usual constraints regarding collateral, and the government of Bihar, recognising the relevance of the scheme to its own industrial development objectives, provided funds and infrastructure for an industrial estate on which the entrepreneurs could operate until they had confidence and resources enough to move off on their own. In 1978, in order to facilitate organisation, it was decided that the scheme should be registered as an independent society known as the Small Industry Research, Training and Development Organisation (SIRTDO).

Objectives

SIRTDO's aims have to be considered within the overall goals of BIT – which themselves were formulated in the context of State industrial development. SIRTDO aims:

- to provide leadership to the State effort for growth of small-scale industries through the conduct of research, development and related activities;
- to build a new class of creative and technically competent entrepreneurs from engineering to take up technologically challenging industrialisation;
- to utilise available technical manpower and expertise from engineering colleges; and
- to assist small-scale industries through central technical information services, testing and quality controls.

The strategic importance of the scheme is twofold. First, by

showing that firms can achieve the quality of production of existing iarge-scale units but can also cope with small orders, offer competitive prices, and still make a profit, SIRTDO hopes both to increase the rate of industrialisation in the Ranchi area and to support the State effort relating to the growth of small industries.

Second; the distinctive training programme (which combines careful product selection, R & D, with appropriate amounts and types of support) should enable young entrepreneurs not only to gain confidence in their own abilities to make sound techno-economic decisions, but also to see their businesses within the context of the State development effort and to act accordingly.

Structure and institutional affiliations

SIRTDO is an autonomous body directed by a managing committee composed of representatives from the three agencies involved (viz. BIT, BISR and the State government) and from the coal and steel industry. The Director of BIT is Chairman of the Managing Committee. Executive responsibility lies with the Director (Tech.) who is the head of the Industrial Research Department.

A core group of BIT staff members controls SIRTDO's work programmes, supported by about 80 technical and other staff. The majority of these are permanent employees of BISR. The remainder are all temporary and are paid for by government or SIRTDO's own funds. In addition, other members of BIT faculty are often used on a consultancy basis.

In a recent move, the Department of Science and Technology of the government of India has come forward to spread the SIRTDO activity to other leading Technological Institutes through their Science and Technological Entrepreneurs Park (STEP) programmes. The first STEP has been approved and will be located at Mesra. Basic organisation will remain unchanged, but representation will be expanded to include the government of India and the Industrial Development Bank of India. The executive head will be a full-time employee and all the personnel and infrastructure will be put under his control.

The SIRTDO estate consists of an administrative/office building, a workshop (containing machinery and equipment for

prototype production which is also available for use by SIRTDO-sponsored entrepreneurs at a nominal rent) and 22 factory units. Although there are only 22 SIRTDO entrepreneurs actually located on the "nursery" estate, SIRTDO had by 1984 sponsored a total of 37 units of which 29 were under its direct guidance (eight no longer needed guidance and had moved off on their own). There are now plans to increase the number of factory sheds on the "nursery" estate from 22 to 50, but these depend on the release of substantial additional funds from the State government, not only to build the sheds, infrastructure and central service facilities, but also to pay the salaries of extra permanent staff.

Although the bulk of capital costs and core expenditure for the existing organisation is met by the State government and BISR, SIRTDO has to generate its own income for the industrial training programme. This comes from the rent of sheds on the industrial estate, receipts from the use of machinery and equipment in central facility workshops, payment for projects undertaken specifically for large industries, consultancies and payment for conducting training courses. In the future, payment may also be raised from royalties on patents and from additional work carried out by SIRTDO on a commercial basis.

Method of work and fields of activity

The way the programme works is as follows. In their fourth year, undergraduate students undertake practical projects either of their. own choosing or arising from specific problems faced by major industrial firms in Bihar. A project may go through four stages, the first, and possibly the second, of which may be undertaken under BIT's Department of Industrial Research. An industrial technological problem is first analysed theoretically and a solution designed. A laboratory model of this design is then produced. If this works, a full-scale model is constructed in the SIRTDO workshops for field testing. If the held model is successful then a small industry may be established in the SIRTDO "nursery" industrial estate to manufacture the new product, usually run by the graduate(s) who have worked through the first three stages.

To assist with training and orientation, SIRTDO funds Entrepreneurial Development Programme (EDP) courses which last for three months. These involve managers from large industries, business lawyers, bank managers, tax specialists, government officers, small entrepreneurs and other people who actually deal on a day-to-day basis with the problems of small-scale business. This practical approach is deemed more appropriate to a young engineer with no commercial experience than one which involves purely theoretical courses involving lectures by professional teachers, The "nursery" stage ends when the entrepreneur demonstrates that he can run his own business without relying on SIRTDO advice and support. However, contact with SIRTDO need not end when the business moves out on its own, since the staff are aware that attitude formation and confidence building is a far longer process than that of making an entrepreneur financially, commercially and technically self-sufficient.

The small-scale units on the SIRTDO estate produce a great variety of products including mining equipment, transmission hardware, truck components, steel balls, nuts and bolts, electronic control panels, voltage stabilisers, dry-type transformers, fluids for intravenous injections and industrial adhesives. Generally speaking, they fail into the following categories: material handling and process equipment industries; metal processing industries; electrical and electronic control industries; electrical power industries; chemical and pharmaceutical industries, mica-based industries; and civil construction industry. Most units are profitable and, between them, they have created full-time employment for over 400 people from surrounding villages, most of whom were previously unemployed.

Although it happens that BIT and SIRTDO have always operated in a rural setting, the products that have been manufactured by SIRTDO entrepreneurs have not until recently been orientated towards the rural population. In attempts to focus more on rural as distinct from general needs, BIT/SIRTDO staff have helped to start village industries based on improved technologies for oil extraction and *lac* processing and have developed training modules for youth training programmes relating to pump set and cycle maintenance, *tasar* rearing and

silk reeling. Technical training modules for school children and school drop-outs have also been developed and work done on irrigation dams, low-cost building materials, solar energy devices and agro-processing equipment. With regard to engineering products hitherto manufactured on the SIRTDO estate, staff are also looking for ways of splitting up the production process so that rural families can profitably work as employees, but in their own homes. Electronic assembly, handtool and leaf cup making are some of the rural industries currently in operation. However, the rural industry and development side of SIRTDO has so far proceeded without much institutional support, which has severely limited its scope and impact. To overcome this, BIT plans to set up a Rural Engineering Department and a separate Institute for Rural Industrialisation has been entrusted to take up the extension work.

The ultimate aim of the BIT staff is to increase the rate of small-scale industrialisation not only in the area surrounding the Institute but throughout the state. The approach is long term but very intense, and localised. Rather than trying to cover more ground themselves, the BIT staff see their role more as providing a workable model which can be copied (with adaptations) elsewhere. So far, the model is being tried out in several locations in Bihar and other Indian states and there are also plans to transfer the model to other developing countries.

INDONESIA

Yayasan Dian Desa (Dian Desa), Jaran Kaliurang KM7, PO Boy 19 Bulaksumur, Yogyakarta

Background

Dian Desa is a private, non-profit organisation, based in Yogyakarta, Central Java, which is one of the most densely populated areas of Indonesia. It works in the field of rural development generally, and with appropriate technologies in particular.

Its origins date back to 1967 when Anton Soedjarwo, a young Indonesian engineering student, went to work in the rural areas of Central Java as part of the Indonesian Universities Volunteer Scheme. During this time. he became aware that the reality of village life was very different from that being discussed in the universities and, after graduation, he decided to live for two years in a village near Yogyakarta. There he applied his engineering skills to improve the area's water supply. a venture which was funded through the World University Service.

As a result of this experience he formed Dian Desa in 1972 with two other civil engineers, with the aim of bridging the gap between the towns and the rural areas by improving rural standards of living. The organisation started in a small way, operating from a private house with a total staff of three and with limited support from the World University Service and Oxfam (UK). Initially, work was concentrated in one geographical area and continued to be focused on village water supplies.

By the mid- 1970s Dian Desa had established enough of a track record to attract outside attention and financial support. Since then, it has grown into a large organisation working throughout Central Java and in Timor, with close links with many other organisations in Indonesia and overseas.

Objectives

The broad objective of Dian Desa is to assist Indonesian people (specifically those at the bottom of the economic scale) to attain

their development goals through self-help orientated programmes. More specific objectives are:

- to identify and classify the needs of village people with regard to various types of simple technology, given particular local conditions;
- to seek out technological ideas that may help to overcome rural problems;
- to undertake research, testing and evaluation of particular technological ideas that are relevant to the rural situation;
- to spread the ideas through all possible channels; and
- to co-operate with government authorities as they give guidance and training to local people in the field of rural development.

Structure and institutional affiliations

Dian Desa was founded in 1972 as a non-profit, non-government organisation with an Advisory Board composed of representatives from Gadjah Mada University, provincial and national government and private industry. It has grown dramatically over the last decade and now has 112 employees in Java (including workshop staff, held and factory workers) and 24 employees in its field station in Timor. The full-time staff operate from the HQ in Yogyakarta (which comprises offices, a library and well-equipped workshops). The staff consists mainly of engineers and technicians, but also includes six sociologists: considerable importance is placed on the social implications of projects. Several of the staff are associated with the Gadjah Mada University either in a professional capacity or as students.

Dian Desa is organised around its working sections, each of which has been formed to answer specific needs and to carry out specific action projects. Currently there are eight sections comprising water (excluding rainwater harvesting), agriculture, food processing, energy, small-scale industries/workshop, publications/training/library, social monitoring and the Gunung Kidul integrated Project (mainly rainwater harvesting). The eight section managers, together with the officers responsible for the secretariat and the building respectively, comprise a Management Committee which runs the group and meets weekly. The

Advisory Board itself has no executive capacity. The main held station in Timor is almost totally independent and has its own Director. There are also four smaller held stations in Java responsible to the agricultural section.

Considerable attention is paid to fostering linkages with Indonesian and overseas agencies. A large proportion of Dian Desa's funds come from external donors including the Friedrich Neumann Foundation, Appropriate Technology International, International Development Research Centre, Oxfam UK, the Asian Foundation and the Canadian Embassy in Indonesia. Funding has not been a major problem, thanks to the organisation's high reputation. Dian Desa is also linked into a number of international networks, being a member of SATIS, TRANET and Approtech Asia. Within Indonesia, its main link with the government is through the official rural development body (Bangdes) for which it has acted as an implementing agency (especially in the held of water supply) for major development projects funded by IDA and UNICEF.

Dian Desa has actively sought increased contact with the many smaller Indonesian NGOs involved in rural development. In addition to providing training, it supports these smaller NGOs by supplying information, acting as a link between the international donor agencies and the Indonesian-speaking groups, and passing on its own experiences as a successful AT group. The hope is that these smaller groups will bc successful in following Dian Desa's example of moving towards self-reliance. Another feature of Dian Desa's efforts is its forceful attempt to obtain government recognition of the right of NGOs to participate fully in the development process, which has led to a better understanding between NGOs and government extention workers.

Method of work and fields of activity

Dian Desa works in the villages through the local village council, and projects are chosen mainly on the basis of the council's ability to carry through and maintaitt the project after completion. It starts with expressed or perceived needs of villagers; then selects several villages where suitable technologies to meet these needs can be held tested. If the technologies prove

successful, extension work is carried out through government or NGO channels.

Initial work with a village generally involves a "social overhead" project (such as water supply) in accordance with Dian Desa's belief that the lack of such basic needs prevents villagers from ever entering the mainstream of the national development economy: during the first phase of projects Dian Desa is totally involved within a village. During the subsequent phase of secondary projects when agricultural. food processing or small industry projects are started to assist villagers to raise their own incomes, Dian Desa's involvement steadily diminishes although they never totally break contact.

The organisation has tended to concentrate on a few technical subject areas: rural water supply, animal husbandry, food technology, biogas digestors and domestic stoves; and seems to have an impressive record in disseminating some of its innovations. For example, some 50,000 villagers are thought to have benefited from the water supply projects. This success in dissemination has been helped by the openly supportive attitude of the government towards Dian Desa's work in the villages.

In addition to these major project areas Dian Desa is paying increasing attention to small-scale industrial activities. A variety of products have been designed and manufactured in its own workshop at Yogyakarta for supply to small industry or agriculture; and training courses in metal working are run at the workshop to enable school/college leavers to set up their own businesses. On a wider scale, some case studies of various industries have been undertaken; and the Director has played an important role in setting up the government-run Central Java Small Industry Enterprise Development Programmz.

MALAWI

National Appropriate Technology Committee (NATC), National Research Council, Office of the President, Private Bag 301, Capital City, Lilongwe 3

Background

From about 1975, a senior lecturer in mechanical engineering at the University of Malawi's Polytechnic had been slowly making progress to secure the government's support to set up a Technology Development Unit to be based at the Polytechnic. He had been working through the National Research Council (NRC, established in 1974 to ensure that all scientific and technological research activities are co-ordinated) and by 1977 had persuaded the Council to set up a sub-committee consisting of two representatives from the Ministries of Agriculture and Industry, plus himself, to examine the idea.

