

English for Study Purposes

SEAMEO Regional Language Centre

Jennifer Smith Bernard Coffey

Student's Book Part 2



11, 565
1983 99
0-335-33383-7: 2.60
1347

English for Study Purposes

SEAMEO Regional Language Centre

Jennifer Smith Bernard Coffey

Student's Book Part 2



Macmillan Press London

Foreword

The course *English for Study Purposes* appears at a time when interest is increasingly being focused on the need to train specialists in many fields of science and technology. Throughout the world, as in South East Asia, English language training plays a vital role in preparing students to effectively operate and communicate in the modern technological world.

English for Study Purposes tackles the problem of equipping students with the language skills they require to read and study in English. The course combines the acquisition of important skills with lively and innovative language work that both clearly relate to the students' academic needs.

It is appropriate that the SEAMEO Regional Language Centre, Singapore, should have developed a course that so aptly meets the needs of the international region it represents.

I would like to warmly congratulate RELC and all concerned on the initiative and foresight shown in the conception and realization of this valuable project.



DR ADUL WICHIENTHAROEN
Director

Southeast Asian Ministers
of Education Secretariat
Bangkok

Preface

The publication of *English for Study Purposes* meets an important and urgent need in the area of English language teaching. This course prepares students for studies in English in many scientific and science-related fields without restriction to one specialized area.

English for Study Purposes is designed to be applicable to many and varied academic environments not only in South East Asia, but also elsewhere in the world. The texts of its twelve units, covering a wide variety of scientific and science-related topics, form the 'raw materials' on which the student will work to build up the range of skills required to function effectively in English at the tertiary level. The activities in the course are eminently practical: data collection, note-making, report writing, and the comprehension and interpretation not only of written texts, but also of charts, graphs and diagrams.

A bonus factor in *English for Study Purposes* is that, on completion of the course, the student will have acquired not only the language skills necessary for scientific study in English, but also a familiarity with a subject of world-wide importance and relevance today, — namely energy in its many manifestations.

The materials have already been rigorously piloted in twenty South East Asian institutions, in five different countries, with favourable results.

I would like to acknowledge the invaluable contribution of various parties to the successful implementation of the project: Shell International Petroleum Company Limited for their generous funding; UNESCO for its financial support and encouragement, and the British Council for providing the services of one of its senior staff.

A great many other people also gave generously of their time and expertise. Special mention must go to the RELC Governing Board members of the five SEAMEO countries concerned in the trials of the pilot materials. Grateful thanks must also be given to all the lecturers and staff involved at the many trial institutions throughout the region.

To all those who have contributed to the successful completion of the project and the publication of this course, I would like to express my heartfelt thanks and appreciation.



TAI YU-LIN
Director

Regional Language Centre of the
Southeast Asian Ministers of
Education Organization
Singapore

Introduction

GUIDELINES TO STUDENTS USING THIS BOOK

This course is intended for students with a good intermediate knowledge of English who are going on to further studies where English is needed for specialist purposes in various science or science-related fields.

1 Aims and Objectives

The major aim of this course is to help you acquire the skills you need to *read and study in English*. The materials are designed to give you practice for many study tasks, including:

- reading textbooks relevant to your scientific or science-related fields of study through the medium of English
- collecting data from a wide range of sources — many in chart or tabular form
- note-making for a variety of purposes
- compiling reports for varying aims, ranging from straightforward factual accounts to more complex and detailed arguments

2 Language Development and Skills for Reading

You will learn how to use language to do many things, such as:

