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DEVELOPING A STRATEGY FOR INCREASING THE EFFICIENCY OF THE MARKETING OF SELECTED AGRICULTURAL PRODUCE IN THE UNITED ARAB EMIRATES

BY

NABEEL ABDULLA A TAHA ALSHAMRY

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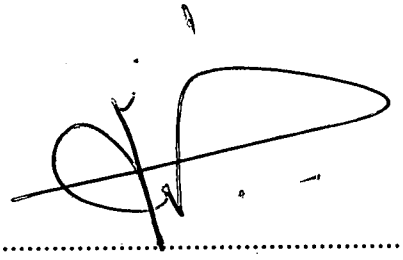
I dedicate this thesis to my father, Abdulla A Taha Alshamry, and mother, Amal Alhabal, and to my wife, Maha Almalki and my children, for the love, care and kindness which they have given me throughout my studies in and out of Abu Dhabi (UAE).

DECLARATION

I confirm that no part of this work has been submitted for a degree of another institution and that the research underlying this thesis was carried out by me.



Signed .....
Nabeel A Taha Alshamry

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ABSTRACT

This thesis investigates the reasons why the level of wastage of agricultural output, particularly of fruit and vegetables, is very high in the UAE in general and Abu Dhabi Municipality in particular, and the role of marketing in the situation. The Abu Dhabi agricultural region was used as the case-study for the investigation.

After some literature review, the study examines the performance of the agricultural sector in the UAE since the establishment of agricultural policies geared towards developing the sector. The findings show that the sector has developed very rapidly, resulting in increased output over the years. The agricultural policies of the government are effective in encouraging farmers to produce more output through intensive and extensive farming.

The main findings of the research are divided into two. First, the findings show that marketing of fruit and vegetables is very poor in the Abu Municipality. The government policy of purchasing whatever farmers produce to encourage agricultural development has meant a huge increase in production but this has not been matched by the form and level of marketing of the products. There is absolutely no promotion of local fruit and vegetables, the packaging, labelling and presentation are poor, the distribution channels are poorly managed and the pricing system has no

bearing on the cost structure of agricultural activity or competition in the market. Above all, no marketing research is undertaken to understand the market and its requirements and, more so, to build up a marketing database and information flow for marketing planning. However, no marketing plan has every been developed for the marketing of fruit and vegetables in Abu Dhabi.

Secondly, the findings show that a high level of wastage of fruit and vegetables occurs in the Abu Dhabi Municipality. Over 50% of the output of fruit and vegetables in the past three years up to 1992 were spoiled or left over and dumped as wastage. Findings also show that the main causes of the wastage are lack of effective marketing, promotion and presentation of local fruit and vegetables, a poor distribution system, lack of appropriate training and knowledge about the handling, packaging and storage of fruit and vegetables, the lack of import control and export outlets and uncontrolled government incentive policies and instruments. The increasing level of wastage now constitutes a major problem in the UAE.

Given the findings, it was recommended that the government reviewed its incentive policies, particularly those relating to purchase arrangements, training facilities, pricing and support services. Effort should be put into commencing marketing research to build up a useful database for planning and control of agricultural production and marketing. Much effort should be invested in developing an effective marketing and promotion of local fruit

and vegetables while export outlets are investigated and exploited. Some import control is desirable while the current distribution system is reviewed to reduce the time it takes to deliver products from Collection Centres to the Central Collection Centre.

The study concludes by summarising the findings and stressing the need for further research in the area of agricultural development in the UAE.

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INTRODUCTION TO THE STUDY

1.1 BACKGROUND

The United Arab Emirates consists of seven member states - Abu Dhabi, Dubai, Sharjah, Ajman, Umm al-Qaiwain, Ras al-Khaimah and Fajairah. The formation of the UAE took place in December 1971, but was not completed until February 1972, when the joining of the seventh member, Ras al-Khaimah, took place (Simon, 1992).

It has been difficult to create a true federal entity due to tribal implications within the regions, which have a tendency to overlook the commonality of each in terms of cultural heritage. This is further hindered by territorial rivalries and their discovery of oil.

The political structure of the UAE is made up of five federal institutions. Firstly, the legal system of the UAE is based on the provisional constitution set up in 1971, when it was formed. When the renewal of the provisional constitution is to take place, various aspects concerning the federal government come under debate. It is felt by members that the federal government does not act in the true interest of the UAE, where all members should interact in the swift running of its economy. Instead, not all members fully contribute to the constitution, but do become dependent on its resources for development.

Due to the conflicts arising each time the provisional constitution is to be renewed, the setting of a permanent constitution has been postponed. A contributor to this has been the falling oil revenues which have caused uncertainty in the UAE's economy, and this has affected, to some extent, the stability between the emirates.

The presidency is the second federal institution and constitutes the government, which consists of a prime minister and vice-president, Sheikh Maktoum bin Rashid al-Maktoum, and a deputy prime minister, Sheikh Sultan bin Zayid al-Nahayan. The position of president is determined by the Supreme Council of Rulers, which consists of hereditary rulers from the seven states. The election process of the president and his deputy takes place every five years.

The national government is represented by the Council of Ministers, which acts as the third federal institution of the UAE. Its initiation involves the drafting of federal laws, which include the budget and regulations for implementing the various federal laws. At least one minister represents each state, but senior posts are allocated to the larger emirates.

The separate emirates are represented by a national legislature - Federal National Council (FNC) - consisting of 40 appointed members. This is the fourth federal body and its role is purely that of a consulting nature. The issues that the FNC can debate are firstly determined by the Council of Ministers.

The Federal Supreme Court is the fifth body to contribute to the political structure of the UAE. On a formal basis, the five judges that make up the Supreme Court will act upon any dispute between member emirates and the federal government, or even between member emirates themselves. The Supreme Court acts as the judicial for federal laws and as an interpreter for the provisions made to the constitution.

The UAE is very keen on keeping its relations with friends in the Gulf, the Arab world and elsewhere, strong. This has been reinforced through past experience concerning its relationship with other oil producing nations and the conflicts that can occur in the production of oil. As a member of the Gulf Co-operation Council (GCC), the Arab league, the Organisation of Petroleum Exporting Countries (OAPEC) and the non-Aligned Movement (NAM), the UAE is committed not only to developing its economy but also to supporting the course of the various organisations in which it remains a member. Its oil wealth provides the means for supporting such a huge expenditure programme.

The irony of the situation, however, is that the UAE, which is so endowed with one of the world's most precious commodities, oil, should have so little of the essential of life, water. Among the most arid countries in the world, the UAE gets very little rainfall and there is not a single river system in the entire region. All the more reason, therefore, for the UAE to look upon its breakthrough in agriculture as probably its most satisfying achievement (Ministry of Information and Culture, 1992b).

The transformation of vast stretches of sand into lush corn-fields and orchards and of windblown townscapes into the garden cities of Arabia is one of the great success stories of country. This development began about 25 years ago with the first giant project to reclaim land from the desert. The wealth of oil was placed at the disposal of the agricultural sector. Billions of dirhams were invested in land reclamation projects, the drilling of water well and the construction of dams to trap the seasonal torrents that flow from the Hajar Mountains into the sea during the brief rainy season. This investment was supplemented by generous subsidies to farmers, a process that still continues (Ministry of Information and Culture, 1992b).

The ambition to convert the vast desert into green land has lived with the people of the UAE over the centuries. The resources created by oil have made the impossible easily possible - much of the arid desert land has been converted to arable, green and productive land for agriculture (Ministry of Information and Culture, 1992a). For some time now, President Sheikh Zayed formulated a development strategy which has two mutually compatible goals of self sufficiency in agricultural production on the one hand, and economic diversification on the other.

Through careful planning and assiduous implementation of the strategy over a period of 20 years (1971 - 1991), the results have been very encouraging, and dumbfounding to foreigners who thought it was impossible to grow anything in the deserts of UAE. In the President's own words:

> 'Foreign experts told us it was impossible to plant anything in our harsh and hostile terrain. We told them "Let us try". We did. Now G-d Almighty has rewarded us'. (Ministry of Information and Culture, 1992b, p 110).

Since 1972, the agricultural sector as a whole has registered an average annual growth rate of 16.7%. In 1971, for example, the combined production of farms, mainly date-palm plantation, barely exceeded 116 million dirhams at current prices, but output in 1991 was valued at 2.2 billion dirhams. This impressive development in agricultural production derives from less than five percent of the land suitable for cultivation. Moreover, the agricultural zones of the UAE are scattered across the country. The main farming centres are located in Ras Al Khaimah emirate in the region around Digdaga, the site of a pioneering agricultural research centre set up in 1955; around the garden city of Al Ain, East of Abu Dhabi, a centre of the ancient falaj system of irrigation where cultivated acreage has more than doubled since 1985; Dalma Island, site of a very promising experiment undertaken at the personal initiative of the President; Ghiyathi and the Liwa oasis in Abu Dhabi's Western region; Al Awir and Hatta in Dubai; Dhaid in Sharjah; Falaj Al Mualla in Umm Al Qaiwain and parts of Fujairah, the emirate with an Arabian Sea coastline (Ministry of Information and Culture, 1992a).

Farming methods are not uniform and depend upon local soil and atmospheric conditions. For example, Al Ain with a dry climate, moderately cool in Winter, has little need of the humidity-controlled greenhouses which are used elsewhere. The variety of fruits and vegetables grown in natural or simulated conditions would astound a visitor returning to the area after 20 years. Cabbages vie with turnips for a place in the market garden, as does okra with bitter gourd. Marrows loom

large alongside radishes and aubergines, while fruits include watermelons, grapes, figs and bananas. Mangoes are also plentiful, as are strawberries and button mushrooms which, until recently, had to be imported.

According to figures released by the Ministry of Agriculture and Fisheries (1992), the area of land under cultivation has increased dramatically since 1971. For example, in the period from 1978 to 1991, the amount to land under cultivation increased from 350,000 to 464,000 hectares. Some 24% of agricultural land is used to grow vegetables, 30% fruit, 10% feed crops and 36% is for other uses (British Bank of the Middle East, 1992). Further expansion has taken place since, with the number of small farms growing year by year. In 1973 there were less than 5,000 small farms but this increase by about four-fold to 19,000 in 1990, while the total value of agricultural production rose from only 116 million dirhams in 1971 to 1.5 billion dirhams in 1985 and to 2.2 billion dirhams in 1992. (Ministry of Agriculture and Fisheries, 1992).

The average crop season now yields over 600,000 tonnes of crops, most of which, as stated above, are accounted for by salad crops such as tomatoes, cucumbers, lettuce, cabbage and aubergines, as well as fruits.

There is no doubt that the record on agricultural development in such an arid country is impressive. There is an explosion in land under cultivation, a spectacular increase in the number of small farms, impressive growth in output and revenue and the government has kept to its aim of expanding agricultural development further. The aggregate effect of these positive developments is a

phenomenal increase in the output of the agricultural sector, mainly fruit and vegetables, which seems to outstrip the demand for these products.

Understandably, the government has developed a network of marketing centres which buy the produce of the farmers. Similarly, some of the fruit and vegetables, such as strawberries and citrus, are exported to supermarkets in Europe and other countries in the Arab world. Even so, there is general concern that most of the fruit and vegetables produced in the UAE are not consumed and thus wasted. A preliminary estimate based upon our exploratory research involving government officials, farmers, retailers and officials at the government established marketing centres suggests that about 60% of the fruit and vegetables produced in the UAE, particularly in the Abu Dhabi Emirate, are not consumed and often left to waste.

1.2 RESEARCH PROBLEM

This level of wastage in agricultural output of fruit and vegetables is not only unacceptable but also worrying because of the amount of money invested in developing the agricultural sector over the years. The situation has raised several questions relating to the prioritising and reassessment of government strategies; redefinition of need in relation to achievements; output targets for agriculture and the marketing of agricultural produce. While recognising that other areas need to be reviewed periodically to ensure effectiveness and efficiency of dirhams spent, most people seem to suggest that ineffective marketing is the main cause of the high level of wastage in fruit and vegetables produced in the UAE.

It is argued that such a high level of wastage of output occurs because the marketing of agricultural produce in the UAE is not as effective and efficient as it should be to ensure that a high proportion of the produce (mainly fruit and vegetables) is sold to consumers in and outside of the UAE. The opposing views suggest that other constraints rather than marketing inefficiency account for the high level of wastage. Whatever the direction or correctness of the argument, the main question that needs to be answered is: why is there such a high level of wastage of agricultural produce (mainly fruit and vegetables) in the UAE? Is it caused by rapid production expansion? Low demand for the produce? Lack of market outlets or inefficient marketing of the produce?

Considering all aspects of the questions above, this research will be based upon the following hypothesis: *the marketing of agricultural produce (fruit and vegetables) in the UAE is inefficient and this has led to the high level of wastage of produce.*

The research will investigate this hypothesis to confirm it or accept the alternative, which is that the marketing of agricultural produce in the UAE is efficient and the high level of wastage of produce is accounted for by other factors.

1.3 RESEARCH OBJECTIVE

The main objective of this research is to investigate the hypothesis set up above and identify and evaluate the factors responsible for the high level of wastage of agricultural output of fruit and vegetables in the UAE, with particular reference to the Abu Dhabi Emirate. Disaggregating this main objective, we have the

following sub-objectives:

- to examine and evaluate the agricultural marketing system or network in the UAE

- to identify and evaluate the factors responsible for the high level of wastage of agricultural output of fruit and vegetables

- to assess the role of marketing in the wastage of produce

- to recommend an appropriate strategy for reducing the level of wastage.

A successful research of these four sub-objectives will combine to answer the main question underlying the research and provide a test of the hypothesis.

1.4 USEFULNESS OF THE STUDY

The results of this study will be useful to the Government of the UAE in general and constituent emirates in particular. The governments will find the work useful in identifying the factors responsible for the wastage of agricultural produce and assessing the recommendations for application. Strategic issues will be raised in the analysis and recommendation which will shed light on some of the problem areas of agricultural marketing in the UAE.

The study will also be useful to academics, particularly those in the field of agricultural marketing and development in developing countries. The results will be additional to empirical findings in agricultural marketing in developing countries.

Similarly, the general public and practitioners in the field of agricultural marketing will find the study useful in terms of the strategic issues that will be raised, as well as the problem factors that will be identified.

My sincere hope, with the help of the Almighty G-d, is to carry out an efficient research to provide results that will be useful in solving problems in the marketing of agricultural produce in the UAE.

1.5 SUMMARY OF METHOD OF STUDY

The topic of this research was obtained through the personal observation and experience of the author. The author's family have engaged in agriculture for years and marketed the produce in Abu Dhabi and other emirates. Over the years, the author experienced a gradual increase in the quantity of agricultural produce, with a special reference to unsold vegetables, in other words, the quantity of vegetables wasted as a result of various factors. The concern this wastage caused the author has led to the research problem discussed earlier and the objectives set.