Plans were put in abeyance pending the Arusha Rural Technology Meeting in 1977. Following this. AT development became a national, rather than a Polytechnic, concern. The NRC instigated a large inter-ministerial meeting to discuss appropriate technology and it was agreed that a National Appropriate Technology Committee should be established. Staffing problems delayed its immediate establishment but, by early 1979, detailed terms of reference had been drawn up and the NATC was formally convened.

Objectives

In broad terms, NATC aims to identify and adapt appropriate technologies to local agricultural and industrial conditions and to improve social infrastructure. In particular, it is charged:

- to advise the NRC on matters concerning research in development, adaptation, diffusion, consumption, and transfer of technology, and to take action where necessary;
- to promote and co-ordinate R & D of appropriate technology in Malawi;

- to assess foreign technology and adopt only that which is in the best interests of Malawi, and to adapt foreign technologies to suit conditions in Malawi;
- to recommend to the National Research Council a science and technology policy for inclusion in Malawi's Statement of Development Policies; and
- to establish and maintain contact with similar organisations elsewhere, and to seek the co-operation of these organisations in matters of mutual interest.

Structure and institutional affiliations

At an operational level, NATC has two interesting features. First, it has executive power through the NRC which, being located in the Office of the President and Cabinet, is firmly estabiished in a key position in the government structure. This is to ensure that decisions reached by the Committee have a channel through which they can be implemented.

Its Committee draws representatives from the:

- Ministry of Agriculture
- Department of Lands, Valuation and Water
- The Malawi Young Pioneers
- Ministry of Trade and Industry and Tourism
- Ministry of Labour
- Malawi Development Corporation
- The Polytechnic, University of Malawi
- Bunda College of Agriculture
- Christian Service Committee of the Churches of Malawi
- National Research Council of Malawi (represented by the Secretary)

The Chairmanship of the Committee rotates: currently it is held by the Vice-Principal of the Polytechnic, University of Malawi. The NATC secretariat is provided through NRC, with the Secretary of NRC acting as Secretary of the Committee. Second, NATC is divided on a functional basis into five sub-committees with the membership of each being composed of selected members of NATC and members drawn from other organisations and agencies in the governmental, parastatal and private sectors. The five sub-committees are: Agricultural

Machinery and Structures; Industrial and Manufacturing; Social Technology; Training and Rural Production; Energy.

The sub-committees do not have executive powers of their own and only recommend sectoral policies and activities for consideration by the NATC.

Method of work and fields of activity

The work of the NATC as an R & D/testing and co-ordinating body was slow to take off after its formal establishment. Early work centred around the field testing of non-conventional technology, whereby the NATC undertook to place design specifications with rural outreach organisations for construction and testing in local conditions.

NEPAL

Research Centre for Applied Science and Technology (RECAST), Tribhuvan University, Kirtipur, Kathmandu

Background

In September 1977 RECAST was formally constituted as a research body within Tribhuvan University, Kathmandu, and also as the Secretariat of the National Council for Science and Technology (NCST). Its two roles were designed to give it outreach both to the Nepali population in technology application. and also to the government in policy formulation and research co-ordination. Prior to 1977, the organisation had been primarily involved with teaching programmes in food and laboratory technologies at Dharan, Eastern Nepal.

Objectives

The Centre lays out its objectives as follows:

- to undertake research activities in the areas of science and technology and to identify useful research findings for socio-economic development;
- to generate local capability for the development and application of science and technology;
- to develop information exchange systems between scientists and technologists for problem identification in the country's development needs;
- to co-operate with training institutes in the education of low/middle level technicians according to the country's development needs; and
- to collect detailed information on the country's resources, undertake research on resource utilisation and advise the industrial sector of research fmdings.

RECAST's Executive Director is also the Member-Secretary to the NCST, which aims to formulate science and technology policy; to promote research activities; to co-ordinate the research activities conducted by government ministries: and to disseminate scientific and technological information to the population at large.

Structure and institutional affiliations

RECAST is one of four Research Centres in Tribhuvan University (the others being the Centre for Economic Development and Administration. the Centre for Asian Studies and Culture and the Centre for Educational Research Innovation and Development) which are *governed* together by a Managing Committee under the Chairmanship of the Vice-Chancellor. Each Centre is headed by an Executive Director who is assisted by hi:; own Advisory Committee in the formulation and assessment of research programmes. Members of both the Managing Committee and the Advisory Committee are representatives of the university or other research/training institutes, ofgovernment ministries, or ofindependent development organisations.

RECAST's R & D units are supported by other service units, including a documentation unit, a mechanical workshop. an information clearing house and analytical laboratories. The Centre's 30 or so permanent research staff (mostly from areas of science) have been recruited largely from among the university's Masters graduates. Al! core expenditure is funded hy the university (which in turn receives grants from the government). while some specific research project funds have occasionally been supplemented by short-term contributions from foreign donors. More recently, substantial financial support has been received from the UN Financing System for Science and Technology Development (UNFSSTD) for a new programme to transfer technologies to the rural areas.

Methods of work and fields of activity

Main fields of research have concentrated on solar energy, hydropower, food technology and building materials. In food technology work has been done on fruit and vegetable and spice processing (preservation techniques): while developments in the last are based on low-cost techniques utilising indigenous raw materials including waste products (e.g. rice husk), mainly to produce cementitious materials.

Although RECAST had been in the past a primarily laboratory-based organisation in Kathmandu, it has been

endeavouring as per its objectives to strengthen rural extension work. The most recent initiative has been to set up five outreach centres, each of which should help identify local needs and provide R & D and extension facilities.

NETHERLANDS

1. Centre for Appropriate Technology (CAT), Delft University of Technology, Mijnbouwplein 11, Room 2.15, 2628 RT Delft

Background

CAT was set up in 1978 at the Delft University of Technology at the instigation of the University Council. For some years a group of staff and students had been working in the field of AT and had formed the Appropriate Technology Group (ATG); this group was instructed by the university to form the council of the new Centre. CAT became the fifth of a series of multi-disciplinary centres established at the university, each of which is responsible for co-ordinating the activities of university departments in its particular field of interest. The live Centres are: Transportation Engineering, Energy, Medical Technology, Environmental Technology and Appropriate Technology. In addition to organising co-operation between departments and departmental sections. CAT may involve institutes from outside Delft University in its work.

Objectives

CAT's main purpose is to stimulate and co-ordinate R & D activities in AT at Delft University, not to undertake its own research. and its interest in AT is oriented as much to the West as it is to developing countries. With such a wide brief, CAT has drawn up its own guidelines by which technologies under consideration can be assessed for their use of local materials and energy sources, their ecological appropriateness and their potential for local use and control, particularly by economically disadvantaged communities.

The Centre's framework for executing and evaluating projects depends on a sound conceptual grasp of the technology and its social, economic and cultural context. To this end, CAT aims to **support** long-term projects which are fully endorsed by the local target population, and to influence government attitudes to technological development at regional and local levels. In pursuit

of these aims, CAT ranks education as a factor of major importance, as well as assistance to projects directed to the research, application and implementation of appropriate technologies.

Structure and institutional affiliations

As part of Delft University, CAT operates within a multi-disciplinary matrix composed of all 13 university departments and the five multi-disciplinary centres, under the guidance and overall control of the university's Board of Governors and Council.

CAT's internal structure is similarly related to the matrix, b; which each departmental section with interests in AT activities can delegate one of its members (staff or student) to the Centre's Council. Other Council members include delegates from the Central Technical Library and from CAT's staff, as well as from three academic and AT institutions outside the university (26 members in ail). The Council is responsible for setting Centre policy.

Under the Council, the Board and staff of the Centre handle CAT's day-to-day activities. As a result of adverse financial fortunes of universities in the Netherlands, CAT has developed a volunteer system to handle some of its AT inventory, documentation and publications work until it is able to expand its full-time salaried posts beyond those of Co-ordinator and two assistants.

Project costs are generally found by the university, but CAT is looking increasingly to external funding agencies in order to fulfil its projected work load. Fruitful co-operation exists to date between CAT and CEBEMO (a development co-operation financing agency), SNV (Organisation of Dutch Volunteers), and the Ministry of Foreign Affairs. Outside the Netherlands, CAT has close working relations with AT groups in Sri Lanka, Indonesia, Tanzania, Colombia and Mexico, and is a member of the international SATIS network.

Method of work and fields of activity

In its task of co-ordinating AT activities within the university, CAT places project ideas with interested departments, assists the

section in formulating project proposals, and seeks the necessary financial support on behalf of the department in question. Its publications service subsequently aims to disseminate the experiences of past projects. Long-term projects undertaken through CAT have included "hardware" developments such as solar refrigeration, wood and bamboo water pipes, and low-cost housing techniques. In addition, attention has been paid to drawing up a theoretical framework for AT projects, and to field research in rural communities in European and developing countries.

CAT undertakes a large number and wide variety of "micro-projects" which are those able to be dealt with by written communication only. In addition to sending literature in response to an enquiry, CAT contacts relevant members of the university to analyse the problem and to recommend a solution. The Centre acts as a go-between in such correspondence, and evaluates any advice before it is despatched to the enquiring agency. Micro-projects are often completed within a year, but some become the bases of more major, long-term projects. Most are undertaken in response to requests from Africa and Europe, but there has been a marked increase in requests for assistance from Latin America.

With regard to its information dissemination function, CAT is involved with co-ordinating exhibitions and educational courses in the Netheriands, setting up interdisciplinary study groups and organising research fellowships. Its documentation centre is organised according to the SATIS system, and contains a slide-centre. The Centre's AT-news periodical is issued quarterly to some 500 subscribers in the Netherlands and abroad.

2. Technische Ontwikkeling Ontwikkelingslanden (TOOL), Mauritskade 61a, 1092 AD Amsterdam

Background

As early as 1934 a co-operative information group – Agromisa, at Wageningen University of Agriculture – established itself in response to requests for advice from missionaries in Africa and Asia. Since then similar groups have been set up in other Dutch universities where, in several cases, their work is integrated with normal academic work. In 1974, these separate groups decided to link themselves through a central, national body – TOOL – for greater efficiency, co-ordination and impact.

TOOL is a co-operative organisation composed of groups in universities, technical colleges and consulting engineering firms. Its original activity was to provide written advice to field workers in developing countries; today the emphasis also lies on strengthening working links with local organisations in the Third World.

Objectives

Broadly speaking, TOOL seeks to improve the position of economically weak groups in developing countries. Its primary objective is to help build a bridge between scientific knowledge in developed countries and practical problems in developing countries, and appropriate technological experience. Through providing information about technologies adapted to local social situations, it aims to promote greater freedom for groups which are striving towards self-programmed and self-sustained development.

Structure and institutional affiliations

TOOL is a non-profit organisation composed of 11 member groups based in different parts of the Netherlands. All members are volunteers: most groups are part of the science department of universities and technical colleges with their membership drawn from staff and students; others consist of staff and members of

engineering consultancy firms, the Royal Tropical Institute, etc. Their work is co-ordinated and assisted by a small central TOOL secretariat with professional staff.

The policy of the TOOL Foundation is set by a General Board, composed of representatives of the co-operative groups, government and other experts, which meets quarterly. An Operating Board of seven members meets monthly to oversee work programmes. In addition, a Board Advisory Committee meets to approve all new projects and to set up Project Implementation Committees. The latter manage the TOOL project unit and consist of representatives of the Board, project funders and other external insiiiuiions.

The TOOL secretariat is headed by a Co-ordinator who is responsible to the Board for the functioning of the operational units: Publications; Awareness Building and Public Education; Information and Documentation; Technical Enquiries; and Projects.

The major funding source for TOOL, for both core and project costs, is the Netherlands Ministry for Development Co-operation. Other funders have included the three Netherlands Universities of Technology and Dutch NGOs.

Part of TOOL's policy is to develop links with indigenous organisations overseas with regard to both practical collaboration and policy development. Internationally, it is affiliated to the worldwide SATIS information network.

Method of work and fields ofactivity

The technical enquiry service was TOOL's initial activity and remains a cornerstone of its work. Every year the organisation handles approximately 600 requests for information with the aid of its own documentation centre and of its co-operative members. Enquiries can be processed under a variety of headings: man and society; energy and power; water/sanitation; agriculture, forestry and fisheries; food production; manufacture and services; buildingsand construction; and health.

A second important activity has been the establishment and co-ordination of the SATIS information/documentation system. SATIS became an independent organisation in 1982, with its

secretariat still based at the TOOL headquarters although plans are laid to re-locate this function in a developing country.

As a result of the growth of the enquiry service, TOOL has developed a publications capacity. Its titles range from general background works on appropriate technology to specific "how-to" manuals put together by the co-operative groups. In addition to its own publications, TOOL sells some 200 books and brochures from AT and development organisations within the Netherlands and abroad. To support information networking activities, TOOL produces two periodicals: *TOOLichting* is a Dutch language newsletter for volunteer members; and *Vraagbaak* is a quarterly, containing 70 pages of practical agricultural and technical information, written for and by development workers. The English and French editions of *Vraagbaak* were launched in 1984.

TOOL's most recent activity has been the development of its education and awareness-building facility. This department provides insights to the role of (appropriate) technology in the development process. TOOL participates in courses for development workers and provides general information on AT and its applications on request.