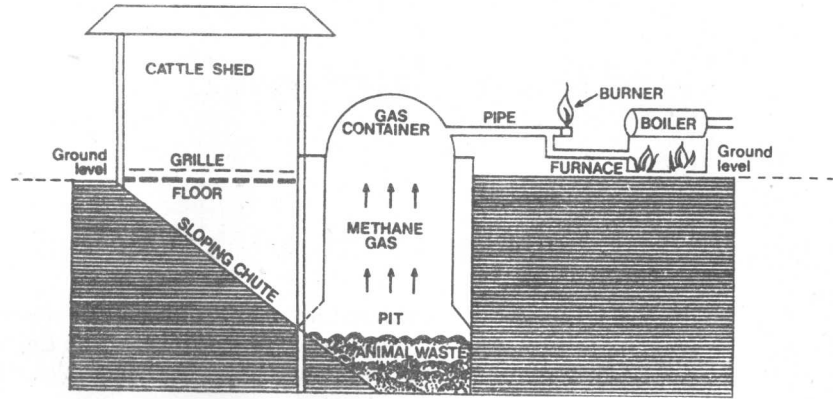
- describe processes
- make comparisons and contrasts
- express certainty and uncertainty
- express intention or purpose
- make recommendations

You will acquire skills that will improve your reading and generally help you in your studies, such as:

- understanding words in context
- skimming and scanning
- ordering information
- connecting ideas
- assessing attitudes
- summarizing

You will also study, interpret and present information in the form of:

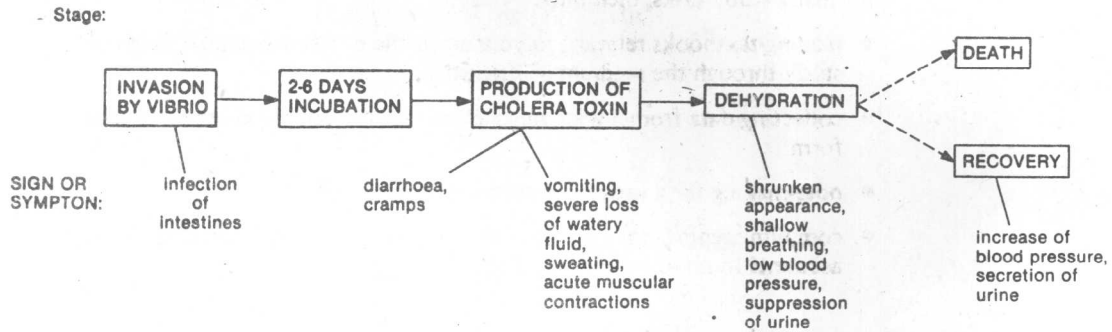
DIAGRAMS



UNIT II, FIGURE 6: A Biogas Plant

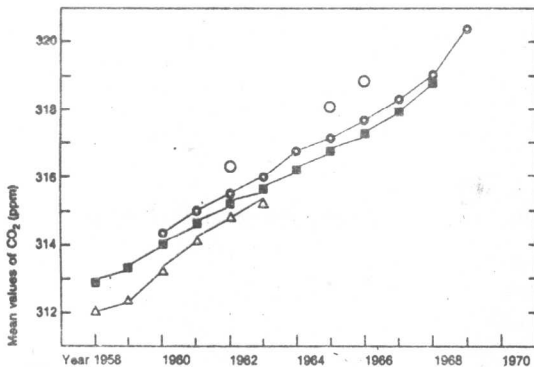
FLOW CHARTS

THE COURSE OF THE TRANSMISSABLE DISEASE, CHOLERA



GRAPHS

Annual Mean Values of CO₂ Concentration in the Atmosphere



TABLES

SOME MAJOR TWENTIETH-CENTURY EARTHQUAKES			
Date	Epicentre	Richter Magnitude Scale	Comments
1963, 26 Jul.	Skopje, Yugoslavia	5.8	1,200 killed
1964, 27 Mar.	Prince William Sound, Alaska, U.S.A.	8.5	130 dead, \$500 million damage
1964, 16 Jun.	Nilgata, Japan	7.5	25 dead, tsunami
1965, 4 Feb.	Rat Islands, Alaska, U.S.A.	7.9	
1965, 29 Apr.	Puget Sound, Washington, U.S.A.	6.5	\$12 million damage in Seattle area
1966, 19 Aug.	Varto, East Turkey	6.8	2,529 killed
1967, 22 Jul.	Mudurno, West Turkey	7.1	86 killed
1968, 15 Jan.	Sicily, Italy	5.4	252 killed
1968, 16 May	Tokachi-Oki, Japan	7.8	48 dead, tsunami
1970, 8 Mar.	Gediz, West Turkey	7.1	1,087 killed
1971, 9 Feb.	San Fernando Valley, California, U.S.A.	6.5	65 killed, \$500 million damage
1975, 6 Sep.	Lice, East Turkey	6.8	2,300 killed
1976, 6 May	Udine, North Italy	6.9	850 killed
1977, 4 Mar.	Transylvania, Romania	7.2	>2,000 killed, deep focus
1977, August	Sumba, Indonesia	8.9	Terrible devastation and loss of life