Three methods of research will be used in this study. These are:

- exploratory research
- secondary data search
- primary data search.

1.5.1 Exploratory research

We shall use exploratory research in the early stage of the study to focus the research problem and delimit the boundary of study. This will be achieved through

- secondary sources;
- consultation with farmers in Abu Dhabi;
- consultation with officials of the Ministry of Agriculture in Abu Dhabi; and
- consultation with professionals in the field of agricultural economics and marketing.

Focusing the research problem is necessary to establish the direction of parameters.

1.5.2 Secondary data

We shall use both official and unofficial sources of data. The official sources will include:

- Ministry of Agriculture and Fisheries documents;
- documents of agricultural institutions;
- documents of the Ministries of Economic Planning, Information and Culture, etc;
- other relevant documents.

Secondary data will be used intensively and extensively in all aspects of the study. All attempts will be made to exhaust the possibilities of using secondary data to complete the study, because it is much cheaper, consumes less time and other resources than primary research.

1.5.3 Primary research

We shall use primary research to obtain information which may not be available from secondary sources. Such data or information will include:

- the views, opinion and perspectives of the officials of the Ministries about the problem of this study;
- the experience, views and opinion of the farmers engaged in agriculture;
- the views, opinion and experiences of middlemen in the distribution of agricultural produce.

These sources will provide some specific information we may require to resolve the problem of our research. In addition, the sources will reveal certain motives underlying the observed wastage of agricultural produce.

Thus, both secondary and primary data will be sourced to give us appropriate reasons for the occurrence of the research problem.

1.5.4 Limitations

We expect to have some constraints during the research. These are: time constraint; finance constraint and other resource limitations. However, we hope to minimize the effects of these by using efficiently the resources available to us and the data collected.

1.6 SUMMARY OF CHAPTERS

The work comprises nine chapters, each chapter of which is summarised here:

Chapter 1

The topic is introduced in this chapter, and the main problem identified. The research objectives are stated as well as a summary of the method of research.

Chapter 2

In this chapter we surveyed the literature on marketing in general and agricultural marketing in particular. The development of agricultural marketing is surveyed, and the integration with mainstream marketing. Marketing philosophies and their development and convergence with economics and agriculture are discussed. The framework for the study is thus developed.

Chapter 3

This chapter examines the historical development of the United Arab Emirates (UAE) to provide a background to the study. The structure of the economy is examined, to position agriculture in the traditional order of production. The

chapter shows that the UAE economy is currently buoyant, even though this derives from its single export revenue earner - oil. The risk of such a high dependence (about 96% of all revenues derive from oil) is discussed.

The UAE was established as a country in December 1971 and has ever since grown in strength. Seven Emirates form the UAE, all of which have much in common. The government has recently recognised the need to diversify the economy and hence given much support to agricultural development.

Chapter 4

In Chapter 4 the role of agriculture in the UAE is examined. The evidence shows that the country was traditionally agricultural and hence agriculture plays a major part in the lives of the people.

Government has supported agriculture enormously. The study shows that the result of the support is a phenomenal increase in agricultural development since 1971. The country is divided into Agricultural Zones and each Zone has improved production significantly. However, some problems such as technical, human and natural constraints still exist.

Chapter 5

This chapter explains the methods used to collect data, especially primary data. Field surveys involving samples of government agencies, farmers, co-operatives and consumers were carried out in Abu Dhabi Municipality. A combination of random and non-random sampling approaches was used to obtain reliable and accurate data.

The main limitations in the fieldwork are time, budget and other resources.

Chapter 6

Chapter 6 examined the agricultural marketing system in the Abu Dhabi Municipality. The structure, organisation, operators and competition in the marketing system were assessed.

The main finding of this chapter is that agricultural marketing, particularly of fruit and vegetables, is very poorly organised. In fact, there is no effective marketing system; no promotion of the produce; poor product packaging, quality and handling; a poor pricing system and an inadequate and inefficient distribution system.

Marketing research to identify consumer requirements is never carried out. There is therefore no database for planning, and as such, no marketing planning is undertaken.

The chapter concluded by recommending a review of the situation with a view to developing an appropriate marketing system.

Chapter 7

This chapter focused on the core research problem of the study - ie, the high level of wastage of agricultural produce in the UAE. The findings confirm that an average of about 60% of the fruit and vegetables produced in the UAE are not sold, but dumped as wastage because they are damaged or rotten.

The findings indicate that the factors responsible for such a high level of wastage are:- the lack of an effective marketing system; a poor distribution system; a very liberal and uncontrolled government incentive system; a lack of export markets, and poor product quality. However, the study identified the lack of an effective marketing system; the liberal government incentives and the lack of training for farmers as the main causal factors of the high level of wastage.

Chapter 8

In Chapter 8, recommendations deriving from the identification and analysis of the causal factors were made. The focus of the recommendations is to impress upon the Government the need to take agricultural development more seriously by tackling head-on the factors that are responsible for the high level of wastage. Among the recommendations are:- the need to review the government incentive system with the aim of introducing some controls; the need to set up a database, and develop an appropriate marketing strategy and system to reduce the current level of wastage. Other recommendations were also made.

Chapter 9

This is the concluding chapter, in which the findings of the study were summarised. The work concluded with a suggestion on areas for further research.

CHAPTER TWO

AGRICULTURAL MARKETING: LITERATURE REVIEW

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AGRICULTURAL MARKETING: LITERATURE REVIEW

2.1 INTRODUCTION

Until recently, the role of marketing in economic development in general and agricultural product marketing in particular was given very little attention (Baker and Haddad, 1981; Jollans, 1985). With respect to agricultural product marketing, the lack of recognition of the role of marketing principles and techniques is not surprising, partly because the professional and academic marketing writers themselves showed little interest in applying marketing concepts to agricultural activity (Bartels, 1976) and partly because agricultural marketing issue were regarded traditionally as 'policy-matters' which were the preserve of the government and not the market forces (Warren, 1985; Ritson, 1989). This unfortunate situation developed from the fact that marketing, which emerged as a distinct academic subject (at least in Britain) in the 1960s, developed with a business orientation while agricultural marketing, which had been an issue since after World War I, developed with policy orientation. And even though both approaches sometimes appear to speak the same language, they often find themselves unable to communicate effectively and beneficially (Bateman, 1976). A reconciliation of the issues in the two areas of concern - that is 'marketing as a

business orientation' and 'agricultural marketing as a policy orientation' - is necessary in order to establish the role which a modern business marketing approach can play in the efficient marketing of agricultural produce.

2.2 THE 'MARKET PLACE'-'MARKETING' DICHOTOMY

Traditionally, farmers have been associated with the 'market place' rather than with 'marketing'. Recently, however, the farmers have been called upon to engage in 'marketing' and improve their marketing efforts. The distinction between being associated with the 'market place' and 'marketing' strikes a note of significance in the discussion of the role of business-oriented marketing in the policy-oriented agricultural marketing. Warren (1985) contends that in agriculture, the farm gate takes a significant role in defining where the production process ends and the market place begins. As a result, there is some confusion over the term 'agricultural marketing'. She argues that if the market place is beyond the farm gate, then farmers' activities would seem to be predominantly concerned with *production* rather than *marketing*, largely because farmers, as individuals, are too insignificant in terms of market power to influence events that actually take place in the market. In this situation, the farmers will maximise their objective of production by improving their 'marketing management' which is 'to leave the farm gate open and to react to signals which pass through it from the market place by considering them in their production activities' (Warren 1985, p.1). That is, the association with the market place (and, hence, marketing management) means that farmers play a more passive role in the marketing of their products than that suggested by business-oriented marketing. In this sense, association with the

market place (and marketing management) implies the use of information which has been gathered from the market place to decide 'what to produce, how to produce it, when to produce it, how to present it, when to sell it and to whom to sell it' (Warren, 1985). The dimension of 'marketing', on the other hand, is much wider and the participation much more active than applies in the association with the market place (or farm marketing management). Marketing involves, among other things, a trip through the farm gate and into the market place, not only to determine what is going on but also to influence events to the advantage of the company. Marketing is therefore a more active activity than on-the-farm marketing management or merely being associated with the market place.

The logical questions that follow from the short discussion above are: what, then, is marketing as a business philosophy? Ho is business marketing different from agricultural marketing? Why are there differences in the concepts? Are the differences 'real' or imaginary?

2.3 MARKETING AS A BUSINESS PHILOSOPHY

The discussion on marketing as a business philosophy has been organised under three headings: definitional issues; the development of marketing as a business philosophy and the theory of marketing.

2.3.1 Definitional issues

Marketing is one of the subject areas where a varied and wide range selection of definitions is available. This brings up problems of 'semantical preferences' of not

only authors but also interpreters of the definitions. However, the definitions may generally be put into three groups: (i) slogan-type definitions (ii) economics rationale definitions and (iii) philosophical or 'way-of-life' definitions.

2.3.1.1 Slogan-type definition

This type of definition is usually short and sharp, with the objective of focusing the mind on specific issues. Often, the definitions emphasise a relevant aspect of the term through repetition of some words or phrases. Examples of these are:

> 'Marketing is getting the right goods to the right customer at the right time, of the right quality and at the right price' (Detta O'Cathain, quoted in Ritson, 1989).
>
> 'Marketing is selling goods that don't come back, to people who do'. (Anonymous).
>
> 'Marketing is exchange of goods and services'. (Bagozzi, 1975).

Apart from the propaganda effects that these definitions may achieve, their usefulness in modern competitive marketing attitude and environment is very doubtful. The definitions lack the increasing recognition of the central role of the customer and the fact that the modern customer is 'spoilt' with choice. The supplier and his 'infinite wisdom' to produce the 'right' goods for the customer - a discredited attitude of the 1920s - seem to be emphasised in these definitions, and are thus inappropriate for use in today's marketing environment.

2.3.1.2 Economic rationale definitions

Some other definitions of marketing emphasise the economic rationale of marketing activity with the economic system. Examples of these are:

> 'Marketing is the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchanges that satisfy individual and organisational objectives'. (*The American Marketing Association*, 1985, p.1).
>
> 'Marketing is the performance of business activities that direct the flow of goods and services from producer to consumer or user'. (Enis, 1977).
>
> 'Marketing is the creation of time, place and possession utilities. Marketing moves goods from place to place, stores them and effects changes in ownership by buying and selling them. Marketing consists of the activities of buying, selling, transporting and storing goods. Marketing includes those business activities involved in the flow of goods and services between producers and consumers'. (Converse, Huegy and Mitchell, 1965).
>
> 'Marketing is the process whereby society, to supply its consumption needs, evolves distributive systems composed of participants who, interacting under constraints - technical (economic) and ethical (social) - create the transactions or flows which resolve market separations and result in exchange and consumption". (Bartels, 1968).

These definitions show marketing as contrary to the incorrect belief of many people that marketing is the same thing as advertising or personal selling - to be a far broader activity within the economic system. It could be seen that the definitions stress the importance of beneficial exchanges that satisfy the objectives of both those who buy and those who sell ideas, goods and services, whether they are individuals or organisations. This category of definition draws very closely to what may be used as a definition of 'Agricultural Marketing'.

For example, Kohls and Uhl (1980) see agricultural marketing as 'the performance of all business activities involved in the flow of food products and services from the point of initial agricultural production until they are in the hands of consumers'. To the extent that the definitions of 'marketing' and 'agricultural marketing' both involve the process of 'exchange', they are largely similar. But to the extent that

the definition of marketing implies the process of identifying the needs and wants of the consumer before exchange takes place, which does not come through clearly in the definition of agricultural marketing, the two terms seem to differ. This is not surprising because, as mentioned earlier, agricultural marketing has been 'policy-oriented' while marketing is 'business-oriented' - the difference being that one is passively influenced by the market forces while the other is actively influenced.

2.3.1.3 The philosophical definitions

Definitions under this category see marketing more as a philosophy; an attitude of mind; a way of thinking in business. Examples of these are:

> 'Marketing is the process where, in order to fulfil its objectives, an organisation accurately identifies and meets its customers' wants and needs'. (Kitson, 1989).
>
> 'Marketing is the way in which any organisation or individual matches its own capabilities to the wants of its customers' (Christopher, MacDonald and Wills, 1980).
>
> 'Marketing is not only much broader than selling, it is not a specialised activity at all. It encompasses the entire business. It is the whole business seen from the point of view of its final result; that is, from the customer's point of view. Concern and responsibility for marketing must therefore permeate all areas of the enterprise'. (Drucker, 1954).

Common to these definitions is the perception of marketing as a 'management process' which engulfs the entire organisation and does not, therefore, departmentalize marketing as largely a functional area activity. In this sense, marketing involves identifying, through marketing research, customer requirements and satisfying the requirements through a package of the 'marketing mix' to earn repeat purchases that result in volume sales and hence profit. This

integrated perception of marketing is brought out clearly in the definition of the Chartered Institute of Marketing (CIM):

> 'Marketing is the management process responsible for identifying, anticipating and satisfying customer requirements profitably.'

This will be our operational definition throughout this work. Underlying this definition is the now popularized 'marketing concept' which positions the consumer at the centre of marketing activities. The 'marketing concept', as will be discussed shortly, recognises that the satisfaction of the customer attracts repeat purchase which is the source of profit. Given that, therefore, the identifying of the needs and wants (requirements) of the customer and the satisfying of those requirements constitute the focal activity of marketing. The development and adoption of this philosophy of marketing by business organisation has taken a long way to come through. We shall, therefore, examine how the marketing philosophy has evolved over the years.

2.4 DEVELOPMENT OF MARKETING PHILOSOPHY

It is, of course, possible to go back into history and locate a writer who once wrote something which can be described as 'recognising the importance of marketing'. A credible case can be made, however, that marketing as a subject of study was born when Adam Smith wrote:

> 'Consumption is the sole end and purpose of all production; and the interest of the producer ought to be attended to, only so far as it may be necessary for promoting that of the consumer. The maxim is so perfectly self-evident that it would be absurd to attempt to prove it. But in the mercantile system, the interest of the consumer is almost constantly sacrificed to that of the producer; and it seems to consider production, and not consumption, as the ultimate end and object of all industry and commerce'. (Adam, 1976).

It is interesting to note that the age-long statement of Adam Smith reveals much about the agricultural policy of the United Arab Emirate (UAE) and, indeed, that of the Gulf Corporation Council (GCC). If we substituted 'UAE agricultural policy' for 'Mercantile System' in Adam Smith's statement, the picture fits perfectly into the situation in the UAE and thus provides an unassailable basis for arguing the need for improved marketing in Agriculture.

However, the contrasting picture painted in Adam Smith's statement, which on the one extreme refers to the consumer as the 'supreme' consideration in production decisions, and at the other extreme as a 'marginal' influence, has its roots in the historical evolution of the subject, marketing.