TOOL has, over the years, also been involved with practical projects overseas. Two projects of importance in TOOL's development have taken place in India and Indonesia, where technologies such as biogas plants, tapioca dryers, windpumps and ferrocement products have been developed, tested and applied. Current activities include personnel participation in a fishery project in Indonesia, research projects on the applications of sawdust and of micro-hydro turbines, and the development of a manually operated rice huller.

PAKISTAN

Appropriate Technology Development Organisation (ATDO), Ministry of Science and Technology, 1-A & B 47th Street, F-7/1, Islamabad

Background

ATDO was formed in mid-1974, on the recommendation of an ITDG team which six months earlier had been invited to Pakistan by the Minister of Finance Planning and Development to review the potential for AT development in Pakistan. Although from the outset it was intended to be an autonomous group with government financial support, for its first two years ATDO received little if any government money, and it was kept going with funds provided by the commercial banks and the Lahore Chamber of Commerce. In 1978 it was constituted as an "autonomous body", like the Pakistan Council for Scientific and Industrial Research (PCSIR), under the administrative control of the Ministry of Science and Technology. For several years it did not have the full privileges of an autonomous body in that its budget had to be justified and approved annually. Since July 1983, however, the organisation has been put on a firm financial basis; its budget. including all established project work, is approved without question as part of the budget of its parent Ministry, and only new projects have to be specially sanctioned.

Objectives

The organisation's major concern is for rural development, and works towards motivating villagers and low-income groups, as well as small entrepreneurs, into organised and productive self-help activities. Its specific objectives are:

- to simplify technology to a level that can be understood and practised by people without resorting to costly, lengthy and elaborate training;
- to link up production with employment;
- to mobilise people to undertake planning and execution of projects for themselves;

– to create a highly motivated technical cadre with high social and political awareness;
– to help set up village workshops for fabrication of agricultural implements and to carry out manufacturing and maintenance activities in small industrial plants; and
– to establish effective marketing and distribution systems to support village industrial and agricultural production.

Structure and institutional affiliations

As an autonomous body under the Ministry of Science and Technology, ATDO has a Council of Management of 15 members, drawn from ministries of central government, such as agriculture, forestry, planning and development, and also from provincial governments. The President of the General Council is ex-officio, in his capacity as Secretary of the Ministry of Science and Technology. The Council meets once a year and, in practice, this gives the Chairman and his staff a good measure of discretion on policy and its implementation.

Their work is backed by growing government support – between 1979 and 1983 ATDO's budget increased from Rs 1.5 million to over 10 million, and the number of professional staff from seven to over 40. Such increased resources have enabled more work to be undertaken from ATDO's regional offices in Karachi, Lahore and Peshawar; recently a regional office has also been established in Quetta.

Under the Chairman and the Director there are three sections within ATDO: Technology Audit, and Socio-economic Evaluation; Technology Evaluation, and R&D Liaison; and Dissemination.

Roughly half the total professional staff are field-oriented, working on field trials or dissemination. A salient feature of ATDO is that virtually all R & D work is done at other institutions, notably at the PCSIR, engineering universities such as at Peshawar and Lahore, and departmental research establishments. Collaboration with other organisations on R & D and field trials is on a flexible basis, ranging from total costs being borne by ATDO, to total costs covered by the collaborating agency.

Method of work and fields of activity

ATDO endeavours to maintain a flexible approach to project identification and implementation. As a rule, a project is approved only if the organisation is satisfied that its needs potential and benefits will be widespread. Villagers and low-income groups are involved in discussion, and trained to install, operate and maintain any innovation. Access to field workers and to information is also important. For instance, to try to get wide-spread replication of wood-saving stoves, ATDO is working at village level with the most respected local farmers, and with teachers, priests and midwives. Information is also fed into the courses run for village leaders at the Rural Academy in Peshawar and elsewhere. Their ground rules for village level contacts are simple – no innovation must be a burden of any kind on the user, and there must be immediate response to requests for follow-up assistance.

ATDO presents the results of its work under three heads, which correspond to the three sections of the organisation noted above: those technologies carried through to the point of extension (Dissemination); technologies under R & D and field trials (Technology Evaluation and R & D); and technologies under investigation in relation to needs and feasibility (Technology Audit and Socio-economic Evaluation).

Staff consider their most successful projects so far to be the development of micro-hydro and of biogas systems, and of wood-saving stoves, Of micro-hydro, some 44 units have been installed (averaging about 9kw per unit); about 30 units are under construction and 30 other sites are being investigated. This also led to the establishment of about 44 micro-industrial units utilising daytime motive power availability. In biogas development some 500 plants have been installed, another 72 of various types are under construction, and research is under way on integrated systems linking biogas with fishponds, chicken rearing and algae production. A portable unit using rubberised containers is in the early stages of commercialisation. About 220 wood-saving stoves (each costing Rs25-50) are undergoing held trials in different parts of the country. Ranks are now prepared to give loans for certain technologies if there is ATDO involvement.

In order to encourage commercial development only a token royalty is charged on ATDO developments. So far there is some commercial involvement in biogas, rice husk cement and vegetable dehydration. Apart from the technologies mentioned, ATDO is involved in the investigation, R & D and dissemination of a wide variety of agricultural and industrial technologies and processes.

PAPUA NEW GUINEA

South Pacific Appropriate Technology Foundation (SPATF), P.O. Box 6937, Boroko

Background

The story of SPATF begins shortly before Independence with debate on the causes of the lack of village development, leading in 1975 to the establishment of the Office of Village Development (OVD) within the Office of the Prime Minister. An Australian lecturer from the University of Papua New Guinea (PNG) was seconded to OVD in 1976 as Appropriate Technology Consuitant and was instrumental in drafting and finalising a proposal for the establishment of SPATF.

SPATF was originally conceived as a regional information resource centre, although the national function in fact turned out to predominate. its structure was that of an autonomous non-profit public corporation attached to the OVD with its own Board of Directors and budget. The organisation was formally convened in 1977.

At the same time, the University of Technology at Lae (UNITECH) was attempting to set up an R & D unit; provision was made in the SPATF budget to support the unit, which was set up as a joint project of SPATF and UNITECH as the Appropriate Technology Development Unit (ATDU). A non-profit import company, Village Equipment Supplies (VES) was aiso established under SPATF.

The fortunes of SPATF and ATDU followed a somewhat chequered course until 198 l, when their institutional status was reviewed and reconstituted. ATDU became an autonomous institute (ATDI), less academically orientated, with its own Director and Board Members from SPATF as well as UNITECH. Although SPATF had become very active during its early years, the demise of the OVD in 198 l weakened its means of outreach and made it financially insecure. Finally, the Department of Industrial Development stepped in to guarantee core funding, and SPATF pursued the development of its own extension network in collaboration with other rural development agencies in the country.

Objectives

SPATF was founded with the long term aim of assisting, by means of appropriate technology inputs, those groups, individuals and governments which are working towards self-reliance. Its main objectives are:

- to gather information on tools, techniques and ideas;
- to develop these in ways that could make them appropriate for conditions in PNG and other South Pacific countries;
- to move the information towards those working for self-reliance; and
- to show that appropriate technologies can be used effectively to help bring about community, individual and national self-reliance.

Structure and institutional affiliations

SPATF's structure is complex. due to its policy of setting up its own subsidiary project units instead of acting as an enabling agency for others. Broadly speaking, SPATF is an autonomous body now operating under the broad umbrella of the Department of Industrial Development and with its own Board of Management to which the Director is responsible. It employs more than 30 staff (engineers, technicians, community development workers) spread between HQ and seven of its projects. The eighth project, ATDI, has its own Director and staff of about 20 as well as a Board consisting of representatives from its major funding bodies (SPATF, UNITECH and the Melanesian Council of Churches (MCC)).

There are six major sections outside SPATF's central administrative headquarters and these are: VES, Hohola Small Industries Centre, the Hanuatek Small-Scale industries Centre, ATDI, Extension Service and Information. Within its HQ, SPATF also runs a reference and technical enquiry service.

Financial support for core and project expenditure comes from within Papua New Guinea and from many international agencies. Although core expenditure is guaranteed by the national government, SPATF is seeking ways of making itself less dependent on this source. A number of its activities receive

support from provincial governments which use ATDI in a consultancy capacity in implementing Provincial Programmes. Some projects were set up with grants from external sources, such as the MCC, New Zealand government and ATI; of these VES is already self-financing. It is felt that by operating semi-commercial enterprises (such as scrap recycling) SPATF can diversify its sources of funding and be less dependent on government and international aid sources. The spin-off benefits are that these enterprises can be used as a source of 'real' data, both technical and financial and as a training ground for the benefit of persons elsewhere in the country who wish to set up similar ventures

Method of work and fields of activity

As mentioned above, SPATF has adopted the approach of meeting its objectives through building up its own programmes as well as strengthening the capacity of other agencies to carry out the same functions. An example of the latter is ATDI through which SPATF enables UNITECH to further the cause of national development.

Since its inception, SPATF has been involved in three types of work:

- collection, documentation and dissemination of information;
- adaptation/design, introduction and replication of technologies and methodologies; and
- advocacy, policy advice.

It was in the first area that SPATF built its reputation in the early years, with an impressive reference library, a technical enquiry service that responded to up to 250 requests a year and a publication section which produced a quarterly newsletter, *Yumi Kirapim*, with a 12,000 circulation and a useful range of 'how to do it' manuals. In addition, the well-known Liklikbuk Centre collects and documents information useful to village workers and communities in the form of the *Liklikbuk* which has now achieved sales of more than 40,000 and has stimulated a flood of direct technical enquiries in its own right.

Within the area of project development, Village Equipment Supplies (VES) has been successful in challenging the effective oligopoly enjoyed by the three large multinational import

agencies by importing tools and equipment appropriate to the needs of rurai communities, establishing systems of distribution and keeping retail prices at an acceptable level.

The SPATF Extension Programme conducts AT demonstration workshops which emphasisc employment and income generating activities. The Hanuatek Centre is used as a model site for the birth and growth of small enterprises. although few businesses have yet grown sufficiently to move out of the 'nursery' and make room for others.

Projects in Lae have enjoyed a greater degree of success, and the Provincial government through its Kumgic Small Industries Corporation concentrates its efforts on five major areas: development engineering services, community-based industries, village sawmills, charcoal and micro hydro power. This has been made possible by substantial financial support provided by the Provincial Government to set up the Kumgic Corporation. ATDI has focused on water supply and sanitation, and research into new technologies for processing foods and new food products (such as banana chips, sago products, coconut drinks, mango rolls etc.).

In respect of R&D, SPATF can claim, through ATDI, a moderate success in the adaptation of tools and techniques to local conditions. The primary focus of ATDI is technology development and adaptation, and it is moving away from starting with technologies which appear to be a good idea and then looking for a home for them, towards an approach which starts with a community need and then searches for an appropriate technological solution.

SPATF's invoivement in the area of policy advice has been less successful than its other activities. This is due partly to its early affiliation with OVD and the continuing tendency for policy makers to associate it only with village development. It is also partly due to the lack of in-house macro-economists who would be better able than technical and administrative staff to enter policy debates with government planners. It is hoped that this situation will change with the link with the Department of Industrial Development which has included measures to assist small enterprises development in its recent White Paper on Industrial Development Policy.

PHILIPPINES

University of the Philippines Institute for Small-Scale Industries (UP ISSI), Diliman, Quezon City D505

Background

in i 966 the institute quietiy began its work as a training, research and extension institute to promote and develop Philippine small industries. The 1970s marked a turning point for the country's vast number of small industries and they assumed an important position alongside their bigger counterparts, After the ILO (Ranis) Mission the 1972- 1976 National Development Plan cited Small-scale Industries as an important strategy and in 1973 the government organised a multi-agency Commission on Small and Medium-scale Industries (CSMI) to co-ordinate and integrate finance. extension; marketing, technical and training services. UP ISSI had achieved its original goal and now had to take stock of how it could proceed. It took its place in the CSMI as a training and research arm. It phased out its consultancy and extension services (which were taken over by ISSI-trained held teams from the Ministry of Industry) and intensified entrepreneurship development and management training activities as well as policy and evaluation research for small industry development.

As more and more skilled development workers were required to implement and manage small-scale industry development programmes, the need for training capacity became greater. By 1976. ISSI had built up a reputation as a national and international training institute for small-scale industry development and its research into small industry development enabled it to play a more important role in the government's strategic planning for small industries. Although the CSMI was abolished in 1981 links between member agencies remained intact and UP ISSI has been able to maintain and strengthen its role. In 1980 it was instrumental in establishing the Association for the Development of Appropriate Philippine Technology (ADAPT) which is based in ISSI.

Objectives

Broadly speaking, the Institute is committed to the promotion of small-scale industries not only in the Philippines but throughout the Third World. Within this thrust is a growing concern for appropriate technology in industry, deriving from the particular need of small entrepreneurs in developing countries for indigenous, low-cost, energy-conserving and labour-intensive technologies. Allied to this concern is the Institute's promotion of "technology awareness' towards present and potential entrepreneurs, and towards policy makers. A third area of concern is for rural entrepreneurship and the need to generate prospects and opportunities in rural areas. Overall, UP ISSI aims, through research activities, to identify opportunities for small-scale industries and to pinpoint strategies for development.

