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#9:36

From: Dr.E.F.Schumacher, C.B.E.

HOLCOMBE
WEALD WAY
CATERHAM
SURREY

Tel. Caterham 42506

2nd April, 1977.

Mr. Brian Rogers,
Administrative Assistant,
Alaska Permanent Fund Committee,
Pouch V,
Juneau,
AK 99811.

Dear Mr. Rogers,

On my return from the United States, I found your letter of 3rd March. Thank you very much for writing to me.

Your searching for people, as well as organisations, to advise Alaska on investigating and determining the goals, objectives, and structure of the Alaska Permanent Fund: The first person I should suggest you to have a look at is Mr. Peter Gillingham, of Intermediate Technology, 556 Santa Cruz Avenue, Menlo Park, California 94025. I have just spent more than 6 weeks travelling with him through the US.

Although I am many thousands of miles away, I should be very happy to let you have my own views and ideas if they should be desired by you. But there is little I can suggest that is not perfectly well-known to Mr. Gillingham.

With best wishes,

Yours sincerely,

E.F.Schumacher

Alaska State Legislature

Representative
CLARK GRUENING
940 Tyonek Drive
Anchorage, Alaska
99501

907-274-2446

Chairman
SPECIAL COMMITTEE ON
THE ALASKA PERMANENT FUND
Chairman
WAYS and MEANS SUBCOMMITTEE
Member
FINANCE COMMITTEE
LEGISLATIVE COUNCIL

House of Representatives

POUCH V JUNEAU 99811

March 8, 1977

E.F. Schumacher
Holcombe, Weald Way
Chatterham, Surrey
CR36EP England

Dear Dr. Schumacher:

The Legislature of the State of Alaska is currently considering alternatives for the use of the resources and capital of the state, in an attempt to determine the course of future development of the state.

Alaska is similar, in many respects to the world's underdeveloped nations. The one urban center, Anchorage, comprises approximately one-half of the state's 400,000 population, and highest per capita income in the world. The remainder of the state could be characterized as rural, containing wide differences in climate, topography, race and regional economics.

Alaskan's economy has followed a very traditional American path--a highly technological, massive investment approach resulting in massive exportation of capital as well as natural resources. Your analysis in "Small is Beautiful" suggests that something other than the traditional approach may be appropriate for Alaska. In seeking advice on developing a better economic model for Alaska, I have asked my administrative assistant to contact you to see if you would be interested in working on alternatives for Alaska. (The March 3, 1977 letter from Brian Rogers.)

I will be sending you several maps and publications about Alaska, to give you a better view of the problems we face and the resources we have to solve the problems. Please feel free to contact us at any time, or to submit a proposal for consulting services to the Legislature.

Sincerely,

Clark Gruening

Rep. Clark Gruening

PLEASE NOTE: THE FOLLOWING PAGES WERE TREATED AS A UNIT IN THE ORIGINAL DOCUMENT.

Intermediate Technology Development Group Ltd
9 King Street, London WC2E 8HN, U.K.
Telephone: 01-836 9434/39; 836 6379
Cables: IT/DEV, LONDON WC2
Company Reg. No. 871954

3rd May, 1977

Mr. Brian Rogers,
Administrative Assistant
Alaska Permanent Fund Committee,
Alaska State Legislature House,
Juneau,
Alaska.

Dear Mr. Rogers,

Thank you for your letter dated 22nd March, which has only just reached this office. My colleagues and I are very interested in, and welcome proposals by the State of Alaska to invest in renewable resources and alternative energy development, with consideration being given to the application of intermediate technology concepts. We hope that we may be associated in some way with these plans.

I enclose some literature concerning the Intermediate Technology Development Group. From this you will see that we are a limited company registered as a charity in the United Kingdom. Our overall objective is to provide developing countries with information on available small-scale technology options which may be appropriate to their needs and, where requested, to help introduce these technologies through field projects and consultancies. We have a small core of professional staff in the UK, with project officers and consultants working overseas, as the need arises. We are advised and assisted by a number of voluntary technical panels consisting of some 250 professional engineers, economists and administrators who give their service freely to the Group because they are committed to the concept of intermediate technology. Most of our panel members, many of whom have had considerable experience of developing countries, come from professional or academic institutions concerned with technology and, through them, the Group is linked into and can often draw upon the resources of these institutions.

The Group undertakes a number of activities. It collects, analyses and publishes information about appropriate, small-scale technologies; it responds to specific technical enquiries through the panels and through links with industry in Britain and elsewhere; it undertakes programmes of research and

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development, to fill identified gaps in technology and carries these into production, either in the UK or - preferably - in developing countries themselves, through its field projects and consultancies. To assist in these activities, the Group has established three wholly-owned subsidiaries :

(i) I.T. Publications Ltd., which prepares, publishes and distributes our literature, including a quarterly journal "Appropriate Technology" which acts as a practical forum for the exchange of ideas, principally among field workers;

(ii) I.T. Services Ltd., which operates our consultancy service on a commercial basis;

(iii) Development Techniques Ltd., which arranges for the manufacture and marketing of hardware developed or identified by the Group, or the procurement of appropriate hardware requested by overseas clients.

The Group has been commissioned by various international and national government and other organisations to give advice, conduct seminars or undertake projects on their behalf.

More recently, there has been a growing interest in the application of intermediate technology concepts to the problems of industrialised economies. As you will be aware, public opinion in Britain, the States and elsewhere is becoming increasingly concerned with the effects of large-scale, capital-intensive production systems which are based upon the cheap availability of - now rapidly dwindling - fossil fuel supplies; they are looking for alternatives which will ease the problems associated with the organisation of production, create new employment opportunities and give greater job satisfaction but which will reduce the present unacceptable levels of demand upon non-renewable resources.

Although the Group's main thrust continues to be towards the Third World, it has responded to increasing pressure from industrial nations to give advice and guidance. In North America, this has taken the form of visits, consultancies and services mounted on behalf of specialist government and non-government organisations. In Britain, the Group has established a special post with a senior consultant to stimulate and co-ordinate various initiatives leading towards the greater use of more appropriate technologies in the urban industrial environment. In doing so, we are trying to relate the experience gained in the Third World

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to the more intractable problems of industrial societies.

I enclose a short description of this project together with a recent paper prepared by the consultant, Mr. John Davis, because I believe that his background to the task will be of particular interest to you. His past experience in the petroleum industry has made him very aware of the need to foster the more economical use of material and energy resources, and to develop small enterprises which will utilise these resources more efficiently, create a more flexible system of employment and give greater job satisfaction. You may wish to consider whether Mr. Davis, together with one of our associates with direct experience of problems in rural communities would not form a useful team to assist you in planning later this year.

You have asked for information concerning the establishment of intermediate technology centres. In furtherance of our doctrine of self-help we seek to encourage developing countries to look increasingly to their own technological resources to tackle local problems at first hand, without necessarily having to rely upon foreign organisations such as ours, which are so far removed from the source of the problem. However, conventional academic and research institutes, particularly in these countries, are seldom geared to identifying problems and finding practical solutions to them, or to being able to translate the results of their work into production programmes. For this reason, we have advised and assisted developing countries to establish IT Centres to act as the focus for local technology development and application, using the resources of local institutions where appropriate.

A number of countries have already established IT Centres, including Ghana, India, Pakistan and Sri Lanka; others, in Colombia, the Caribbean and elsewhere are planning to do so. The organisation, staffing and specific objectives of these Centres varies according to local needs and perceptions but, generally, they are concerned with identifying local intermediate technology problems and applying appropriate solutions to them by :

(i) collecting and making available information on appropriate technologies;

(ii) initiating research and development to match the appropriate technologies to local needs; and

(ii) helping to translate the results into practical programmes.

I hope that the foregoing, together with the enclosed

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literature, will give you the information you require but I will be pleased to elaborate on any points which need further clarification.

Yours sincerely,

Dennis Frost

Dennis H. Frost
Director - Operations.

DHF/MH

INTERMEDIATE TECHNOLOGY DEVELOPMENT GROUP LIMITED

DEVELOPMENT OF ALTERNATIVE SMALL-SCALE TECHNOLOGIES FOR BRITAIN

INTRODUCTION

ITDG Ltd. has appointed a consultant to liaise with Groups and organisations in Britain who are concerned to promote the development and application of small-scale employment generating technologies appropriate to the present day needs of an industrial economy.