Kotler (1972) identified three phases in the evolution of marketing philosophy, which he described thus:

> 'One of the signs of the health of a discipline is its willingness to re-examine its focus, techniques and goals as the surrounding society changes and new problems require attention. Marketing has shown this aptitude in the past. It was originally founded as a branch of applied economics devoted to the study of distribution channels. Later, marketing became a management discipline devoted to engineering increases in sales. More recently, it has taken on the character of an applied behavioural science that is concerned with understanding buyer and seller systems involved in the marketing of goods and services'.

This evolutionary process shows the rolling refinement of marketing and it may be added that the most recent phase has absorbed much of the material of the earlier phases, rather than replacing them. Some marketing texts, however, see a strong relationship between the changing structure of the economy and the evolution of the subject of marketing (see Baker (1979), Oliver (1980). To do so, over-simplifies a complex picture, but it is nevertheless helpful to consider a link between the pre-occupations of the subject and economic developments. Briefly then, the industrial revolution created, for the first time, a major physical separation between producer and final consumer, and marketing was equated with getting the product from producer to consumer in the most efficient manner.

The second phase is usually equated with the interwar depression, though arguably it developed earlier (Berkowitz, *et al*, 1992). There was intense competition between firms and increasing industrial concentration. Firms went out to sell their produce. Branding, advertising and promotion increased and price became an important management decision. But much of this happened without market research. It was an essentially production-orientated approach and marketing was seen as a branch of management devoted to 'hard-selling'.

FIGURE 2.1

EVOLUTION OF MARKETING PHILOSOPHY

PRODUCTION CONCEPT →

SELLING CONCEPT →

MARKETING CONCEPT →

MARKETING ORIENTATION →

SOURCE : BERKOWITZ, E . N . et al . (1992) p . 22 .

Figure 2.1 shows in diagrammatic representation the evolution of marketing philosophies through the eras. It can be seen that the third phase was a post-war development. This is the 'marketing concept' or 'consumer orientation' which was a consequence of the growth in consumer real incomes and competition during the 1950s. Barwell (1965) defines the marketing concept thus:

> 'The marketing concept is a philosophy, not a system of marketing or an organisational structure. It is founded on the belief that profitable sales and satisfactory returns on investment can only be achieved by identifying, anticipating and satisfying customer needs and desires - in that order.
>
> It is an attitude of mind which places the customer at the very centre of a business activity and automatically orientates a company towards its markets rather than towards its factories. It is a philosophy which rejects the proposition that production is an end in itself, and that the products manufactured to the satisfaction of the manufacturer merely remain to be sold'.

This third phase added two important areas to the subject matter of marketing. These were the application of the 'behavioural sciences' to understanding consumer behaviour and marketing research to identify the requirements of customers as a prerequisite of profitable business. In addition, the definition of 'product' needed to be changed. A manufacturer may view a product in terms of its physical qualities, but consumers buy these physical qualities as but one element in a bundle of psychological and physiological want satisfactions. Thus, the marketing concept whose definition accords with our operational definition of marketing as given by the CIM, recognises that:

(a) marketing is first and foremost an attitude of mind in which the centrality of the customer to the enterprise permeates all departments or organisations;

(b) marketing is also a way of organising the enterprise, again, around the customer and his desire for customer satisfaction; and,

(c) marketing covers a range of activities which revolve around the customer and apply an array of qualitative and quantitative techniques and tools to achieve customer satisfaction.

2.4.1 The market orientation concept

The 1980s saw many firms, for example Red Lobster, Scandinavian Airlines and Toyota, achieve much success in the market place by putting huge efforts into implementing the marketing concept, giving their firms what has been called a 'market orientation' (Berkowitz, *et al* 1992). An organisation that has a 'market orientation' has one or more departments:

(i) actively trying to understand customers' needs and the factors affecting them;

(ii) sharing this information across departments, and

(iii) using the information to meet these customer needs.

A key aspect of this market orientation is that understanding consumer needs goes far beyond just talking to customers. It includes the gathering and use of marketing information from various sources, including observing broad industry trends, studying competitors, understanding the needs of an industrial customer's customers and looking to likely future needs as well as present ones. Indeed, research shows that firms having a demonstrated market orientation are more profitable than those lacking it (Narver and Slatter, 1990).

2.5 THEORY OF MARKETING

Most writers agree that marketing does not possess a central core of theory which it can call its own; rather, it applies a hybrid of other disciplines to its own area of interest. Usually, three base disciplines are singled out. These are:

2.5.1 Economics

Successful marketing requires an understanding of the behaviour of the economic system, in particular the behaviour of markets; of the economic behaviour of consumers; and of firm revenue/cost/output relationships.

2.5.2 Behavioural science

Applied to consumers, the science of human behaviour adds to marketing an understanding of certain aspects of the behaviour of consumers, which are ignored by economics but vital to successful marketing. The underlying separate academic disciplines are psychology, sociology and (especially for food marketing) anthropology.

2.5.3 Quantitative techniques

Marketing also borrows from the disciplines of mathematics, statistics and econometrics. The quantitative techniques and tools obtained from these subject-areas are necessary for the analysis and interpretation of data about the market. Thus, marketing has no clear and exclusive theories, as economics, but has had the privilege to borrow from various disciplines to explain marketing phenomena.

2.6 AGRICULTURAL MARKETING

Marketing first became an issue for agriculture, particularly in the UK, shortly after the First World War. Between 1922, with the Linlothgow Report, and 1947, with the Lucas Report, there were a series of committees of enquiry into the marketing of agricultural products. All, to a greater or less extent, were directed at what were perceived to be two major problems connected with the marketing of agricultural products: (a) market power and (b) marketing efficiency.

2.6.1 *Market power of farmers*

With respect to the issue of market power of farmers, the Linlithgow Report (1922) noted that 'the farmer stands alone at the end of a long line of distributive agencies'. In other words, the multiplicity of agricultural units and their remoteness from their final markets places farmers in an unfavourable position in relation to the stronger and more organised businesses which purchase their produce. Hence there developed the idea that it was necessary to give farmers 'countervailing power' in the market through government intervention. The question, however, is whether such intervention has earned a realistic market power for the farmer or an illusionary impression of power. Furthermore, could it be argued that government intervention had led to a higher level of efficiency in the marketing of agricultural produce than would have been the case under a free-market situation?

2.6.2 Marketing efficiency

The second problem concerned the efficiency of the food marketing (for which read 'distribution') sector. This itself had two facets. The first was the view that costs in food processing and distribution were 'excessive'. This was sometimes associated with the claim that there were 'too many middlemen', still a common criticism of the marketing system for agricultural products, particularly in Mediterranean and developing countries. This interest in the impact on farming of the overall cost of food processing and distribution led to the contribution of the food marketing sector often being referred to crudely as 'the marketing margin' and to the 'analysis of marketing margins' as one area of study within the subject of agricultural marketing. A related approach, which recognises the increasingly complex nature of the food marketing chain, is the so-called 'structure/conduct/performance' approach to the study of the behaviour of food marketing firms. (See O'Connell (1979) on marketing margins and Howe (1983) on structure and competition).

The second aspect of inefficiency might be labelled 'the performance of the market'. This was concerned with the efficiency with which the price mechanism transferred information between producer and consumer. Agricultural markets were observed to be characterised by erratic and cyclical price movements which conveyed no useful market message and marketing margins were thought to be insensitive and thus failing to transfer important information between farming and food retailing, such as for example retail prices failing to fall as much as farm product prices after good harvests.

In such situations, governments react by passing legislation ostensibly to provide policies for the protection of the interest of the farmer, for example, the British government's response to a similar situation in the 1920s were the Agricultural Marketing Acts of 1931 and 1933, which provided legislation enabling the eventual establishment of marketing boards for most agricultural products, with the aim of improving the efficiency and performance of the food marketing sector and giving farmers countervailing power.

In short, then, the subject of agricultural marketing developed as the study of the economic structure and efficiency of the agricultural marketing sector, and the government's role in intervening to improve the performance of agricultural markets and increasing the share of expenditure food received by farming. Thus, to repeat the quotation with which we began, 'agricultural marketing policy has been the traditional subject matter of agricultural marketing'.

This has been, and in some cases continues to be, exclusively the way 'agricultural marketing' is interpreted in teaching institutions and many agricultural organisations in the Western countries and, indeed, on the developing countries.

The study of agricultural marketing, therefore, is concerned with the efficiency of the use of resources in processing, handling and distributing food, fibres and other agricultural products. It applies economic principles to the problems of identifying and satisfying the needs and preferences of consumers by the most effective use of markets, processing plants, transport, advertising and retail outlets.

2.7 WHY IS AGRICULTURAL MARKETING DIFFERENT?

There are, arguably, two features of agriculture which have together led to the somewhat detached and individual character of agricultural marketing.

First, there is of course the structure of farming, with many thousands of small businesses. Second, is the fact that, at least as produce leaves the farm, in most cases the product of one farm is, perforce, much the same as that of another. Milk is milk; grain is grain.

It is these two features together with give agriculture its unique position. There are other sectors dominated by small businesses. These are almost always market-related small business, ie they serve local markets. Farming is unusual in that the structure of many thousands of small businesses is production, not market, related - that is, the small business structure emerges because of the land-based nature of production, rather than because of the requirement to be located near the customer.

The second important distinguishing characteristic of agriculture is the remoteness of the farmer from the final consumer. The value of good typically doubles between farm gate and retail sale, and during this process is usually controlled by businesses under ownership independent of farming. Thus marketing, in the sense of efficiency of distribution, was and still is of great importance to the prosperity of farming. Further, most of the opportunities for profitably matching business activity to consumer requirements occur in the food marketing sector. It follows

that, for agriculture, improvements in marketing in order either to obtain a bigger share of consumer food expenditure (efficiency in food distribution or market power vis-a-vis the marketing sector) or to share in enhanced consumer food expenditure (by creating monopoly advantages in retail markets) required government intervention, government control or government support. Thus agricultural marketing becomes agricultural marketing policy. When you scratch the surface, there really is not such an enormous gulf between 'marketing' and 'agricultural marketing' - the difference is only that one involves government policy, with all that that entails; the other does not.

Indeed, it is perfectly possible to interpret agricultural marketing policy as government control of the marketing mix for farm products. It just so happens that the marketing has concentrated on one element in the marketing mix - price, and to a lesser extent, one other - distribution. This does not mean that it has been 'bad marketing'. Any private organisation would have done likewise.

Consider, for example, what would be the marketing strategy of British Leyland if the government banned imports of cars; or, should we say, charged a compensatory tax (variable levy) on any cars imported at less than £10,000; or, perhaps, said to British Leyland: 'produce as many cars as you like; we will buy them off you at £10,000 each if you wish to sell to us'. In these circumstances, one would not expect much attention to 'product' or 'promotion'. One would imagine that a pretty rudimentary car would be produced and that the Sunday colour supplements would not be full of advertisements for it. The company would concentrate on pricing to maximise profits and efficient distribution to ensure that as much as

possible of what the consumer paid reached the company. In other words, it would exploit the monopoly advantage given to it by government.

The momentum behind the government agricultural marketing initiatives of pre-war and post-war days was concerned with the prosperity of farming *as a whole.* Maintaining the interpretation of government marketing policy as government control of the marketing mix, then it was distribution and price which were the subjects of attention. Distribution referred to the performance of the market, and any gains might be seen as an exception to the rule that one person's marketing gain is usually at someone else's expense. Price gains were of four kinds - tax-payer subsidies; an increased market share at the expense of imports; increased consumer expenditure on food by supply control (or 'orderly marketing' as it is sometimes euphemistically called); and the possibility of an increased farmer share of consumer expenditure by the exercise of countervailing power; all are transfers. The reduced import share was, politically, the most attractive in that the transfer was from foreigners. Indeed, import saving, it was claimed, was in the national (not just farming's) interest - a claim challenged by others because the marketing policies used to promote import saving involved raising farm product prices, so that a transfer form 'domestic' consumers and/or taxpayers was also involved.

2.8 CONVERGENCE OF 'BUSINESS MARKETING' AND 'AGRICULTURAL MARKETING'

The difference between 'business marketing' and traditional 'agricultural marketing' seems to be dissolving as a result of two developments: (a) a natural monopoly situation and (b) current debate on the scope of 'marketing' as a subject area.

2.8.1 Monopoly in agricultural sector

Some sectors in agriculture are more likely to adopt business marketing principles and techniques in a natural way than others. These are the sectors dominated by a small number of firms. In the UK, for example, the celery market is dominated by about two growers, while the onion market is under a handful of growers (Kitson, 1989). This encourages the practice of marketing as local monopoly opportunities and advantages are exploited.

It is thus no accident that the fruit and vegetable sector seems to have been considerably successful in adopting a good degree of the principles and techniques of marketing. Generally, there are fewer suppliers, and the product is less processed and is intrinsically more varied, so there are more opportunities for product identify to be imparted at grower stage. But even in the higher value-added product areas, such as meat, concentration at the retail end has also had the effect that the provision of certain consumer product characteristics may require product differentiation at the raw material stage, giving producers some opportunities to establish (admittedly weak) monopoly advantages, by attention to

product and, sometimes, promotion.

It is here, incidentally, that the relationship between 'improved marketing' and 'co-operation' appears. By grouping together in the disposal of their produce, farmers are more likely to be able to supply the required quantity of product-differentiated produce; more likely to be able to be involved in promotion; more likely to be able to exercise a local monopoly advantage; and may wish to become involved in activity down the food marketing chain, taking their business interests nearer to the final consumer.

However, these developments, albeit in some sectors only, towards a more business-like marketing attitude in the market for farm produce, have been taking place gradually over the past 30 years, especially in the industrialised countries such as the United Kingdom and the USA (Bailey, 1985; Lamont, 1993). These developments seem to have been encouraged further by the emergence of regional groupings such as the European Community (EC), and one expects that the Gulf Corporation Council (GCC), which was established in 1980, will encourage the adoption of marketing principles in Gulf agricultural marketing.

It must be noted, however, that most of the potential gain to farmers and farmer groups from the adoption of a business marketing approach is likely to be at the expense of other agricultural products. The successful beef marketing co-operative, for example, may be successful because it obtains premium prices for its carcasses - but it is unlikely that consumers will as a result be spending more on meat. In other words, it is an increased share of consumer expenditure on beef (or at least

on meat, or even on food as a whole) that it has won. Similarly, the successful self-pick farm will have been successful at the expense of another self-pick operation, or of produce passing through traditional fruit and vegetable channels. The overall, biologically determined, static demand for food means that farmers are generally fighting for market share. Observe a farming group which increases the prosperity of its members by successful marketing and, if you look the other way, you will see others who have, as a consequence, been adversely affected.

