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TRAINING EXERCISES
IN
APPROPRIATE
TECHNOLOGY
FOR
SCOUT LEADERS



TRAINING EXERCICES
IN APPROPRIATE TECHNOLOGY

INTRODUCTION

This booklet contains exercises designed for Scout leaders. It is meant to be quite flexible so that it can be adapted to different conditions.

Its aim is to give Scout leaders :

- (a) A better understanding of appropriate technology, of how the right technologies can meet the basic needs of families and communities more effectively, of how they can be introduced and disseminated in communities, and the role Scouts can play in this field.
- (b) Practical experience in the construction of certain intermediate technologies.

Some parts of this training can take place during regular Scout leader training evenings. Others need a complete day. You may like to organize 2 or 3 weekend courses, or even a 4-day workshop. Slides, films, games and guest speakers can be introduced as appropriate.

Before the training all participants should have read the booklet "Scouting, Development and Appropriate Technology Part 1".

(A UNIT MAY LAST FROM 3 HOURS TO 1 DAY)		C O N T E N T S
UNIT 1		Basic needs of families and communities
UNIT 2		The meaning and implications of appropriate technology
UNIT 3		Technological change in a community
UNIT 4		The problem of energy:the construction of an improved stove
UNIT 5		The problem of food:the construction of a solar food dryer/grain store
UNIT 6		The problem of water:the construction of a cement water jar/solar still
UNIT 7		The technology demonstration centre
UNIT 8		A Scout badge system for appropriate technology

Basic documents required include:

"Scouting, Development and Appropriate Technology, Parts I and 2".

UNIT 1

(3 hours)

BASIC NEEDS

OBJECTIVE :

To make Scout leaders aware that the community itself can take care of many of its basic needs.

CONTENTS :

SESSION 1 : Presentation by a guest speaker on the subject of
(1 hour) basic needs, followed by a discussion.

SESSION 2 : Role play : "Basic Needs Approach".
(30 minutes)

SESSION 3 : A film or a slide series on basic needs (c.f. UNICEF's
(30 minutes) slide series "Basic Services for Children").

SESSION 4 : Worksheet on "Basic Needs".
(1 hour)

UNIT 1

SESSION 2 : ROLE PLAY : BASIC NEEDS APPROACH

(30 minutes)

INTRODUCTION

Health is a big problem in country _____. 70% of the population live in rural areas. 50% of the children under 5 suffer from malnutrition. The average age (male) for death is 38.

Because of the bad hygienic conditions, polluted water supplies, and a lack of health education, there is a lot of disease both in urban and rural areas. There are hospitals in most towns, and 80% of the country's doctors work in these hospitals. The rural areas are served by clinics and health auxiliaries, but they only reach about 20% of the people who need their services. Health services are generally seen as something provided by the Government.

Role 1

You are a doctor, working in an urban hospital. You are also a Scout Commissioner. You believe that the way to improve health is to build more but smaller hospitals in the rural areas, and have more doctors and nurses working in these places. You would increase the number of clinics and auxiliaries (who require 3 year training), but you would not really change the system. You believe that the main contribution Scouts and Guides can offer is first aid, as they have always practised it. You feel a more significant role for them in improving health is not practical and that this will be the task mainly of the auxiliaries.

Role 2

You believe that most of the sickness in the country can be cured or prevented by putting back the responsibility for health care into the community, by demystifying medicine, and by using paramedicals, village midwives, youth, etc., as the main force for your programme. You believe that 3-month courses for village health workers would make them good enough to be effective. You want to establish small clinics in the villages, run by the communities themselves, and serviced by mobile patrols. You are a paramedical yourself who has worked in the rural areas for some years. You believe that Scouts can play a vital role in this community health programme - far more than just providing first aid - such as running health education courses, assisting in clinics and on patrols, collecting records, improving food production, etc.

* * * * *

INSTRUCTIONS

The Scout leader (Role 2) tries to persuade the Scout Commissioner (Role 1) to provide funds for a community health programme directed by himself as a paramedical; Scouts would play a major role in this programme.