THE NEED

Increasingly complex problems of mass production technology, of industrial management, of energy use, of environmental damage and resource depletion have in recent years stimulated the exploration of alternative technologies and systems of living in the industrialised countries. The onset of the energy crisis has reinforced misgivings about the human and resource-depleting consequences of large-scale technology.

Since the late 1960's a wide variety of people in the Western world have begun to rethink the goals and values of industrial society in the belief that new economic and technological criteria need to be applied if a minimum acceptable standard of living for the West is to be maintained. However, efforts in this direction have been isolated and sporadic, lacking in any degree of official recognition or popular support: consequently, the momentum of industrialised societies is still largely directed to the maximisation of economic growth to provide the surplus that a growth economy requires.

More recently, the onset of the energy crisis has given a new emphasis to the need to re-examine the basis of production in our industrial economy and the social organisations which accompany it. Increasing numbers of people are coming to believe that alternatives, energy-conserving, small-scale technologies are relevant to our own society.

THE ROLE OF ITDG

During last year and this, the ITDG has received many enquiries and requests for advice and assistance from individuals and organisations who view the Group as the resource base from which to develop the application of intermediate technology in the UK. The Group's experience

in initiating the concept and application of intermediate technology to developing countries enables it to play a useful part in advising and assisting the promotion of similar programmes for this country.

On the other hand, the Group's constitution and activities channel and mainstream of its effort towards the Third World, and it has neither the direct experience nor the resources to divert a part of its existing effort to the tasks of developing and applying self-help technologies to industrialised communities. It believes that, in practice, these tasks can only be carried through by local groups capable of mobilising the experience and expertise of industrial, commercial and academic organisations having close ties with the communities of which they form a part.

The most appropriate and useful role for the Group in the UK would be, therefore, to provide services for local groups which none can readily provide for itself, namely -

- to promote the formation and guide the activities of local or regional organisations whose aim is to introduce alternative small-scale technologies in their areas;

- to create an effective communications system among them, so that they can learn from each other;

- to act as a focal point which gives them ready access to technical and organisational information.

THE CONSULTANT

Thanks to a generous grant from the Gatsby Foundation, ITDG LTD. has been able to engage the services of Mr. John Davis as its consultant to liaise with groups and provide the services outlined above. More specifically, his main tasks will be:

a. to identify groups and organisations whose aims are to promote the development of small-scale, employment generating technologies appropriate to the needs and changing circumstances of our industrialised society in Britain;

b. to evaluate them in terms of objectives, resources and organisational capacity and, where requested, to assist them to define these factors;

c. to encourage and stimulate the formation of new groups;

d. to create an information data bank of groups and their activities and to developm inter-communication processes so as to avoid duplication and to relate resources to needs;

e. to keep ITDG informed of developments, with special reference to the Group's own interests; to make recommendations on future action and liaison between the Group and UK-based organisations.

John Davis is a Chartered Engineer who worked for the Shell Group of companies between 1946 and 1974 in various capacities encompassing research, product and application development, marketing, personnel training and general management, including management consultancy. He is a Fellow of the Institute of Mechanical Engineers, a past Member of the Institute of Fuel and past Associate Fellow of the Royal Aeronautical Society as well as being Vice-President of the Institute of Petroleum. In the course of his career he has been increasingly involved with the problems of oil and natural gas utilisation and with air and sea pollution. John Davis is currently an independent consultant and free-lance writer on energy and management matters.

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October, 1975

The relevance of alternative technologies to Britain

The concept of technological inappropriateness is as old as Adam Smith. His descriptions of the division of labour, of job fragmentation and specialisation in pinmaking are as good as any that have ever been written. What he saw as a triumph of civilisation troubled other thinkers like Ruskin and Morris, who saw the same process as one of degradation to workers and their work. The same theme was taken up after the first World War by Shaw and Ghandi. The dilemma was most succinctly summed up in Ghandi's phrase "Production for the masses - not mass production - is what is needed".

These early warning signals did not, however, influence those concerned with economic development of the Third World following World War II. The success of industrialisation, and the urbanisation that was associated with it, in reducing poverty and improving the material wellbeing of the people of North America and Europe was sufficient to persuade most of the authorities in both the developed and under-developed countries that a recipe of universal application had been discovered. For more than twenty years the best Western technology was transferred unquestioningly to the poor world and was almost totally useless in relieving the poverty of their teaming millions. By 1960 this disastrous failure of development became hard to ignore and it was in 1963 in his report to the Indian Planning Commission that E.F. Schumacher first highlighted the need for different technologies - ones of higher productivity that the primitive, but sufficiently small and cheap and simple to be accessible to the rural peasant population. Such technologies he termed 'intermediate technologies'- 'ones that lie so to speak somewhere between the sickle and the combine harvester'.

For countries in which 80% of the population was rural, to give priority to industrialisation was putting the cart before the horse - it was doomed to failure. Any relevant economic development must start where the people are and agricultural revolution must come first. Food production is the principal social service and food a primary requirement of all living things. Technologies are the means which we devise to enable use to satisfy needs. They are for

people to use and they are irrelevant if they do not serve this purpose.

The situation in Britain is different in almost every respect, but the same considerations apply. Appropriate technologies for Britain must be relevant to our needs and our problems - now and for the foreseeable future. In order to identify the character of appropriate technologies for Britain we must firstly be clear about our situation.

A profile of economic Britain

1. Population - 56 million, probably declining, more than 80% urban. Densely concentrated in the South East and Midlands. Increasing proportion of retired and economically dependent people.

2. Resources - ⅔ raw materials imported. ½ food imported. More than ½ fossil fuel imported (North Sea oil and gas will be very short lived). More than ½ manufactured goods imported. Excessively dependent on overseas resources.
- Large land areas unused. (Little timber)
- Long coastline and big sea area.
- Highly educated and skilled population/High unemployment.

3. Agriculture - low employment (less than ½ million)/high productivity.
- highly mechanised/chemical dependent.
- poor wages/low investment return (exploited).

4. Industry - declining in many traditional sectors.
- increasingly concentrated in big firms and high technology.
- small firms sector dying.
- comparatively low added value, poor investment, poor design and quality, poor delivery, poor management, overmanning.
- poor human relations in important sectors.
- a national Cinderella.

5.	Productive/Distributive system	- highly fragmented and wasteful of resources - high volume production/"throw away" products - employs about ⅔ of national work force
6.	Economic system	- depreciating currency/chronic over expenditure - 'stag flation' - highly developed welfare society system - comparatively high direct taxation (saturation) - traditional low growth rate
7.	Distribution of Incomes & wealth	- rapidly increasing proportion of private wealth in pension funds and housing - low span of net incomes (probably lowest in the world) - resistance to further redistribution

For present purposes it is not necessary to attempt an exhaustive analysis of the British situation but it is necessary to relate the above skeleton outline to the changing world economic situation. The combination of a high level of consumption and social services, high dependence on foreign raw materials and food, poor industrial performance, high inflation, high unemployment and poor motivation make Britain highly vulnerable in a world of exploding population and commodity prices. Under these circumstances a continuation of our past high consumption, highly wasteful, "throw-away" system would seem to guarantee a future of real impoverishment which could be most damaging to the poorest section of the community - including the old and infirm - and to the welfare society. It cannot make sense for a nation which is long in manpower and short of food and material resources to continue with a system that is prodigiously wasteful of all three. In order to sustain a good quality of life - material, cultural and spiritual - in Britain we must reduce our dependence on foreign resources and make much better use of those that are indigenous.

It is important to note that such a course of development for this

country would be beneficial to the Third World and would also, as will become clear, have great potential benefits for individual quality of life in these islands.

The character of appropriate technologies for Britain

The key to the creation of a more sustainable and less dependent pattern of economic life in Britain is to be found in reduction of waste. Such a course of development would also provide valuable bonuses which can contribute to a worthwhile improvement in some other aspects of quality of life - less pollution, better work and personal job satisfaction, a better mix and spread of employment and an enhanced sense of community and care. It was a wise old man that said "Love meant something when things was mended". There can be no real caring in a community that does not care what it makes nor bother about what happens to it thereafter.