This does not mean that marketing is necessarily against the public interest. Just as economic progress requires profit-seeking farmers to adopt new technology in production, so it requires them (and others) to take marketing initiatives which accurately identify and exploit consumer requirements. It is, after all, the current contention of those urging improved marketing for agriculture that farmers have concentrated too much on the former. But it does mean that the adoption of better marketing techniques by individual farmers or groups does not necessarily mean improved prosperity for farming as a whole. It has long been recognised that output-inducing technological innovation in farming tends to benefit consumers but does not necessarily lead to farming as a whole being more prosperous; so it is with improved marketing.

2.9 THE SCOPE OF MARKETING

An interesting debate has developed recently on how broad the scope of marketing as a field of study should be (Kotler, 1980; Olwer, 1980). This debate, which focuses on extending the boundary of the subject-area of marketing to include

much more than it currently embodies, seems in a way to be reducing the apparent differences between 'marketing' and 'agricultural marketing'. In any subject which is both an area of academic study and possesses an active role in the commercial world, there tends to develop a dichotomy between the 'practitioners' and the 'academics'. The former tend to regard the latter as producing material often of no 'practical value' (frequently labelled 'theory'); the latter find many of the former narrow-minded and limited in their thinking. The fact of the matter is that the same word often means something quite different when used by the academic as opposed to the practitioner. Thus, 'marketing' as a description of an area of study and body of knowledge does not necessarily mean the same as when it is used to describe a business activity. The same, it seems, applies to many other subjects - from theology to anthropology.

It is this kind of distinction which lies behind different views on how broad should be the scope of the subject of marketing. A narrow view would be that marketing is a branch of management, restricted to profit-seeking firms. Broader views extend marketing to non-profit making organisations, include the study of the marketing behaviour of firms and the explanation of the function of markets and also the study of the extent to which the marketing system meets the public interest. Table 2.1, which is based on a development by Oliver (1980) of a classification suggested by Bartels and Jenkins (1977) helps to place the narrow definition in context.

Table 2.1
A classification of marketing subject areas

		Positive		*Normative*
Micro	(a)	Micromarketing theory undertakes to explain how and why marketing processes are managed as they are within firms.	(b)	Micromarketing models are constructs of how marketing should be conducted for the best achievement of the objective of the firm.
Macro	(a)	Macromarketing theory undertakes to explain the functioning of the composite marketing mechanism both as a result of and as a determinant of the economic and social environment.	(b)	Macromarketing models are constructs of how the general marketing process should be conducted in the best interests of society.

In this case, 'micro' refers to the individual firm or household; 'macro' to aggregation at the level of the market. 'Positive' refers to an attempt to gain a better understanding of some aspect of behaviour; 'normative' means assessing to what extent that behaviour is achieving (or is likely to achieve) certain specified objectives. It will be clear that this classification is broad enough to cover anything that might be found under the banner of agricultural marketing (traditional or modern). A few examples might help:

Micro (a) would embrace studies of the marketing behaviour of firms (for example, the decision-making process in a marketing co-operative) or the behaviour of food consumers).

Micro (b) represents the core area of business marketing management, but we would also include here marketing policy when it is seen as government assuming the marketing functions of agriculture, as discussed above. To the extent, however, that the objective is raising the prosperity of farming as a whole by action at aggregate market level (eg supply control, generic advertising) then government marketing policies might more appropriately appear under Macro (b).

Macro (a) relates to that part of the traditional subject matter of agricultural marketing in which we attempt to understand the behaviour of the food marketing sector - that is, the analysis of marketing margins, the behaviour of farm product prices and the 'positive' approach to marketing policies - in which we simply attempt to understand better how the policy mechanisms work and how they influence the market.

Under Macro (b) we would include the 'structure/conduct/performance' approach to the food sector and the more detached approach to agricultural marketing policy in which we are concerned with the extent to which the policies meet the public interest (however defined).

Using this approach, Table 2.2 attempts a broad classification of the various topics taught under the agricultural and food marketing banner.

Table 2.2

Agricultural and food marketing: a classification of subject areas

	Positive	*Normative*
Micro	1. Study of the behaviour of food consumers. Study of the marketing behaviour of firms in the agricultural/food sector.	2. Application of marketing principles to firms in the food marketing sector. Farmer marketing (including co-operative marketing). Government marketing initiatives on behalf of farmers (eg marketing boards).
Macro	1. Study of the behaviour of agricultural and food markets (eg marketing margin analysis, price analysis, effect of agricultural policies).	2. Application of structure/conduct/ performance approach to the agricultural and food sector. Public interest aspects of agricultural policies.

It is worth noting that Bartels and Jenkins see 'management' as the implementation of normative models and thus restrict the term 'marketing management' to Micro (2) and Macro (2). Interestingly, we often use the term 'management of the market' to refer to government agricultural marketing policies.

It should also be pointed out that a 'narrow' view of marketing would not ignore Micro (1), Macro (1) and Macro (2), but would regard their presence as necessary only as a prerequisite of Micro (2). That is, successful implementation of a marketing plan in business may require an understanding of the behaviour of the consumer, of the behaviour of markets and indeed an understanding of the wider social implication of the firm's policies; but this would be a means to an end. In a

broader definition of the subject they would be legitimate subjects of study in their own right.

Perhaps the most interesting aspect of the debate over the scope of marketing concerns the normative/macro cell under what may be termed 'marketing and the public interest'. There is growing concern as to whether the modern marketing concept is valid in the wider interests of society. Because of the extent of government involvement in the marketing of agricultural products, it is almost second nature to those of us concerned with agricultural marketing to cover the public interest aspects of the subject. But many business marketing experts have probably not given this subject any thought, and those who, have tended to take one of two stances - either 'successful marketing must be a good thing - if consumer wants are accurately identified and fulfilled, it must be good for you' or 'whether or not successful marketing is in society's interest is none of the business of the marketeer - as long as it meets the organisation's interest - that is enough'.

Increasingly, however, both approaches are being questioned. To quote Kotler (1980):

> 'Some marketeers have raised the question of whether the marketing concept is an appropriate organisational goal in an age of environmental deterioration, resource shortages, explosive population growth, worldwide inflation and neglected social services. The question is whether the firm that does an excellent job of sensing, serving and satisfying individual consumer wants is necessarily acting in the best long-run interests of consumers and society. The marketing concept sidesteps the conflict between consumer wants, consumer interest and long-run societal welfare'.

Kotler is here reacting to the influence of the environmental movement in the USA. Another influence has been 'consumerism', which might lead to a comment along the lines of:

> 'if the modern marketing concept is successful in enabling businesses accurately to identify and meet consumer requirements, why has there been a spontaneous development of organisations to defend consumer interests from big business?'

2.9.1 Marketing and public interest

The concern over the relationship between successful marketing and the public interest can be separated into three issues.

The first concern is what economists refer to as a divergence between private and social costs and benefits. The most prominent example here is the environmental impact, ie pollution, unsightly factories, litter, depletion of scarce resources. Other examples might be rural depopulation caused by industrial concentration, and even unemployment. In many labour-surplus low-income countries, for example, businesses accept a 'social responsibility' for employing more labour than business economics would dictate.

The second is the question of whether the individual is the best judge of his own welfare. This raises complex philosophical issues over 'freedom of choice' but most people accept that there is an area of personal consumption where, in the interests of the consumer himself, government intervention is required (for example, certain narcotics, seat-belt legislation and, of course, products for children).

Kotler uses the example of MacDonald's to illustrate both points:

> 'As a concrete instance, consider once again McDonald's. It is doing an excellent job of meeting the wants of the American people for quick, inexpensive, tasty food in attractive surroundings. But is it really serving their long-run interests? Two recent criticisms that have been levelled against it by consumer and environmental groups are that:
>
> 1. Macdonald's serves tasty but not necessarily nutritious food. The hamburgers have a lot of fat in them. McDonald's promotes fries and pies, two products that are dear to American taste but are high in starch and fat.
>
> 2. McDonald's uses up a great amount of paper in providing its food. The hamburgers are first wrapped in tissue paper and then placed in paper boxes, presumably to keep them warm. This results in substantial paper wastage and cost to the consumer.
>
> Thus, in the effort to serve consumers' want, questions can be raised about the uncovered social costs'.

The third issue is the claim that consumer wants may be 'created' by successful advertising and promotion. Most marketing specialists would deny that consumers' wants are 'created' by business - only 'accurately identified'. Others are concerned that, in some sense, people are made less satisfied (and therefore less 'happy') as a consequence of becoming aware of the possibilities for enlarged consumption. (See Hirsch, 1977, and Mishan, 1984).

From the point of view of the 'marketing concept', the question revolves around whether government legislation can be expected to deal adequately with the public interest aspects of successful marketing (eg by taxing pollution, subsidising employment, controlling advertising, and so on).

A growing belief that perhaps it cannot, has led in recent years to the call for a new concept to revise or replace the marketing concept.

2.9.2 The 'societal marketing' concept

Kotler (1992) proposes 'the societal marketing concept'. His definition is:

> 'The societal marketing concept is a management orientation that holds that the key task of the organization is to determine the needs and wants of target markets and to adapt the organization to delivery the desired satisfactions more effectively and efficiently than its competitors in a way that preserves or enhances the consumers' and society's well being.
>
> The underlying premises of the societal marketing concept are:
>
> 1. Consumers' wants do not always coincide with their long-run interests or society's long-run interests.
>
> 2. Consumers will increasingly favor organizations which show a concern with meeting their wants, long-run interests and society's long-run interests.
>
> 3. The organization's task is to serve target markets in a way that produces not only want satisfaction but long-run individual and social benefit as the key to attracting and holding customers'.
>
> (Kotler, 1992).

Thus, there is the view among some academics that the subject is evolving into a fourth phase (to add to the three discussed earlier) in which explicit study of the relationship between marketing and the public interest becomes important. And it is this aspect of the subject which reflects much of the preoccupation of agricultural marketing. Even where government involvement has been explicitly to meet producer interests (in, for example, the marketing boards) the producer interest has always had to be exercised with the knowledge that marketing advantages have been given by government and could be taken away (indeed, the Boards possess independent members charged with protecting consumer interests).

2.10 CONCLUSION

In this chapter we have examined the subject-area of marketing in terms of definition, evolution and practice and compared this with traditional agricultural marketing. We have also examined why the traditional subject matter of agricultural marketing differs from that of business marketing and discussed the recent trend towards adoption of some elements of business marketing in agricultural marketing. However, considering the role of government in the 'marketing mix' for farm produce and in some aspects of marketing research and forecasting, the traditional subject matter of agricultural marketing can be seen to be quite consistent with that of business marketing. The conclusion, therefore, is that it is perfectly proper for agricultural marketing to encompass both its traditional subject matter and be viewed as an application of mainstream marketing principles and techniques to agriculture, particularly fruit and vegetable marketing. This will, however, invite a wider definition of the scope and subject matter of marketing to include institutional intervention, free-market forces and environmental 'stability'. In the following chapters we shall examine how the marketing of agricultural produce, particularly fruits and vegetables, in the UAE reflects the traditional agricultural marketing system or the broader concept that encompasses the two contending approaches in 'business marketing' and 'agricultural marketing'.

CHAPTER THREE

BACKGROUND TO THE UNITED ARAB EMIRATES

CHAPTER THREE

BACKGROUND TO THE UAE

3.1 INTRODUCTION

The United Arab Emirates (UAE) (in Arabic - al-Amaraat al-Arabiya al-Mutahida) is the youngest of the states of the Arabian peninsula. Established only in December 1971 after British withdrawal from the East of the Suez, the country comprises a Federation of seven emirates - Abu Dhabi, Dubai, Sharjah, Ras Al Khaimah, Fujairah, Umm Al Qaiwain and Ajman, which were formerly known as the Trucial States (Ministry of Information and Culture, 1992). Since establishment, the country has attracted international attention, partly because of its extensive oil reserves and partly because of its strategic location.

The country is situated in the Eastern part of the peninsula of Arabia at the mouth of the Arabian Gulf (also referred to as the Persian Gulf). It is bordered by Oman to the North-East and East; Saudi Arabia to the South and West and the Arabian Gulf to the North. The five states of Sharjah, Ajman, Umm Al Qaiwain, Ras Al Khaimah and Fujairah are often described as the Northern emirates. The total area of the UAE, excluding islands, is about 77,700 square kilometres. Abu Dhabi and Dubai are the two largest emirates and, while six of the emirates are strung out along the southern shore of the Arabian Gulf between the base of the Qatar peninsula in the west and the Musandam Peninsula in the east, Fujairah is the

only emirate without direct access to the Arabian Gulf. Fujairah lies on the eastern coast of the Musandam Peninsula.

The emirates have 700 kilometres of coastline, of which 100 kilometres are on the Gulf of Oman. Along the Arabian Gulf coast are some offshore islands, coral reefs and 'sabkha' or salt-marshes. Stretches of gravel plain and barren desert interspersed with oases characterise the inland region.

The UAE has a sub-tropical, arid climate, with the hottest period of the year falling between May to October and the coldest period between December and March. Daytime temperatures can vary from 26°C in December to 44°C in September, while night-time temperatures can vary from 12°C to 26°C respectively. Rainfall is infrequent and irregular throughout most of the emirates, occurring mainly during the winter with occasional local thunderstorms. Rainfall hardly exceeds 13 centimetres a year in most places though higher readings may be obtained in mountain regions (The British Bank of the Middle East, 1992).

3.2 THE EMIRATES

The seven emirates that make up the Federation have common as well as contrasting features which have now been welded together legally as one country.

3.2.1 *Abu Dhabi Emirate*

The emirate of Abu Dhabi is the largest of the seven components of the UAE. Its territory covers an area of approximately 67,340 square kilometres or 87% of the total area of the country and includes a number of off-shore islands - one of which is Abu Dhabi island - such as Sadiyat, Das, Arzanah, Sir Bani Yas, Abu Al Abyad and Dalma. Ruled since 1966 by Sheikh Zayed bin Sultan Al Nahyan, also the UAE's President since 1971, it has the largest population, which in the last census in December 1985 totalled 670,125 and is now over 900,000.

The first of the emirates to become an oil exporter, in 1962, and still by far the largest producer among the four emirates endowed with oil resources, Abu Dhabi can trace its history as a distinct political entity to the middle of the eighteenth century, when the town of Abu Dhabi was founded. Traditionally the emirate has drawn its power and strength from a fortunate combination both of resources and of people.

Abu Dhabi has a lengthy coastline extending for more than 400 kilometres from near the base of the Qatar peninsula in the west to the border of the emirate of Dubai near Ghantut in the north-east. This has given it access to and control over the shallow waters of the Southern Gulf. In the past, those waters were the home of the most important pearl banks in the area, from where the rulers of the emirate drew much of their income, while today the waters also cover the most prolific offshore oilfields in the Southern Gulf. There are a number of oil-rich islands off the coast which reinforce Abu Dhabi's importance as the UAE's principal centre of offshore crude production.