Structure and institutional affiliations

The Institute was set up in 1966 as a special project under a bilateral agreement between the Philippine and Dutch governments. Impiementation of the terms of the agreement was delegated to the University of the Philippines within which the Institute is based as an independent organisation.

ISSI is headed by a Director who is assisted by two Associate Directors in the tasks of planning, management and evaluation of the institute's work. The three operational departments – research; entrepreneurship and management development; and industrial promotions-are each headed by an Assistant Director, with administrative support services to cover all three. At the end of 1982 the Institute employed 106 people, 53 of whom were academic staff and the other 53 administrative. Among them, three staff were attached to the regional extension office in Leyte, established in 1976.

In addition to the permanent employees, the Institute gains support from independent consultants and from national and international bodies engaged in small enterprise development. 'The latter sponsor specific activities organised by the institute such as training programmes, research studies, and publications. Financial support of this nature has been forthcoming from

government ministries (such as Trade and industry, and the Ministry for Foreign Affairs) and from the National Development Bank as well as from private concerns such as the Small Enterprises Research and Development Foundation (SERDEF). International support is sustained from the Dutch government and Technonet Asia; the institute has also begun to be sponsored by and undertake work for UN agencies (UNDP, ILO).

Method of work and fields of activity

The Research department conducts in-depth studies of an industry or industrial sector to improve the data base on which policy recommendations can be made. More than half of the department's work is of this nature. Other studies evaluate the general conditions of small-scale industries, their needs and prospects, and are geared towards users such as extension agencies. in the wider Asian sphere, some of the department's regional studies have provided the framework for co-operation between different organisations involved in small-scale industries.

The Entrepreneurship and Management Development department concentrates on training programmes and the development of training materials and courses. its approach is two-pronged: training is offered directly to small-scale businessmen; and indirectly through seminars for extension workers and development officers. The training package includes both theoretical and practical components in areas such as small-scale technology and information handling, supplementing classroom discussion with plant visits and project assignments.

The industrial Promotions department has developed a three-pronged initiative: appropriate technology, rural enterprise development, and publications, of which the latter plays a major role. ISSI's pilot extension office in Layte is the focus for rural development efforts, which have so far concentrated on training rural entrepreneurs while trying to identify feasible industrial projects. With regard to appropriate technology, publications and information dissemination form the bulk of work undertaken: 'hands on' R & D and evaluation of the commercial prospects of appropriate technologies has involved staff to a

lesser extent. important departmental publications include the quarterly *Small Enterprise Journal*, Small Business Guides, and a series of AT Bulletins.

SIERRA LEONE

Tikonko Agricultural Extension Centre (TAEC), P.O. Box 86, Bo

Background

The Tikonko Centre has its origins in the late 1960s when a Methodist missionary based in the Chiefdom decided to demonstrate the high yielding potential of inland valley swamp rice cultivation as an alternative to difficult upland rice cultivation. His early success led to the formal establishment of TAEC in 1971 under the direction of a committee representing the Church, the community and the Ministry of Agriculture. in 1976 it became an institution of the Methodist Church-Sierra Leone.

The Centre's work on cultivation techniques has been accompanied by a concern to develop appropriate mechanisation to assist farmers increase yields and expand the acreage under cultivation. This is carried out at the Tikonko Agricultural Trials Unit (TATU). The power tiller, considered as a solution in the early 1970s, has given way to the development of smaller manual tools, produced locally. and more recent attempts to introduce ox traction. Additional work on post-harvest technologies led to the establishment in 1976 of the Small Farm Equipment Unit (SFEU) – a workshop in which appropriate tools and equipment are successfully designed, tested and produced.

A programme review in 1979 broadened the scope of TAEC's work to incorporate a more integrated approach to rural development in the Chiefdom. The Agricultural Extension Programme (AEP), which has aiways been at the heart of the Centre's work, was expanded to include an integrated Health and Agricultural Project, several minor construction projects, a harvest loan fund as well as demonstrations, training and group work in the villages. Close co-operation with programmes and field personnel of the Ministry of Agriculture and Forestry (MAF) has enabled the Tikonko Centre to achieve wider and more effective outreach.

Objectives

Through its various activities, TAEC aims to assist and promote

rural development in ways appropriate to a clearly defined geographical and cultural locality in Sierra Leone. Local participation and feedback are integral to all of its programmes which also take into account the particulars of the environment and occupationa! structure, and the Centre works with men, women and children to improve their traditional way of life. Currently, the programme objectives include:

- to develop the potential of swampland agriculture and to encourage diversification of both valley and upland crops;
- to combat community health problems by promoting health education and community preventative health care;
- to improve local infrastructure (access bridges across swamp streams, wells, sluice gates, stores. etc.);
- to disseminate relevant research, improved husbandry practices, etc., to farmers through extension programmes; and
- to serve the area as a resource centre providing AT information, appropriate machines and tools, and repair/maintenance facilities.

Structure and institutional affiliations

TAEC is run by a management team of five permanent and two co-opted members. The Sierra Leonean Co-ordinator (who has succeeded several expatriate Co-ordinators) has overall responsibility to the Board for the operation of all sections. Other members of the management team have specific responsibility for TAEC's different functions. Operational and support staff number around 50 although not all are employed directly by TAEC: several are attached from the Ministry of Health and upwards of a dozen from the MAF. While the majority of staff are Sierre Leonean, the Centre has often acquired the services of VSO and Peace Corps Volunteers.

The Board of Management meets periodically to advise on and approve policy, programmes, staff appointments and the Centre's finances. it is primarily a Church body, but includes IO men and women representatives from the local community as well as observers from government ministries.

TAEC is also primarily Church funded. The Centre and components of its programmes have received substantial and

continuing financial support from a number of Christian organisations based overseas – in the UK, Netherlands, Germany, USA, Switzerland and Eire – as well as donations and practical support from agencies in Sierra Leone, such as the Commission of Churches in Development of the United Christian Council, the Methodist Church-Sierra Leone, and the MAF.

This continuing financial support, and the collaborative relationship which Tikonko enjoys with government ministries, have helped to give TAEC nation-wide recognition in several aspects of its work.

Method of work and fields qfactivity

The major emphasis of the Centre's work is on servicing the needs identified by local communities. The AEP works directly with 25-30 villages, although limited resources have forced a policy of concentration on those with the most enthusiasm and active participation in the extension programme. Beside work on rice cultivation, the integrated agriculture and health programme is increasing in importance. This includes the establishment and promotion of clinics, health lessons and demonstrations, and the development of improved gardening practices to promote better nutrition. The programme also collaborates with other TAEC sections in developing improved water/sanitation infrastructure and in research on domestic stoves.

The Agricultural Trials Unit (TATU) conducts research and tests on techniques to maintain soil fertility; on new rice and vegetable crops; on crop processing equipment, storage and packing (e.g. solar driers, improved grain stores and grinding mills). it also conducts research on improved animal husbandry practices, including crossbreeding imported with local varieties of rabbits, poultry, goats and sheep. The Ox Traction Project is a recent attempt at innovation, since cattle are rare in the locality and using them for cultivation unknown.

The third major section of TAEC, the SFEU, has a larger scope than the others, since it provides facilities for a much wider geographical area. its production arm concentrates on rakes and other small hand tools, well pulleys and blacksmith blowers, and has achieved notable success with its production and sales of

cassava grinders. Recent work of the R & D arm has included modification and refinement of a pedal threshing machine, a sugar cane press, a brickmouiding machine and tubeweii bailers. External constraints affecting supplies of inputs tend to disrupt production plans periodically, but the Unit is increasingly used as a resource centre by development workers.

SRI LANKA

Sarvodaya Shramadana Movement (SSM), 77 De Soyza Road, Moratuwa

Background

The Sarvodaya Shramadana Movement began in 1958 when a group of students and teachers from Colombo organised themselves to camp out in one of the poorest villages in the country and to work as equals with the people to help bring about self-development. Within iwo weeks this group was able to awaken "a will and sense ofcommitment" amongst the villagers and initiate a process of positive community action which could grow and become self-perpetuating. For the next IO years more and more people (urban and rural) participated in what was called Educational Extension and Community Service Camps and the Movement's ideology evolved, based on Buddhist philosophy. to give purpose and support to its activities,

In 1968 SSM launched the "Hundred Villages Development Programme" which aimed for integrated village development. Four years later the programme had spread to I.000 villages and within another six years to 3,500 villages. Its approach is based on people's participation in *Sarvodaya Shramadana* which. translated. is "the awakening of ail in society by the mutual sharing of one's time, thought and energy". Today SSM claims that over one million people are daily involved in Sarvodaya activities throughout the island.

Objectives

Development, to Sarvodaya, involves not only improvements in the social and economic elements of village life but also stimulation of the political, cultural, moral and spiritual awareness ofaii involved. On the basis of its Buddhist principles, SSM has evolved four general objectives:

- by concrete development action to awaken the masses of rural people to exploit their own development potential through self-help and self-reliance;

- to bring about a general recognition of the value of utiiising iabour resources, which the people are voluntarily prepared to give for the development of the nation;
- to evolve in the country a grass-roots development leadership which is inspired by the people's traditional and cultural values, and to gain knowledge through participatory experience in the science ofvillage development; and
- to pave the way for a development theory and practice in which an integrated approach is made towards the development of the human person, of his or her community, the nation, and the world. This may be termed a "non-violent revolutionary movement for changing man and society".

Structure and institutional affiliations

SSM is a legally recognised organisation, wholly autonomous within Sri Lanka. its structure is based on a simple organisationai pyramid: the headquarters in Coiombo; 26 District Co-ordinators; 120 Village Extension Centres (Cramodaya) and around 3,000 village/Sarvodaya village councils. Some 500 staff work at the headquarters and district levels, and another 5,000 village level workers co-ordinate Gramodaya and Sarvodaya activities.

The District Co-ordinators have control of Extension Centres and village level activities and also other SSM non-district resources located within their district (e.g. Agricultural Training Institutes). The headquarters houses 18 central co-ordinators and support staff (who meet fortnightly) as well as SSM's financial and legal services, etc. The SSM President, Mr Ariaratne, plays a promotional, political, fund-raising and morale-raising role and ensures that the philosophical basis of SSM is maintained. The Executive Council of 51 elected members meets monthly to lay down and monitor general policy.

SSM's institutional links are almost wholly with overseas funding agencies. Until 1980 its links with the Sri Lankan government were negligible and informal, although SSM has undertaken occasional work under contract to government. The bulk of SSM's activities are funded from Europe and North America, where NOVIB (Holland), Oxfam (UK, USA, Canada),

Helvetas and ATI are major contributors to certain sector programmer.. Research is conducted within SSM's own institute, which undertakes relevant socio-anthropological studies and evaluates the Movement's programmes.

Method of work and fields of activity

SSM's involvement with a village is initiated at the request of the villagers themselves and the approach takes the village through a long-term evolutionary process of development. The first stage is to develop a "social-psychological infrastructure" through which the villagers become aware of the factors which led to their socio-economic impoverishment and the breakdown of their cultural and traditional values; and of the fact that their economic regeneration must be preceded by a restoration of social values and relationships. This takes place in Shramadana camps, where the village population is brought together in a week of activity of common interest to the whole village, such as the construction of a road, or the repair of a village rainwater catchment tank. Over 800 villages are at this stage ofdevelopment.

The second stage involves the formation of a social infrastructure by organising the different age and occupation groups. During this stage the groups are involved in several physical, economic and social activities to satisfy basic human needs; such as the construction of a pm-school. community hall. organising planting campaigns, establishing contact with the Rural Development Officer, etc. These activities (now in about 2,000 villages) are done with the guidance of Gramodaya field workers, attached to and trained by SSM.

In the third stage development activities are based on a "village development plan". Over 250 villages are now working according to such a plan, drawn up by the village council with the guidance of the Sarvodaya field workers. To support these programmes, SSM has established over 1.100 pre-schools, 120 Extension Centres and 14 Development Education Institutes (one per district) where 20 different non-formal educational programmes are conducted, ranging from two-week courses for pre-school workers to masonry and carpentry courses.

SSM's active held programmes are backed up by a variety of

services which emphasise its commitment to a holistic approach. In the field the Movement runs Shramadana camps, children's pre-school and nutrition programmes, agricultural and village (cottage-level) industry programmes, community shops and training programmes relating to shops and cottage industries. The AT Development Programme relates to several of these activities, and has helped to improve, e.g. traditional irrigation systems and building techniques, and has developed appropriate tools for agriculture and small industry.

To support these various programmes, "software" back-up includes publications and printing, research and evaluation services (centrally provided), and development education programmes which have "consciousness-raising" functions as well as imparting vocational skills. On the "hardware" side transport and technical services, raw material supply and marketing, and credit, and savings systems strengthen SSM's delivery capacity. In essence, the approach combines educational and material aspects at each stage of development; it is founded on the belief that village awareness (organisation and leadership) must precede social and economic progress and, accordingly, that the pace and direction of village development depends on the villagers' perception of their needs and on the initiative of local leadership.