By no means all waste is a consequence of our existing technological systems. Personal attitudes and habits play a considerable part. But there is no doubt that much of present day waste can be traced to inappropriate technologies. If more satisfactory alternatives are to be introduced in the form of products and production/distribution systems they will need to possess characteristics which will contribute to their success.

Compatability

Some of the "alternative technology" to be found in the so called "self-sufficiency" movement is open to criticism in so far as compatability with the economic and social environment is concerned. To be a significant influence it should be relevant to a primarily urban population. It must also be capable of survival in a competitive market situation. The conditions for survival are that its products must attract sufficient custom, and value must be added at a sufficient rate such that a surplus is created (in Britain this means desirably adding value per employee at double earnings level - i.e. £7,000 p.a. - and certainly at not less than 1.5 times earnings). Failure to

satisfy the second of these conditions as a result of insufficiently productive methods (amongst many other reasons) will lead to collapse and rejection by the system. The social provisions of our society require that about 50% of all value added by industry, agriculture and commerce is taken by the State; without these revenues the welfare society would collapse. If we are to continue to enjoy benefits of health, education and welfare a surplus of wealth must be created to support them. This requires a moderately productive type of technology.

Many people see this as an insurmountable barrier to "alternative technologies". It is not insurmountable simply because the present system is so incredibly inefficient and wasteful.

Employment

Appropriate new technologies should be designed to provide work which is as satisfying and congenial as ingenuity can make it; in quantity and in variety sufficient ~~sufficient~~ to satisfy the needs of all sections of the population.

Much that is unsatisfactory in some kinds of present industrial employment is a consequence of systems of high volume production of 'throw-away' products in which labour costs have been sacrificed to material costs. Moving away from this type of system to age old formulae of producing durables which are durable will provide an opportunity - and no more than an opportunity - of better employment.

Size

In some measure the complexity and inefficiency of the present system is a result of an indiscriminate pursuit of bigness. Some things like large cargo carrying vessels and some chemical plants provide sufficient benefits to outweigh their disadvantages and are likely to be preferred so long as there is a need. But a very large part of manufacturing industry benefits little from

bigness of machinery or organisation and can suffer many disadvantages. An important feature, therefore, of alternative technologies will be a move towards smaller and more widely scattered production units of many kinds.

Beneficial consequences of such a trend will be communities with more varied employment opportunities and a diminution resulting from dispersal of some of the worst features of industrial pollution.

Resources

In most recent discussions of resource economy the main emphasis has been focussed on the replacement of non-renewable fossil fuels by renewable alternative energy sources. Little has been said, however, about the cost consequences of such a replacement in this country. Of course we do not know the costs of most alternative sources, but we can be reasonably certain that they will be more costly than fossil fuels and very likely three times as costly for most industrial applications. We must develop other applications of renewable energy which are sensible replacements for fossil fuels; but the most important aspect of energy strategy must be the replacement of the whole range of our existing wasteful energy use/ technology by systems that are much less wasteful - that is a "low-energy technology". An attainable target within the next 30 to 50 years would be the halving of our per capita consumption of 6 tons coal equivalent per annum. This should obviate the need for anything more than a small proportion of solar energy (and nuclear plants would be redundant).

Economy of raw materials and energy go hand in hand, since nearly three quarters of all industrial energy consumption is involved in the processing of raw materials and only about one quarter in fabrication. Thus the consequences of long-life product policies, renovation for reuse, repair and materials component recycling (the 4 R's) are all profoundly important for materials, energy and environmental conservation.

Sophistication

It is often assumed that alternative technologies must be less sophisticated and less scientifically complicated than conventional ones. This is part of a wish for technology to be of human scale - in this aspect, within the competence of anybody. The overthrow of division of labour and specialism to this extreme would inevitably mean regression to a pre-agricultural culture.

Scientific knowledge, skill of head and hand can inform appropriate future technologies as much as present high technology. For example, the development of electronic control systems can be invaluable in many applications, providing precision, reliability, energy and material economy at low cost. Similarly computer systems can greatly facilitate a decentralised operation.

The search for good technology is always a search for simple solutions but it is never shy of science and skill.

Capital

A critical feature of Third World Intermediate Technology is low capital investment. At the much higher earnings level in Britain it is of less importance (average investment per worker in industry is at present between two and three years average earnings). Good technology will always strive to obtain the required productivity at minimum capital cost whether it be for a big or a small plant.

In some cases of appropriate technology the capital investment per worker or per unit of product may be higher than at present (in others it may be lower), but the application of 4E's thinking (repair, renovation, recycling and reuse) to capital equipment can have a very profound effect of minimising the capital cost element, in some cases giving a two or three fold reduction.

The embodiment of these characteristics into future technology, particularly for use in small manufacturing firms, should contribute substantially to a healthy renewal of British industry in the following respects:

a) Provide a high proportion of the productive new job opportunities which are required to absorb about 1 million from unemployment, 1 million from private and public sector industry overmanning and 1 million from the overexpanded public services (largely local authorities)

b) to the extent economically viable and socially desirable, move towards a greater degree of regional self-sufficiency in basic manufactures.

c) reduce the dependence nationally on imported manufactures and create a better trade balance in manufactured goods.

d) reduce our national dependence on imported energy and raw materials.

e) increase the utilisation of indigenous resources.

f) substantially increase the efficient use of energy and other scarce material resources - whether indigenous or imported - and reduce per capita consumption by about 50%.

g) improve industrial flexibility, responsiveness to change, standards of delivery and product quality/reliability.

h) provide a better small-scale industry complement to the large scale industry mix.

j) through redesigned technology and production organisation provide work in small units which is more satisfying and personally fulfilling.

k) greatly increase the use of waste (waste energy/materials and used products of all sorts) through recycling, processing and product renovation.

l) reduce wasteful distribution transportation of goods and promote the most effective modes of transport.

m) improve environmental conditions.

n) provide opportunities for a substantial proportion of working people to participate in the "ownership" of their firm.

o) alleviate some of the problems of industrial relations through disintegration by reducing the size (in terms of numbers of employees) and the complexity of many of our over centralised/over concentrated production units.

p) re-create a sense of significance, pride and independence amongst a large section of the producing population and an appreciation on the part of those they supply and serve.

Some categories of appropriate technology for Britain

The totality of technologies in an industrialised society such as our own is so great as to defy enumeration in a single paper. It is, however, helpful to categorise some of the more significant types of technological change which can contribute to the evolution of an alternative system that will be appropriate to the needs of post-industrial Britain. The list of categories given below, with illustrative examples only, is not intended to be exhaustive but it does embody a powerful set of changes which, if given a chance (i.e. appropriate environmental 'software'),could move us towards a better quality of life for all.

1. Energy Options

a) Low energy technologies

Insulation systems

Total-energy systems

Energy storage systems

District heating systems

Waste material processing (pyrolysis, incineration) etc

Heat pumps

b) Alternative sources

Wind, wave , tidal, geothermal, hydrosystems

Solar walls, cells, panels

organic systems

2. Long-life durables

Consumer durables designed and made to last 30 to 50 years instead of 10.

3. Second-life durables

Products manufactured mainly from reconditioned used components of scrap machines, finished, presented and guaranteed under the same terms as similar products made from raw materials.

4. Waste material separation and reprocessing

Fertiliser manufacture from sewage

Animal feed processing from waste

Plastics, paper, textile, board and metal reprocessing

Articles manufactured from processed waste.

Industrial waste (fines) processing.

5. Small scale food and drink processing

Local bakeries

Local canneries

Local brewing and wine making

6. Craft and semi-craft manufacture

Furniture

Clothing and textiles

Pottery

Leather goods.

7. Natural materials processing and use

Timber

Natural fibres

Stone

Clay

8. Transport & communications

Motor/sailer cargo vessels

Electric delivery vehicles and buses

Electronic communication systems

9. Miniaturisation

Electronic systems

It is fair to say that there are not likely to be any insurmountable technical obstacles to the achievement of what is needed. Indeed considerable progress could be made on the basis of existing equipment to develop the small-scale manufacturing sector of the economy. Already with much higher wage levels France and Germany have six and five times as many firms employing between one and ten people as we do. In medium sized factories (less than 200 employees) Japan, France and Sweden employ more than half their manufacturing workers compared with little more than one quarter here.