The Commissioner has other priorities and argues that the Scouts cannot do such work and that such a project is not worthwhile.

U N I T 1

SESSION 4 :

WORKSHEET : BASIC NEEDS

(1 hour)

(Based on slide series "Basic
Services to Children"-UNICEF)

Each topic should be discussed by a group of 6, guided by a well-briefed group leader; the main conclusions should be noted and presented to a plenary session.

All questions refer to a typical rural community.

A. WATER

- (a) What are the basic problems of water?
- (b) How do these problems affect the life of a family?
- (c) Why do these problems continue to exist?
- (d) What are the main implications for a village if an accessible, clean water supply is established there?

B. FOOD

- (a) What are the main obstacles to increasing food production?
- (b) How could improved food conservation techniques lead to better health?
- (c) How could improved food preparation techniques lead to better health?

C. ENERGY

- (a) What sources of energy does a village use?
- (b) What tasks is this energy used for?
- (c) Why is there a growing crisis in energy facing many communities?
- (d) What results does this have on a community?

UNIT 2

(5 hours)

APPROPRIATE TECHNOLOGY

OBJECTIVE :

To make Scout leaders aware of the meaning and importance of appropriate technology.

CONTENTS :

SESSION 1 : Presentation on the subject of appropriate
(1 hour) technology by a guest speaker, followed by a discussion.

SESSION 2 : A film or set of slides on appropriate technology
(30 minutes) (c.f. UNICEF's slide series "Village Technology", and the slide series from the Intermediate Technology Development Group "Appropriate Technology : An Introduction").

SESSION 3 : Worksheet on "Appropriate Technology".
(1 hour)

SESSION 4 : Analysis : technology, the community and the
(1 hour) environment.

SESSION 5 : Role play : "Appropriate Technology".
(30 minutes)

SESSION 6 : Debate : "What kind of technology?".
(1 hour)

UNIT 2

SESSION 3 : WORKSHEET : APPROPRIATE TECHNOLOGY

(1 hour)

Participants should divide into groups of 6 to discuss these two questions, and the main conclusions should be submitted to a plenary session.

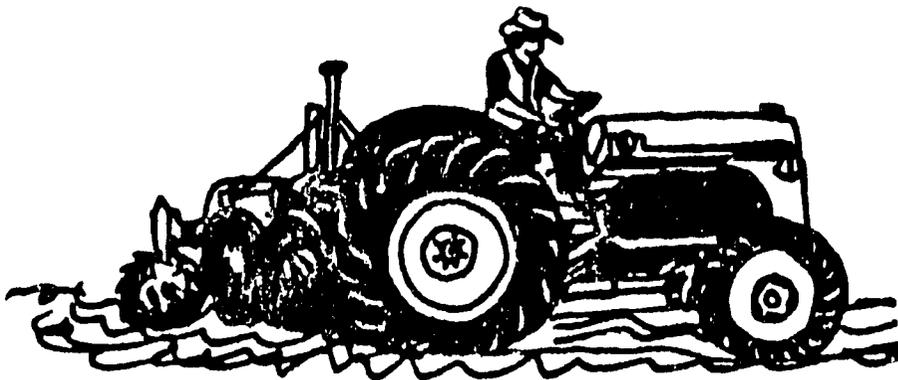
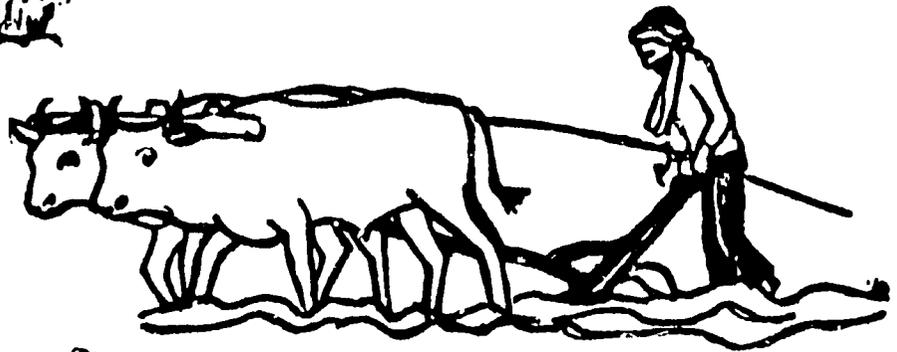
- (1) Appropriate technology can be simple, intermediate or advanced. It depends on many different factors, such as resources, employment opportunities, level of skills, etc.