SWITZERLAND

Swiss Centre for Appropriate Technology (SKAT), Varnbullstrasse 14, CH-9000, St. Gallen

Background

SKAT was established in mid-1978 by a group of like-minded Swiss organisations, as a branch of the Latin American Institute at the University of St. Gall. Its concerns extend beyond Latin America to the entire Third World, with its primary activity being to provide counselling on appropriate technology to both individuals and institutions overseas.

Although the Centre concentrates on providing a technical enquiry service through the exchange of correspondence and some consultancy assignments, the growth in this type of work during 1980 (its first year with a full staff complement) led SKAT to re-orientate its method of work and to provide a service based on quality rather than quantity. A policy of rationalisation involved setting up a bookshop and publication activities in conjunction with other AT Institutions, and developing sets of "pre-packed" information: and according greater priority to supporting regional and national AT Centres in the Third World which could develop the capacity to handle many enquiries, The combination of both measures was designed to allow more time to be spent by the Centre's staff on enquiries which require lengthy and qualitatively difficult research.

Objectives

SKAT's primary objectives are to be a catalyst for and co-ordinator of NGO efforts in the field of appropriate technology. and to be a clearing house, for information through an enquiry service. In support of this, it aims to offer organisational and technical support to AT Centres overseas; and to support net-working activities for advanced agencies in order that all relevant material on AT experience (successes and failures) can be collected and made accessible. SKAT has no plans to develop a field project capacity.

Structure and institutional affiliations

Although SKAT is housed in the Latin American Institute at the University of St. Gall, its funding and organisational structure are independent of the Institute. It is financed by the Directorate of Development Cooperation and Humanitarian Aid (DEH) of the Swiss Ministry of Foreign Affairs, and by private development organisations. These supporting agencies make up the SKAT Association which oversees and approves the Centre's policies, programmes and budget. The Association is composed of the Swiss Red Cross (SRK), Helvetas, the Evangelical Council of Missions, Swiss Workers' Assistance, lngenbohl Missions Society, Swiss Interchurch Aid, Swissaid, Bread for Brethren, lnterco-operation and the Swiss Lenten Fund.

SKAT's staff comprises some half a dozen full- and part-time professionals working in a minimally hierarchical framework. Their responsibilities are spread between sections dealing with enquiries and consuitancies: documentation systems and services; publications: and international institutional co-operative efforts.

International networking activities have led SKAT to establish close institutional links with SATIS and TRANET, while missions overseas have linked the Centre with organisations in developing countries such as India, Indonesia. Ecuador, Bolivia, Chile. Cameroon and Rwanda.

Method of work and fields of activity

SKAT has concentrated on the interchange of information in response to overseas enquiries. More and more consultancies are undertaken, but on a case-by-case basis. Some tasks are assigned to outside experts (e.g. manual on appropriate building materials; improved small turbine design; feasibility studies of alternative energy sources, of brickmaking plant, and of the implementation of bicycles in Latin America). However, the majority ofenquiries which are dealt with by correspondence are undertaken by SKAT staff, using their own documentation facility.

SKAT's library contains several thousand documents, classified according to the SATIS system, and its bookshop stocks a

wide range of publications produced by SKAT and many other AT organisations. These facilities combined enable the enquiry service to respond efficiently to many of its contacts and to deal with a wide variety of enquiries; some work which cannot be handled through a "standard package" may become a consultancy.

Co-operation with AT Centres in the Third World and with other international networks has largely taken place through participation in seminars and workshops and through overseas visits by SKAT staff. As a result of such personal contacts, SKAT has developed particularly close links with ATDA and CORT (India), CESTA (El Salvador), CETAL (Chile), SENTA (Bolivia), SITA (Ecuador), Dian Desa (Indonesia), ENDA (Senegal) and APICA (Cameroon).

TANZANIA

Centre for Agricultural Mechanisation and Rural Technology (CAMARTEC), P.O. Box 764, Arusha

Background

CAMARTEC came into being in late 1981 as the result of the reorganisation and merger of the Tanzania Agricultural Machinery Testing Unit (TAMTU) and the Arusha Appropriate Technology Project (AATP). Since 1955, TAMTU had undertaken limited research. development and production of agricultural machinery, while its main thrust had been directed to the testing of implements for their suitabtlity to Tanzanian conditions. On the other hand, AATP (established in 1977 as a project of the Small Industries Development Organisation, SIDO) regarded itself primarily as an extension agency. It offered a varietv of information and centre-based training services in the fields of building materials, rural transportation, energy and water supply. This work was supported to a limited extent by some adaptive research and development on specific technologies. The new CAMARTEC organisation was designed to strengthen these previous functions in order to set up a comprehensive programme which balances both "hardware" and "software" components. It should also function as a national centre, able to forge links with other national and international bodies concerned with technology development and transfer.

Objectives

The stated aim of CAMARTEC is "to improve the quality of rural life through development, adaptation and implementation of appropriate technologies in the fields of agricultural mechanisation. water supply. building construction and sanitation, rural transport and energy".

Structure and institutional affiliations

The Centre is a parastatal organisation, established under the

umbrella of the Ministry of Industries. A Board of Directors, headed by a Chairman appointed by the President of Tanzania, is responsible for policy decisions, while day-to-day management is the responsibility of the Director General, who is also a Presidential appointee. Under the Director General are three directorates: Technology Development; Testing and Production: and Extension and Training. Each has its own staff of professionals, technicians and artisans.

CAMARTEC receives the bulk of its funds from the government; some funds for specific projects may be sought from overseas donors, while the planned commercial production of machines and their components will earn some additional revenue.

Method of work and fields of activity

Programme plans are set out to follow a logical sequence from Centre-based activities to the extension and implementation of low-cost technologies in the field. Technological priorities are established according to reported rural demand, the availability of local resources and the potential for local production.

Thus the research and development programme plans to concentrate on developing local building materials for improved rural housing, and to develop appropriate agricultural processing machines, and wind and solar energy systems. Any new technology will be passed to the Testing and Production directorate, which also undertakes to test both imported and locally produced equipment for its suitability to local use; and to set up production facilities where field demand cannot be satisfied by local producers.

All Centre-based work programmes go hand-in-hand with a field extension and training programme. Both the trainees and the geographical areas ofconcentration, as well as the skills to be imparted, are selected by CAMARTEC; and the programme emphasises concepts of self-reliance in promoting the use of local resources, both human and material. However, the Centre holds that training should not always stem from its own staff, but that its employees should also improve and develop new skills. This programme depends largely on the availability ofsponsors.

UNITED KINGDOM

1. Appropriate Health Resources and Technologies Action Group (AHRTAG), 85 Marylebone High Street, London W1M 3DE.

Background

AHRTAG developed from the activities of a Rural Health Panel formed by ITDG in 1968, to promote alternative approaches to high cost, high technology hospital-based health care, with special emphasis on the potential ofprimary health care workers. The Health Panel helped the concept of auxiliary health care gain wider acceptance, and became interested in areas which were subsequently adopted by AHRTAG, such as the "cold chain", training and educational materials for community level workers, and simple low-cost equipment for use by primary health care auxiliaries.

The impetus for an independent Health Group stemmed from the work and interest of the panel's chairperson. She became involved with WHO's plans for an Appropriate Technology for Health programme, and became increasingly aware that many aspects of development work had health care implications (energy sources, food production, water/sanitation, housing, etc.), which could not be handled in a thorough or practical way by an informal panel.

Hence a proposal was drawn up to establish AHRTAG which could fulfil in more effective fashion the aims of the voluntary Health Panel. WHO invited the embryogroup to become the first WHO Collaborating Centre for Appropriate Technology for Health, and granted it "seed money" for this purpose. The organisation was formally incorporated in mid-1977, and exists primarily to supply practical information on primary health care, and io fill a disciplinary gap ieft by other development agencies.

Objectives

AHRTAG aims to promote primary health care in underdeveloped countries by providing information and advice to

health care programmes, and in particular by providing information on appropriate equipment and techniques.

Projects undertaken by AHRTAG aim:

- to benefit people who would otherwise have little or no access to health care;
- to help the development of primary health care and public health;
- to encourage community participation in health care: and
- to provide information on health and appropriate technologies principally to health personnel and teachers of community health workers.

Structure and institutional affiliations

AHRTAG was registered as a charity and company limited by guarantee in 1977. lnitiai grams to set up the Group were received from the WHO and the British Overseas Development Administration. Since then it has largely relied on grants given against specific projects. Support has also been received from governmen! and non-government agencies in Britain and Europe such as GTZ, Oxfam, ITDG, SIDA and UNICEF.

The Group's Articles of Association allow AHRTAG up to 50 members, who elect representatives to the policy-making body, the Council. The Executive Director is responsible for sections of AHRTAG's work which deal with publications. resource and briefing services. disability prevention and rehabilitation. and oral health. The Group has a central staff of nine people, but others with specialist skiiis are employed on a consultancy basis for work on specific projects.

Method of work and fields of activity

AHRTAG's role is more that of a catalyst than a direct provider of equipment and technical assistance. The Group's work falis into three general areas:

- an information and enquiry service;
- the publication of newsletters and manuals, and the production oftraining materiais;
- the identification, design and development of appropriate equipment and techniques,

The enquiry service receives requests for practical information from all over the world. These are dealt with either by using information availabie in AHRTAG's resource centre, or by referral to other experts or collaborating organisations. Contacts with workers in underdeveloped countries often lead to the identification of resource, technology or information gaps which AHRTAG may try to fill through research and development work and publications. Ideas which have been developed in Third World projects are collected. evaluated and, where appropriate, modified and field tested. Information is then disseminated through manuals and newsletters.

In 1980, AHRTAG launched *Diarrhea Dialogue*, a quarterly newsletter published in several languages, to spread knowledge about simple methods of preventing diarrhoeal diseases and about oral rehydration therapy. Work in support of immunisation programmes led to the publication of manuals on refrigerator maintenance and on how to make a cold-box. Another manual gives advice on looking after health centre stores.

The disability prevention and rehabilitation programme has focused on identifying, and where necessary developing, appropriate designs of rehabilitation aids. Various manuals have been published on low-cost aids, and further manuals on wheelchair design and on lower-limb prostheses will be available in 1984. Work is continuing, in association with IT Transport, in the promotion of local manufacture through pilot projects in underdeveloped countries. Further practical information on low-cost aids and disability prevention is provided through the newsletter, *Aids for Living.*

AHRTAG's oral health programme provides information for dental health workers in underdeveloped countries. AHRTAG is also examining designs for low-cost basic dental equipment capable of local manufacture. In association with ITDG, AHRTAG is working with centres in Thailand and Sri Lanka in field tests. The *Dental Health Newsletter* was launched in 1982 to spread information about community-based dental health care and education.

A most important resource is the AHRTAG library, which contains over 7,000 documents on appropriate health tech-

nologies and community health. it is open to the public, and is particularly useful to people working in overseas health projects. It is closely linked with the Tropical Child Health Unit at the Institute of Child Health in London, with which it operates a briefing service for people preparing for work with Third World health projects.

2. intermediate Technology Development Group (ITDG), 9 King Street, Covent Garden, London WC2E 8HN

Background

The genesis of ITDG was in May 1965, when E. F. Schumacher and some 20 supporters met to launch an action group which aimed to put Schumacher's ideas into practice. These ideas were based on the premise that there is an alternative course for development in Third World countries which can operate alongside national strategies for "modemisation" and industrialisation. and which can present a solution to the problems of mass unemployment and rapid urban growth (two issues causing growing concern during the 1960s). The alternative course promoted by ITDG was based on a more local approach to development using intermediate technologies, i.e. the creation of workplaces in rural rather than metropolitan areas, requiring low capital investments, minimising the demand for high skills (in the production process, organisation, raw material supply, financing. marketing, etc.) using local materials and producing for a local market.

ITDG's early work concentrated on informing and educating people about technology application in two practical ways: by publishing manuals on the availability of cheap tools and equipment, and by answering enquiries about the availability and application of small-scale technologies. In order to provide a service based not on reference but on first-hand experience, the Group began to gather a corps of volunteer experts, organised into technical panels. Today ITDG draws on the cnperience of

some 300 voluntary experts drawn from edticational and research institutions, consultancy firms, government and industry and co-ordinates 15 technical panels.

As the numbers of technica! enquiries grew, the Group recognised the need to provide follow-up with advisory services in the field and to identify and fill gaps in the range of available technologies. In 1969, IT Consultants was established as a Group subsidiary to fulfil the first need; and the Group began to employ permanen: technical staff to work on development problems identified in the field, initially concentrating on areas related to agriculture and water supply.

Work on technology development highlighted a third priori!::: that of local manufacturing capabilities. The importance of small-scale production which is capable of creating jobs, satisfying local (rural) demand and competing with well-established, large-scale production processes became increasingly apparent to ITDG. Hence in 1977 it created, with British government support, IT Industrial Services (ITIS) to develop viable small rural industries in collaboration with individuals and organisations in the field.

