

SOCIETY FOR ENVIRONMENTAL IMPROVEMENT LIMITED

NATIONAL CENTRE FOR  
ALTERNATIVE TECHNOLOGY

AT

LLWYNGWERN

MACHYNLLETH

MONTGOMERYSHIRE

WALES

NOVEMBER 1973

## BACKGROUND

1. THESE NOTES are intended to provide an introduction to the nature of the project, its background and objectives.
2. THE SOCIETY FOR ENVIRONMENTAL IMPROVEMENT LIMITED (a registered charity) is relatively prominent in the field of Alternative Technology and enjoys the support of many eminent individuals concerned with environmental improvement.
3. ALTERNATIVE TECHNOLOGY (A.T.) is the term used to describe the employment of techniques which have minimal adverse consequences to the environment. These techniques are primarily related to the production and economical use of energy in all its forms. Increasingly, the production and use of energy by conventional and projected means threatens massive social and environmental disruption.
4. THE NEED for the employment of such technologies is being increasingly demonstrated throughout the world - most recently by the impending oil crisis. In the developed countries the production, and often wasteful use, of energy is characterised by the pollutive and hazardous effect of energy generation/use. (The term 'energy' is used in the widest sense to include inputs such as food.) In underdeveloped countries the need for energy systems which are low in capital cost (even if relatively high in labour use) is a high priority. Although the project described here is primarily intended to relate to the problem within the U.K., the demonstration of A.T. has a global relevance.
5. THE CASE for alternative technology is not, however, entirely related to the problem of national or even international energy demands. There is a developing awareness that it is morally indefensible to consume the strictly finite resources of the earth, or to run the very real environmental risks which, for example, are implicit in all known systems of nuclear energy generation. The same ethos extends to other features of our resource-hungry civilisation - the 'throw-away' attitude to consumer products, the land impoverishment of many modern agricultural methods, the vastly inefficient systems of transportation and so on.

There is also a growing awareness that the administrative and manufacturing centralisation necessary to sustain rapid material expansion is 'dehumanising' people. Individual choices are becoming ever narrower as dependence on, and conformity with, central systems increases. A disenchantment with the present condition is becoming steadily more manifest as the current unrest and partial breakdown of authority indicates. The consequence is a growing need for a more self-sufficient life-style.

A.T. is a direct step toward this aim. Its employment is being seen not only as a technical solution to current problems, but as a philosophical alternative to man's obsession with material expansion and its inevitable association with economic breakdown and social chaos.

#### THE OBJECT

6. THE PROJECT is to establish a national centre:-

- i) To demonstrate that the average needs of a domestic situation can be met substantially by alternative technologies appropriate to the services required i.e.
  - A. Energy      The harnessing of small scale power from natural sources such as wind, sun and water.
  - B. Re-Cycling      The demonstration of small-scale techniques for the re-cycling of domestic waste.
  - C. Building      The demonstration of (a) environmentally suitable building materials and (b) 'low energy' techniques for construction.
  - D. Food      The demonstration of intensive organic horticulture for a suburban situation.
  - E. Transport      The application of low energy systems to personal transport.
- ii) The establishment of a reference centre - i.e. an information office capable of furnishing details of:-

- A. the performance, availability and price of the equipment demonstrated at the centre.
- B. similar details of other equipment unsuited to the particular site.
- C. books, papers and filmstrips on all aspects of A.T.
- D. an index of sites where A.T. is in practical use.
- E. an index of individuals/groups concerned with A.T. development.
- F. a register of new techniques/applications in need of development/trials.

iii) The building of demonstration 'autonomous' houses where A.T. principles can be applied in a typical domestic situation. Such a demonstration would be concerned with ecologically sound methods of providing for all the inputs and outputs of an average household.

iv) The establishment of a workshop and lecture hall.

v) With the development of environmental studies at an increasing number of British universities, a considerable research potential remains to be co-ordinated. The existence of a national centre would greatly facilitate such co-ordination as well as stimulate substantial additional interest in the subject.