3 Topics

You will read about a wide variety of contemporary topics. Here are some of them:

- Energy costs and conservation
- Nuclear and solar energy
- Air pollution and the 'greenhouse effect'
- Diseases of an industrialized world
- Cars of tomorrow
- Space Shuttle technology
- Destructive energy: hurricanes and earthquakes

4 Theme

There is a central theme running throughout the whole course. This theme which links the topics together is ENERGY — a subject of crucial importance and relevance throughout the world today.

5 Course Organization

The course consists of ten basic units, plus Introductory Units A and B, and is in two parts, Part 1 and Part 2. A Teacher's Guide accompanies the Student's Books.

Each unit is divided into six sections:

SECTION A: Preparation

SECTION B: Main Reading Passage

SECTION C: Comprehension

SECTION D: Development

SECTION E: Further Reading

SECTION F: Written Practice

Contents

Introduction

vii

Unit 6 Energy from Biomass

1

- Topics:** Problems of environmental deterioration: deforestation and desert encroachment
Fuels from biomass, and controlled-environment agriculture
Biogas: a solution to many problems
- Skills:** Connecting ideas
Scanning texts
Ordering information
Transferring information: text \longleftrightarrow chart/diagram
Report writing
- Language Items:** Practice with verb forms: present tense, infinitives, etc
Indicating result: 'consequently', 'and so', 'such . . . that'
Expressing intention or purpose: infinitives, 'in order to', 'going to', etc
Tabulating vocabulary into meaning-groups
Prefixes to form 'opposites'

Unit 7 Declining Human Energy

18

- Topics:** Cellular metabolism and the causes of ageing
Transmissible diseases: cholera and tuberculosis
Degenerative diseases: heart disease and cancer
- Skills:** Understanding words in context
Interpreting graphs and tables
Assessing data
Summarizing in chart form
Report writing
- Language Items:** Expressing sequence: 'prior to', 'before', 'after', 'eventually'
Expressing simultaneous action: 'during', 'as', 'while'
Expressing cause and effect: 'results in', 'leads to', 'is due to', etc
Word formation: adjectives ending in '-ic' and '-ive'

Unit 8 Destructive Energy

39

- Topics:** Destructive natural phenomena: earthquakes, volcanoes and tsunamis
Modifying the power of hurricanes
Predicting and minimizing the effects of natural disasters
- Skills:** Building a text
Skimming and scanning
Working out the meaning of words
Interpreting diagrams and tables
Report writing
- Language Items:** Vocabulary of shapes and movement
Tabulating vocabulary into meaning-groups
Reporting past events: past perfect tense and related time markers – 'by the time', 'once', 'when', etc
Word roots and derivations: 'pyro-', 'mega-', 'hydro-', etc

Unit 9 Energy Costs and Energy Conservation

59

- Topics:** Energy costs of food production
Measures to conserve energy
The village of the future
- Skills:** Understanding words in context
Linking ideas
Skimming
Assessing the attitude of the writer
Collecting data from a range of sources
Report writing
- Language Items:** Writing descriptions: '-ing' verb forms and past participles, relative clauses
Indicating contrast, sequence, result, purpose and condition: 'although', 'until', 'since', 'so that . . .', 'unless', etc
Related words: 'industry', 'industrial', 'industrialize', etc
Describing method and purpose: 'how' and 'why' questions + 'can' and 'should'; infinitives of purpose

Unit 10 Solar Energy and Energy in Space

80

- Topics:** Solar cells as a means of energy production
The feasibility of solar power satellites
Space Shuttle technology
- Skills:** Working out the meaning of words
Contrasting opinions
Skimming and scanning
Interpreting diagrams
Ordering information
Report writing
- Language Items:** Expressing attribution: 'according to', 'claim', etc
Making predictions and assessing likelihood: 'will/would', 'may', 'the chances are . . .', 'could/might', etc
Terms to describe 'harmful effects': deteriorate, disrupt, destroy, etc

6

Energy from Biomass



SECTION A: PREPARATION

Exercise 1 Information from diagrams

This is an exercise to get you to look at a diagram and gain information from it.

