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SCOUTING, DEVELOPMENT AND APPROPRIATE TECHNOLOGY

PART 1. – UNDERSTANDING THE PROBLEM - WHAT SCOUTS CAN DO

SCOUTING, DEVELOPMENT AND APPROPRIATE TECHNOLOGY

SUMMARY

PART 1. - UNDERSTANDING THE PROBLEM - WHAT SCOUTS CAN DO

Part 1 is a simple outline of the problems and possibilities of technology in the process of community development. It discusses how the right kind of technology can improve the standard of living in the community. It shows also what Scouts can do to make the community aware of more appropriate technology, and to develop and utilize it themselves.

PART 2.
PART 3. - "HOW TO..."

Parts 2 and 3 provide technical descriptions for several simple projects that Scouts could work on in their communities. They include projects to make water cleaner, to preserve food longer, and several others. You will need to choose the ones most appropriate to your situation.

HOW TO USE THESE BOOKLETS

These booklets are written for National Scout Associations, Scout leaders and other interested organizations. They can be used :

(a) in regular Scout leader training meetings and Scout activities,

(b) in workshops on community development and appropriate technology,

(c) as a basis for producing material on appropriate technology in other languages,

(d) as a manual for appropriate technology projects.

CONTENTS

CHAPTER I. SCOUTING AND DEVELOPMENT

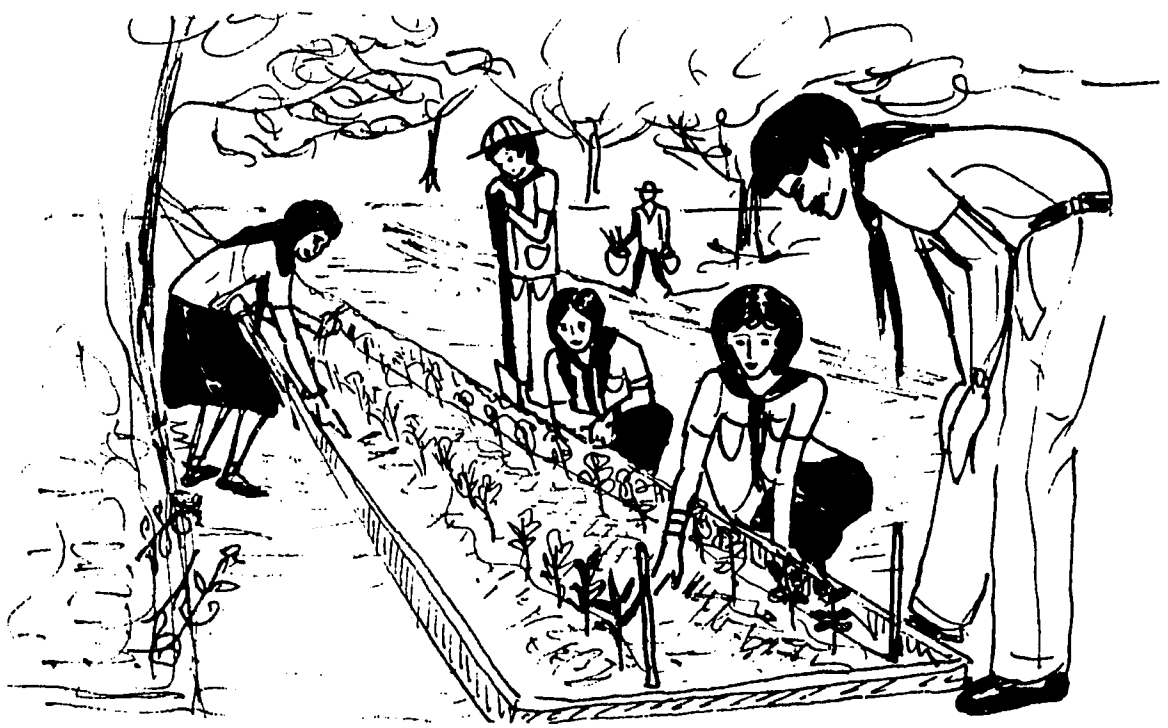
In all continents there are Scouts participating in the process of development: running health-clinics in West Africa, cooperative farms in Asia, reforestation projects in America, housing programmes in Europe, and many others. These Scouts are really involved in the problems of daily life facing both themselves and their communities.

AN EDUCATIONAL PROCESS

As a result of such activities, hungry people may have more food to eat, poor people more money to spend, sick people more chance of good health.

But there are other results too. The Scout who participates - who cares and acts for the life of the community - reflects the nature of true citizenship. He learns, he takes responsibilities, he becomes more than he is.

This is what Scouting is all about. It is an educational movement which trains young people to achieve their full potential as citizens and individuals.