Compare the three kinds of technology shown below and list the advantages and disadvantages of each technology.



SIMPLEST
TECHNOLOGY

INTERMEDIATE
TECHNOLOGY



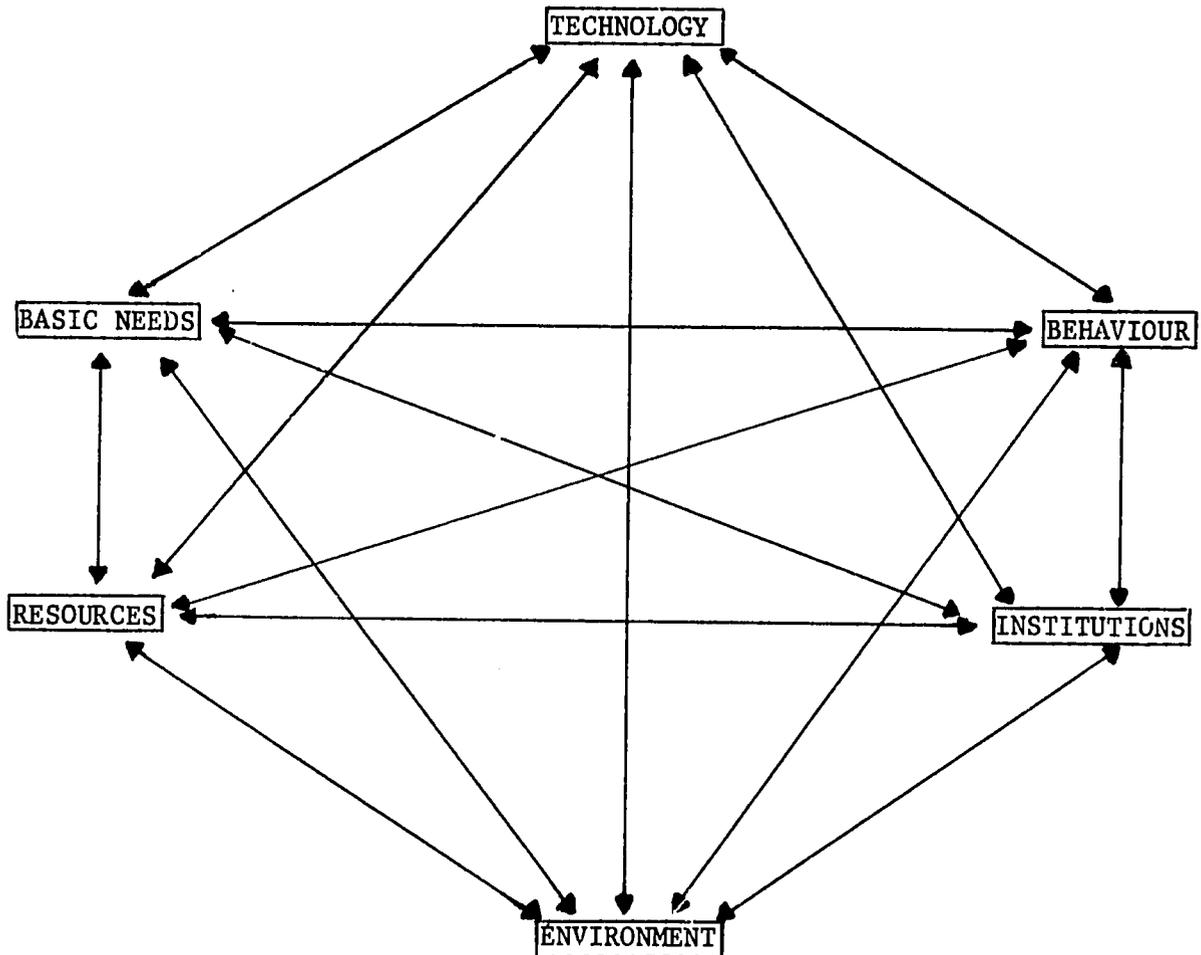
ADVANCED
TECHNOLOGY

- (2) a. Appropriate technology is important in development. Does this concern Scouts? Why?
- b. In what ways could Scouts be introduced to this problem?

UNIT 2

SESSION 4 : ANALYSIS : TECHNOLOGY, THE COMMUNITY AND THE ENVIRONMENT
(1 hour)

Participants should divide into groups of 4 and discuss the question below. Each group should report to plenary session its conclusions relating to one element only.



The choice of an appropriate technology must take into account that in every culture there is a complex interweaving of many different aspects of life, and any particular change will affect the whole.

Question:

Consider how the technology of oxen-ploughing affects, and is affected by, each of the elements identified in the diagram.

UNIT 2

SESSION 5 : ROLE PLAY : APPROPRIATE TECHNOLOGY

(30 minutes)

Divide into groups of 3.

Role 1

You are a rich village farmer who owns a lot of land. You try to play your part in increasing the country's agricultural production. You want to introduce such modern farming techniques as chemical fertilizers and tractors. For this you want a loan from the Village Credit Society.

Role 2

You are the representative of the village Credit Society. You are afraid that if the rich farmer modernizes in the way he intends, he will create more unemployment among the members of the cooperative. He may use his increased wealth to influence the cooperatives, and in the end the poor people will be poorer. Yet you know it is essential to increase food production to improve the level of nutrition in the area . You also know that the rich farmer will pay back a loan on time.