But the change is unlikely to take place in Britain until both central and local government make some basic changes in the conditions under which small firms operate. The bottleneck is "software" not "hardware".

Conclusion

Britain was the first nation to industrialise; again we take the lead into a post-industrial age. The process of renewal is painful and uncertain. Thinking and planning must above all be exploratory, tentative and flexible, because nobody can know the outcome. We must at all costs avoid the arrogance of thinking we have solutions when we can barely perceive the problems. We must be careful not to abandon prematurely all the various courses of development that we have been following - perhaps the greatest disaster would be to try to

change too much too quickly.

A massive and complex (highly inefficient and wasteful) system has grown up. From much of it has come enormous benefit to many of our people. As the process of overall economic growth slows down we can start to create new small growth points to take the place of the old as they go into decline and die. We can concentrate much of our attention on new growth centres because it may well not be possible to transform the old. In this way, and in due time, much of the old will disappear to be replaced by a technology which, if we learn as we go, will be humane, small-scale, congenial, economical and harmonious with its environment. The best of what has been created during the industrial era will be retained and the worst will slip without regrets into history.

Schumacher subtitled his book "Small is beautiful" - A study of economics as if people mattered. The new technology - whether big or small - will only be beautiful if it is for people, who matter most.

John Davis

April 1977.

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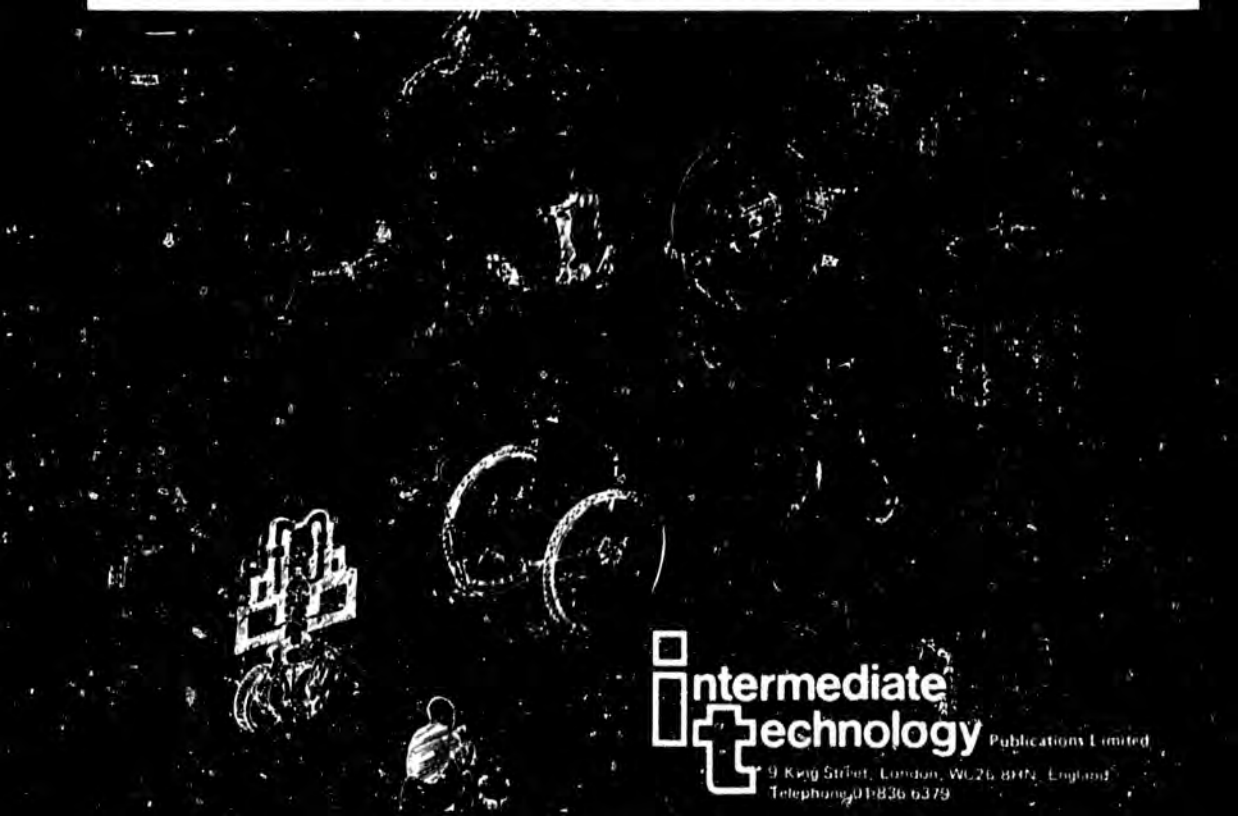

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INTRODUCTION TO APPROPRIATE TECHNOLOGY

Unemployment in the developing countries is a massive and growing problem. Village industries that h supported whole communities for centuries are disappearing, made redundant by urban mass production. Primitive agriculture cannot support a constantly increasing population, and workless men and women flock to cities which can give them neither decent shelter nor productive work.

In the battle against world poverty, many hundreds of thousands of people, working for hundreds of different organisations, are involved in *helping poor communities help themselves,* which means *working within the constraints and limitations of poverty.*

While these workers and their groups have easy access to the technologies and equipment of the affluent societies, they find that much of this does not "fit" in conditions of poverty, where ample capital resources and an elaborate infrastructure are lacking, and markets are small because most of the people are very poor. They are forced to look for *appropriate technologies,* for know-how and equipment *designed to help the poor to help themselves.*

Solutions for genuine development exist all over the world, but are scattered, hidden, often poorly documented and inaccessible to those in need, *when they are most needed.* Countless men and women "in the field" are trying to solve problems which have already been solved elsewhere, or are embarking on experiments which others have already shown to be unfruitful; they are looking for methods and equipment which may be already available, but they do not know where. At this level of technology, there is a great need of effective *international communication.*

With this problem in mind, *Appropriate Technology* was launched with generous support from the Commonwealth Foundation. It is primarily a *reader's journal,* a forum and market place where those directly involved in the immense difficulties and numerous frustrations of development work can make known their needs and achievements, their successes and also their failures, so that we can all learn to cope better with what is undoubtedly one of the most challenging tasks man has ever faced.

E.F. Schumacher

The Aim of Appropriate Technology:

To provide a forum for the exchange of practical information between field workers concerned with the implementation of development projects.

Its contributors are in the main men and women already involved in developmental activities, people who are tackling and in some cases solving technical problems, the teachers and trainers, the research and development workers, administrators and technical officers of both official and voluntary agencies. The style and level of content are *not* those of the conventional scientific or learned journal, but more those of a world-wide house journal for field workers at all levels. The demand for such a publication has been voiced by many people from widely differing areas of the developing countries, who want to communicate with each other, to learn from each other and exchange practical information.

Titles of some of the articles from past issues of *Appropriate Technology*:

Portable Hand Planter for Grains
M. Toye Ige

Practical Fish Farming: Making A Start
Douglas Cross

A Maize Sheller for Every Household
Dr D.J. Hilton

Device for Using Sawdust as Economic Home Fuel
Eric Simon and Pedro Solis

A Simple Low Maintenance Water Filter Suitable for Village Use
George Cansdale

Appropriate Technology in Sri Lanka
Ram K. Vepa

The Low-Cost Oil Palm Mill Project in Sierra Leone
A.M.W. Geddes

Hand Dug Water Wells Lined with Reinforced Concrete
S.B. Watt and W.E. Wood

Building Materials from Local Resources in the Sudan
John Parry

A Solar Oven from Yantra Vidyalaya
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intermediate technology

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philosophy

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philosophy and purpose

There is a growing realisation that the technology of the economically advanced nations is, in many cases, inappropriate for developing countries. Whereas the emphasis on technological development for industrialised economies has been on capital-intensive, labour-saving innovations, developing countries need low-cost, labour-intensive methods. Their major resource is an ever increasing pool of unskilled or semi-skilled but *unemployed* labour, which becomes an ever heavier burden upon the state in economic, political and moral terms. Yet these countries are short of the capital and skills required to utilise this major resource to the full. It follows that what capital and skills are available must be spread as widely as possible throughout the economy so as to generate the greatest degree of productive employment.