"LEARNING BY DOING"

Participation in development is not only the application of what Scouts learn, it is the learning process itself. Without participation learning has no reality; without learning citizenship is sterile.

THE DEVELOPMENT PROCESS

Development has many meanings. But in as much as it is meant to eliminate poverty, then many development efforts have not yet succeeded. In some places there is even more poverty today than twenty years ago.

Why ?

One reason; because very often development has been seen only as the building of things like roads and hospitals - as providing things for people.

But this results in the development of things. True development is the development of people. Not that organizations can develop people. Only the people themselves can do that. Then perhaps they can make better use of the roads and hospitals, and the other infrastructure that, at the moment, serves only a few. And they can begin to create their own infrastructure too.

The development of people means more than just having more. It means becoming aware, understanding, learning to articulate needs, identify resources, organize themselves, take action to improve their lives.

In this way development is also an educational process. If the need is better health, more food, what is important is not just the fact that health improves, food increases, but that it is the people themselves who have learnt how to do it. In this way, the process can continue until unnecessary bad health and hunger disappear.

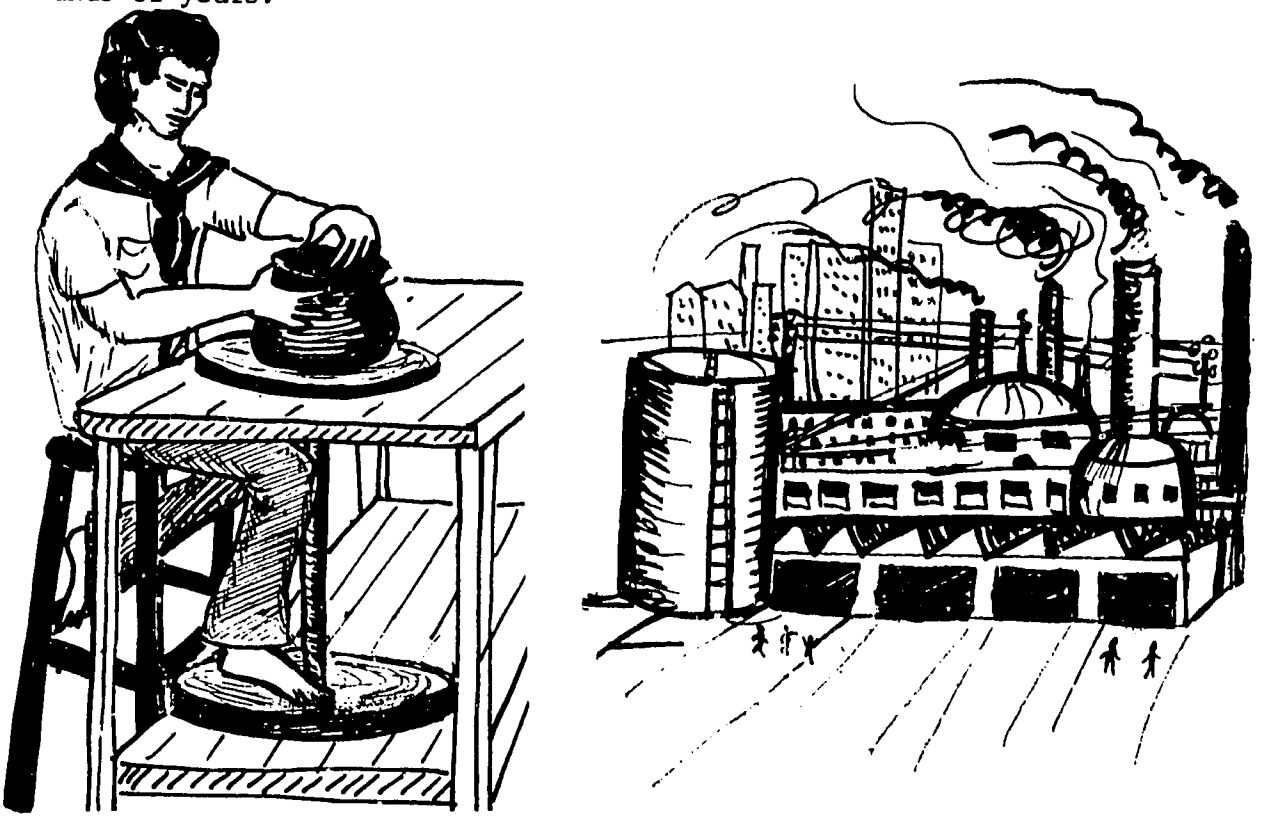
"DOING BY LEARNING"

Scouts are members of communities; community needs are theirs too. Scouting can help communities overcome them. By sharing their skills and enthusiasm, by joining with the community in fighting poverty, Scouts will play their part in the development of mankind.