On land, Abu Dhabi is the most westerly of the emirates, stretching south to the desert oases known as the Liwa, and east to the ancient oasis complex once known as the Buraimi oasis but more familiarly known today as Al Ain, the name also of the largest town there. The oases provided access to the resources of the date palm and the limited supplies of water that would permit simple agriculture. Thus, Abu Dhabi has always looked to the land and to the sea.

Since becoming the Ruler of the Emirate in August 1966, Sheikh Zayed bin Sultan Al Nahyan has encouraged the development of the emirate, using the enormous oil revenue. Emphasis was placed on the development and maintenance of infrastructure, expansion and improvement of services and civic amenities and the beautification of urban as well as rural settlements. The Abu Dhabi Executive Council, led by the Crown Prince and Deputy Supreme Commander of the UAE Armed Forces, Sheikh Khalifa bin Zayed, makes the policies and decisions in the emirate while the Abu Dhabi Municipality and Town Planning Department (except for Al Ain, which has its own municipal authority), which was established in 1967, executes them as well as sees to the day-to-day running of civic amenities throughout the emirate (Ministry of Information and Culture, 1992).

The private sector in the Emirate of Abu Dhabi plays an important role in turning the wheels of the local economy, a role that is co-ordinated by the Abu Dhabi Chamber of Commerce and Industry. Established under an Emirate decree in 1969, the Chamber is an independent body which supervises the organisation of business and industrial activities and co-operates with local and federal authorities in regulating economic activity in the emirate, at the same time representing,

protecting and promoting the interests of its members at home and abroad.

Abu Dhabi's principal city, also known by the same name, is the capital of the UAE, while Al Ain, a garden city lying in the hinterland of the emirate, is the site of the UAE University.

3.2.2 Dubai Emirate

The Emirate of Dubai, the bulk of which is situated on the Arabian Gulf coast between the Emirates of Abu Dhabi and Sharjah, is the second largest emirate in the UAE, with a land area of 3,855 square kilometres. The emirate is divided into two distinct areas: Deira to the north and Dubai to the south. The population, the second largest of all the emirates, is currently estimated at 560,000. The emirate is ruled by Sheikh Maktoum bin Rashid Al Maktoum, who succeeded his father, Sheikh Rashid, in 1990. He is also the Vice President and Prime Minister of the UAE.

As with the other emirates, the executive arm of local government in Dubai is the municipality. Not only does it run the city, it also plans, builds and operates the amenities of the emirate's other towns and villages, such as Aweer, Hatta, Jebel Ali and Khawanij. As the oldest civic authority in the country, Dubai is a role model for local government all over the region.

Dubai produces oil but its reserves are much smaller than Abu Dhabi's and faces possible depletion within 30 years. Consequently, Dubai has taken the lead among the emirates in the development of non-oil industry. Much of its industrialisation

effort is concentrated at the industrial port complex in Jebel Ali, 35 kilometres south-west of Dubai-City. Dubai is the largest commercial centre in the Gulf and handles 35% of the region's non-oil trade. It has increased its importance since the Gulf War by taking a market share from Kuwait. Total non-oil trade rose from Dh48.2bn in 1991 to Dh59.85bn in 1992, representing a 23.6% increase (The Economist Intelligence Unit, 1993). Re-exports, a key part of the Dubai economy, grew by nearly 20% to Dh8.9bn in 1991-92, with Iran maintaining its position as the main destination for Dubai re-exports in 1992 taking 30% of the total for 1992.

Dubai has the largest dry dock in the world, which started operation in 1983 and undertakes ship repairs and maintenance and engineering work. The 'commercial mentality' of Dubai can be seen at work in virtually all the major projects now in hand. The Dubai Commerce and Tourism Promotion Board was set up in 1989 to promote, among others, business opportunities in the emirate. The Dubai Chamber of Commerce and Industry, one of the oldest and largest business organisations in the area, articulates Dubai's commercial interests in a way no other body does. Over the years the Chamber has sponsored or itself organised some of the largest fairs and exhibitions to be staged in the Middle East. Dubai's economy in the post-Gulf War period has been vibrant and dynamic and growth has been recorded in almost every sector of trade, commerce and industry.

3.2.3 Sharjah Emirate

The Emirate of Sharjah, which covers 2,600 square kilometres, is one of the most rapidly developing parts of the UAE. Its population has grown rapidly from 159,000 in 1980 to 269,000 in the 1985 census and 1992 estimates put the figure at 400,000

(Ministry of Information and Culture, 1992). The emirate is situated to the north-east of Dubai and is the third largest emirate in the UAE. The emirate has been ruled by Dr Sheikh Sultan bin Mohammed Al Quassimi since 1972.

Since some 80% of Sharjah's national income comes from oil and gas earnings, the government's development policy gives top priority to industrial diversification. This policy has met with a considerable degree of success. A growing number of companies in the professions, trade, commerce and industry - including a paper-processing factory and a waste metal recycling plant - are being set up in Sharjah. The industrial base has expanded in recent years to include plants producing liquefied petroleum gas, plastic pipes, bottled perfume, ready-mixed concrete, paint, clothing, furniture, building materials, fodder and a variety of consumer goods. Sharjah has two deep-water container ports: at Mina Khalid and Khor Fakkan on either side of the Musandam Peninsula.

Like Abu Dhabi and Dubai, Sharjah has a very active Chamber of Commerce and industry which encourages both domestic and foreign investment in the emirate. The tourism industry is increasingly becoming a vital source of the emirate's income while new legislation is being drawn up to attract more foreign investment.

3.2.4 Ras Al Khaimah Emirate

The northernmost emirate, Ras Al Khaimah, has an area of about 1,700 square kilometres and a population of 116,740 in 1985, rising to an estimated 160,000 in 1992. the emirate lies at the foot of the northern reaches of the Hajar Mountains, which divide the Musandam Peninsula. Ruled by Sheikh Saqr bin Mohammed Al

Quasimi since 1948, the emirate relied upon traditional sources of income such as fishing and agriculture until the early 1980s, when the discovery of off-shore Salah oilfield changed its fate.

Ras Al Khaimah has achieved a higher degree of industrial development than the other northern emirates. At the beginning of 1992, industrial investment in a total of 20 establishments, excluding the oil and gas sector, was estimated at Dh2.6bn. The main concentration of industrial activities is at Khor Khuwair, where a lime kiln and three large cement plants are located. Other local industrial ventures include a pharmaceutical factory and the Gulf's first explosive plant.

Like the other emirates, the policy of the local government is industrial diversification, using its limited oil and gas wealth.

3.2.5 Umm Al Qaiwain Emirate

The Emirate of Umm Al Qaiwain, unlike all the other seven emirates except Abu Dhabi, is a single piece of territory which lies between Ajman and Ras Al Kharmah. It covers an area of 777 square kilometres with a population of 19,229 in 1985, rising to an estimated 30,000 in 1992. The emirate is ruled by Sheikh Rashid bin Ahmed Al Mu'alla who succeeded his father in 1981.

Without known oil and gas fields of its own, Umm Al Qaiwain depends on the Federal Government for the development of agriculture in its most fertile oasis, Falaj Al Mu'alla, the name of the emirate's ruling family.

Fishing is the emirate's traditional economic activity, but its population is also engaged in pearling, light industry and the growing of dates. The archaeological sites in the emirate may provide the opportunity to develop small scale tourist industry.

3.2.6 Ajman Emirate

With an area of only 260 square kilometres, Ajman is the smallest emirate, which is flanked to the west by the Arabian Gulf and on the other sides by Sharjah territory. Ruled by Sheikh Rashid bin Humaid Al Nuaimi from 1928 to 1981 and since then by his son, Sheikh Humaid bin Rashid, Ajman had a population of 65,000 in 1985 and an estimated 92,000 in 1992. The emirate does not produce oil, hence depends upon the development of its traditional sources of livelihood from the seas.

Small scale industry has developed in Ajman while the spill-over of the tourism industry in neighbouring Sharjah and has been beneficial.

3.2.7 Fujairah Emirate

Fujairah lies on the Batinah coast where its territories alternate with the Sharjah enclaves. The emirate covers an area of 1,300 kilometres with a population of 54,425 in 1985, rising to an estimated 76,000 in 1992. Ruled by Sheikh Hamad bin Mohammed Al Sharji since 1974, Fujairah is geographically different from the other emirates, being partly mountainous with a fertile coastal plain and without a desert.

Fujairah has no known oil reserves but with assistance from the Federal Government has developed a number of industries including a marble tiles factory, a shoe factory and cement plant. The local Chamber of Commerce, Industry and agriculture is actively encouraging interest from foreign companies to invest in the emirate. However, the people depend on agriculture for their livelihood while the tourism industry seems set to become one of the emirate's key industries.

3.3 POPULATION AND EMPLOYMENT

3.3.1 Population

Like the economy of the country, the population has shown a parallel rapid growth over the years. The most recent census, taken in December 1985, put the population of the country at 1.6 million, significantly higher than the 1.1 million recorded by the previous census in 1980. Current estimates indicate that the population has increased 1.9 million by 1991, with a large number being expatriate workers. From 1980 - 1985 the annual population growth rate among UAE nationals was a high 3.8%; the present very young national population reflects this trend. However, the World Bank projects a 2.3% annual growth rate until the turn of the century (British Bank of the Middle East, 1992).

As Table 3.1 shows, the population is concentrated in Abu Dhabi with 798,000 (41.8% of the total); Dubai with 501,000 (26.2%); Sharjah with 314,000 (16.5%); and Ras al-Khaimah with 130,000 (6.8%). The remaining three emirates together account for only 8.7% of the country's population. With an area of 77,700 square kilometres (excluding the islands), the UAE has a population density of 24.6

persons per square kilometre.

Table 3.1

Population distribution by emirate (1991 estimates)

Emirate	*Area (sq.km)*	*Population*	*Density (per sq.km)*
Abu Dhabi	67,350	798,000	11.8
Dubai	3,900	501,000	128.5
Sharjah	2,600	314,000	120.8
Ras al-Khaimah	1,700	130,000	76.5
Ajman	250	76,000	304.0
Fujariah	1,150	63,000	54.8
Umm al-Qaiwain	750	27,000	36.0
	77,700	1,909,000	24.6

Source: Central Statistical Dept, Ministry of Planning, Sharjah

3.3.2 Employment

The UAE has a larger proportion of foreign workers than some of its neighbours among the Arab Gulf Co-operation Council (AGCC) countries, principally because of the relatively high level of its non-oil economic activity and its continuing diversification. Estimates of the total work force in 1990 and 1992 were 690,000 and 700,000 respectively. An overwhelming majority (about 70%) of the work force is made up of foreign workers from all over the world but most of all from countries nearby such as Egypt, Sudan and Yemen from the Arab world and India, Pakistan and Bangladesh from the Subcontinent of South Asia. Some expatriates from Western countries who provide advanced technologies are also employed.

The relatively higher demand for foreign manpower in the UAE is influenced to some degree by the labour intensive methods used by most employers. There are many reasons for this - abundant availability of cheap labour from among the highly populated manpower surplus countries of Asia; the relative ease with which the labour factor can be disinvested (by the simple process of repatriating an unwanted worker); the fact that the largest single employment sector - the services - is by its nature labour intensive.

As Table 3.2 shows, after the services sector, which employed over 241,000 persons in 1990, construction, despite a 20% downturn through the 1980s, remains the largest single employer, with about 119,000 workers. Trading, including catering, comes next with about 101,000 employees, followed by the transport, storage and communications sectors which employ 71,000 workers.

Table 3.2			
Employment by sector ('000)			
Sector	*1988*	*1989*	*1990**
Agriculture, hunting, forestry and fishing	39.5	42.6	43.1
Mining and quarrying	9.1	9.5	10.0
Manufacturing	61.1	61.8	63.4
Electricity, gas and water	19.8	20.2	20.6
Construction	110.0	114.2	119.2
Trade, restaurants and hotels	96.2	99.1	101.4
Transport, storage and communications	68.0	70.4	71.7
Financing, insurance, real estate and business services	17.5	18.4	18.8
Community, social and personal services	222.5	230.9	241.3
Total labour force	643.7	667.1	689.5
*Estimates			
Source: Central Statistical Dept, Ministry of Planning, Sharjah			

These are followed by manufacturing (63,400); agriculture, hunting, forestry and fishing (43,100); utilities (20,600); finance, insurance and real estate (18,800) and mining and quarrying (10,000).

Foreign labour recruitment declined markedly in the mid-1980s but has picked up recently with a percentage increase proportionate to the expansion of the non-oil economy. There was, for example, a net inflow of 72,000 new employees (ie new minus cancelled work visas) during 1990, with the majority of the newcomers entering the country through Dubai, which reflects the magnitude of economic

diversification there (Ministry of Information and Culture, 1992). In the same year, 1990, about 37,000 new visas were issued for the construction sector and 36,000 for the hotels and restaurant industry. The most dramatic rise was noticed in the employment of domestic workers, which trebled from 15,000 during the first decade of independence, to 45,000 in the second decade.

Concern is being expressed over the overwhelming dominance of foreigners in the workforce. Emiratisation of jobs is now being encouraged by the government through the Ministry of Labour and Social Affairs and plans are in place to pursue this policy gradually and methodically. With over 10,000 graduates from the Emirates University now in the mainstream of indigenous manpower which is augmented every year by another 2,000 university graduates who have studied overseas, plus others from the Higher College of Technology, it is a matter of time before the majority of middle level and senior posts in all government departments are filled by UAE nationals.

3.4 CULTURE

The people of the UAE, like those of the rest of the peninsula, are of Arab stock. Their forefathers formed part of successive waves of migration 2,000 to 3,000 years ago that spread eastwards across Arabia, bringing with them their culture, their language and their skills at surviving in what was becoming an increasingly harsh climate (Ministry of Information and Culture, 1992b).

As they arrived, they mingled and then merged with their kinsmen, the Semitic people, who were already living in the emirates. Over the years they coalesced into a homogeneous whole, united by a common heritage and, since the coming of Islam in the seventh century AD, by a common religious faith. The common language of the people is Arabic (which is also the official language) but English is widely understood and used. In the expatriate community, various other languages, such as Urdu, Hindi and Farei, are used.

A common impression held outside, created by the British writer Wilfred Thesiger who crossed the Empty Quarter by camel to arrive in the emirates, is that the people of the emirates were traditionally nomadic herdsmen, the Bedouin, moving with their camels and goats across the desert from one pasture to another. Though largely correct, it is far from the whole truth. A few of the tribes that make up the emirate did settle in places to engage in simple agriculture and fishing, tapping the pearl banks or fisheries in the Arabian Gulf as well as the Gulf of Oman. Yet others in many of the cities and towns, particularly in the Bateen area of Abu Dhabi and along the creek at Ajman, engaged in boatbuilding, constructing dhows with few tools and no blueprints. Thus, though the people of the emirates were related by kinship to the Bedouin tribes of the heart of the peninsula, their lifestyle in most cases was much more varied.