Look at Fig. 1 overleaf. It introduces the topic of deforestation and shows you why many of the world's forests are being cut down.

Now read the following short texts. Decide whether each one is supported or contradicted by the diagram overleaf. Note down your answers.

- A According to the diagram, the greatest acreage of prime forest is to be found in East Asia.
- B Tropical rain forest is being cut down in order to provide mankind with valuable timbers suitable for building and carpentry.

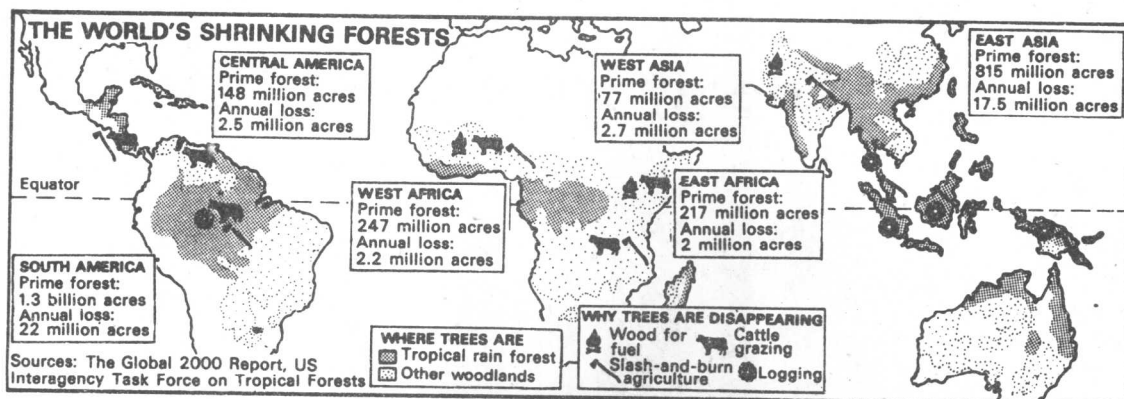


Fig. 1: The world's shrinking forests

- C Throughout much of present-day South America, and in many tropical or subtropical regions of the world, the destructive method of slash-and-burn agriculture is actively practised.
- D In parts of Africa and West Asia, forests are disappearing to supply fuel for heating, cooking and industrial purposes.
- E The number of trees felled annually is insignificant when the enormous size of the forests is taken into consideration.
- F Logging operations are centred in areas of dense tropical rain forest.
- G Annual loss of forest is greater in West than in East Asia.
- H In the tropical lands of East Asia, deforestation is occurring at increasing rates in order to provide open land for cattle grazing.
- I Extensive felling of trees for fuel and constructional timber is causing deforestation on a large scale in many parts of the world.
- J Virgin rain forest in Central and South America is being cleared to provide pasture for beef cattle.

Exercise 2 Words in context

Choose the appropriate word or phrase to complete each of the texts below.

- Every seed is a _____ plant. If given water and light it will slowly grow to maturity.
a developed b precarious c potential d cultivated
- At the wedding party there were _____ supplies of food and drink – more than enough for all the guests.
a adequate b intermittent c doubtful d abundant
- All the workers are pleased with the increased production of the new machines. They are far more _____ and cheaper to run than the old ones.
a apparent b efficient c inoffensive d uncertain
- After the grain has been harvested and processed, the _____, such as the straw and husks, can be used as steam-producing fuel.
a residue b essence c conversion d diversity
- As the price of petrol steadily increases, it becomes ever more attractive to _____ every alternative energy source. Brazil is already producing liquid fuel from plants to be used as motor fuel.
a generate b exploit c dispose of d derive
- Increasing human and animal populations, combined with increasingly intensive agriculture, have been key factors in turning once fertile land into _____ desert.
a irrigated b non-commercial c valuable d barren

Exercise 3 Complete the text

Read the text below carefully. It concerns the tropical forest, and considers it to be 'a rich but fragile resource'.