CHAPTER II. THE QUESTION OF TECHNOLOGY

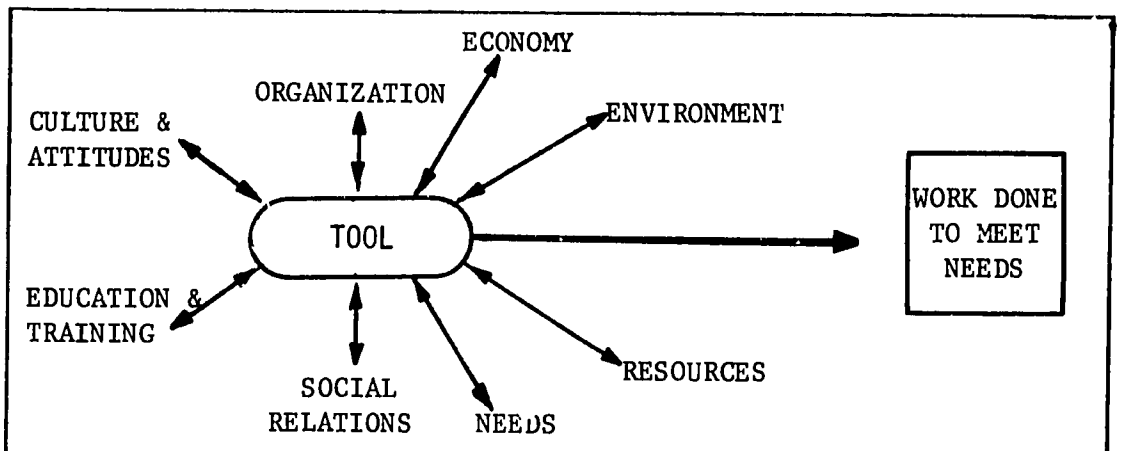
TECHNOLOGY IN DEVELOPMENT

Technology is a vital factor in development. It is the instrument that enables people to meet their needs. It may be complex, like a factory. It may be the simple tools that have enabled people to survive in deserts and icy wastes for thousands of years.



MODERN TECHNOLOGY MAY BE SIMPLE OR COMPLEX

But technology is more than the tool itself. Both the plough and the factory require energy and raw materials, organization and training, as well as markets. Its effects are varied also. It can change attitudes and social relations; it answers needs. Technology is not an isolated fact, it is part of a social, economic and cultural context.



TECHNOLOGY IS A TOOL IN A PARTICULAR CONTEXT

You will find technology everywhere: the hospital in the town, the furniture workshop in a village, the cooking pot in a family. Wherever needs exist, you will find people using some kind of technology to meet them.

TECHNOLOGY IS THE APPLICATION OF SCIENCE TO MEET THE NEEDS OF PEOPLE

Many countries have sought development primarily by using the most advanced technology. There you find large urban industries, modern agricultural techniques, chemical fertilizers and tractors, hospitals staffed by well-trained doctors.

Yet if you visit the rural areas where most of the population lives, you will not find many of the benefits that this advanced technology was supposed to bring. In the average family, there is still a shortage of income, not enough food, too much disease, a high level of illiteracy. And the villagers will tell you of the young people who left the village to find jobs in the town.

HOW DOES ADVANCED TECHNOLOGY BENEFIT A VILLAGE ?

THE PROBLEM OF TECHNOLOGY

Every community uses technology. Sometimes it invents and produces its own; sometimes it borrows and adapts it from outside; sometimes it just borrows it.

But the needs of communities today are such that very often their existing technologies are not adequate to meet them. Less children die nowadays and people live longer; this means more food is required. When the limit of available land has been reached, then the technology must be improved to produce more food from the same land. Or people must leave the community. Otherwise neither family income, nor food production will be enough.

WHAT KIND OF TECHNOLOGY ?

ADVANCED TECHNOLOGY...

Ninety percent of all technological research is carried out in Europe and North America, where new technology is created to fit the conditions there. The cost of labour is high; finance and energy are more easily available. Such technology therefore tends to make more use of finance and energy, and less of labour.

What happened to the labourers ? They were able to find work in the growing industries, especially in the towns.

A TRACTOR DOES THE WORK OF 40 LABOURERS WITH HAND-TOOLS AND ANIMALS

But in many countries labour is more plentiful, and finance and energy scarce. The labourers may not be able to find another job, for already there is much unemployment.

... BENEFITS...

This kind of technology has brought many benefits to all countries:

- diseases, like smallpox, which once affected millions, are now controlled;
- food production has increased from the same area of land;
- industries, like timber, bring in precious foreign exchange;
- radios bring education and a sense of belonging to a national and international community.

... AND PROBLEMS.

There are problems also. A factory producing thousands of sandals a day and employing perhaps twenty people may put hundreds of traditional sandal-makers out of work. Such technology is expensive and may use up foreign currency, which could have been spent on something else. A high-level of training may be required. Spare parts, fuel and experts may have to come from overseas.