Like other peoples of the Arab world, the people of the UAE are rich in culture, tradition, folklore, history, music and traditional dances. According to Sheikh Zayed: 'a people that knows not its own past can have neither a present nor a future' (quoted in: Ministry of Information and Culture, 1992b). This belief of the

President of the country has influenced development along the lines of cultural and traditional revival. The ancient role of the camel and the traditional camel-racing have been revived. The culture of the sea is reflected in boat racing, which is very evident as a sport.

In 1980 the government established an institution known as the Cultural Foundation in Abu Dhabi, which was given the task of reviving the culture of the people and encouraging them to participate in the country's cultural development. Along with the Foundation is the UAE Folk Heritage Association, which has done a lot to revive the culture and traditions of the people of the UAE. One such case is the creation of a 'Heritage Village' on the outskirts of Abu Dhabi. The Village has two sections, each representing an aspect of the life of the UAE people. One section depicts the life of the ancient Bedouins and the other, the life of the coastal Arab. While the Bedouin section displays traditions such as the camel culture, falconry and the nomadic traditions of the people, the coastal Arab section exhibits coastal culture such as fishing, pearling and boat racing.

Despite these artificial re-structurings of the culture, the actual local culture firmly holds its own. Traditional music and dances, for example, still flourish and so does the tradition of oral drama, handed down the centuries of Bedu cultural heritage. Interestingly, most of the UAE's tradition of music and song is rooted in the harsh realities of life in the emirates. Music and song were often used as a source diversion, providing relief from the burden of often hazardous communal work such as pearl diving. Other forms of music and song drew heavily from Bedu music tradition where the song styles - unrelated to workchants of the pearling songs -

tend to be more lyrical, and also from dancing. Bedu songs and dances such as the 'Ayala Al Aralha', a ceremonial sword dance, have acquired an important ritualistic function in the modern UAE. Local theatres also exist which draw their inspiration from the oral folk heritage of the Gulf region and a strong poetic tradition.

The UAE is a land of beautiful traditions and heritage. In the past life in the UAE was hard, and survival was a function of extraordinary skill and endurance in the harsh terrain and arid climate. Today, things are easier, but by holding onto their heritage the people are able to draw upon their confidence in their past to tackle and overcome the challenges of the present and future.

3.5 THE ECONOMY

3.5.1 Overview

The economy of the UAE has been, and will continue to be, influenced to a great extent by a single commodity - oil. Abu Dhabi, Dubai and Sharjah were, until 1984, the only oil-producing emirates. They were later joined by Ras Al Khaimah, a smaller producer. Oil revenue has transformed a largely arid and sparsely populated region into a prosperous modern country.

The end of the Gulf War in early 1991 paved the way for economic recovery in the UAE. Business confidence has been boosted by the Government's determination to press ahead with several large-scale energy-related projects. The Government also announced a plan to spend some Dh25 billion in the 1991-94 period not only on oil projects but also on non-oil infrastructural development.

The Gulf crisis, from August 1990 to February 1991, resulted in minimal adverse effects. Like other Gulf states, the UAE suffered from a temporary capital outflow and a sudden drop in tourist arrivals; but both sectors have since recovered. A number of public sector projects were suspended, signalling a marked downturn in the construction industry which had experienced a boom before the crisis. The oil industry, however, benefited from the crisis: revenue is estimated to have risen by about 50% in 1990 compared with the previous year, the result of higher prices and increased output. Despite the disruption caused by the war, the UAE'S gross domestic product (GDP) in 1990 was estimated by the International Monetary Fund to have grown by 23.5% in nominal terms. The outlook for the future optimistic. With its good port facilities and infrastructure, the UAE is well placed to benefit from Kuwait's reconstruction. Its role as the hub of the Gulf area is likely to be enhanced by the opening up of the Iranian economy and the emerging trading opportunities presented by Eastern Europe.

In Table 3.3 the sectoral distribution of the GDP is shown. The dominance of the oil sector is clear, with 38.1% and 46.6% of the GDP in 1989 and 1990 respectively, and emphasises the dependence of the economy on a single commodity - oil.

Table 3.3

Gross domestic product (GDP) by sector (as factor cost)

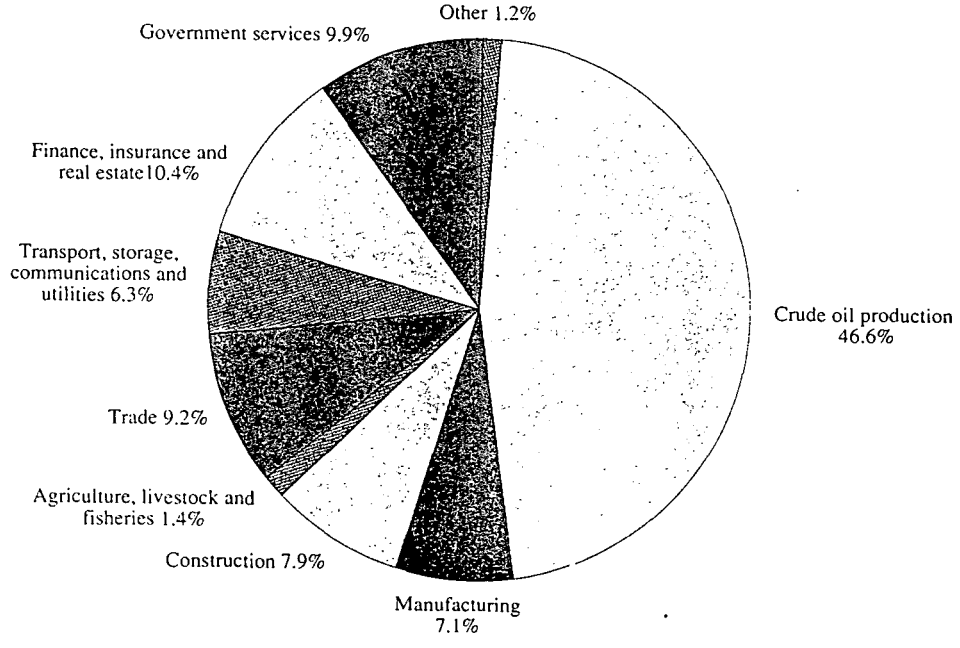
Sector	1989		1990	
	Dh (billions)	*% of total*	*Dh (billions)*	*% of total*
Crude oil production	38.8	38.1	59.6	46.6
Agriculture, livestock and fisheries	1.7	1.7	1.8	1.4
Mining and quarrying	0.3	0.3	0.3	0.2
Manufacturing	8.6	8.4	9.1	7.1
Utilities	2.2	2.2	2.3	1.8
Construction	9.2	9.0	10.1	7.9
Trade	10.9	10.7	11.7	9.2
Transport, storage and communications	5.2	5.1	5.7	4.5
Finance, insurance and real estate	12.1	11.9	13.3	10.4
Government services	12.0	11.8	12.7	9.9
Other services	2.6	2.6	2.9	2.3
Less: imputed bank service charges	-1.8	-1.8	-1.8	-1.4
GDP	101.8	100.0	127.8	100.0
Non oil-sectors' contribution to GDP	63.0	61.9	68.2	53.4
Oil sector's contribution to GDP	38.8	38.1	59.6	46.6

Source: Central Statistical Dept, Ministry of Planning, Sharjah

The picture portrayed in figures in Table 3.3 is represented graphically in Figure 3.1 to give a much sharper impression of the oil sector in the UAE economy. It is interesting to note in the Figure that the other sectors, except for agriculture, livestock and fisheries, showed a fairly equal contribution to the GDP in 1990. The UAE economy may thus be categorised as a broadly balanced 'two-sector economy' - the oil sector on the one hand and the other sectors combined on the other - each accounting for a fairly equal proportion (46.6% for oil and 53.4% for the other sectors combined) to the GDP.

Figure 3.1

GDP by industrial origin: 1990 (at factor cost)



Preliminary estimates

While the increasing share of the non-oil sector in the GDP is recognised, the dominance of the oil sector is set to last long.

3.6 OIL AND GAS SECTOR

Oil is the mainstay of the UAE economy. It was discovered first in Abu Dhabi, at the offshore field of Umm Shaif in 1958 and at the Bab field onshore in 1960. The fields were developed quickly and Abu Dhabi soon became a major oil exporter in world terms. Oil was discovered in Dubai in 1966 at the offshore Fateh field, with production and exports starting in September 1969. The onshore oil and condensate Margham field came on stream in 1983. Sharjah had a share in the small Mubarak field, off Abu Musa island, from the time this came on stream in 1974. At the end of 1980 Amoco made an oil and gas find at Sharjah's Sajaa field. Ras al-Khaimah was the fourth emirate to find and exploit oil. Its offshore Salah field was found by Gulf Oil's local subsidiary and announced in 1983. The three remaining emirates are still looking for oil.

Table 3.4

Oil and gas statistics summary

	1985	*1986*	*1987*	*1988*	*1989*	*1990*
Crude oil production ('000 bd) of which:	1,203	1,370	1,485	1,565	1,936	2,122
Abu Dhabi	788	955	1,058	1,145	1,470	1,650
Dubai	351	365	365	380	431	435
Sharjah	64	50	45	40	35	37
Oil exports ('000 b/d)	978	1,132	1,250	1,345	1,650	1,865
Oil export revenues ($ bn)	11.8	7.5	8.7	7.4	11.5	15.0
Gross gas production (bn m^3) of which:	22.4	22.5	27.1	26.7	29.8	29.8
marketed	13.2	15.2	18.9	19.4	22.4	22.1

Sources: *Petroleum Economist;* Opec, *Annual Statistical Bulletin.*

The UAE has consistently exceeded its Opec production limit, partly in pursuit of raising its quota as allocated by the cartel. However, overproduction also stems in part from the difficulty of coordinating the restraint of output within the federation. Dubai has tended to produce at its maximum capacity, leaving Abu Dhabi to act as a swing producer. Through overrunning its production ceiling the UAE succeeded during 1989 in forcing up the quota from 988,000 b/d to 1.095 mn b/d although output itself still averaged 1.94 b/d. However, with output reaching 2.035 mn b/d in the second quarter of 1990, this disregard for Opec brought fierce

criticism from Iraq whose economy was suffering from soft oil prices. Strong pressure Saudi Arabia on Shaikh Zayid brought agreement at the July Opec meeting for a new quota of 1.5 mn b/d for the UAE and an increased basket price of $21/b. With the suspension of quotas by Opec at the end of August in order to fill the supply gap left by UN sanctions on Iraq and Kuwait, the UAE again increased production, reaching in excess of 2.2 mn b/d with annual output averaging 2.12 mn b/d. Virtually all incremental output was generated by Abu Dhabi. In 1991 output in the first quarter was maintained at over 2.4 mn b/d and the UAE operated an effective quota of 2.32 mn b/d for the subsequent two quarters.

Despite recent finds in the smaller emirates, Abu Dhabi will continue to dominate in terms of production and reserve. According to *Oil and Gas Journal*, proven reserves at the beginning of 1991 stood at 98.1 bn barrels of which Abu Dhabi accounted for 92.2 bn, Dubai 4 bn, Sharjah 1.5 bn ad Ras al-Khaimah 400 mn. The UAE thus accounts for 9.8 per cent of world crude oil reserves. This total represented a virtual trebling of the 1986 figure, based mainly on a very substantial increase in the recovery factor; the rate at some of the smaller fields has been as high as 50 per cent. Abu Dhabi is also continually making new finds, especially offshore, or finding new structures in existing fields. It is expected to spend $2.6 bn in the 1991-95 period in expanding refining capacity and boosting sustainable oil production capacity to 3 mn b/d. Dubai in contrast was experiencing a slight reduction in output from its existing fields prior to the discovery of its only onshore field, Margham, in 1982; the potential of Margham is affected by the need to reinject gas from the field to sustain pressure in the oil wells. Likewise, much of

the new output from the northern emirates is in the form of condensate and gas. This sets them apart from other members of Opec since condensate is not covered by Opec production quotas.

Table 3.5

Crude oil exports by destination ('000 b/d)

Destination	*1986*	*1987*	*1988*	*1989*	*1990*
Asia & Far East	842.4	907.8	1,088.4	1,280.3	1,336.0
of which:					
Japan	696.6	570.6	641.6	730.6	815.0
Western Europe	173.0	185.0	90.0	160.0	330.0
of which:					
France	32.1	-	-	-	198.0
West Germany	1.6	22.7	6.4	21.0	15.0
Italy	36.0	89.4	35.1	73.4	72.0
Netherlands	4.3	19.2	7.5	12.0	31.3
UK	-	6.8	2.6	5.5	6.3
North America	42.7	86.2	74.0	72.6	84.0
of which:					
USA	42.7	81.2	68.4	72.6	80.4
Oceania	12.9	15.0	34.6	74.1	50.0
Latin America	35.0	30.0	35.0	40.0	40.0
Africa	20.0	20.0	15.0	15.0	15.0
Middle East	6.0	6.0	8.0	8.0	10.0
OECD	925.2	856.8	840.2	1,037.3	1,279.0
Total	**1,132.0**	**1,250.0**	**1,345.0**	**1,650.0**	**1,865.0**

Source: Opec, *Annual Statistical Bulletin*

The UAE is estimated to have natural gas reserves equivalent to 4.8 per cent of the world total. Of this aggregate, Abu Dhabi accounts for 182.8 bn ft^3, Sharjah 10.8 bn ft^3, Dubai 4.8 bn ft^3 and Ras al-Khaimah 2 bn ft^3. Abu Dhabi is keen to exploit

its gas resources and in October 1990 awarded a major contract for the expansion of the Das island liquified natural gas (LNG) plant. The ensuing work will double LNG capacity - present 2.3 mn - and extend facilities for other gas products and condensate. The UAE's marketed production of natural gas is expected to increase considerably in the coming years.

Because of the UAE's position at the mouth of the Gulf, it is not surprising that the oil markets of the Far East are dominant in exports. In 1990 they took 72 per cent of total sales, and Japan alone accounted for 44 per cent of the UAE's earnings from crude oil.

3.7 MANUFACTURING SECTOR

The UAE government has attached prime importance to the development of suitable industries as a means of diversifying the country's economic base and reducing dependence on the export of oil. Both Abu Dhabi and Dubai embarked on major industrial projects during the 1970s but development suffers from the lack of overall federal direction.