Instructions

The rich farmer tries to persuade the representative to give him a substantial loan. The representative is hesitant and prefers to consider alternative solutions (eg. intermediate technology).

U N I T 2

SESSION 6 : DEBATE : WHAT KIND OF TECHNOLOGY?

(1 hour)

1. Choose 2 debating teams of 3 participants each. One team will speak on behalf of using a high level of technology for the development of your region. The other will speak against, and offer an alternative model of technology.
2. Choose a chairman for the debate. He must be impartial.
3. Establish the rules together, eg. each speaker should speak for no more than 5 minutes; no interruptions during speeches, etc.
4. After the 6 speakers have spoken, open the debate to the rest of the participants.
5. After a suitable time, allow the main speaker of each side to make a final summing-up for about 3 minutes each.
6. Vote to see which kind of technology the majority of participants prefer.

UNIT 3

(4½ hours
+ half day)

TECHNOLOGICAL CHANGE IN A COMMUNITY

OBJECTIVE :

To make Scout leaders more aware of the nature of a community, of how change occurs within it, and of the kind of preparatory work necessary for the Scouts to do before introducing an appropriate technology project.

CONTENTS :

SESSION 1 : Presentation by a guest speaker on the process of
(1 hour) change in a community, followed by a discussion.
An appropriate film or slides might be shown.

SESSION 2 : Exercise : "Understanding the Community"
(3 hours)
A. Social Survey
B. Force Field Analysis
C. Strategy for Change.

SESSION 3 : Case study : Agricultural technology and village
(30 minutes) cooperatives.

SESSION 4 : An Energy Survey.
(half day)

UNIT 3

SESSION 2 : EXERCISE : UNDERSTANDING THE COMMUNITY (3 hours)