There are further costs to pay, more difficult to identify:

- Much advanced technology is alien to the poor; they cannot identify with it; they did not produce it, do not own it, cannot understand it. They have neither the will nor the awareness to use it effectively.
- Some advanced technology is not in harmony with the environment. Some factories pollute the rivers and the air. Some farming techniques may lead to eventual erosion.
- Richer people in a community may be the only ones who can afford such technologies, like chemical fertilizers. They may use this opportunity to increase their land, their power, their wealth even further at the expense of the poor.

"I've been telling my own people, "We've got to change, we must mechanise, we must have better tools. But what are better tools ? Not the combine harvester. If I were given enough combine harvesters for every family in Tanzania, what would I do with them ? No mechanics, no spare parts..." I shudder at the thought. But we still have to give the people better tools, tools they can handle, and can pay for. We are using hoes. If two million farmers in Tanzania could jump from the hoe to the oxen plough, it would be a revolution. It would double our living standard, triple our product ! "

President Nyerere of Tanzania

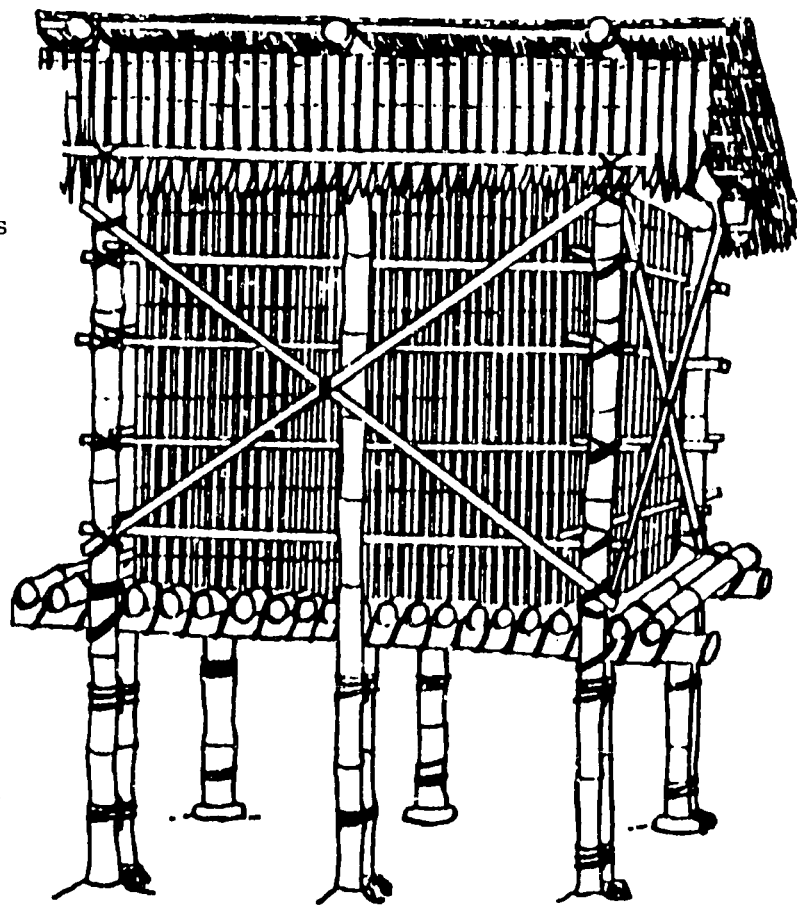
SIMPLE TECHNOLOGY

Advanced, complex technology is not the only kind of technology. Simple technology has helped people to meet their needs adequately for thousands of years. Such technology may still be effective today.

For example, some communities have been making bricks for centuries. These bricks are ideally suited to their housing needs. They keep the house cool in the day and warm at night, are easily replaceable and cheap to make.

A more advanced, modern technology, like corrugated iron, has none of these qualities in this situation and would be much less suitable.

However, sometimes changed needs require improved techniques.



A SIMPLE, EFFECTIVE MAIZE STORE USED IN NIGERIA.