The Ruwais Industrial Zone

Abu Dhabi concentrated on downstream developments in the oil sector at the Ruwais Industrial Zone, east of the Jebel Dhanna oil export terminal. The original master plan for this zone envisaged the construction of a port, a gas gathering and fractionation plant, and a refinery, fertiliser plant, steel mill, petrochemical plant and hotel and related infrastructure with a city to accommodate up to 80,000

people by 1980. This poroject was subsequently scaled down. The Gasco fractionation plant was followed by the Ruwais Fertiliser Industries (Fertil) plant, which came on stream in late 1983; its current output is 550,000 t/y of urea and 330,000 t/y of ammonia, sold mainly to Indiua and China. A sulphur exporting terminal was added to Ruwais in 1984. Outside Ruwais, Abu Dhabi produces cement at Al-Ain, together with cement bags, steel pipes, flour and bricks. There is a small industrial zone at Mussafa, outside Abu Dhabi city.

Jebel Ali and the drydock

Initially, the two focal points of industrialisation in Dubai were the Dubai Aluminium (Dubal) smelter and the Dugas processing plant at Jebel Ali, 35 km south west of Dubai city. These started operations in 1980. Dubal plans to increase production to 240,000 t/y with an additional pot line. Dugas completed a major expansion scheme in 1985 which increased its capacity by about one third. This also coincided with the rise of another major project - the Jebel Ali Free Zone (JAFZ).

Launched in April 1985, JAFZ is designed to attract multinationals to set up factories and warehouses for goods that can be exported to Asia, Africa and other Middle East countries. It has attracted investment well in excess of $600 mn, and the zone has exceeded expectations in terms of gaining major new business. Over 200 companies have taken up leases using JAFZ as a distribution centre. These include Sony, Union Carbide, BP Bulk Lubricants, McDermotts, Cleveland Bridge and Hunter Foods. Reflecting increased trade, the port doubled its container volume in the first four months of 1990 but the crisis in Kuwait has clearly affected

business and JAFZ's future will depend in large part on the regional situation.

Sharjah

Sharjah's industrial potential was initially enhanced by the discovery of the Sajaa gas/condensate field and various downstream projects have been discussed over the years including, most recently, a possible fertiliser joint venture with an Indian concern. Other suggestions have fallen foul of poor markets and lack of finance. Sharjah has also attracted a number of garment factories as well as other light industry.

Duplication and the Emirates Industrial Bank

Although government involvement is much in evidence at emirate level in most heavy industry, the development of capacity in the cement, steel rolling, plastics and food industries has been left in the main to the private sector. Industrial licences have been granted by individual emirates with scant regard for developments taking place in their neighbours within the federation. As was the case with much government sponsored industrial construction throughout the Gulf in the 1970s, lack of experience and lack of planning, combined with ample funds but limited natural resources, allowed projects to mushroom with little concern about duplication or overcapacity.

Cement is the prime example. The UAE has eight cement factories - three in Ras al-Khaimah (one producing white cement) and one in each of the other emirates (except Umm al-Qaiwain) - with a total capacity of around 7 mn t/y. Local demand for cement was estimated at less than 2 mn tons in 1986, but discussions between

the emirates on how to rationalise production made little progress. A drastic solution was found for the country's five steel rolling mills: three have closed down and the remaining two are said to be doing well. Factories producing plastic pipes and other plastic products, based mainly in Dubai and Sharjah, were hoping to export their output because the domestic market appeared saturated.

The Emirates Industrial Bank, launched as a federal venture (51 per cent owned by the Ministry of Finance and the remainder shared among insurance companies and banks) in 1983, is gradually imposing a sense of discipline on the industrial scene although the glut of garment factories highlighted its limitations. Its initial objective was to find out the reasons why local manufacturers were facing difficulties and to help out some of the more deserving cases.

3.8 CONSTRUCTION SECTOR

Construction took on a new lease of life in 1988 after the doldrums of the mid-1980s when there was a steady decline in the number of construction projects put forward by federal and emirate governments as well as the private sector. The climate takes a heavy toll of buildings with a fairly constant demand - until the Gulf crisis in late 1990 - at the luxury end of the office and apartment market. Road building and improvement, leisure projects and hotel development in both Abu Dhabi and Dubai have kept local construction companies reasonably happy and the rapid growth of the population ensures a steady demand for housing. With the dampening of economic activity towards the end of 1991 the prospects for continued growth in the construction sector seem poor. Drawing offshore islands

into a greater Abu Dhabi metropolis, partly to create more coastline for private development, has led to tenders for bridges linking Sadiyat with the mainland, although another bridge, Hodariyat, is still in abeyance. There is also some upgrading of roads int he far west of the emirate, at Sila and in the Liwa area, and between Al-Ain and Dubai. For economy's sake the tendency is to extend the life of a contract, as well as call for fresh tenders; this has been the case at Al-Ain airport, for instance, where progress has been steady but extremely slow. It was due to be finished in 1992. There has been little sign of development on the $1.3 bn Al-Ain university campus, not due for completion (in four phases) until 2002; Tawilah power station continues to put out tenders and the new naval base there has begun to generate work.

Although Abu Dhabi, Dubai and Ajman have all been drafting master plans for future development, Dubai's is the only one to see much activity so far, with a major redevelopment of the Creek allowing for a smoother flow of traffic and more parking.

3.9 BANKING AND MONEY

The UAE Currency Board was set up in May 1973 to manage the federation's new currency and to develop into a central bank which it finally did in 1980. The bank was made responsible for controlling credit policy with the aim of fostering balanced national economic growth. It was charged with advising the government on monetary and financial issues, issuing currency, maintaining gold and foreign currency reserves, and controlling the banking sector. The federal government also

places dirham deposits and budget contributions with the central bank, without interest.

In the event, the central bank has had a significant impact on banking in the UAE since the start of the 1980s, although it still has only as much or as little power as the individual emirates and their ruling families are prepared to give it. It has tried with only limited success to control the opening of branches, capital/assets ratios, loans to directors, disclosure of balance sheets and so on. Similarly, its power of persuasion with regard to mergers among the UAE's numerous commercial banks have not been as great as those of the governments of individual emirates. The mergers that took place in Abu Dhabi and Dubai in 1985 were largely the work of the respective emirate governments, since it was they who put up the necessary funds. When the Ras al-Khaimah government failed to provide the funds needed to rescue a troubled Ras al-Khaimah bank in 1985, the central bank was unable to intervene. One of the central bank's main problems at the moment is to persuade Abu Dhabi and Dubai - as the weightiest members of the federation - to accept a federal public debt law. Viewed by the emirates as an infringement of their independence of action, such a law would nevertheless give a federal basis to the financing of the federal deficit which the bank is anxious to achieve.

The central bank remains embroiled in the political struggle between the major emirates, and the inability of the bank to issue and enforce clear rulings makes its role increasingly difficult. Political disagreements prevented the election of the board and the appointment of the governor of the central bank at the end of 1989,

and the institution continued into 1991 without any formal mandate. While the central bank continues to function, its real effectiveness is limited. The governor has maintained the view that the UAE is heavily overbanked and mergers are needed, but trying to merge the smaller, family owned institutions has proven almost impossible.

The embarrassment caused by the enforced closure of BCCI in July 1991 and the related revelations of fraud have been damaging to the credibility not only of the Abu Dhabi government but also the UAE banking system. A study for the establishment of offshore banking in the UAE was authorised in May 1991 but because of BCCI and the sluggishness of the banking market, this federal proposal is not expected to make rapid progress.

The UAE is the location of the Arab Monetary Fund (AMF) which was modelled on the IMF but has failed to develop the financial role expected of it.

3.9.1 Commercial banks

The oil boom in the mid-1970s brought with it a proliferation of banking establishments. The UAE had 20 commercial banks in 1973 and 55 by April 1977, making the country one of the most over-banked in the world. Signs of an impending crisis could be seen in the sector as early as the beginning of 1977, but the Currency Board was powerless to deal with the situation. Its lack of foreign exchange and consequent inability to support the national currency meant that it was unable to prevent the run on the dirham which began in the early months of 1977, and many banks began to find themselves in trouble. In May that year two

banks collapsed. The Currency Board then acted to regulate the extension of credit. It banned the creation of new banks, imposed a mandatory reserve and raised the ratio of advances to deposits. In 1981 the newly created Central Bank ordered that the UAE's 28 fully licensed foreign banks limit their number of branches in the country to eight each by 1984 in order to consolidate the position of local banks.

By the end of the 1980s the banking sector was beginning to look reasonably healthy with balance sheet growth and increased profits after difficult years of bad loans and some borrowers claiming the Islamic prohibition against interest as an excuse not to repay debt. There are currently 19 local banks and 28 foreign banks, although the picture here is clouded as some foreign operations are limited to only representative office status or to restricted licence activities.

Table 3.6

Money supply (Dh mn; end period)

	1985	*1986*	*1987*	*1988*	*1989*	*1990*
Currency in circulation	3,161	3,246	3,511	3,600	3,612	-
Demand deposits	6,344	5,956	6,585	7,154	7,444	6,370
Money MI	**9,505**	**9,201**	**10,096**	**10,753**	**11,056**	-
MI growth (%)	6.9	-3.2	9.7	6.5	2.8	-
Time & savings deposits	40,382	42,875	44,844	47,403	52,132	47,247
Money M2	**49,887**	**52,076**	**54,940**	**58,156**	**63,188**	-
M2 growth (%)	6.4	4.4	5.5	5.9	8.7	-

Source: IMF, *International Financial Statistics*

The UAE's banks were hit hard by the invasion of Kuwait with initial withdrawals amounting to an estimated Dh7 bn - at least 15 per cent of total deposits. With the help of the central bank, the commercial banks weathered the crisis reasonably well in the short term with many of the major institutions showing increased profits for 1990. Slow economic activity in 1991 brought repeated calls for bank mergers but apart from the repercussions of the BCCI closure little major change is expected.

3.10 INTERNATIONAL TRADE

The UAE has traditionally enjoyed a substantial trade surplus. Imports first peaked at Dh36 bn in 1981, following the oil price rises of 1979-80, the much increased budget of 1980 and the fresh influx of immigrants that occurred after the second oil boom. From 1982 onward imports declined, reaching a low of Dh24 bn in 1986. In subsequent years they rose again, reaching Dh41 bn in 1990. The trade balance, meanwhile, reflected the sharply fluctuating export earnings during that period: the trade surplus peaked in 1986 at Dh36 bn, falling to a low of Dh13 bn in 1988 before recovering to Dh20 bn in 1989 and increasing significantly again in 1990 as oil exports rose dramatically.

Table 3.7

Foreign trade (Dh mn)

	1985	*1986*[a]	*1987*	*1988*	*1989*	*1990*
Exports fob	48,180	58,139[a]	46,800	44,700	57,194	75,255
crude oil	42,661	25,200	29,000	28,000	38,027	59,000
Imports cif	-24,040	-23,575	-26,526	-31,283	-36,746	-41,111
Balance	24,140	34,564	20,274	20,448	20,448	34,144

[a] IMF figure is unexpectedly high compared with nationally reported level of exports and in the light of the oil price collapse.

Sources: IMF, *International Financial Statistics;* Central Bank, *Annual Report.*

Throughout the 1980s and into the 1990s Japan has been the UAE's dominant export market, dwarfing all other trading partners - the most significant of whom are also Pacific Rim countries. While the overall pattern is determined by the sale of oil, the structure of Dubai's re-exports shows trading activity restricted more closely to the region. Here, Iran is the leading market with other GCC states also purchasing goods through the Dubai entrepôt. Re-export trade has expanded substantially since the end of the Iran-Iraq war but continued growth may be in doubt. Iran is considering developing its own trade facilities at Qeshm and Kish islands and although these proposals are at an early stage only, their eventual development would enable Iran to bypass Dubai.

Japan is also the UAE's principal source of imports, and the federation's leading suppliers are all OECD countries. This dependence on industrialised trading partners arises from UAE demand for manufactured goods, including machinery, which constitute some two thirds of its imports.

Table 3.8

Major trading partners (% of total)

	1986	*1987*	*1988*	*1989*	*1990*
Exports					
Japan	34.8	31.1	30.7	28.7	35.1
Singapore	0.6	3.1	3.6	4.3	5.8
USA	4.0	4.1	3.5	3.5	3.7
South Korea	0.1	2.9	3.7	3.8	3.5
India	2.3	3.0	3.4	3.1	2.6
Oman	0.1	2.2	2.7	2.6	2.0
Imports					
Japan	18.3	18.0	16.4	15.0	14.2
UK	11.2	10.6	9.7	9.4	9.6
USA	9.7	8.4	9.5	9.7	9.5
West Germany	8.6	9.0	7.1	7.6	9.2[a]
France	5.3	4.3	3.4	3.7	5.2
Italy	4.6	4.3	4.5	4.7	5.0

[a] Including East Germany from July

Source: IMF, *Direction of Trade Statistics*

Table 3.9

Dubai re-exports by country of destination (Dh mn)

	1989	*1990*
Iran	1,575	1,913
Saudi Arabia	489	586
Qatar	427	525
West Germany	335	484
Singapore	339	436
UK	192	211
India	197	195
Japan	159	192
Bahrain	168	188
South Yemen	120	185
Total incl others	*6,514*	*7,603*

Source: Dubai Chamber of Commerce and Industry.

3.11 BALANCE OF PAYMENTS

The UAE has traditionally enjoyed large current account surpluses thanks to its positive, if erratic, visible trade balance. A continual deficit on the invisibles account in the 1980s combined with a fluctuating trade surplus that largely reflected the vicissitudes of the oil market led to wide swings in the external payments position. From a peak of Dh27.4 bn in 1984, the surplus on the current account fell to a mere Dh8.7 bn in 1986 but by 1989 had recovered to Dh14.8 bn and is expected to have climbed much higher in 1990 on the back of the expansion in oil revenues.

However, the Gulf crisis had a severe negative impact on the UAE's external payments position in 1991. Around $6 bn was paid out in war-related pledges and assistance in early 1991 and defence expenditure during this period also increased substantially. The BCCI affair also caused a significant outflow of resources.

Table 3.10

Balance of payments (Dh bn)

	1985	*1986*	*1987*	*1988*	*1989*	*1990*
Merchandise trade						
Oil exports	40.0	25.2	29.0	28.0	38.0	56.1
Gas exports	5.2	4.5	4.0	3.2	3.5	3.5
Other exports & re-exports	9.0	8.0	12.0	13.5	15.7	15.6
Total exports & re-exports	*54.2*	*37.7*	*45.0*	*44.7*	*57.2*	*75.2*
Imports (cif)	-23.5	-23.6	-26.0	-31.3	-36.7	-41.1
Trade balance	*30.7*	*14.1*	*19.0*	*13.4*	*20.4*	*1 34.1*

Table 3.11

Balance of payments (Dh bn)

	1985	*1986*	*1987*	*1988*	*1989*
Other current account					
Services & private transfers	-4.0)				
		-5.4	-4.8	-4.8	-5.0[a]
Official grants	-0.7)				
Current account balance	26.0	8.7	14.2	8.7	14.8[a]
Capital account balance	-23.4	-3.9	-8.0	-6.4	-9.3
Overall surplus	2.6	4.8	6.2	2.3	5.5

[a] Unrevised Central Bank figures which do not tally with revised trade figures. [b] Including errors and omissions.