It is necessary to identify and develop levels of technology which will maximise labour inputs consistent with maintenance and improvement of production levels. This means that the technology required for each production process has to be examined and, if need be, adapted to increase the labour input and reduce the inputs of capital and scarce skills. Research into and development of appropriate technologies within the agricultural sector should be the first priority; but this, in turn, must lead to corresponding research and development into a wide range of activities, including water supplies, marketing, transportation, storage food processing, light industry, housing, construction materials, wind and solar power, health and sanitation.

The Intermediate Technology Development Group, London, was established in 1965 to investigate ways and means of utilising to the fullest extent the resources available to developing countries through the application of the appropriate technologies. Its main aims are:

- to compile inventories of existing technologies which can be used within the concept of low-cost, labour-intensive production;
- to identify gaps in the range of existing technologies;
- to research into and develop by invention or modification new or more appropriate processes;
- to test and demonstrate in the field the results of its investigations; and
- to publish and make known the results of its work as widely as possible, so as to faciliate the transfer and use of appropriate technology.

The Group is a company limited by guarantee and registered as a charity (Reg. No. 247257). The Operations Centre, which is essential to the success of all the individual projects, is funded mainly by grants and donations from charitable foundations. The centre works closely with governments of developing countries to assess the intermediate technology possibilities in the fields in which they are seeking assistance – making feasibility studies, supervising projects when they are agreed and, when completed, evaluating their impact on development.

It is important that all the knowledge and experience gained through research and practical work in the field is fully appraised, recorded and made available worldwide. This harvesting of experience is one of the Group's vital roles.

people

Chairman	E.F. Schumacher CBE
Executive Directors	Dennis Frost MBE George McRobie Julia Porter Peter Reid
Administrators	Warren Adams (Economic Adviser) Deborah Ainger (Technical Panels) Winifred Dalby (Appeals) Alan Doran (Finance) Mark Sinclair (Operations) Philip Winter (External Relations)
Company Secretary	Doreen Joiner
Editor	Frank Solomon MC

This team staffs the Operations Centre at 9 King Street, Covent Garden, London WC2E 8HN, UK. Tel: 01-836 6379. It coordinates the work of the Group, provides general information on ITDG and processes technical enquiries with the help of its UK-based project staff:

John Boyd (Agriculture)
Andrew Cowan (Industrial Liaison)
John Davis (Alternative Technology in the UK)
Peter Fraenkel (Power)
Derek Miles (Building)
John Collett (Water)

panels

A number of voluntary panels brings together a wide range of people with a high level of professional expertise. They give advice to the Group; introduce new ideas and fields of activity; widen the Group's range of contacts and expertise; and lend authority to the concept of intermediate technology within governments, funding agencies and professional

organisations. The work of the panels includes the preparation of specifications of available equipment, teaching manuals and technical reports, and the promotion of new research and development with universities, technical colleges and professional associations.

The panels are as follows:

Agriculture	*Chairman:*	Dr H.S. Darling, CBE Principal, Wye College
Building and Building Materials	*Chairman:*	J.P.M. Parry, MBE J.P.M. Parry Associates
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programme

In addition to the work of its operations centre and the advisory work of its panels, the Group's programme is carried out by means of:

a) *Research and Development Units.* U.K. based units staffed by the Group's own officers work in close collaboration with universities and colleges of technology, in the fields of agriculture, water, building, and power. The Industrial Liaison Unit collaborates with firms and colleges of technology to identify and advise on appropriate industrial machinery, equipment and techniques in response to specified overseas needs.

b) *Overseas Consultancies and Projects.* The Group, through one of its subsidiary companies, maintains a panel of associate consultants who can advise on the identification of problems, or the planning and implementation of intermediate technology programmes overseas. Where necessary, project officers are assigned to test out and demonstrate innovations and to set up production processes within national development programmes.

Countries in which the Group has undertaken consultancies or has established projects during 1975-76 include: Bangladesh, Botswana, Caribbean, Cameroon, Ethiopia, Honduras, India, Kenya, Lesotho, Sri Lanka, Sudan, Tanzania, Tasmania, Turkey.

Three subsidiary companies have been established to assist the Group in carrying out its programme. These are:

- *Development Techniques Ltd.*, formed in 1970 to design, develop and produce specialised equipment for developing countries.
- *Intermediate Technology Services Ltd.*, which organises the Group's overseas consultancies and maintains a register of consultants qualified to undertake work in many branches of intermediate technology.
- *Intermediate Technology Publications Ltd.* This company is the Group's publisher of the quarterly journal, reports and technical books, some of which are listed overleaf.

Further information on these subsidiaries is available from ITDG at 9 King Street, London WC2E 8HN, UK.

publications

The Group publishes an international quarterly journal entitled *Appropriate Technology*. It provides a focus for an exchange of information and ideas on intermediate technology throughout the world.

Main publications in the fields of agriculture, building, chemistry, rural health, cooperative accounting, industry, rural workshops and water are listed below. Details and price lists are available on request from Intermediate Technology Publications Ltd, 9 King Street, London WC2E 8HN, UK.

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Energy Primer is a comprehensive, fairly technical book about renewable forms of energy — solar, wind, water and biofuels. Each section also includes a detailed series of book and publication reviews, plus a listing of organisations and manufacturers offering appropriate equipment or services. 200pp. Illus. 1974 (The Portola Institute)

£3.00 net *£3.90 surface & UK* *£5.90 air*

Technology for Development Primarily for teachers, this handbook puts technology in the context of social, economic and political change. Issues are highlighted with facts, discussion and cartoon illustration. Sections on alternative technology for the developed world, and research and resources for further study. 100pp. 1975 (Voluntary Committee on Overseas Aid and Development)

£1.15 net *£1.70 surface & UK* *£3.15 air*

WATER

A Bibliography of Low-Cost Water Technologies A brief appraisal of reference material compiled by ITDG on low-cost, low-skill water technologies, with the emphasis on water supplies for domestic and agricultural use. 39pp. Third edition. 1974 (IT Pubs Ltd)

£1.00 net *£1.30 surface & UK* *£1.95 air*

Chinese Chain and Washer Pumps Compiled by Simon Watt. Contains a selection of 21 designs from 120 simple pumping devices displayed at the 1958 Peking Agricultural Exhibition. Includes technical information on design, construction and operation of chain and washer pumps. The appendix contains five examples of chain pumps from other countries. Two pages of photographs, 31 line drawings. 53pp. Illus. 1976 (IT Pubs Ltd)

£1.25 net *£1.55 surface & UK* *£1.95 air*

Hand Dug Wells and Their Construction by S. Watt and W.E. Wood. This definitive work provides practical step-by-step guidance in the technique of digging and constructing a well. It includes the principles of groundwater storage, the actual construction, the materials required and details of additional sources of information. 234pp. Illus. 1977 (IT Pubs Ltd)

£3.50 net *£4.05 surface & UK* *£5.00 air*

The Introduction of Rainwater Catchment Tanks and Micro-Irrigation to Botswana Report of a field project, illustrated. 74pp. 1969 (IT Pubs Ltd)

£1.50 net *£2.05 surface & UK* *£3.30 air*

A Manual on the Automatic Hydraulic Ram Pump by Simon Watt. Contains details of how to make and maintain a small hydraulic ram on a suitable site. The second part takes a more technical look at ram performances and design considerations and contains a useful annotated bibliography. 37pp. 1975 (IT Pubs Ltd)

£1.50 net *£1.80 surface & UK* *£2.45 air*

Report on Low-Cost Waterproof Membranes by David Maddocks. Presents the basic methods of construction of membranes to be used to line rainwater catchment areas or water storages and includes a bibliography and sample costings. 109pp. 1975 (IT Pubs Ltd)

£3.50 net *£4.05 surface & UK* *£5.30 air*

Salawepump A 7-page leaflet of step-by-step instructions on the building of a simple hand pump which can raise water from a maximum depth of 6 metres (20ft) from any existing pool. 7pp. 1975 (TOOL)