INTERMEDIATE TECHNOLOGY

In between advanced and simple technology, there exists a whole range of technologies called "intermediate".

a) Intermediate technology may be an improved simple technology

For example, by putting ratguards on the legs of village grain stores in a particular area, the people were able to reduce considerably the losses of grain that had occurred previously, thus increasing their food production.

b) Intermediate technology may be simplified advanced technology

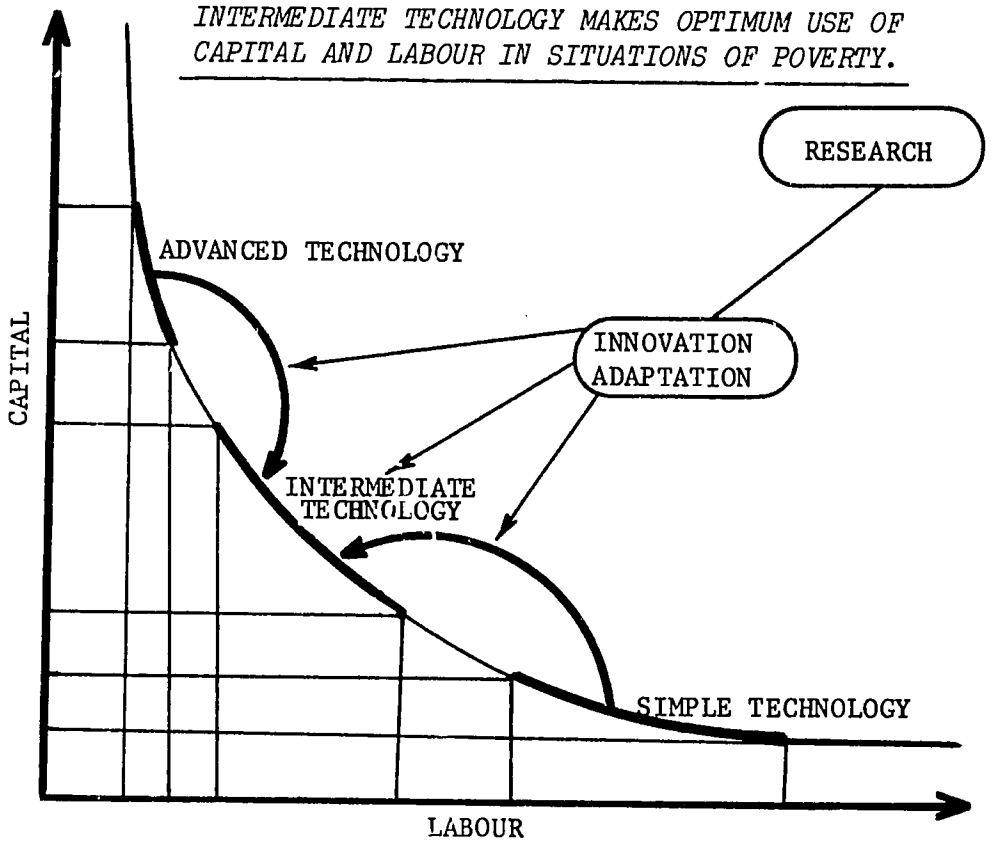
For example, by using galvanized iron piping it is possible to build - and very cheaply too - a hydraulic ram which uses the power of the water itself gradually to pump water up to a distance of forty metres.

c) Intermediate technology can be technology specifically designed to meet a need in a particular situation

For example, a hand-cart designed by a craftsman to carry heavy loads. This is more simple than the truck, more efficient than someone carrying the load on his back.

One way in which intermediate technology differs from advanced and simple technology is in the relationship between capital (finance) and labour. It uses less capital and more labour than advanced technology, but more capital and less labour than simple technology. In a situation of poverty, when labour is plentiful and capital scarce, and yet simple technology just cannot do an adequate job, intermediate technology may provide the answer.

INTERMEDIATE TECHNOLOGY MAKES OPTIMUM USE OF CAPITAL AND LABOUR IN SITUATIONS OF POVERTY.



Advantages of Intermediate Technology :

- it uses local resources and expertise;
- it can meet the basic needs of people effectively;
- it can fit in with the local cultural and geographical environment;
- the people can afford it;
- it can be produced and reproduced locally;
- it can be competitive;
- it is person-oriented;
- it can be the result of a person's choice.

A QUESTION OF CHOICE

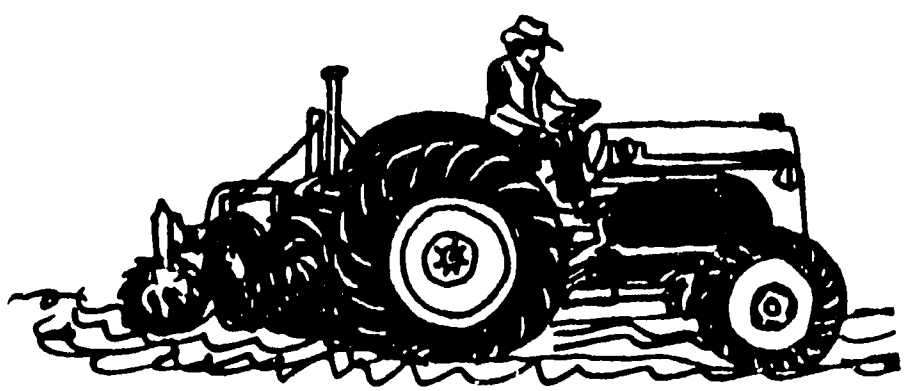
The problem of technology is then mainly a problem of choice - whether to use an advanced, an intermediate or a simple technology; to simplify an advanced technology or to improve a simple technology.