As ITDG's size and workload has increased it has pursued a policy ofdecentralisation, and now the Group works closely with seven subsidiary, associate or affiliated companies and organisations. all of which operate under ITDG's umbrella.

Ob ject ives

ITDG has recently been reviewing its policies and activities. Out of this process it has decided on a shift of emphasis of its work, away from research and development of new technologies, towards wide-spread application of products and processes capable ofbenefiting large numbers of the rural poor.

The Group's original objective – to develop relatively cheap, small-scale technologies which benefit the rurai poor, and to disseminate information about them – has not been sufficient to produce widespread impact. While work continues in the area of technology R & D, ITDG is paying increasing attention to the process of take-up and replication of appropriate technological packages, and to the obstacles that prevent such take-up.

In response to this concern, the Group's objectives have been enlarged: to select, in association with overseas partners, those proven technologies which can have the most beneficial impact upon the greatest numbers in relation to their need; and to concentrate on helping local groups and businesses to take them up in such numbers that whole communities and regions will benefit.

To this end, the Group pays increasing attention to institutional as well as technical problems, recognising the importance of political, social and economic factors as well as management and marketing to the successful diffusion of a technological system.

Structure and institutional affiliations

ITDG was registered in 1966 as a non-profit company and registered charity and began work with a core staff of only three people. Today, full-time staff number about 60 and the Group employs many others from time to time on a part-time or consultancy basis.

The governing body, the Council, whose I I members have experience in large and small-scale businesses, administration, academic research and in government and non-government agencies. meets biannually to approve policy. The General Purposes Committee (GPC) which meets more regularly is composed of representatives of the Council and reviews major operational initiatives that have policy implications.

The Chief Executive is responsible to both these bodies for the day-to-day management of ITDG and is assisted in this task by divisional managers. The full-time staff work in a number of operational programme units (e.g. food production and processing; alternative energy systems; building materials etc.) which are closely supported by centrally provided services such as information, consultancy, institutional support, publications, finance and administration.

ITDG's decentralised structure includes a number of small businesses and other groups. IT Consultants Ltd., IT Publications Ltd. and IT Products Ltd. are all wholly-owned subsidiaries of ITDG which in practice provide key service support to the

operations programmes; IT Power Ltd. is an associate company in which the Group has a shareholding. IT Transport Ltd. and IT Workshops are totally independent but remain within the 'extended family'; and the Appropriate Health Resources & Technologies Action Group (AHRTAG) which began life as an ITDG Panel has become an independent non-profit organisation.

ITDG's income for programmes and central management services comes from three major sources: individuals, trusts and foundations; the Group's subsidiary companies: and the British Overseas Development Administration. In addition, projects and programmes are funded by other bilateral and multilateral agencies.

Method of work and fields of activity

ITDG's work is essentially carried out through action-oriented research and development and is geared to responding to needs and demand identified by individuals and groups working in the held. A consistent practice has been for the Group to work with partners who are willing and capable of carrying out their own programmes; and to make critical inputs to those programmes rather than to develop programmes of its own.

Currently, the Group's operations focus on eight sectoral programmes which draw on its accumulated experience in sectors of identified need:

- food production and processing (including the transfer of mini-sugar processing technology):
- alternative energy systems (power for water-lifting and micro-hydro technologies) and biomass (stoves and steam powered systems):
- mining and mineral processing;
- transport (low-cost roads. land vehicles and tishing boats):
- textiles (small-scale rural domestic and industrial production);
- building materials. cement and cementitious materials;
- primary health care (in collaboration with AHRTAG); and
- rural workshops.

The Group's capacity in water development is built into many of these programmes.

All programmes and their projects are carried out according to

a common methodology. Projects are generally developed in response to requests from collaborating agencies overseas who may require assistance in one or more phases of their planned work (e.g. technology R & D; institutional support; project implementation: evaluation etc). Following initial dialogue, ITDG carries out a project appraisal which includes consideration of technical, economic, social and political factors in order to develop a pilot scheme. Tests on, and modifications made to, the technology at the pilot stage may lead to the development of a successful system capable of being replicated and adopted elsewhere.

It is to this last stage that ITDG is paying increasing attention. in recognition of the fact that take-up is often constrained by factors beyond the direct control of the users themselves, e.g. training and extension programmes, credit and marketing systems, competition, government policies, fiscal measures, import regulations etc.

In all programmer, and projects, particularly at the replication and dissemination stage, the Group's consultancy. publications and information services play an important role.

UNITED STATES

1. Appropriate Technology international (ATI), 1331 H Street N.W., Washington DC 20005

Background

In the mid-1970s official concern in the United States for the state and development of technologies appropriate to developing countries led to a Congressional mandate and subsequent USAID proposal for a private effort to promote AT, and for the establishment oian independent organisation to help strengthen developing countries' capacity to develop, adapt and utilise appropriate technologies. ATI was created as a result of these two events. to administer (in an independent capacity) the fund set up by AID for an AT Programme.

AT International's programme is based on the premise that given the skills, technology and capital the rural poor are capable of owning and operating commercially viable productive activities. ATI's programme extends the boundaries of traditional investment into the risky small-scale, rural and labour-intensive sphere of opportunities without violating either the imperative to use capital efficiently or the discipline of the commercial market place. It uses a common-sense system of technological adaptation, resource surveys, business planning, market appraisal, along with profitability and cash-flow analyses to maximise the probability of success and minimise the downside risk of each project in its particular situation.

AT International's programme is designed to involve local sources ofcapital, both government and private, in the expansion and replication of its projects once the viability of these projects is proven. Based on its successes AT International seeks also to influence a wide range of policy making bodies in the developing as well as developed world to promote greater use of AT.

Objectives

Broadly speaking. ATI seeks to increase the incomes and satisfaction of basic needs of the rural populations of developing

countries by developing projects which add value to the primary natural resource with which they are endowed – that is. production from the land. This involves increasing both agricultural and rural small industry productivity.

The organisation's objectives can be summarised as follows:

- to support the private sector, in particular the poor on very small farms and in very small business enterprises, to establish viable, self-sustaining productive enterprises:
- to assist technology transfer by supporting the development and adaptation of technologies which suit the resource endowment of the particular area in which they are utilised;
- io support institution building by assisting private institutions to develop innovative systems and mechanisms for placing technologies into people's hands on a sustained commercial basis, and by enabling other institutions to adopt successful initiatives; and
- to influence public policy in developing countries in order that fiscal and other factors may increasingly favour the growth and operation of small enterprises.

ATI therefore promotes a combination of innovation (development/adaptation of technologies appropriate to local conditions) and impact (the operation of innovative and effective institutional delivery systems).

Structure and institutional affiliations

ATI was conceived by government as a private. non-profit corporation. Although it was created under Congress mandate and is funded by USAID it is not an agent of either body, but is ensured flexibility and independence in order that it may operate primarily in the private sector. Its governing body is a Board of Trustees, whose members are drawn from private companies, the banking sector, research sector and American and international NGOs. The Board sets general policy and approves work programmes and budgets.

ATI's staff numbers about 40. headed by an Executive Director. The Executive Director is assisted by a Management Committee (of four other senior staff) in the overall operation of ATI. One of the Committee's key functions is the vetting and

approval of all new projects at the "concept stage".

ATI is divided into three functional Divisions: Policy, Evaluation and Information; Finance and Administration; and Field Operations, The first two work directly to the Executive Director, while the third and largest operates under the supervision of the Deputy Executive Director. The Field Operations Division consists of five sections: three are geographical project management teams for Asia, Africa and Latin America respectively; the Technical and Small Enterprise Development Unit functions as a resource unit servicing the geographical teams: and an evaluation team monitors and evaluates all projects.

A recent innovation in the ATI structure is the Project Review and Advisory Committee (PRAC). This consists of 11 highly placed individuals from government and non-government agencies, academic institutions and commercial enterprises who meet monthly to advise the Executive Director on all new projects at the final proposal stage; i.e. once all project appraisal and feasibility studies have been completed and assembled in a comprehensive proposal document. PRAC's main role is to advise on the broader policy aspects of each project, and it is expected to benefit ATI in two ways. First, it provides the organisation with an independent assessment by experienced people of its planned work; and second, ATI can inform the aid establishment on its policy and work through PRAC members who can be an effective PR body and provide indirect links with institutions within the USA.

Setting up institutional links overseas is one of the main objectives of ATI, and its project work is carried out in collaboration with selected NGOs in developing countries, which may also contribute towards project costs.

Method of work and fields of activity

ATI has identified three main priorities for project development: agricultural product processing and utilisation of agricultural waste: local mineral resource technologies: and farm-related technology. The first area covers processes such as food product preservation methods, vegetable and fruit processing, small-scale oil extraction, production of weaving goods and the processing of

vegetable waste for use in building materials. Mineral resource technologies cover small-scale production and application of lime. cementitious materials and clay. In farm-related tech nology, ATI is concerned with practices that improve a farmer's productivity rather than the crop *per se*. To this end, technologies include tools and small machinery, animal traction, water management techniques, and post-harvest processing techniques.

The procedure employed in selecting specific projects which ATI can help develop, finance and implement involves a careful survey. project planning and evaiuation exercise through which prior assessment of the potential for technological commercial isation and replication can be made as well as the potential benefits to target groups. In addition, countries of concentration are identified according to technical and institutional criteria. The technical considerations include an assessment of need and the magnitude of potential benefits, while institutional criteria consider the number, quality and activity of existing AT organ isations. and the policy of the national government towards AT and small enterprise.

ATI's direct involvement in projects generally lasts two to three years, after which time it aims to have enabled a commercial technology "package" (the hardware and the delivery system) to be developed, and to have strengthened the capacity of local institutions to sustain the implementation and support of the package. ATI is also placing increasing importance on project monitoring and evaluation in order to assess the feasibility and potential for transfer of the technologies and systems developed.

2. Volunteers in Technical Assistance (VITA), 1815 Lynn Street, Rosslyn, Virginia 22209

Background

Following discussions among a dozen like-minded scientists and engineers in New York State, VITA was established in 1959 to provide free technical assistance to individuals and groups overseas who could not obtain the help they needed from local sources.

The initial campaign to recruit volunteers was successful, but problems were encountered in early years in the dissemination of information to the field. Following the publicity generated by the 1960s Development Decade. however, VITA became a fully-fledged volunteer organisation able to offer multidisciplinary assistance and to expand its range of activities. Today, it maintains a register of several thousand volunteers who can provide technical. evaluatory and advisory services in response to requests from the US and abroad. Other central publications, R & D and project support programmes provide back-up to the work undertaken by its volunteers.

In order to make its work more effective, VITA strives to work through existing indigenous organisations: during the 1970s it encouraged information networking and was a founder member of SATIS. It currently manages long-term field programmes in six countries: Honduras, Chad, Guinea, Somalia, Djibouti and Thailand. Throughout its existence, VITA has established collaborative working agreements with overseas AT institutions and has been instrumental in establishing other co-ordinating committees in Africa. Asia and Latin America.

Objectives

VITA's overall goal is to enable low-income communities to use locally available and appropriate resources to meet their own needs for economic and social development. In order to attain this goal, the organisation aims:

- to provide reiiable on-site or written technical assistance to individuals and groups working to improve their communities;

- to enable qualified professionals to participate directly in their country's development;
- to increase national awareness of the problems facing both rural and urban areas and of the skills and techniques required to handle such problems effectively;
- to enhance established community improvement programmes; and
- to facilitate any necessary financial or contractual assistance required by self-help development projects.

Structure and institutional affiliations

VITA's numerous programmes are managed by the Executive Director, who also has overall responsibility for fund-raising, staff appointments, and for VITA's relationships with government agencies and NGOs involved in development work. The Executive Director reports to the Board of Directors and is assisted by the Board's Commiitees (Executive; Membership: Programme Review; Development and Business). The Board, with members from commercial, academic and aid institutions, monitors and advises on policy, work programmes and Committee membership and assists with VITA's fund-raising programme. The staff of nearly 40 are spread between several sections, including the Documentation Centre, Technical Enquiries Services and Regional Operations Division. Other departments include those of project planning and evaluation, and publications and communications.

In the past, substantial contributions to VITA's budget have been obtained from large funding bodies such as USAID, PACT Inc., and the World Bank. VITA also earns about IO per cent of its income from its publication sales and from some programme service fees. Numerous other small trusts and foundations give financial support to its activities.

Method of work and fields of activity

VITA provides its services in response to requests from a wide variety of groups – local extension agents, volunteers, field-based aid agencies, and local community organisations. Priority is

attached to providing assistance to those involved with developing small-scale low-capital investment tools and techniques.

Its services can provide information directly from VITA's own Documentation Centre or indirectly through the AT Information Network. In some cases VITA undertakes to collaborate on long-term projects with local development agencies, providing on-site consultants: in other cases it organises seminars and training courses on a variety of appropriate technologies, information resources and project management areas. VITA's publications include technology manuals and technical bulletins, and the *Village Technology Handbook*. In addition, two quarterly publications (*Vita News* and *Vis-à-Vis*) aim to link VITA supporters and users into an effective network.