Introduction

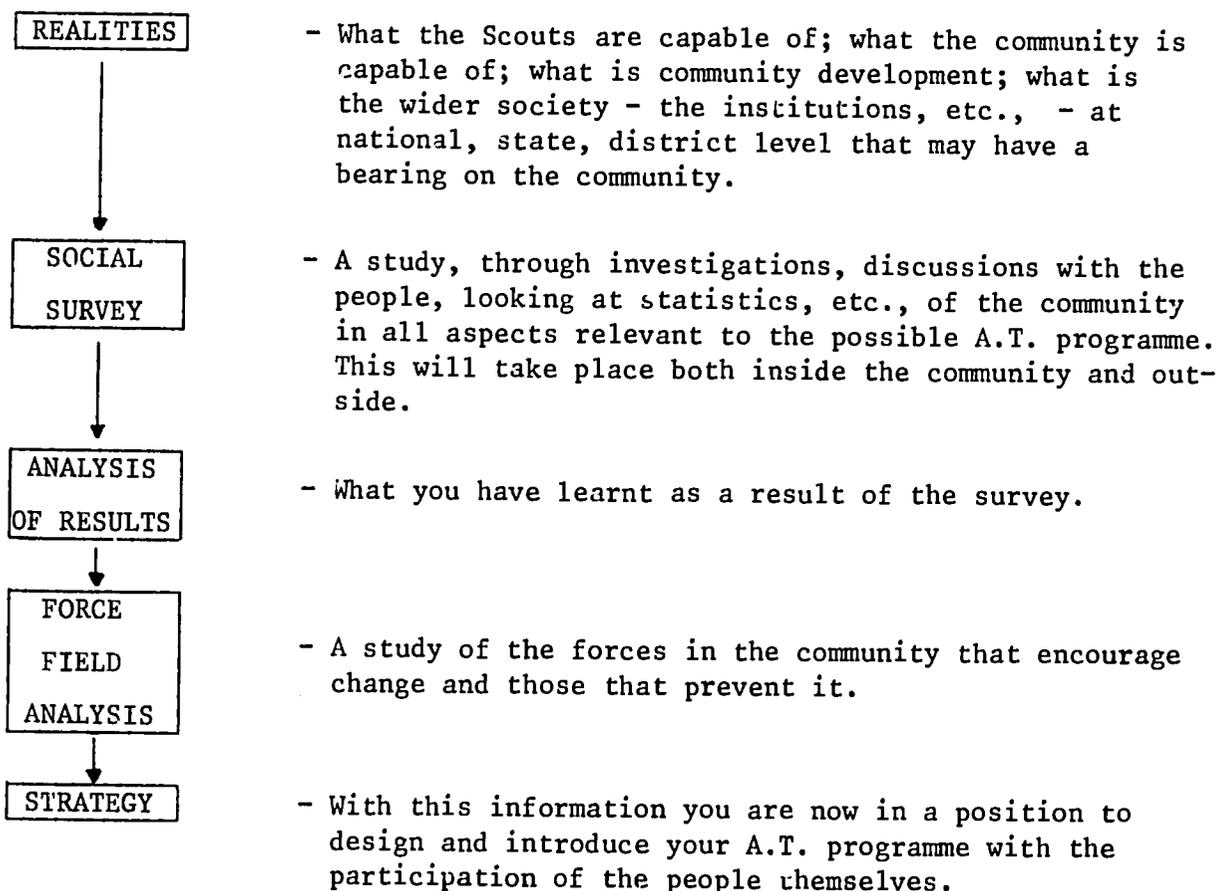
Community development is a process that :

- begins with the needs of the people,
- involves the full participation of the people,
- fits in with the social system of the people.

A Scout Appropriate Technology (A.T.) programme must also follow these principles, if it is intended to lead to community development.

It is therefore important to understand the needs of the people, both as they exist and as the people see them. It is also necessary to understand their social system, so that any programme may be introduced and integrated within it.

The process can be described as follows :



A. SOCIAL SURVEY (1 hour)

(Divide into groups of 6)

You are a Committee that has been given the responsibility of preparing the survey, before starting a Scout appropriate technology project in a community. Choose a community that you know. You have to answer two questions:

1. What kind of information about the community do you need ?
2. What are the steps to be taken in order to obtain the information ?

Write the answers on a flip-chart, and present to the plenary session afterwards.

B. FORCE FIELD ANALYSIS (1 hour)

All the information collected and discussed in our previous exercise will serve as a starting point.