THE CHOICE OF AN APPROPRIATE TECHNOLOGY

SIMPLEST TECHNOLOGY
Farmers cleaning land - the simplest tools cost little to buy and nothing to operate, but the work is hard and slow and produces the least of any technology.

INTERMEDIATE TECHNOLOGY
Peasant tilling land using a wooden-shared plough - the tool makes the work easier, costs little and can be made locally, but a plough drawn by animals is not as productive as mechanised equipment.

ADVANCED TECHNOLOGY
One farmhand learns from another to operate a modern tractor - the machinery is quick and efficient, but is expensive to buy and maintain, may deprive people of work and be ecologically harmful.



Credit:VCOAD

WHAT TECHNOLOGY IS MOST APPROPRIATE TO A COMMUNITY SITUATION?

CHAPTER III. APPROPRIATE TECHNOLOGY

Communities require technology that is appropriate to their needs, their environment and their organization. This raises three questions:

- *WHO DECIDES THE NEEDS AND MAKES THE CHOICE ?*
- *FROM WHAT ALTERNATIVES DO THEY CHOOSE ?*
- *BY WHAT CRITERIA DO THEY MAKE THE CHOICE ?*

WHO DECIDES ?

Too often the communities have been the "objects" of development programmes; experts and governments made the decisions for them. As a result, they felt little responsibility for what happened. They did not "participate". They were not "self-reliant".

If the people are to participate in their own development - and true development is impossible without such participation - then they have to share in the decision-making. They know their needs best, and must understand and articulate them. They must be the "subjects" of the community development process. Thus they too become responsible for improving their standard of living.

PEOPLE MUST BE THE SUBJECTS OF THE COMMUNITY DEVELOPMENT PROCESS

WHAT ALTERNATIVES ?

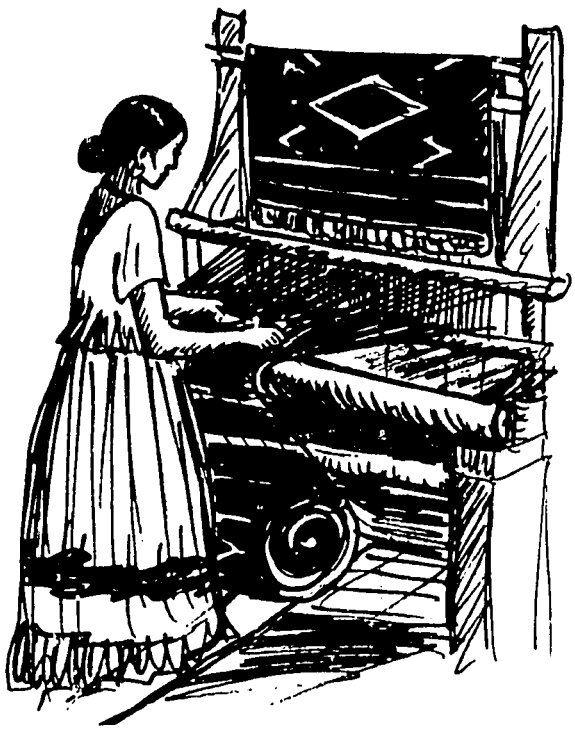
Once the need is understood and articulated by the community, then a study of alternatives is necessary in order for a choice to be made.

We have already seen that it is possible to choose from three categories of technology - simple, intermediate and advanced. Any of these categories can be modern; any can be appropriate to the situation and meet the needs of people.

AN APPROPRIATE TECHNOLOGY CAN BE SIMPLE, INTERMEDIATE OR ADVANCED

There is also the question of source. In the face of a need, does a community :

- continue with an existing technology ?
- improve it ?
- design a new one ?
- import a technology from outside and use it as it is, whether advanced, intermediate or simple ?
- adapt an imported technology ?



Are all these alternatives available ? Appropriate Technology Information Centres might supply the information, or Scouts, government officers, other organizations or communities that have experimented with technologies elsewhere.

What is important is that whatever alternative the people choose, they can understand it, identify with it, so that it encourages them not only to solve their own problems, but also to improve their own capacity to invent and adapt.