Areas of particular interest in which VITA can provide assistance are: agriculture and animal husbandry; alternative energy systems: water/sanitation; food processing; small-scale industries; equipment design; project feasibility and evaluation; low-cost housing; crafts production and marketing; and appropriate management technologies.

B. REGIONAL AND INTERNATIONAL INSTITUTIONS

REGIONAL- AFRICA

African Regional Centre for Technology (ARCT).
P.O. Box 2435, Dakar, Senegal

Background

The decision to establish ARCT was taken in 1977 at a meeting of African government representatives at Kaduna. following a UNECA study, but it was not until 1980-1981 that the Centre became fully operational and drew up its first five-year plan. Its founder members believe in regional co-operation as an instrument of African development and in this respect ARCT is envisaged as a catalytic and enabling agency: a practical instrument for promoting intra-African technical co-operation, for mobilising resources, and for setting up the means of implementing regional and multi-national programmes for "collective self-reliance and solidarity".

Objectives

As stated in the official brochure, the objectives of the Centre are:
- to contribute to the development and use of technology within member states:
- to stimulate technological awareness, strengthen the technological capability, and 'promote the use of technologies appropriate to the development of its member states;
- to assist members in the formulation of technology policies as an integral part of planned scientific. technological and socio-economic development;
- to improve the terms and conditions governing technology imports;

- to encourage research and training, to promote technology diffusion and the collection and use of technological information;
- to promote co-operation between member states; and
- to assess the social implications of technology development, transfer and adaptation and promote an understanding of such implications.

Structure and institutional affiliations

ARCT is an intergovernmental organisation representing the existing member states of the UN Economic Commission for Africa (ECA) and the Organisation of African Unity (OAU). Each signatory is required to facilitate the practical functions of the Centre and to contribute an annual sum to its budget as agreed by the Council.

The chief governing body, the Council, is composed of high-ranking representatives from each member state, the UNECA and the OAU. Its functions are to approve the policies, work programmes and monitor the performance of the Centre, to approve its senior appointments and to allocate its budget. The Council also elects the Executive Board which has overall responsibility for executing the work programme and mobilising assistance from member governments. The Board is chaired by the UNECA Executive Secretary and its members represent the OAU, ARCT, and other UN agencies interested in supporting the Centre's work.

Under the Executive Board is the Secretariat, headed by the Executive Director of ARCT, who is appointed by the Council and is responsible for the Centre's day-to-day organisation, direction and administration. The functional Divisions reporting to the Office of the Executive Director are those of Administration, Information and Documentation; Training; and Consulting.

Through its membership (government ministers and UN agencies). ARCT is able to secure funding from many sources and establish working relations with international bodies such as FAO, as well as national centres such as the Zambian Technology Developmen, and Advisory Unit, Njala University College (Sierra Leone), the TCC (Ghana) and CAMARTEC (Tanzania).

Method of work and fields of activity

Two major fields- food and energy-are identitied in the 1982-86 five-year plan for investigation and development by ARCT. Priorities for action in the work programme relating to food and energy include the establishment of a library and documentation unit; an investigation of the capabilities of Africa's major science and technology institutions; the identification and promotion of indigenous technologies; and the establishment of regional/sub-regional technological demonstration units. Work is now under way to support improvements in the storage of staple foods. to promote the use of composite flour and to improve African palm-oil production. In the energy sector ARCT is promoting improved cooking stoves in Senegal, supporting the dissemination of biogas systems in six other countries, and investigating the development of power alcohol.

Two other activities have been important to ARCT since its early years: technical training; and improving the terms of technology acquisition (rights, patents and fiscal conditions). These priorities were established by the 1980 Lagos Plan of Action, which was based on the Vienna Programme drawn up by UNCSTD in 1979.

REGIONAL- ASIA

1. Asian Alliance of Appropriate Technology Practitioners (AAATP/Approtech Asia), Philippine Business for Social Progress, Yutivo Building, Dasmarinas, Manila, Philippines

Background

Approtech Asia was formed following a conference of AT dissemination groups, principally private voluntary organisations, held in Bangkok, Thailand, in 1980. The conference, sponsored by ATI, aimed to draw up a set of specific recommendations upon which ATI would base its financial and technical assistance programmes in Asia.

It was decided that forming a regional Alliance would be an appropriate first step in addressing the recommendations and specific advice outlined at the conference,. Since the first conference, the members of AAATPiave met annually (at Approtech II, III and IV) and the Alliance has developed and strengthened specific aims, objectives, work programmes, its constitution and fund-raising strategy.

Currently it is composed of 18 full members – NGOs from Bangladesh, India, Indonesia, Malaysia, the Philippines, Sri Lanka, 'Thailand, Singapore and 16 associate members. Twelve other organisations from south and south-east Asia have applied for associate membership. In 1982 the Secretariat moved from its temporary accommodation with Technonet in Singapore to its own offices in the Philippine Business for Social Progress building in Manila.

Objectives

Approtech Asia's mission was defined in 1981. Briefly, it is to provide a mechanism which can generate greater support and

resources for individuals and organisations throughout Asia that have mobilised rural communities in self-reliant development strategies; and to provide a focal point for greater dissemination of their approaches and experiences.

The following are the major objectives of the Alliance:

- to collect and make available reliable information on proven technologies, dissemination techniques and technicians in the region, and to gain the capacity to evaluate information about AT;
- to encourage a sense of community and professionalism among indigenous AT organisations (through e.g. national alliances; linking AT organisations with professional bodies; publicising members' experiences); and
- to influence donor agencies and governments by advocating government and institutional policies supporting AT activities, and to act as a conduit for international donor agency funds to support smaller groups outside the regular resource network (e.g. for training, experimentation and prototype development).

Structure and institutional affiliations

Approtech Asia is constituted as a regional affiliation of indigenous privaie organisations experienced at using AT in village-leve! development programmes.

The Annual General Membership Meeting clects a governing Council to undertake programmc and organisational planning, and appoints small committees to take on specific tasks outlined for the year. Also at the AGM, major policy statements are drawn up and agreed, and the terms of membership fixed. Currently, the constitution allows four Full Members percountry and unlimited Associate Membership, with the annual fee set at US$100 for Full Members and US$50 for Associates.

The Executive Officer and Secretariat manage and carry out the programmes agreed; in 1982 the first Executive Officer was appointed and the Secretariat moved from Singapore to registered premises in Manila.

A major task of the EO and Secretariat is iund-raising. Financial support was originally wholly provided by ATI, but

this is being phased out as alternative long- and short-term sources of funds become available. Long-term funding is being negotiated with international donor agencies. Short-term grants have been received from the Asian Community Trust, IDRC, and the Philippine Business for Social Progress as well as from other agencies in Japan and the Philippines.

Method of work and fields of activity

Programme developmeni is taking place on two broad fronts; publications/public relations; and AT promotional services.

In the first area, a modest publications programme has been established to promote focussed discussion of key development issues. To this end, *Approtech News* is published quarterly; the *Executive Officer's Diary* is published monthly to inform members on programme development; and the Alliance has been featured in a number of important Asian and international development journals. An AT Booklet is in preparation which will focus on the state-of-the-art of AT in the region.

The AT Promotional Services Programme includes four sub-programmes. First, technology transfer is promoted through workshops, symposia, conferences, project "visits and training sessions. In 1983, Approtech Asia members participated in over a dozen such events. Second, the training programme aims to provide opportunities for members to offer and participate in each other's training programmes, and to facilitate staff exchange among member organisatrons. .A ihird promotional service seeks to provide financial linkages between member organisations and appropriate funding agencies; and the fourth is the development of a consultancy register.

Approtech Asia will also focus on programmes that promise wider appropriate technology dissemination through the lead agency concept in programme development, to encourage membership involvement in projects on a region-wide basis and, at the same time, on their organisational skills and expertise.

Although Approtech Asia's work programmes are still gathering strength, the Alliance already functions as a support structure, with the capacity io provide easy access to various forms of technical assistance and to serve as a bridge between members to decrease their isolation from activities elsewhere.

2. Technonet Asia, RELC international House, 30 Orange Grove Road, Tanglin, P.O. Box 160, Singapore 9124, Republic of Singapore

Background

Technonet was initially set up by IDRC as an information network to respond to, and service, the initiatives of Asian governments in the held of small- and medium-scale industries. Simple provision of information was quickly found to be insufficient and this was backed up by other services such as training, exchange visits, etc.

Originally, it was intended that members should come only from southeast Asia, but this has since expanded to include countries such as Fiji, Nepal, Sri Lanka and Bangladesh, and applications from organisations in several other countries (India, China and Papua New Guinea) are being considered. Criteria for selection of members would include an ability to contribute to as well as benefit from the Network, and a concern with national development rather than private profit. Technonet Asia currently has 14 member organisations from I I countries in Asia and the Pacific region.

Objectives

Technonet's primary aim is to facilitate the transfer oftechnology and its assimilation to small- and medium-scale industries, hy strengthening the capabilities of its member organisations in this held. Under this umbrella aim the organisation has undertaken:

- to provide a means of access to technological advice on equipment, methods and processes, production techniques and quality control;
- to provide a regional extension service on which national extension services can draw; and
- to provide a focus to facilitate co-operation and exchange between national extension services and to link them into a functional network.

In this way, Technonet hopes to service those governments which place a priority on the promotion and development of

small- and medium-scale industries which are labour-intensive, capable of producing import substitutes and goods which can compete in the international market.

Structure and institutional affiliations

Technonet has guaranteed core funding through 1986 and, in fact, is aiming at approaching more donor governments and UN agencies for core support so as to expand operations. Technonet has strong linkages with other regional technology centres/ networks in Asia. It has held several joint seminars with RCTT aiid sees itself as a complementary organisation (RCTT concentrating on R & D; Technonet on extension). It is also a member of AAATP: again, the two networks are seen as complementary rather than duplicative, since AAATP's members are mainly private voluntary agencies concerned with rural development while Technonet's members are mainly government bodies concerned with development and promotion of modem small- and medium-scale industries.

Technonet has less direct linkages with about 60 other organisations such as ITDG which it consults or informs as appropriate.

Method of work and fields of activity

Generally, Technonet does not have its own projects but assists member organisations with theirs in whichever way seems appropriate. This can include partial funding, training of staff (mainly by sending people to other countries, particularly Japan and Korea), and locating and sending in experts from other countries.

Initially, most requests for information and assistance from member organisations came to Technonet, which could handle about one third of these from its own data base. Now the member organisations have learned of the existence of the international agencies and tend to correspond with them directly. In fact, Technonet spends only about ten percent of its budget on information. Other programmes and projects include technology sharing; entrepreneurship development; techno-economic

research and surveys; and industrial extension (training, consultancies, case-studies, etc).

Some of its recent projects have involved extensive surveys: of metal-working industries in eight countries to determine key areas for intervention (a spin-off of this has been the setting up of a Metal-working R & D Centre in Malaysia and a Metal Technology information Centre in Thailand) and of woodworking industries in four countries to be followed by a survey in another three countries. Surveys of building materiai industries and ceramics industries are planned.

Technonet undertakes consultancies for international agencies, bu! goes to its member organisations for a consuiiant before looking elsewhere. It is also interested in being used as a facilitating agency in respect of locating small industry consultants for use in transfer of technology projects. A roster of consultants is maintained at its Headquarters in Singapore.

In addition, Technonet produces a quarterly *Newsletter* and *Technology Digest*, and has produced a number of useful publications.

REGIONAL-CARIBBEAN

I. Christian Action for Development in the Caribbean (CADEC) -Caribbean AT Centre (CATC). P.O. Box 616, Bridgetown, Barbados

Background

CADEC was founded in 1972 by the Caribbean Conference of Churches (CCC) to carry out an ecumenical programme for social and economic development throughout the region. Shortly after its inception CADEC recognised the need for a technological component to its programme – especially for the development, promotion and use of appropriate technologies geared towards rural poor and the unemployed. Following an AT Workshop (sponsored by CADEC in 1976) an AT Advisory Committee was set up to identify specific projects in the fields of energy, housing and agriculture. In addition, an Appropriate Technology Resource Service (ATRS) was established under the Advisory Committee as its information wing. In 1980 a reassessment of the AT Programme identified a further need – for practical involvement in technology design; development and implementation – and recommended the establishment of a Caribbean Appropriate Technology Centre. CATC began its activities in the same year, absorbing and enlarging the functions of the ATRS.

Objectives

CATC operates under the broad umbrella of CADEC's goals, which aim (amongst others) "to promote self-help at the local level throughout the region: to generate and sustain indigenous development; and to provide the necessary catalysts for development".

To facilitate these elements, CATC set out to establish a

Regional Documentation Centre by collecting material initially on energy, housing and agriculture, from institutions, agencies and individuals throughout the world; to disseminate such material to CADEC's local documentation centres and other interested individuals and organisations; and to provide an enquiry service which can put groups in touch with each other and with relevant information sources. In addition, CATC aims to identify, initiate and co-ordinate research projects in collaboration with CADEC's Project Development Programmes (PDP), and to liaise with other agencies involved in the development and implementation of AT. The small islands of the Eastern Caribbean were selected as prime areas of concentration iii which CATC aims to stimulate, promote and co-ordinate the establishment and work of National AT Committees (NATCs) on each island.