Complete the text by filling in the blanks with verbs from the list given. Use each verb only once.

Verbs: are are situated are used covers
 harvested is lives needed
 provide to regulate yield

Almost half of the earth's population _____ in the tropical forest environment which _____ an estimated 2000 million hectares, mostly in the developing world. The management of these forests _____ a matter of great importance for the countries in which they _____, for not only do they _____ timber for lumber and paper, but their unique diversity of plant life, if wisely _____, is a renewable source of food, medicines and fuel. Forests also help _____ the quality and flow of water, an essential factor in development. They _____ the home of farmers, hunters and gatherers, and _____ many products which _____ both by the local people and _____ by city dwellers.

Exercise 4 Match each action with its result

Study the table below. Each of the statements has been broken into two parts. Match each item in the left-hand column with its result in the right-hand column. Notice how the italicized words or phrases link each action with its result.

1 The number of vehicles on the road has greatly increased and <i>consequently</i>	a wells have to be dug deeper.
2 There have been great advances in the science of plant-breeding <i>leading to</i>	b clothing firms have found it necessary to provide larger-sized dresses, jeans and so on.
3 People eat better and take more exercise than ever before, and <i>as a result</i>	c there has been a considerable rise in the levels of air pollution in cities.
4 The use of computers will make it possible to control certain processes automatically, and <i>so</i>	d most new construction will have to be high-rise.
5 There has been <i>such</i> a fall in the level of ground water, <i>that</i>	e an increase in the production of grain and other food crops.
6 There are few empty spaces left in the city for building, and <i>therefore</i>	f there will be fewer people required to control the processes.

Exercise 5

Now study the following pairs of statements. In each case you have to decide whether the relationship between them is one of result. If it is, tick box 'R'. If there is no relationship, tick box 'N'.

- A (i) In slash-and-burn agriculture, considerable areas of forest are cut and burned.
(ii) Roots of trees that are cut and burned, die and the nutrients are lost.

R	N
<input type="checkbox"/>	<input type="checkbox"/>

- B (i) In central and southern Tunisia annual rainfall varies from 350 mm in the north to less than 100 mm in the south. □ □
- (ii) Many areas of central and southern Tunisia used to be exploited by nomadic farmers with their herds of sheep and goats.
- C (i) Poor people from rural areas are migrating to the cities to find work. □ □
- (ii) The circles of slum housing in many city suburbs are growing larger.
- D (i) There has been a sudden drop in the temperature lately. □ □
- (ii) Streams and ponds in the area have begun to freeze over.
- E (i) City dwellers tend to suffer far more from stress than rural inhabitants. □ □
- (ii) Overcrowding, and noise and air pollution often give rise to what doctors call 'big city stress'.
- F (i) The cost of buying, licensing and running a private automobile has risen sharply. □ □
- (ii) There has been a notable increase in the number of new car registrations.
- G (i) Government plans to conserve energy are now beginning to come into effect. □ □
- (ii) There has been a sudden rise in the cost of utilities: water, gas and electricity.
- H (i) The Great Indian Desert is unique in that it is the most densely populated in the world. □ □
- (ii) More solar energy reaches the Great Indian Desert than many areas closer to the equator.
- I (i) In the last year or so a greater number of jobs for architects, building engineers and related personnel have become available. □ □
- (ii) Recently there has been an upsurge of interest shown in regional and town planning.

Exercise 6

Study Exercise 4 again, and notice how the two parts of each sentence are connected.

Now read through Exercise 5 once more. You are expected to join these pairs of statements together so that each action can be linked with its result. Where you ticked box 'R', choose the most appropriate way of joining the pairs of statements. Be careful, you may have to make other small changes too.