ALL TECHNOLOGICAL DEVELOPMENT MUST ENCOURAGE PEOPLE TO BE TECHNOLOGICALLY CREATIVE

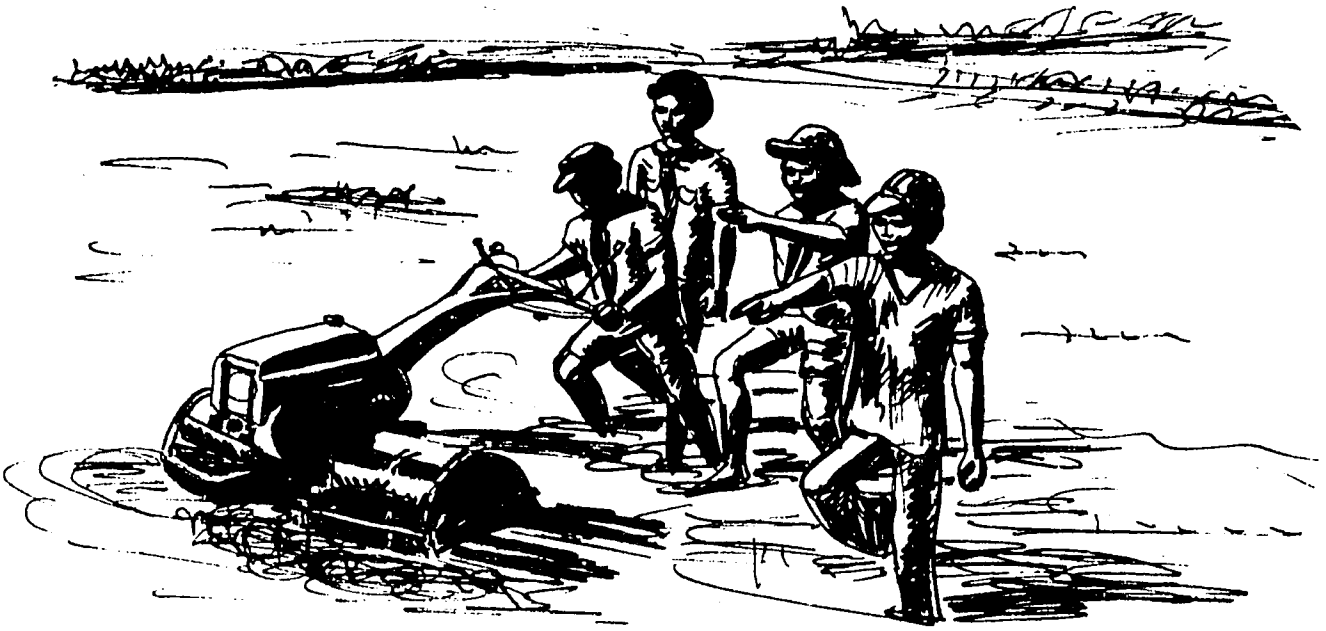
BY WHAT CRITERIA ?

How does a community choose a technology that is most appropriate ? For not only must it meet the people's needs effectively, it must also be appropriate to the environment, the economy, the social organization, the culture, the available resources, the educational level, etc.

There are a number of basic criteria for making a choice :

- Expense - Generally appropriate technology should be cheap enough for the people themselves to afford, and it should be possible to produce it in large quantities locally. For example, rain tanks made from local clay may be better than iron ones which have to be bought and transported.
- Resources - It should be possible to produce much appropriate technology from local resources and with local expertise.
- Control - The use of much modern technology depends on external factors beyond local control. New kinds of wheat may depend more on good weather than traditional kinds. A vehicle may depend on spare parts coming from overseas. The less control the people have over the technology they use, the more difficult it will be to meet their needs.

. Social acceptability - Some technology may cause divisions in the community. Technologies like modern contraceptives may be totally unacceptable to some communities.



HOW APPROPRIATE IS THIS ADVANCED TECHNOLOGY ?

. Competitiveness - A simpler technology may produce an article that is more expensive than others on the market, but people will not pay more than necessary for what they want. Local hand-made clothes may not be as cheap as imported machine-made clothes. Tariffs may protect local production, but may at the same time encourage the industry to remain less efficient. This may be sometimes necessary for a new industry to allow it to develop.

. Productivity - An appropriate technology should lead to increased productivity. If a need is more food production, then a farmer should be able to do this without increasing his burden too much. One method could be to use increased mechanisation.

. Employment - One of the greatest needs of communities is productive employment, and appropriate technology should make optimum use of the available labour. But over-manning can lead to a lack of competitiveness whereas mechanisation can lead to more unemployment. Diversity of economic activities can help find the right balance.

CHAPTER IV. SCOUTS IN ACTION

Scouts share the same needs as the community. They can help people to understand and articulate their needs, and to consider an appropriate technology as a means to solving them. They can help people to understand such technology, and even create it within the community.

Here we look briefly at two basic needs - water and food - and see how Scouts can help a community utilize an appropriate technology to meet them.

WATER

Water is essential for agricultural development by means of irrigation where rainfall is inadequate. Clean water is also vital for health, for much disease is caused by polluted water. Easier access to water supplies reduces the burden on women, and gives them more time and energy for more productive work.