£0.65 net *£0.85 surface & UK* *£1.15 air*

Water Treatment and Sanitation A handbook of simple methods for rural areas in developing countries. 90pp. Revised edition. 1976 (IT Pubs Ltd)

£2.00 net *£2.30 surface & UK* *£2.95 air*

WIND

Food from Windmills by Peter Fraenkel. A report on the Food from Wind project, Ethiopia, in which sail windmills are evaluated and improvements suggested for better irrigation. 56pp. 1975 (IT Pubs Ltd)

£3.00 net *£3.55 surface & UK* *£4.35 air*

Simplified Wind Power Systems for Experimenters by Jack Park. Details of many different types of windmill profusely illustrated with photographs and diagrams. 80pp. 1975 (Helion)

£3.50 net *£4.05 surface & UK* *£5.10 air*

Forthcoming Publications Include:

Consultancy for Small Businesses by Malcolm Harper
Business Calculations for Co-operatives by Trevor Bottomley
Building Construction Management for Developing Countries (IT Pubs Ltd)

- Vol.1 Accounting and Book-keeping
- Vol.2 Financial Planning and Cash Flow
- Vol.3 Estimating and Tendering

Methane Generation by Anaerobic Fermentation: An Annotated Bibliography by [illegible] Pyle and Christina Freeman
Self-Help Housing Through Co-operatives by A.C. Lewin
Omo River Windmill (Agricultural Green Leaflet series)

Profiles

1. **Equipment for Rural Workshops**
2. **Fertilizer Manufacture using different levels of technology**
3. **Land clearance using different levels of equipment**

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Telephone: Nottingham (0602) 74505

INTERMEDIATE TECHNOLOGY DEVELOPMENT GROUP LIMITED

SUMMARY OF FIELD EXPERIENCE AND CAPABILITY

The Intermediate Technology Development Group Limited was established in 1965 to investigate and provide information on ways and means of maximising the use of local resources in developing countries through the application of appropriate, capital-saving, employment-generating technologies in the intermediate range.

One of the Group's major activities has been to advise and assist governments, development aid agencies and other organisations in the establishment of institutional and field programmes using intermediate technologies.

The Group is advised by a variety of technical panels and it has access to a wide range of associate consultants through its panel members, its specialist units and its subsidiary company, Intermediate Technology Services Ltd. who, in addition to their professional expertise, have special experience in the application of appropriate , small-scale technologies. Panel members, who serve in a voluntary capacity, number over 200 and are drawn from universities and colleges of technology, businesses consultancy companies and research institutions.

In addition to its technical panels the Group employs a nucleus of specialist staff in the fields of agricultural engineering, water development, construction and building materials, power and small industries. In addition to their normal programme, staff members are available for overseas consultancies and field projects.

Annexure I is a list of the panels currently operated by the Group and annexures II - VI give examples of services it has provided to overseas governments and agencies in the form of consultancies and field projects.

ITDG, MARCH 1977

ANNEXURE I

INTERMEDIATE TECHNOLOGY DEVELOPMENT GROUP LIMITED

TECHNICAL PANELS

	Chairman	Member-ship
AGRICULTURE	Sir John Palmer	12
BUILDING & BUILDING MATERIALS	J.P.M. Parry, MBE J.P.M. Parry & Associates	21
CHEMISTRY & CHEMICAL ENGINEERING	Ms Iris Pape	37
CO-OPERATIVES	Lord Oram	15
FERRO-CEMENT	J.D. McIntosh Fire Insurers' Research & Testing Organisation	12
FORESTRY & FOREST PRODUCTS	Dr. Alastair Fraser International Forest Science Consultancy	25
HEALTH	Dr. Katherine Elliott Ciba Foundation	18
HOMESTEAD TECHNOLOGY	Miss Elizabeth O'Kelly, MBE	22
NUTRITION	Dr. J. Worgan National College of Food Technology	10
POWER	Professor P. Dunn, Dept. of Engineering and Cybernetics University of Reading	38
PRINTING	Rev. James Sutton "Feed the Minds"	7
RURAL FOOD TECHNOLOGY ADVISORY GROUP (RUFTAG) (jointly with the Tropical Products Institute)	Dr. P. Spensley Tropical Products Institute	18
TRANSPORT	Dr. J.D. Howe Alastair Dick & Associates	21
WATER	J. Pickford, Esq., University of Technology Loughborough	19

AGRICULTURE

LIBERIA 1970

To advise the Department of Agriculture on the potential for developing small-scale rural food industries; undertaken on behalf of Christian Aid.

TURKEY 1970

To advise the Development Foundation of Turkey on the development of a poultry production sch and to identify suitable equipment for the project.

NIGERIA 1971-74

Development of hand-operated and animal-drawn equipment and machinery within the context of local farming systems, with a view to reducing the constraints to improved production, undertaken at the request of the Institute of Agricultural Research, Ahmadu Bello University and financed by Christian Aid.

ZAMBIA 1971-74

Development of simple techniques for conducting farm level surveys, followed by a survey of farming patterns in the Plateau Tonga area of Zambia, the construction, testing and demonstration of appropriate animal drawn equipment and the training of local blacksmiths - undertaken in conjunction with the Government of Zambia and financed by the Freedom From Hunger Campaign.

TANZANIA 1972-74

Development of village food technology programmes and establishment of a Rural Food Technology Unit undertaken at the request of the Department of Agriculture and in association with the National College of Food Technology, Weybridge, England.

BOTSWANA 1973

An examination of the natural resources of specified areas with a view to producing an outline development plan; undertaken in conjunction with the Ministry of Overseas Development and Huntings Technical Services.

LESOTHO 1975

Advice to the Lesotho Government on the feasibility of establishing facilities for the local manufacture of ox-drawn agricultural equipment; undertaken on behalf of the Commonwealth Fund for Technical Cooperation.

S. SUDAN 1975

Advice on the appropriateness of plans to establish an ox-training centre and the manufacture of agricultural equipment; undertaken at the request of the Sudan Council of Churches.

TURKEY 1975

Advice to the Development Foundation of Turkey on processes for re-cycling poultry waste products for conversion into high-protein animal foodstuffs.

ETHIOPIA 1976

Advice to the Ministry of Agriculture on the coordination and proper utlisation of agricultural and trades training facilities in order to promote training in and production of animal drawn agricultural equipment and other rural activities.

HONDURAS 1976

Advice on the development of small farm technology, with reference to the feasibility of local manufacture of farm implements and the development of an extension programme to assist manufacturers and distributors; undertaken at the request of USAID.

SUDAN 1977

Advice on the feasibility of forestry development in four areas of South Sudan; undertaken on behalf of Lutheran World Relief.

CONSTRUCTION AND BUILDING MATERIALS

AFRICA 1969-72

Research in several areas into ways of promoting improvements in the efficiency of building operations at intermediate levels in developing countries, followed by the publication of teaching manuals on small contractor training; undertaken on behalf of the Ministry of Overseas Development.

GHANA 1972-73

Development of low-cost, self-helf building techniques in collaboration with the Department of Housing and Planning Research, University of Science and Technology, Kumasi; supported by Christian Aid and Scottish War on Want.

INDIA 1973-74

Research into small-scale building materials industries in India and the possible transfer of the technology employed to the African continent; supported by the Wates Foundation.

SUDAN 1973-74

Development of prototype ferro-cement river craft for local construction and use on the Upper Nile, carried out on behalf of the Sudan Council of Churches in collaboration with the Southern Region Ministry of Cooperatives and Rural Development and supported by Christian Aid.

GHANA 1974

A study of the feasibility of establishing small-scale manufacture of lime pozzolana undertaken at the request of the Ghana Building Research Establishment.

TANZANIA 1974

Advice to the Tanzanian Government on the establishment of a production/training centre for small-scale lime production and other building materials.

SUDAN 1975-76

Advice and assistance to the S.Sudan Regional Development Corporation on the up-grading of the local building materials industry and the establishment of labour-intensive bricks and tiles manufacturing facilities; undertaken at the request of the Corporation and the Sudan Council of Churches.