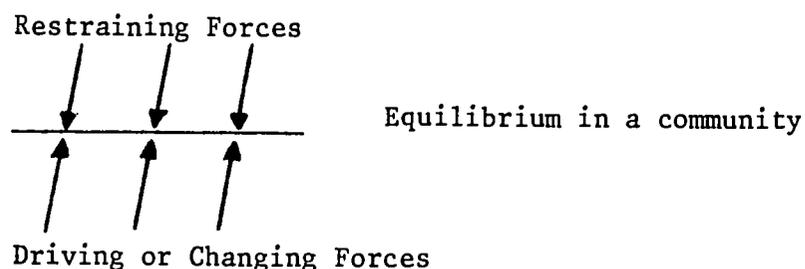
Your discussion group faces now a new and very important task. You want to prepare a strategy for introducing change. In order to do this, you have to identify first :

- a) the restraining forces that want to preserve the status quo, and
- b) the driving forces that want to produce change.

Force Field Analysis is a tool for analysing a situation that you want to change. It can be used for the development of awareness of problems or for designing strategies for their solution.

FORCES

The method presupposes that any situation is in a state of equilibrium at any given moment; that is the forces acting to change the conditions are equally balanced by the forces acting to keep it the same. The analysis is prepared in the form of a simple diagram :



The group should begin by identifying all of the driving and restraining forces in the chosen community. You should write them on a flip-chart like this:

Driving Forces	Restraining Forces
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-----	-----
-----	-----

You should then identify those forces that can be altered; you may be able to eliminate particular restraining forces and activate some of the driving forces. You should identify those forces which are easiest to change, which are less threatening, and which have greatest influence for the good.

The results may be presented to a plenary session at the end.

C. STRATEGY FOR CHANGE (1 hour)

After completing the analysis, the group should agree on a specific technological change that can be used as an example (e.g. digging a well and installing a pump). They should then prepare a plan to implement the proposed change.

The plan should include :

1. The necessary events that must occur.
2. A timetable of events.
3. Names of the relevant people who can help.
4. Responsibility for implementing each part of the plan.
5. Coordination of each part.
6. Provision for feedback and evaluation.

IMPORTANT : Taking into account the time-limits for the exercise, the group should concentrate its attention on the questions : How are we going to start ? Which problem do we tackle first ? In what way ?

One group should report their plan to the plenary session afterwards.

UNIT 3

SESSION 3 : CASE STUDY : AGRICULTURAL TECHNOLOGY
(30 minutes) AND VILLAGE COOPERATIVES

Participants should divide into groups of 6. One group may report to the plenary session afterwards.

Bangladesh had inherited a fairly well developed rural cooperative system. A network of District Central Cooperative Associations, known as "thana" associations, are owned and managed by village cooperative groups. They have experience in managing the pooled use of farm implements. In some cases, even the benefits of plough cattle are shared by families who are members of the village cooperative groups in a thana association.

A thana cooperative association has a membership of from 100 to 300 village cooperatives. In turn, these village cooperatives have a membership of 30 to 40 farm families each. The general operating procedures for the village cooperative are :

- The 30 to 40 families in a village organize themselves, choose a chairman and become a registered cooperative society.
- Weekly meetings are held with compulsory attendance of all members.
- A man from the group is selected and sent to the Bangladesh Rural Development Academy once a week for training so that he can be the organizer and teacher of the group.
- Proper and complete records are kept.
- Supervised production credits are used.
- Improved agricultural practices and skills are developed by using locally contributed resources and skills, including land for extension training.
- Both cash and "in-kind" savings are accepted from members and banking services are performed for them.
- The village cooperative has the option of joining the Central Cooperative Association of the thana which deals with the government and commercial interests on behalf of its members.
- Regular member education sessions are held.

What are the advantages/disadvantages of this kind of organization in managing technology ?

How can Scouts help such a cooperative to work more effectively ?

How can Scouts use these ideas in their own organization ?