Credit: UNICEF

But eigthy-five percent of rural families do not have access to clean water. In many areas it may require up to four hours walking by the women each day to get water.

The development and utilization of appropriate technology by Scouts and communities can reduce many of these problems. Such technology includes :

- better irrigation
- simple wells and pumps,
- better water tanks (see part 2),
- windmills,
- improved springs,
- solar stills (make pure water from bad water by using the sun's energy) (see part 2).

> *"Careless waste and inefficient use of water are almost a crime against those who do not have water. - Conserving water for its quality as well as its quantity, practising multiple re-use to encourage efficiency and prevent waste, managing water resources in order to minimise adverse impacts - these are some of the precautions that would guarantee the continued availability of water in the desired quantity and quality for development. For this, a healthy respect for water must be developed on a global basis."*
>
> *Letitia Obeng*
> *UNDP*

This kind of technology will benefit :

- the farmer and his family, because they will have more to eat and more to sell;
- the housewife who will not have to carry water for such long distances;
- the children, because the water they drink will be cleaner.

FOOD

Apart from food production, there are three main areas in which appropriate technology is critical for the human need for food :

a) food preparation,
b) food preservation,
c) food storage

Preparation

The technology used for cooking food should :

- make the best use of resources,
- provide an optimum level of nutrition,
- reduce the risks to health.

Many people do not have access to gas or electricity; they use firewood and often cook on open fires. But in many places wood is becoming more scarce. This means that it is either becoming more expensive or it has to be collected from further away.

IS THERE ENOUGH WOOD FOR THIS KIND OF COOKING? DOES IT LEAD TO EROSION?

Scouts can build simple but efficient stoves from local materials. Such stoves make better use of the wood, and reduce both the hazards to the eyes caused by smoke as well as the accidents to children. They also provide baking facilities. They allow the housewife to stand normally, rather than stoop; the fire can be controlled, and the entire meal can be prepared at the same time (see part 2).

Preservation

Food preservation is also important and can help a family provide itself with a better supply of food during the months of shortage before the harvest, or during the years of drought. It can help people preserve their crops long enough to take them to market.

Scouts can easily build a dryer that uses the sun to dry meat, vegetables or fruits. These foods can then be stored easily and lose little of their nutrition value or original flavour (see part 2).

Storage

In many countries up to thirty percent of the food produced by the farmers is lost to rats, insects and mould. The farmer may keep eighty percent of his crop at home for seed or for consumption, so this loss is very serious. This results in a shortage both of food and income. It means the increased possibility of malnutrition and disease for the children.

Also most farmers sell their produce at harvest time when the price is very low. If they run out of food before the next harvest, they may have to buy back their own grain at a time when the price may be four times what they were paid for it. Very often they cannot afford it, and their families go hungry.

Scouts can teach farmers how to build more effective grain stores that can overcome this problem. This will enable them to keep the grain till later in the year when the prices rise. This will also reduce the power of the money-lender and the middle man who take advantage of the farmers' shortage of cash at harvest time (see part 2).

The Scouts can also use such stores for their own farms and gardens.

TEN IDEAS FOR SCOUT ACTION

Appropriate technology can relate to all aspects of a Scout programme. It is important for agriculture, for health, for literacy, for small-scale industry...

1. Run public campaigns to make the community aware of the role of technology by displays, exhibitions, articles, debates, film shows, concerts, etc.
2. Build a windmill, a sun dryer, food storage facilities and other useful items of technology - in camp, on the Scout farm, in the community etc.
3. Produce your own leaflets in your local language on how to build and use simple technology, and on the role it plays.
4. Arrange national, district or local training courses for Scout leaders on appropriate technology.
5. Contact an Appropriate Technology Unit - some universities have them, UNICEF has one in Nairobi, etc. - and arrange for a visit, demonstration or course.
6. Hold discussions with the villagers on the technology that affects them, its implications, etc. as a basis for their involvement in the development of appropriate technology for the village.
7. Carry out some research into local technologies, how they are used and why they developed as they did.
8. Investigate the effects local industry has on the environment (polluting the rivers and air - what happens to the waste), and consider appropriate follow-up action (e.g. find a use for the waste), etc.
9. Establish an Appropriate Technology Demonstration Centre at the Scout Training Centre.
10. Make simple items like baskets, bricks or handkerchiefs for sale.

CREDIT

OUR THANKS FOR THEIR IDEAS AND HELP IN PRODUCING AND PUBLISHING THIS BOOKLET TO :

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- VOLUNTEERS FOR INTERNATIONAL TECHNICAL ASSISTANCE, INC., USA
- ALL THOSE SCOUT LEADERS AND OTHERS WHO HAVE COMMENTED ON THE DRAFT FORM OF THIS PUBLICATION.

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