Example: A In slash-and-burn agriculture, considerable areas of forest are cut and burned and, as a result, the roots of the trees die and the nutrients are lost.

Exercise 7 Expressing intention or purpose

Study the following short texts. They illustrate different ways of expressing intention or purpose.

- (i) The local authorities have decided to collaborate with scientific specialists to launch a programme of integrated ecological research.
- (ii) UNESCO are going to provide the funding for the project.
- (iii) The main purpose of the experiments is to see whether certain processes can be speeded up.

- (iv) Indiscriminate felling of trees should be discouraged to prevent the risk of desert encroachment.
- (v) In order to preserve surface land for farming purposes, the storage tank is being built underground.

Discuss how the language used conveys the idea of intention or purpose.

Now use your own knowledge to complete the following texts.

- A Notches were cut in the bark of the tree
- B The containers and their contents should be boiled before sealing
- C In order to carry the dangerous fumes of the factory away from ground level
- D The purpose of the expedition
- E In order to reduce the risk of damage in the event of an earthquake
- F Owing to dramatic increases in the number of migrants to the city, town planners have decided
- G In order to obtain sufficient energy supplies
- H Game reserves are conservation areas set aside by certain countries
- I Biogas plants were constructed in rural areas in India
- J The village council took the decision to use locally available materials such as bricks made of mud and straw

Exercise 8 Reading quickly to get a general impression

Before you begin reading, you have to decide what specific information you require from a book, chapter or article. This exercise is designed to give you practice in reading quickly, or skimming, to get the information you need. On the left are six headings. Match each one with its relevant text below. See how quickly you can finish the exercise.

Headings

- A What is Biomass?
- B Fuels from Biomass
- C Biomass Addition to Petrol
- D Biogas Digester Design and Operation
- E Energy Produced by Biogas Plants
- F Social Constraints to Biogas Adoption

- (i) Biogas plants consist of a large chamber constructed partially below ground. The waste material is mixed with water and fed down the inlet pipe into the chamber. While undergoing decomposition, the waste travels to the outlet pipe. The entire process takes from 30 to 50 days, which allows for gas production and destruction of the disease-causing organisms.
- (ii) The wide range of fuels available indicates the great advantage of biomass over other less versatile natural energy resources — its ability to produce liquid fuels as well as solid and gaseous fuels on a renewable basis.
- (iii) In some areas, psychological and religious barriers to the systems exist: in Indonesia, the use of pig manure is unacceptable to the Muslims; in some parts of India there is strong resistance to the use of nightsoil and the gas thus produced.
- (iv) Motor vehicles can run on fuel containing up to 20 per cent ethanol (industrial alcohol) without any changes to the conventional engine. Ethanol is produced from a variety of farm crops such as maize, sugar cane and beet, fruit and straw.
- (v) Biomass is the total amount of renewable organic matter on earth. It is a small proportion of the sun's energy converted into chemical energy. It is the basis for the sustaining of all life on this planet. Biomass, in short, is the earth's total complement of plants and animals.
- (vi) The amount of gas produced and the rate at which it is given off depends on the moisture content of the feed material and on its type. The higher the nitrogen to carbon content of the wastes, the higher the methane yields. It is estimated that the wastes from two animals are sufficient to feed a family-sized plant.

SECTION B: MAIN READING PASSAGE

This passage is concerned with 'alternative energy sources' and discusses various methods of replacing fossil fuels as a world source of energy.

Exercise 9 Scanning a text for specific information

Before you begin reading the passage, study the questions. Then read through the text quickly in order to decide which questions the writer answers. There are thirteen questions altogether, but the writer only answers eight of these. Delete the questions that are not answered.