UNIT 3

SESSION 4 : AN ENERGY SURVEY
(half day)

This exercise should take place in the village itself; it suggests a methodology for decision-making when introducing new energy technologies, or improving old ones, in a community.

The participants should divide into groups of 6, and each group should work in a separate village. Preparations should have been made in the village beforehand.

1. Make a brief study of the village (name, size, geography, main occupations, living patterns, education, health, etc.).
2. List all the energy-consuming tasks. For each task list the source of energy - sun/wind/water; human; fuel (oil, dung, wood, electricity, etc.). Note which ones are family tasks and which ones are community tasks.
3. Discuss with 2 or 3 families their money expenditure. Break it down into basic categories of food, clothing, energy, etc. In this way you will find out what proportion and how much is spent on energy. (In poor communities the proportion may be almost nil, and this is an important factor in deciding upon new energy technologies.)
4. Take the list of energy-consuming family tasks. Make two charts :
 - (a) of all the tasks that the family pays for. This will show which tasks consume the greater proportion of the energy budget,
 - (b) of all the tasks that require human energy. This will show which tasks consume the most human energy.
5. Against each energy-consuming family task list all available and possible alternative techniques for accomplishing the task.
6. For each technique list its potential advantages and disadvantages within that family and community situation. Consider such factors as technical efficiency, financial and human energy costs, social acceptance, environmental impact, etc.

The family community now has a basis for making a choice of the most appropriate energy technologies that could be used, either on a family or a community basis.

UNIT 4

(1 day)

The problem of energy : the construction of an improved stove.

UNIT 5

(1 day)

The problem of food : the construction of a solar food dryer or grain store.

UNIT 6

(1 day)

The problem of water : the construction of a cement jar or solar still.

(See the booklet "Scouting, Development and Appropriate Technology Part 2 for technical descriptions of each of these projects.)

OBJECTIVE :

Each unit provides practical experience in constructing a potentially appropriate technology.

PROCEDURE :

1. Choose which unit would be the most suitable one to carry out. You may, of course, decide to construct more than one item, depending on the time, expertise and materials available.
2. Make the necessary preparations beforehand to have the materials ready - and if possible an expert who can give guidance.
3. Before the actual construction starts, the Scout leaders should understand the particular problem (energy, food, water) and how the particular technology may contribute to the solution. This may be done by an initial presentation and discussion or by a film or slide show.

UNIT 7

(2 hours)

A TECHNOLOGY DEMONSTRATION CENTRE

OBJECTIVE :

To make Scout leaders aware of the possible role of a Technology Demonstration Centre and of how the Scouts could build one of their own.

This unit could be preceded by a visit to, or a presentation on, a Technology Demonstration Centre, if one exists near by.

1. Read the extract about the Village Technology Unit in Kenya.
2. Discuss how far this is a valuable means for disseminating ideas and encouraging action concerning appropriate technology ?
3. Discuss what would the implications be of building a Technology Demonstration Centre ?
 - What role could it play ? What would be its objectives ?
 - How would it operate ?
 - Who would build it, finance it, etc ?
 - How would the surrounding villages be involved ?
 - What role would the Scouts play ?
4. Design a project for the construction of this kind of Centre as a cooperative effort between the Scouts and the surrounding community.
5. In plenary session one group should report on its conclusions. If there is a consensus, the participants might like to think about how they can put this idea into practice.

THE VILLAGE TECHNOLOGY UNIT (V.T.U.)

Nairobi, Kenya

(Extract adapted from Seminar Report "Village Technology in Eastern Africa", by UNICEF)

General description and functions

An outline plan of the unit is given in Fig. 1, from which it will be seen that the overall content is related specifically to means of improving the quality of family life. The main areas of emphasis are :