LESOTHO 1976

A market study for the development of the brick, block, stone and related building materials industries, with special reference to the feasibility of local manufacture on behalf of the Commonwealth Secretariat through the Commonwealth Fund for Technical Cooperation.

TANZANIA 1976

A technical assessment of prospects for small-scale lime-pozzolana manufacture in Arusha region, undertaken on behalf of the Small Industries Development Organisation.

TANZANIA 1976

Advice and assistance in establishing production/training in brick and tile manufacture by village cooperatives. Undertaken on behalf of the Ministry of Overseas Development at the request of the Small Industries Development Organisation of the Government of Tanzania.

TANZANIA 1977

Examination of manpower, education and training aspects of the construction and related industries for the Ministry of Works on behalf of SIDA, as part of the Tanzania Construction Industry Study.

TANZANIA 1977

Preparation of course material for, and lecturing at, the ILO African Regional Course for construction management trainers on behalf of ILO/NORAD.

GENERAL

Report for the Building Research Establishment describing the range of brickmaking technologies in developing countries (1977).

In addition to the above, the Group's resident civil engineer has participated in ILO missions to Indonesia (1974 - site and service schemes relative to resettlement programmes), Lesotho (1975 - labour intensive road construction methods) and Sudan (1975 - regeneration of local building industries).

ANNEXURE IV

SMALL INDUSTRIES - GENERAL

KENYA 1969

Advice on the development potential for rural industries with special reference to sisal, wood, metal and leather work.

TRINIDAD AND TOBAGO 1969

To advise on the development potential for small-scale industries in rural areas; a joint ILO/ITDG mission.

TANZANIA 1969

A report for the ILO on small industry potential in rural areas.

BOTSWANA, LESOTHO AND SWAZILAND 1970

A study of small enterprises and recommendations for entrepreneural development in the countries concerned, conducted at the request of the Ministry of Overseas Development.

TOGO 1970

Survey of the most effective means of establishing small-scale industries, undertaken at the request of the Economic Commission for Africa in collaboration with UNIDO experts.

CAMEROON 1971 and 1976

Assistance in establishing a rural crafts industry; followed up in 1976 with a further visit to report on development progress.

NIGERIA 1971-73

Research into the feasibility of establishing light industry production/training capability in the Northern States, followed by the establishment of a prototype workshop at Zaria to manufacture hospital equipment, school and domestic furniture, agricultural implements, etc., at the request of the North Central State Government, on behalf of the Ministry of Overseas Development.

MAURITIUS 1972

Survey and report to the Ministries of Economic Planning and Development and of Finance on the development of employment generation programmes using intermediate, self-help techniques.

PAKISTAN 1974

A techno-economic feasibility study of the possibilities of developing mini-plants for the manufacture of basic chemicals, fertilisers, insecticides, essential pharmaceuticals and minerals with particular reference to the selection of products, the scale of operation, availability of local inputs, viability, financial profitability and safety control requirements carried out at the request of the Government of Pakistan, on behalf of the Ministry of Overseas Development.

GUYANA 1974

A survey and report on the development of small industries with particular reference to the utlisation of natural resources and waste products, undertaken on behalf of GUYBAU - (Guyana Bauxite) Ltd.

TANZANIA 1974

Survey and recommendations to the Small Industries Development Organisation on the development of small industry possibilities, undertaken on behalf of the Commonwealth Fund for Technical Cooperation.

SUDAN 1975-77

A two-year project undertaken on behalf of Christian Aid and the Sudan Council of Churches to construct ferro-cement river craft and to examine the feasibility of establishing a local boat building industry in Southern Sudan.

KENYA 1976

To advise the Government of Kenya on improved procurement and marketing of hand tools and equipment for the Rural Access Road Programme on behalf of the Ministry of Overseas Development.

TANZANIA 1976

Advice to the Small Industries Development Organisation on the development of small-scale leather goods production, including the identification of appropriate machinery; undertaken on behalf of the Ministry of Overseas Development.

ANNEXURE V

WATER DEVELOPMENT

BOTSWANA 1967-68

A pilot project carried out at the request of the Central District Council and the Department of Education, Botswana to research into and introduce rainwater catchment tanks and micro-irrigation systems.

SWAZILAND 1970-73

At the request of the Government of Swaziland, the establishment of rainwater catchment tanks in rural areas, on a self-help basis, as an extension of the pilot project undertaken in Botswana.

ETHIOPIA 1971

Recommendations for the introduction of village water supplies and small-scale conservation works in Tigrai Province.

JAMAICA 1971-73

A techno-economic survey carried out at the request of the Department of Geological Surveys, Jamaica and the Ministry of Overseas Development, London of the feasibility of establishing rainwater catchment tanks in thelimestone regions of Jamaica; followed by the construction of a prototype installation.

BRAZIL 1973-74

A project to introduce and develop low-cost methods of rainwater conservation in the Fundacao Ruralista project, N.E. Brazil undertaken at the request of the Brazilian Government on behalf of the Ministry of Overseas Development.

ETHIOPIA 1973-74

The identification of sites and construction of prototype surface water retention and spreading systems for irrigation of fodder crops in the N.E. Rangelands of Wollo Province; undertaken at the request of the Ethiopian Government's Livestock and Meat Board as part of its relief programme, on behalf of the Ministry of Overseas Development.

ETHIOPIA 1974-76

Provision of a senior consultant to the National Water Resources Authority to advise and assist in the planning and establishment of low-cost rural water supplies; undertaken on behalf of the Ministry of Overseas Development.

ETHIOPIA 1975-77

A two-year pilot project to establish village water supplies through self-help programmes; undertaken on behalf of OXFAM, Quebec.

ETHIOPIA 1975

Advice on the adaption and up-grading of locally manufactured windmills for irrigation; undertaken on behalf of OXFAM, UK.

GENERAL

1977 - Advice on the need and potential for a journal on water supplies and sanitation in developing countries for the International Development Research Centre (IDRC).

ANNEXURE VI

DEVELOPMENT - INSTITUTIONAL AND RURAL

TANZANIA 1968

Report to Tanzanian Government on a strategy for economic development to promote small-scale, rural industrial development.

ZAMBIA 1969

Advice on institutions and methods to promote the development of rural areas in Zambia; undertaken at the request of H.E. the President of Zambia.

GHANA 1971

Advice and assistance on the establishment of a Technology Consultancy Centre at the University of Technology, Kumasi.

CANADA 1973

A report on the feasibility of establishing rural development programmes among Metis communities; undertaken on behalf of the Metis Association of Canada.

PAKISTAN 1973

Advice to the Government of Pakistan on the establishment of an Appropriate Technology development unit and on the introduction of intermediate technology programmes into its National Rural Development Plan; undertaken on behalf of the Ministry of Overseas Development.

KENYA 1974

Survey and report to the Kenya Government on progress in the establishment of village polytechnics; undertaken in conjunction with NORAD.

RWANDA 1974

An evaluation of existing trades schools and recommendations for the establishment of a training centre for urban youth; undertaken on behalf of Christian Aid.

SRI LANKA 1975

Advice on the establishment of a national Appropriate Technology Centre undertaken on behalf of the ILO.

TASMANIA 1976

Advice to the State Government on plans for the generation of local industrial activity and employment creating opportunities over the next 5 years; undertaken on behalf of the Government of Tasmania.

CANADA 1976

Assessment of the Treaty 3 Community Development Programme and to advise on a future programme on behalf of the Grand Council Treaty No. 3, Kenora, Ontario.

CARIBBEAN 1976

Study tour to Barbados and the Eastern Caribbean to assess possibilities for the creation of small, employment-generating enterprises on behalf of HM Foreign and Commonwealth Office and the Ministry of Overseas Development.

CARIBBEAN 1976

Consultant to USAID mission to prepare recommendations for the creation of appropriate technology institutions for the Commonwealth Caribbean nations.

KENYA 1976

An investigation of appropriate transport systems for rural communities, with emphasis on the goods transport needs of the small-scale farmer. A joint mission on behalf of the International Bank for Reconstruction and Development.

COLOMBIA 1977

Consultancy undertaken at the request of SENA, the Colombian national training and apprenticeship organisation, to advise on the setting up of an appropriate technology group with special reference to agricultural machinery needs and equipment of urban small industries in the informal sector on behalf of UNDP.