Structure and institutional affiliations

From its headquarters in Barbados, CADEC runs a variety of programmes in three main "clusters": Education for Development, Communications, and Project Deveiopment. CATC is but one component of the last cluster. The structure of the whole organisation is complex. since it is part of the CCC, and its programmes are often integrated with others initiated by the CCC. In addition. ii works with and through affiliated offices in Jamaica, Antigua, Trinidad. Guyana and Curaçao.

Similarly, CATC's structure is designed to represent both local, regional and interdisciplinary interests. The Board of Management; responsible for policy and disbursement of funds, consists of representatives from CADEC, the Caribbean Development Bank (CDB). and from each of the island NATCs.

The Technical Advisory Committee piays an evaluation role, as well as providing technical assistance to the Centre Co-ordinator, who is responsible for the development, promotion and application of CATC's work.

CATC was set up with funds from VITA and ATI, and maintains links with many other regional and international organisations, such as the CDB's Technology and Energy Unit (TEU), the Peace Corps and ITDG.

Method of work and fields of activity

At its inception CATC embarked on a programme consisting of promotion of its activities; the establishment of a regional documentation service; the formation of island NATCs; and project activities in collaboration with CADEC's Project Development Programme. The special role of CATC with CADEC is to promote AT hardware. To date, project activities have involved the identification of needs in the small-farm sector for types of low-cost machinery; the introduction of water storage techniques and draining; and the introduction of the Lorena stove to rural areas in three islands.

Two independent NATCs are now active in Antigua and St. Lucia and are planning projects as well as inputs to national policy strategies. CATC's documentation and promotion programmes have made the organisation well known throughout the region; although the document centre is well able to service a wide range of enquiries, CATC will strengthen its publicity drive (bulletins, articles in the printed media, TV/radio) in order to increase public awareness and enlarge its AT network.

2. Caribbean Development Bank Technology and Energy Unit (TEU), P.O. Box 408, Wildey, St Michael, Barbados

Background

TEU came into being in 1980, as part of the CDB's Technology Development Programme (which is part-financed under two *USA* ID project grants). The broad strategy of the Programme has been to give financial and technical support for resource assessments, studies of "non-conventional" energy systems and for R & D projects which are trying to commercialise techniques appropriate to the region. TEU functions as the operational wing of the Programme and is separate from the procedures and functions of the CDB's bank loan units.

Objectives

Within the strategy of the Technology Development Programme, TEU aims to play a facilitating role. Its objectives are as follows:

- to facilitate increased, more effective use of local manpower and material resources available to local entrepreneurs at all scales of operation, with the aim of increasing regional self-reliance;
- to reduce dependency on imported fossil fuel through conservation, and development of alternative renewable energy sources;
- to iaciiitate increased participation by, and benefits to, small product enterprises; and
- to direct benefits as far as possible to the lowest income groups through increased employment and incomes, greater access to basic needs, and reduced costs of essential goods and services.

The appropriateness of a project considered for support should be judged according to whether it responds to a felt need, supports existing R & D institutions and activities, involves techniques for which an adequate technical support base exists or could be easily developed, and is capable of wider replication and diffusion.

Structure and institutional affiliations

TEU is wholly funded by the CDB, or by other aid monies which pass via the CDB, and is responsible to the President of the Bank for the projects which it administers. Policy direction is monitored by a TEU Advisory Committee, which also gives support in maintaining a regional perspective in the Unit's work. Additional guidance comes from a number of technical sub-committees which give technical advice on project development and evaluation. The Unit is staffed by six permanent professionals but has ready access through the Bank to many others on a consultancy basis.

Permanent staff generally hold the key positions (Director: Project Officer) within each of the three operational sections – Technology Information, Communications and Technology Development (projects). In addition, TEU employs six or seven

specialists as in-house, long-term consultants, who assist the permanent staff in implementing long-term programnies.

Method of work and fields of activity

In the Technology Development section, work on the ground tends to be initiated by TEU, in order to demonstrate alternative energy uses and techniques in four main areas – solar, wind, biogas and micro-hydro power.

The Technology Information Section offers a computerised, regional enquiry and information dissemination service, affiliated with tbe National Technical Information Service; while the Communications section publishes a newsletter, publicises the Unit's work, establishes links with overseas collaborating agencies, and organises/co-ordinates meetings and workshops on alternative energy systems.

INTERNATIONAL

I. Socially Appropriate Technology International Information Services (SATIS), Mauritskade 61a, 1092 AD Amsterdam, The Netherlands

Background

Although SATES was not legally constituted until 1982, the organisation was developing and active throughout the 1970s. It started with collaborative information exchange between several AT organisations in Europe and North America, each of which subscribed to the belief that, by pooling their resources and by setting up common mechanisms for information handling and exchange, they might facilitate joint action on research, technical enquiries, extension advice and held application of AT projects. Further, such a system would give better access to information needed by the growing number of AT centres in developing countries.

By 1978, SATIS bad created a system of information classification, retrieval and exchange which was increasingly used: by 1981 more than 65 organisations subscribed to it and it is now used by some 200 organisations. However, critics emphasised the need for a better system of information, evaluation and control, to which SATIS responded by widening the scope of its activities to take account of the value of information to advisers, planners and evaluaters as well as to technicians. This move led to a general reorientation towards Third World users and a need to establish a broader financial and managerial base. The Founding General Assembly held in Senegal in 1982 created SATIS as an independent international organisation dedicated to promoting popular self-development by enabling a network to function in which information is easily accessible and is controlled by the users.

Objectives

The premise on which SATE is based is that the organisation, exchange and diffusion of information is a vital factor in development and especially in technological development. Thus SATIS aims to promote open exchange relationships between members, and between member organisations and others, strictly on a non-profit basis. In order to achieve this, the organisation undertakes or supports members' activities in four areas:

- the establishment, management, operation and evaluation of information centres;
- the generation, production, publishing and provision of materials necessary for the operation of such centres and for the optimal exchange ofinformation;
- the collection, translation and adaptation of information; and
- further supportive action including held experimentation in which member organisations are involved.

Structure and institutional affiliations

Before 1982, the work of SATIS had taken place in the TOOL headquarters with informal advisory inputs from participating organisations. The organisation was set up with a core grant from the Netherlands government and the World Council of Churches' Commission on Participation.

Since its reconstitution, SATIS has formalised member participation in policy-making, programming and funding, and plans to establish a permanent secretariat in a Third World country. The sovereign body of SATIS is the General Assembly which meets annually in a Third World country and is composed of representatives of all member organisations. It formulates and approves all general policies, programmes and principles; and elects new members and a committee to monitor and facilitate programme execution. The Committee has eight members (representing member organisations from all the major continents) and is responsible for overseeing all programmes and budgets and for fund-raising. In addition, the Committee appoints a core Secretariat which handles day-to-day administration and execution of SATIS programmes.

Membership currently involves over 30 government and non-government organisations from Europe. North America, Africa, Asia and Latin America. Each member pays a statutory membership fee (US$100 p.a.), plus a "solidarity share" (0.5 per cent) of its budget if this exceeds a certain level fixed by the Assembly (now US$50,000). These financial contributions, and any additionai grants, form at least a quarter of SATIS's budget. The organisation's original funders have continued to make substantial financial inputs; other contributions have been received from CIDA, UNESCO, WHO, ATI, GATE-GTZ, the Swiss government and the World Bank.

Method of work and fields of activity

In order to promote its goal of an open-access and internationailly interdependent information network, SATIS provides some centrally produced services but encourages each member to contribute actively in information collection and diffusion.

The work programme covers access to and exchange of information; resource development; and resource guides, The major components of the first are a common publications list; details of funding sources which might enable members to purchase documentation; regular issues of card catalogues (documents listed according to SATIS classification headings); technology reviews and bibliographies; and a newsletter. All of these are designed to assist members in direct information exchange.

Resource development is becoming increasingly important to SATIS, and focuses on the methodologies of technology/information diffusion. The major thrust is towards training, through regional seminars, of SATIS members and associates in information and communications systems in order to support them in identifying appropriate ways of communicating with popular groups interested in AT development.

Work on resource guides requires each member to review AT activities within the country concerned. Such country guides can then be published for the benefit of support service organisations with strengths in e.g. research, funding, training or evaluation. Additionally, consumer guides will be published, evaluating the

experiences of Third World groups with these support services. A further aim of the programme is to establish National Resource Reference Centres in African, Asian and Latin American countries.

2. Transnational Network for Appropriate Technology (TRANET), Box 567, Rangeley, Maine 04970, USA

Background

In 1976 a series of workshops on Appropriate Technologies was held in conjunction with the Habitat Forum of the UN Conference on Human Settlements in Vancouver. At the final plenary session a resolution was passed to strengthen the bilateral links among the transnational network of AT Centres and to promo&e a dialogue on the concepts of AT among world leaders. TRANET was established to serve that network.

From 1976 to 1979 TRANET provided information on AT publications, activities and member groups through a quarterly newsletter/directory. Then in 1979 the organisation drew up a plan of action to enlarge and strengthen its AT network. This plan arose from a meeting of 17 AT organisations in December 1978, which established TRANET as a non-profit organjsation with its own Board of Directors. The Board re-emphasised the need to influence the direction of science and technology-based development; its new course of action included an Associates Programme, plans to recruit Regional Co-ordinators and to develop a capacity to produce special studies, as well as providing a clearing house and newsletter service. To date, most success has been in the latter areas. While TRANET continues to emphasise the importance of regional and sub-regional networks and to encourage their establishment, the organisation's active support and involvement has been constrained by financial and other factors.

Objectives

In 1978 the TRANET Board declared that the common goal of member organisations should be to satisfy basic human needs (material and non-material); to promote local self-reliance based on social participation and control; and to assist ecologically sound development. in terms of action, TRANET's objectives are:

- to stimulate exchanges among individuals, groups and networks in all parts of the world who are actively involved in AT;
- to educate the public as to the concepts of AT:
- to promote dialogue towards a re-evaluation of the role of science and technology; and
- to develop other appropriate objectives and responses as required to promote the development, use and understanding of AT.

Towards these purposes TRANET may operate a clearing house, publish a regular newsletter and other publications, ho!d seminars, design exhibitions, raise funds, conduct studies, arrange tours, act as adviser to the UN or other national or international agencies, hold real estate, and take other actions as required.

Structure and institutional affiliations

TRANET is a non-profit organisation which serves a worldwide net-work of members from its headquarters in the US. Membership is open to all groups and individuals with an interest in AT, subject to the approval of the Board, and on payment of an annually determined fee. Members then have access to all TRANET services and are entitled to nominate and elect the Board of Directors.

The Board is composed of 25 members (five from each of the major geographical areas of the world) and is responsible for setting general policies and programmes, and for electing officers to the Executive Committee. The latter Committee of five is responsible to the Board for approving projects within programme areas and for staff selection. The Executive Secretary is in charge of TRANET's daily operations, assisted by a small Secretariat.

TRANET now has approximately 1,400 subscription-paying members and is in contact with many hundreds more who do not contribute financially to the network. Besides linking members with members, TRANET's networking activities link members to international agencies such as the UN, UNESCO, World Bank, USAID and OECD, some of which have funded special studies or projects in deveioping countries. Substantial financial support has also been obtained in the past from the Canadian and Netherlands governments. Although income from memberships and donations has grown considerably, fund-raising continues to he a major concern for the Secretariat in trying to implement the Board's programme recommendations.

Method of work and fields of activity

The purpose of the 1979 plan of action was to facilitate the exchange of information and ideas among members. Since then, TRANET has established several successful networking activities.

The newsletter/directory. published quarterly, is TRANET's most popular and constant networking tool. It is a compendium of book reviews, notices about technical innovations and members' activities in the field of AT, with a directory featuring a special subject (e.g., energy, health care, etc.) in each issue.

TRANET secures funds to sponsor Board meetings, each of which have been important in developing personal and institutional contacts and in formulating policy recommendations to forward to policy-making bodies. In addition, the TRANET Secretariat contributes regularly to other seminars, workshops and publications all over the world.

From its headquarters, TRANET operates a library and information referral service which deals with approximately 100 specific enquiries on AT matters each month. The networking system enables the Secretariat to put correspondents in touch with other individuals and agencies with experience in a required field ofactivity.

In the area of special projects, TRANET has provided consultants to several international aid agencies as well as to governments ofdeveloping countries, from which work several

studies have been produced on the relevance of AT. TRANET has also contributed to the establishment of a national AT Centre in Nepal as the focus for a regional network.

The scheme which has achieved widest implementation has been the TRANET Mini-Library Project. Each library consists01 100 titles covering AT theory and practice, and forms the nucleus of published information held in AT centrcs in the Third World for use by rural held workers and extension agents. Thus far, TRANET has sent 50 libraries to AT centres in 30 countries; funding for the libraries has come from UNESCO, other groups, and the centres themselves.

The Intermediate Technology Development Group was founded in 1965 by the late Dr. E. F. Schumacher. ITDG, an independent charity, gathers and disseminates information, and advises on the choice of technologies appropriate for developing countries. In addition, the Group is also involved in an expanding programme of work on technology choice for Britain.

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