- A Which process captures solar energy and converts it into a useable form so that it can be stored?
- B What percentage of proven fossil fuel reserves lie below the earth?
- C What are the major traditional fuels of biological origin?
- D How has the so-called 'second energy crisis' arisen?
- E Which is the more efficient fuel: charcoal or dry wood?
- F What useful products, other than food and fuel, can be supplied by exploiting the biomass?
- G Which methods can be used to counteract deforestation and desiccation?
- H What type of experiments are being carried out to increase efficiency in extracting energy from biomass?
- I What sort of people are involved in the development of biomass energy programmes?
- J What research has taken place in order to determine the potential of waterplant biomass for energy production?
- K How could trees be used to generate electricity?
- L Why is the biogas production system of greater value than the simple burning of organic waste or dung?
- M What form of biomass product could be used to power cars and motor vehicles?

Now read the passage again, keeping certain points in mind. Firstly, how do we decide upon the advantages and disadvantages of these alternative energy sources? What factors must be included when we assess which methods are most appropriate and useful? Secondly, what accidental or unintended effects can result from an 'energy policy', or a change in energy policy?

Energy from Biological Sources

- I 1 Radiation from the sun is the earth's primary source of energy. More than 99 per cent of the processes that are happening on earth are energized by the sun either directly or indirectly. As solar radiation is a permanent and renewable source of energy, why, then, do we have an 'energy crisis'? The problem, of course, lies in how to utilize this energy. It is diffuse and intermittent on a daily and seasonal basis, thus collection and storage costs can be high. But we already have at our disposal a means of capturing and storing a proportion of this energy, and we have always had such a means. It is plant life — the 'biomass'. The process involved is photosynthesis.
- II 10 This capture of solar energy and conversion into a stored product occurs, with only a low overall efficiency of about 0.1 per cent on a world-wide basis, but because of the adaptability of plants, it takes place and can be used over most of the earth.
- III 15 We should remember two things about this energy source. First, the world's present and precarious dependence on fossil fuels — first coal, and then oil — is only about two hundred years old. Before that, most of the energy required by human beings for heating, cooking and industrial purposes

- was supplied from biological sources. By this, we mean mainly wood, or its derivative, charcoal. Secondly, wood still accounts for one sixth of the world's fuel supply. In the non-OPEC developing countries, which contain 40 per cent of the world's population, non-commercial fuel often comprises up to 90 per cent of their total energy use. With the increasingly doubtful future of fossil fuel supplies, fuel from biological sources may have to become even more important.
- IV Traditional fuels of biological origin include wood, charcoal, agricultural residues such as straw and dried animal dung. With the growth in world population, there has been increasing pressure on these resources, leading to what is sometimes called the 'second energy crisis'. This is more drastic for mankind than the 'first', or oil crisis. It takes the form of deforestation, with loss of green cover in hot lands, leading to desiccation and the loss of fertile land to desert.
- V The threat from both energy crises can be partly met by utilizing the enormous supply of energy built up annually in green plants. The question is, how should this be done? In the past, photosynthesis has given us food, fuelwood, fibre and chemicals. It has also, ultimately, given us the fossil fuels — coal, oil and natural gas, but these are not renewable while the other products are. Recently, however, with abundant oil, the products of present-day photosynthesis are mainly evident to the developed world as food. We should re-examine and if possible, re-employ the previous systems; but, with today's increased population and standard of living, we cannot revert to old technology and must instead develop new means of using present-day photosynthetic systems more efficiently.
- VI Fortunately for us, plants are very adaptable and exist in great diversity — they could thus continue indefinitely to supply us with renewable quantities of food, fibre, fuel and chemicals. If the impending fuel problem which is predicted within the next ten to fifteen years comes about, we may turn to plant products sooner than we expect. Let us be prepared!