UN ECONOMIC COMMISSION FOR AFRICA 1975 -1978

Adviser on Low Cost Technologies, three year secondment 1975-78, to assist governments to identify requirements for low cost technologies and their application in selected African countries, and to stimulate national IT centres for research and development. Countries visited include Tanzania, Kenya, Zambia, Lesotho, Botswana, Niger, Upper Volta, Sierra Leone, and Ghana.

Village Technology Expert Pan-African Training and Research Centre for Women, three year secondment 1975-78, to advise governments and local groups on programmes and project implementation concerning appropriate technologies for women's activities in rural areas. Countries visited include Sudan, Tanzania, Kenya, Gambia, Sierra Leone, Liberia, Ghana and Nigeria.

PLEASE NOTE: THE PRECEDING PAGES WERE TREATED AS A UNIT IN THE ORIGINAL DOCUMENT.

Intermediate Technology Development Group Ltd
9 King Street, London WC2E 8HN, U.K.
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Cables: IT/DEV, LONDON WC2
Company Reg. No. 871954
Vice Presidents: J. C. Cadbury, H. Hanning
Dr. Dudley Seers, Sir George Sinclair, CMG, OBE, MP.

28th September 1977

Representative Clark Gruening
940 Tyonek Drive,
Anchorage,
Alaska 99501
USA

Dear Representative Gruening,

You may already have learned from other sources of the recent death of Dr. E. F. Schumacher, Chairman of our Group, about a fortnight ago. The news of his death came as a great shock to all of us here at the Group and to his many friends around the world. Having spent a typically busy workweek with the Group and his other activities in England, he had given a major address on Saturday in Switzerland. On Sunday, en route by train to another engagement he was suddenly taken ill. He was taken from the train but died from heart failure before reaching hospital.

Words of sympathy and appreciation for the man and his ideas have flowed in from all over the world, from leaders and common people who felt he expressed "their" ideas, concerns and hopes. Those expressions have been deeply appreciated by the family and his close colleagues in his many works. He will be sadly missed by all of us, but we in his Group look forward to carrying on the work he inspired.

In the week preceding his death, our Group held a Board of Directors Workshop out of London to consider our current situation and explore future needs and actions. In the course of one of our discussions the subject of Alaska was raised by Dr. Schumacher and we then became aware of the fact that he had received a letter from you directly at home (March 8, 1977) and our office had received one from Mr. Brian Rogers (March 22, 1977). Since we did not have direct access to our files at the time, Dr. Schumacher promised to forward his file to me. He did so just prior to his departure for Switzerland with an accompanying note reporting that he did not have time to locate his answer, if any, to your letter, but would look further upon his return. He further noted that he was deeply interested in pursuing the matter further and felt that the Group should be actively responsive.

Perhaps in the course of time we shall sort out his personal files and locate his response to your letter. However, I have located

....in our/

in our files our response to Mr. Rogers, but fail to locate anything further from him. I believe our letter of May 3, 1977 to him indicates our various activities and capacities. However, I would like to reiterate the interest we indicated in that letter as underscored by Dr. Schumacher's final directive. We would appreciate hearing further about prospects for collaboration on the problems and alternatives facing Alaska and would welcome any opportunity to participate with you in those directions. In our letter Mr. Frost, our Director of Operations specifically mentioned the particular qualifications of Mr. John Davis and I would hope that it might be possible at some point for Mr. Davis, perhaps along with Mr. Frost or another senior staff member might be helpful to you in discussing and initiating further action.

We look forward to hearing further from you.

Sincerely,

W. E. Adams

Dr. W. E. Adams,
Economic Adviser, ITDG

cc: Mr. D. H. Frost, Mr. J. Davis } ITDG

HOLCOMBE
WEALD WAY
CATERHAM
SURREY
Tel. Caterham 42506

9th March, 1977.

Mr. Brian Rogers,
Administrative Assistant,
Alaska Permanent Fund Committee,
Pouch V,
Juneau, Ak 99811.

Dear Mr. Rogers,

Re: Your letter to Dr.E.F.Schumacher, dated March 3, 1977.

Dr. Schumacher is at present on an extended lecture tour through the United States and has asked me to acknowledge receipt of your letter, inviting him to contribute ideas and proposals towards the objectives of the Permanent Fund. Dr. Schumacher will, no doubt, greatly appreciate your invitation, and will reply to you personally upon his return to this country early in April.

Yours sincerely,

Loli Carter

Loli Carter (Mrs.)

Intermediate Technology

556 Santa Cruz Avenue Menlo Park, California 94025 (415)328-1730

15 july 1977

Dear Brian:

I'm not much of one for writing formal-type letters, but the enclosed one isn't too funky, so that you can give it to your legislators, other colleagues and so on.

What I thought I might tell you for your personal information is that I have been hooked on Alaska for many years, starting with a personal friend who told me tales about the country in my childhood in the 1930s.

In the mid-50s I spent 18 months based at Fort Richardson, and my work in the army took me to some fairly weird and remote places, out on the Chain and up to Point Hope and Point Wales and so on. I have told many people many times that one weekend, in which two other guys and I borrowed a car and drove down and spent the night at our base on the Kenai, then spent the next day in Homer and ate crab at the tiny little restaurant which then sat out on the end of the hook-shaped peninsula, was one of the most memorable times of my life.

My father, now dead, was a geologist. In the early 1960s I put together a group which for several years held underwater mining rights on I don't know how many thousand acres of the Seward Passage and other inland-passage waters. Then a little stock market crash of that period called "Blue Monday" mopped up some of the necessary capital and everybody had to go on to other things.

But the net result of all this is that if I and my colleagues are ever able to do anything that would help Alaska to get on a more stable and healthy and broad-based economic footing, it would be profoundly gratifying to me personally.

Best Peter

P.S. Are you in fact located in Anchorage, or Juneau, or back and forth? That is, which address is better for you? I'm sending this to Anchorage simply because your letter was sent from there.

png

Intermediate Technology

556 Santa Cruz Avenue Menlo Park, California 94025 (415)328-1730

15 july 1977

Mr. Brian Rogers, Administrative Assistant
House Permanent Fund Committee
528 West Fifth Street, Suite 270
Anchorage AK 99501

Dear Mr. Rogers:

The Postal Service managed to take ten days to deliver your letter postmarked July fifth, perhaps out of eagerness to collect a grand total of eleven cents postage due. The letter was put in my in-basket when I was lighting my pipe with a match from a folder left by a friend which reads "Bird House -- 27 Miles South of Anchorage.." Considering the fact I haven't set foot in your state, other than the Anchorage airport, since 1955, maybe somebody is trying to tell me something.

If I could help by performing consulting services for the Committee I should be delighted. Intermediate Technology charges $500 per day plus expenses for my work on a short term basis, which we call "brain-picking" and are doing less and less of. I spent fifteen years on the international development "capitol-city-Hilton jet set" traveling-expert circuit and I am firmly against doing any more of the shoot-from-the-hip stuff on the basis of what is usually slender detailed knowledge of local realities. If the Committee is interested in a package which could, if necessary at a lower cost per day, let me do some intensive homework and then spend perhaps one to three weeks in Alaska before writing my report, I would be interested. Most of our other consulting work with States and smaller units is set up on a similar basis, looking toward what may be hard work over the long haul. As you probably know, Montana has a situation which is vaguely analogous to yours, with their extraction tax on coal and with about 85% of new college graduates having to leave the state to find work.

My near-term commitments here are heavy, particularly the need to complete my part of Good Work, which Dr. Schumacher and I are contracted to deliver to Harper & Row by September. What I might be able to do, assuming we can reach an appropriate arrangement, is to catch him during his Canada visit in October to discuss my preliminary work and approach on the Alaska project and get his reactions and advice. (I've already checked and a side trip for him to Alaska is completely impossible this year.) Then I might be able to come north in late October or early November, if such a schedule fits in with your own priorities, or later of course. Having never shot a bear I still qualify as a tenderfoot, but cold weather doesn't scare me as much as tourists or black flies.

PNG:ms

Sincerely,

Peter N. Gillingham

c: Dr. E.F. Schumacher, CBE