7. THE PRESENT SITUATION is that, as far as is known, there is no such centre in Great Britain, Europe or the U.S. Various individual aspects of A.T. are, however, being developed and demonstrated both privately and commercially in many countries. Disseminated over the globe is a wealth of information and expertise, freely available for use by such a centre.

8. THE LOCATION of such a centre could, in theory, be almost anywhere within the U.K. The Society has however accepted the offer of a site near Machynlleth in Wales. The reasons why this site appears suited to the requirements of the scheme are:-

- a) As mentioned earlier, part of the A.T. 'philosophy' is decentralisation. For this reason a site well away from a major town is preferable.
  - b) The site has reasonable exposure to ambient power sources, especially water.
  - c) There are existing buildings on the site which would lend themselves to requirements stated in paragraph 6.
  - d) There is a good rail service to the town of Machynlleth, only 4 miles distant.
  - e) There is ample guest accommodation.
  - f) The nature of the site is such that any development on it would be almost invisible from elsewhere.
  - g) The business of environmental improvement consists, in part, of putting to useful service areas of land at present lost to use, such as the quarry in question.
  - h) There is labour available locally.
9. THE FINDINGS of the experimental research will be made freely available to all.
10. A SUBSEQUENT PROJECT, now in the planning stage, concerns the establishment of an autonomous community where the results of the research at Llwyngwern can be applied in a practical form. The purpose of this will be, not only to give those who wish to adapt their life-styles to such a form the opportunity to do so, but also to provide a demonstration of the relevance of such life-styles to any long-term reduction of environmental problems.

#### THE METHOD

11. THE RESPONSIBILITY for the project will rest with the Society for Environmental Improvement Limited.

12. THE FUNDING of the project will be by voluntary contributions. S.E.I. will seek donations in both cash and kind from private and corporate sources. The possibility of grants is also being studied. Because of the need to preserve absolute independence, both in research and in the publication of the work, the funding will be fairly widely spread, but due acknowledgement will certainly be made to subscribing organisations.
13. THE SITE, a disused slate quarry, has already been made available to S.E.I. on a 99 year lease at a peppercorn rental.
14. THE SITE WORK will be carried out, as far as is practicable, by voluntary labour. The reasons for this are both to maximise the effectiveness of cash donations and to demonstrate public concern for the project.
15. THE DEMONSTRATION of A.T. techniques will be as follows:-

ENERGY To construct, adapt and/or install equipment of the following types:-

- i) Water powered
  - Small scale turbines
  - High efficiency waterwheels
  - Hydraulic ram
  - Small scale pump storage
- ii) Solar
  - Flat-plate collectors
  - Focusing collectors
  - Solar-electric conversion
  - Solar-heat engine
- iii) Wind power
  - Savonius rotor
  - Turbine
  - Small propeller
  - Large propeller
  - Experimental devices
- iv) Gas
  - Methane digester
- v) Heat exchangers
  - Heat pump
  - Domestic heat collector
- vi) Distillation
  - Wood alcohol

RE-CYCLING To show:-

- i) Equipment
  - For Anaerobic digestion of sewage for fertiliser (and methane)

- ii) Systems - For group collection of raw materials.

BUILDING To exhibit materials, equipment and buildings:-

- i) Materials and equipment - For the production of on-site materials
- ii) Buildings - Demonstrating low-energy techniques, including methods of insulation.

FOOD To demonstrate methods and equipment suited to suburban situations for:

- Plant symbiosis
- Greenhouse cultivation
- Darkhouse cultivation
- 3-dimensional gardening
- Hydroponics

TRANSPORT To set up a transport facility:-

- i) Rail - To demonstrate low-energy-input personal/freight transport
- ii) Road - Automotive transport deriving energy from renewable resources.

16. PERSONNEL required to carry out the above demonstrations will be housed both in existing houses on the site (after restoration) and, subsequently, in the demonstration houses to be built.
17. ORGANISATION of the work required, to set up the project described, will be undertaken by an executive committee of volunteers, now in process of formation; subsequently a Council of Management will be set up to administer the project.