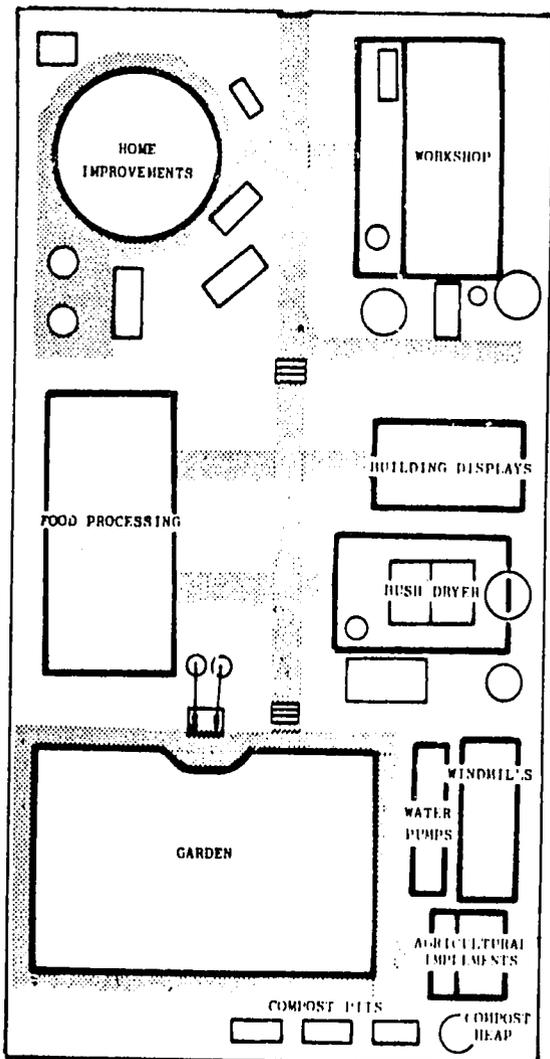
- a) Home improvement and means of reducing the work load on mothers.
- b) Food production, conservation, preparation and use.
- c) Improvement of water supplies.

The unit also embodies a simple workshop of the type used in Village Polytechnics in Kenya. This is equipped only with simple manual woodworking and metalworking tools. In addition, the workshop also has a simple "laboratory" section, equipped with instruments for the testing of appropriate technology devices. All constructions used in the centre are related to the materials and resources likely to be available to the average rural community.

The unit is intended to fulfil a number of interrelated functions which have, more or less, equivalent priority. These are :

- a) To provide a practical introduction to the concepts and principles of village technologies, and to stimulate interest and awareness in the topic at all levels, from the highest level decision-maker to the leaders and members of village communities.
- b) To provide practical training regarding the construction and use of village technology devices to instructors and to students from a wide range of disciplines undergoing training for work in the rural areas.
- c) To carry out evaluation testing of the functional efficiency of the various devices, and to accumulate information and data on construction, performance and costs.

(Fig. 1) V.T.U. SITE PLAN



- d) To assist in the introduction in the rural areas of items of proven performance and acceptability.
- e) To constantly review the "state of the art", to construct and evaluate new devices coming to the attention of the unit, and to modify existing items on the basis of practical testing.
- f) To prepare detailed "how-to-do-it" instruction leaflets. Such leaflets will not be issued until they can include accurate performance data.
- g) To become involved in outreach and in working, either through the established extension services, or directly with organized groups of rural people, to assist and encourage the introduction and adoption of proven items.
- h) To collaborate with universities, training colleges and other similar institutions in Eastern Africa in evaluating and fostering the further development of appropriate items.

The value of the unit as a centre for the sharing and exchange of ideas is fully recognized, and it is hoped that many new ideas will arise through the interaction between the unit and those who visit it, so that it can become a focus for a two-way traffic in ideas and practical developments

UNIT 8

(2 hours)

A SCOUT BADGE FOR TECHNOLOGY

OBJECTIVE :

To enable the participants to discuss how appropriate technology can be integrated into the Scout programme, and to make recommendations concerning suitable badge requirements for each section.

1. Plenary session. General discussion on how to integrate appropriate technology into the various sections of the Scout programme.
2. Divide into 3 groups. Each group draw up a draft list of requirements for appropriate technology badges for one section (Junior Scouts, Scouts, Senior Scouts, etc.).
3. Come together in plenary session and share the results. Decide on what should be done with the suggestions.