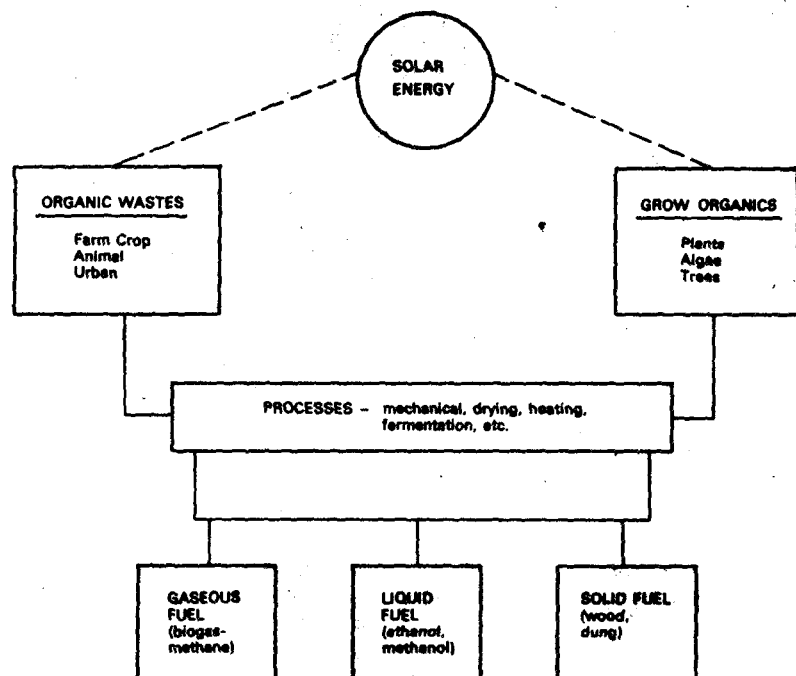


Fig. 2: Production of fuels from solar energy

VII Some basic research can be done centrally, without reference to the conditions in any one country. For example, all plant energy storage depends ultimately on the process of photosynthesis. Experiments are being made to see whether this process can either be speeded up, or even reproduced artificially, in order to produce a higher efficiency in energy extraction. Most research should be done locally, however, because of climatic and vegetation differences, and also because of the difference in needs and emphasis in varying countries. Such research and development is an excellent opportunity to encourage local scientists, engineers and administrators in one field of energy supply. Even if biomass systems do not become significant suppliers of energy in a specific country in the future, the spin-off in terms of benefits to agriculture, forestry, land use patterns and bioconversion technology is certain to be valuable.

VIII What are the methods currently in use or under trial for deriving energy from biomass? The first is the traditional use outlined in paragraph III, which may be termed the 'non-commercial' use of biomass energy. The second also has a long traditional history: the use of wood-fuel under boilers to generate steam. This has now been revised on an intensive scale. In a study from the Philippines, it has been estimated that a 9100 hectare fuel wood plantation 'would supply the needs of a 75 megawatt steam power station if it were not more than fifty kilometres distant'. Such a plantation would use a species of fast-growing tree — *leucaena leucocephala*, or the giant 'ipil-ipil'. The investment requirements and cost of power produced looks favourable and competitive with oil-fired power stations of similar capacity. In addition, residues from cropland after harvest and from sawmills could be used as steam-producing fuel. The steam could then be used to generate electricity.

IX There are also bioconversion processes to produce liquid fuels such as oil and alcohol. Some fuel oils can be pressed directly from certain crops. Alcohols, on the other hand, can be produced by converting plant material by fermentation. Ethanol (ethyl alcohol) can be extracted from growing plants such as sugar cane, from waste plant material, or from whole grain. Methanol (methyl alcohol) can be produced from coal, wood, sewage and various waste products. These alcohols have several industrial uses and can also be used as fuels in the internal combustion engines of vehicles. Technology is already advanced, and the main problem is devising ways of collecting enough organic material to make the installations commercially viable. Some crops can be grown specifically for this purpose. In other cases the installations can make use of the residue, or 'trash' produced in the large-scale plantation farming of such crops as sugar cane and pineapple. Another fuel product produced by a fermentation process is fuel gas of various kinds, including a biogas called methane. Several of these processes can be applied to household or municipal wastes and refuse — a large and concentrated source in all big towns and cities.

(Based on a longer article in *Nature*, by Professor D O Hall)

SECTION C: COMPREHENSION

Exercise 10 Choose the correct paragraph heading

The main reading passage is in nine numbered paragraphs, I — IX. Here are paragraph headings for three of them, in the correct order.

II Efficiency of the Solar Conversion Process

III Fuels from Biological Sources

V The Energy Crisis and Photosynthetic Systems

(Note the use of capital letters in titles and headings.)