Source: Central Bank, *Bulletin*

3.12 INVESTMENT REGULATIONS

Although the UAE has a history of liberal trade policies, with very few restrictions on imports and no exchange controls whatsoever, there have been moves since the early 1980s to safeguard local business interests through legislation on trade agencies, insurance and company ownership and structure. A federal agencies law came into effect in 1983 stipulating that trade agents must be nationals of the UAE or wholly owned local companies and that they should register with the Ministry of Economy and Commerce; amendments published in 1989 allowed a foreign company to have one agent for the whole UAE or one in each emirate, a more flexible arrangement which recognises the UAE's diversity. The federal insurance law followed, stipulating that insurance and reinsurance in the UAE must be carried out through registered, locally owned companies with minimum capital of

Dh10 mn. There are still reckoned to be more insurance companies than the country can support as well as too many banks. An amended federal company law was published in 1989. Any foreign firm operating in the UAE will require some form of relationship with a UAE national or a local entity wholly owned by UAE nationals. Its main attractions are that it will ease the obtaining of limited liability status. This would be of considerable benefit to the private sector and strengthen the central bank's advocacy of a stock exchange.

Investment allocations of the Federal Government and that of the emirates have seen a steady rise over the years, with the latter far exceeding the former. The total volume of investment during 1991 amounted to Dh24.4 billion. While the Government concentrated on development of services, the expansion of transport infrastructure, housing and agriculture, the private sector directed most of its investment into production, industry, property and trade.

The Federal Government is currently managing a Dh4.8 billion investment programme, financing public sector projects with two specific orientations. In the short- to mid-term period ahead, investments are directed at raising economics standards and providing a momentum to the economy, slowing down spending when it gets hot and stepping it up when the economy stagnates. In the long term, the goal is economic diversification, and the lessening of dependence on oil.

The 1992 investment allocations are Dh338 million higher than those for 1991. Investments in local projects are planned by a specialised department in the Ministry of Planning, with schemes of three, five and seven years' maturity. Of the

Dh1,078 million allocated in the 1992 budget, the lion's share - Dh984.5 million - went into completing projects already under way. Only Dh93.5 was allocated to projects that were to be initiated in the course of the year.

Utilities have taken the bulk of this investment, at 40.4 per cent, while the next largest share - 37.9 per cent - has gone into the services sector, which includes health and education. Banking, insurance and property received 7 per cent of the 1992 Federal investment, while agriculture and fisheries absorbed nearly 3 per cent.

The allocations point to a concentration on modernisation and maintenance of the services' infrastructure.

3.13 TOURISM

Tourism is a relatively new phenomenon for the UAE but one that is being taken seriously by the emirates of Dubai and Abu Dhabi as a means of putting to profitable use facilities that were built in the boom years of the 1970s but have since been underused. Initially services were geared to expatriates and their families in the UAE who simply wanted a change of scenery for a weekend. Nowadays there are attempts to attract Westerners (who might otherwise head for East Africa or the Caribbean) to sample the UAE as an offbeat resort for a winter holiday or as a stopover on a long haul flight to the Far East. Package tours to Dubai are promoted by the Dubai National Air Travel Association (DNATA) and also by Dubai's Emirates Airline and in Abu Dhabi by Abu Dhabi National Hotels

Corporation. Some 20,000 Western tourists were estimated to have come for the 1989/90 winter season and, in the period following the end of the Iran-Iraq war, hotels were experiencing a min-boom. The 1990/91 Kuwait crisis, however, hit prospects hard and any plans significantly to boost the tourism sector appear to have been shelved for the immediate future.

3.14 PLANNING FOR THE FUTURE

Under the latest four-year development plan covering the 1991-94 period, the UAE Government is to spend more than Dh25 billion to improve productivity and the country's infrastructure. Some Dh15.8 billion will be spent on the non-oil sector: Dh6 billion will be allocated for electricity and water projects. Dh4.7 billion for transport and communications, and nearly Dh4 billion for social services. The balance will be divided among agriculture, trade and non-oil industry.

More than Dh10 billion will be spent on expanding the refining and production capacities of the oil sector. The UAE hopes to increase its petroleum production capacity by 50%, from the current two million barrels a day (b/d) to over three million b/d by the mid-1990s. It also plans to expand liquefied gas facilities and double refining capacity to over 250,000 b/d.

3.15 GOVERNMENT BUDGET

Federal budget allocations are determined by the UAE's development policy, while the individual emirates draw up separate budgets for municipal and local projects. Under the provisional Constitution, the emirates' governments pledge 50% of their net oil income to the federal budget. In practice, the federal treasury depends almost entirely on payments by Abu Dhabi and Dubai, with the former contributing the lion's share (72% in 1991).

CHAPTER FOUR

AGRICULTURAL DEVELOPMENT IN THE UAE

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4.1 INTRODUCTION: THE ROLE OF AGRICULTURE

The importance of agriculture in the economic development of any country, rich or poor, is borne out by the fact that it is the primary sector of the economy which provides the basic ingredients necessary for the existence of mankind. Agriculture also provides most of the raw materials which, when transformed into finished products, serve as basic necessities of the human race. Even in the oil-rich United Arab Emirates, agriculture plays a strategic role from several points of view. At minimum, farm production must be increased rapidly enough to keep pace with population growth. With an annual natural population growth rate of 3%, which is above the average 2.5% for developing countries, the UAE needs to focus on agricultural development to feed its increasing population.

However, in a rapidly industrialising economy such as the UAE, that is not enough. Industrialisation necessarily brings with it urbanisation and a rapid expansion of the industrial labour force. This, in turn, brings with it a rising per capita demand for food, based on higher urban incomes.

In addition to supplying food, agriculture must provide many of the raw materials for industry. For example, the fate of the leather-goods industry in the UAE depends on the availability of hides and skins, while the food processing industry depends on agricultural supplies. Therefore, the pace of advance in a wide range of consumer goods manufactures will be eventually affected by the pace of agricultural development. In addition, even in the oil-rich UAE, agriculture must be developed to generate export surpluses in order to earn foreign exchange with which to finance the import of capital goods and certain kinds of industrial raw materials. This role is now more significant as oil prices continue to decline in the world market.

Agriculture is not only a supplier of goods for domestic and export needs but also a supplier of production factors such as capital and labour. A rapidly expanding industrial sector necessarily draws some of its labour force from the rural areas. This has been the trend in the UAE since the establishment of the state in 1971. With the uncertainties in respect of oil prices and reserves, agriculture will be called upon to save and finance a significant part of the investment for the expansion of industrial plant, transport and other sectors as well.

4.2 THE DEVELOPMENT OF AGRICULTURE IN THE UAE

The UAE is largely a desert land, but there are fertile areas for agriculture. The country has had a long tradition of agriculture in the fertile oases, where for at least 5,000 years farmers have trapped underground water reserves to grow their crops. As the climate became harsher 3,000 to 4,000 years ago, the early

inhabitants developed a new skill, of tunnelling for kilometres underground to reach the sources of water and to channel them to the palm groves and small fields. The oldest such channel, or "falaj", to be found has been dated to around 1,000 BC, and the technique is still in use in oases such as Al Ain and Dhaid. (Ministry of Information, 1992).

Up in the mountains, the people developed the skill of digging into the beds of the valleys, to trap water under the gravel upstream, and then lead it in small channels down the valleys until it reached a place where small terraced fields could be created. It was tiring, back-breaking work, as can be seen from the terraced farms that continue in use today, but at least it meant that some agriculture was possible.

Over the last quarter of a century, however, since Sheikh Zayed became the Ruler of the Emirate of Abu-Dhabi, and, especially since the establishment of the Federation of the UAE in 1971, this small-scale traditional farming has been complemented by investment that has seen tens of thousands of hectares being brought under the plough.

In the last 20 years,the population of the country has risen more than ten-fold, but the rate of growth of agricultural production has kept pace, so much so that this desert land is not only self-sufficient in salad crops and poultry for much of the year, but is even exporting some crops, including strawberries, to markets as far away as Europe, something that would have been almost inconceivable in the recent past.

4.2.1 The growth of agricultural production

The bulk of the country's agricultural production comes from four areas, in and around the inland oasis-city of Al Ain, 160km east of Abu-Dhabi, the fertile but narrow strip along the East Coast, from the oasis of Dhaid, 60 kilometres east of Sharjah, and from the gravel plains that make up much of the northern emirate of Ras al Khaimah.

With an intensive programme of drilling for water wells, it has become possible to extend dramatically the area under cultivation, and in the period between 1978 and 1991, the amount of land under cultivation rose from 32,400 dunam (18,000 hectares) to over 635,000 dunam (353,000 hectares) Table 4.1 shows the trends clearly.

Table 4.1

Total agricultural area in the UAE by regions: 1978-1991

Area: Dunam*	**Year**						
Region	1978	1986	1987	1988	1989	1990	1991
Abu Dhabi	-	139273	155058	158600	164923	185224	360234
Central	-	120530	126601	131593	134772	137068	139912
Northern	-	76047	81197	79607	81184	83060	85796
Eastern	-	44342	45307	46400	47467	48704	49434
Total (dunam)*	32,400	380192	408163	416200	428346	454056	635376

Source: Ministry of Agriculture & Fisheries (1991) Annual Statistical Bulletin for 1991 Abu Dhabi, UAE, Statistical Section

*1 dunam = 0.56 hectares

The total value of agricultural production in the UAE has also increased over the years. As Table 4.2 shows, the total value of agricultural production increased from 517 million Dn. in 1977 to over two billion dunam in 1990 - a four-fold increase over the period.

Table 4.2

Agriculture and Fisheries produce by value in the UAE: 1977, 1988, 1989 and 1990 ('000 dl)

Type of produce	1977	1988	1989	1990
Plant produce				
Vegetables	57278	220159	314140	364733
Dates	19746	-	-	-
Fruit	15909	78874	108256	123195
Alfalfa	23723	324640	401483	415033
Tobacco	6997	1019	1351	1420
Other crops	461	106144	138424	185032
Total value of plant produce	145114	730836	963654	1089413
Animal produce				
Meat	83895	195647	209344	220956
Poultry	15705	110844	123822	136233
Milk and milk produce	484400	188397	277357	222951
Eggs	-	55500	59733	69771
Other animal production	1000	4972	6038	5855
Total value of animal produce	**149000**	**555360**	**676294**	**655766**
Fishing produce				
Surface and medium fish	120635	158632	162170	168281
Deep-sea fish	88431	194478	19931	206838
Snails and molluscs	4463	4235	4322	4480

Table 4.2

Agriculture and Fisheries produce by value in the UAE: 1977, 1988, 1989 and 1990 ('000 dl)

Total value of fishing produce	**213529**	**357345**	**365823**	**379599**
Total of agricultural and fisheries produce	**516643**	**1643541**	**2005771**	**2124778**

- Egg prices decreased in 1989 (carton of 360 eggs = Dhs 120
- Poultry meat = 10 Dh/kg year 1987
- Poultry meat = 8 Dh/kg, year 1988, 1989, 1990
- Poultry meat = 4.5 Dh/kg, year 1989/90

Source: Ministry of Agriculture & Fisheries (1991) *Annual Statistical Bulletin for 1991* Abu Dhabi, UAE, Statistical Section

Similarly, the average crop season will now yield over 600,000 tonnes of crops. Much of the total is accounted for by salad crops, like tomatoes, aubergines, cucumbers, lettuce, cabbages and so on, as well as by animal feed like alfalfa, but over the course of the last few years, imaginative local farmers have diversified into speciality crops like strawberries and flowers, now being exported from the Dhaid area to the supermarkets of Europe. Table 4.3 shows the mix and variety of agricultural products currently produced in the UAE.

Table 4.3

Main produce of the agricultural sector in the UAE

PRINCIPAL CROPS ('000 metric tons)

	1988	1989*	1990*
Cereals	4	5	5
Tomatoes	26	36	42
Cucumbers and gherkins	4	4	4
Aubergines	15	14	15
Chillies and peppers (green)	4	4	4
Watermelons	9	15	19
Melons	3	6	12
Dates*	65	68	70
Tobacco (leaves)	1	1	1

*FAO estimates
Source: FAO Production Yearbook

LIVESTOCK ('000 head, year ending September)

	1988	1989*	1990*
Cattle	46	48	50
Camels	99	100	115
Sheep	222	250	260
Goats	574	575	580

*FAO estimates
Poultry (FAO estimates, million): 6 in 1988; 7 in 1989; 7 in 1990.
Source: FAO Production Yearbook

LIVESTOCK PRODUCTS ('000 metric tons)

	1988	1989	1990
Beef and veal*	3	3	3
Mutton and lamb*	6	7	7
Goats' meat*	5	6	6
Poultry meat*	12	13	13
Cows' milk*	5	5	6

Table 4.3 Main produce of the agricultural sector in the UAE			
Sheep's milk*	4	4	4
Goats' milk*	14	15	16
Hen eggs#	8.3	8.5	9.0
*FAO estimates. #Unofficial figures			
FISHING ('000 metric tons, live weight)			
	1987	1988	1989
Fish	85.2	89.4	91.1
Crustaceans and molluscs	0.1	0.1*	0.1
Total catch	85.2	89.5	91.2

These are expected to be increased in the future.

Studies on the country's soil have shown that much of the land, apart from the rocky mountain slopes and sand dunes, can be cultivated provided that water is available, and the Ministry of Agriculture and Fisheries, the Department of Agriculture in Al Ain and the Abu-Dhabi Municipality, covering the Western Region of Abu-Dhabi emirate, have carried out an extensive programme of drilling of water wells.

Coupled with this, the Government also levels and prepares land for local farmers, which they are then given free, along with subsidised seeds, machinery, and advice on pest control.

There is also an extensive network of marketing centres, to which the farmers sell their produce.

The Government also has its own agricultural research stations, in centres like Dhaid and Al Ain, where new varieties of crops are tested to see how they adapt to the local climate. It has been shown, for example, that it is possible to cultivate wheat, although the high cost per hectare probably means that it will never be possible to replace imports. For some other crops, however , self-sufficiency is well on the way.

The depletable underground water resources are, naturally, of great importance, and the annual rainfall is never enough to replace in the aquifers the amount taken out for agriculture and for homes and industry. Recognising that this poses the greatest long-term challenge to the successful development of the country's agriculture, the Government has embarked on a three-part programme designed to make the best possible use of this scarce and valuable resource.

One part is the provision of advice to farmers on ways of reducing the consumption of water, through trickle-irrigation rather than through more wasteful methods, for example. Where crops are sufficiently tolerant to thrive on desalinated water, this is provided instead, and indeed much of the irrigation of parks and gardens is done either with desalinated water or with recycled and purified sewage effluent, unsuitable for crops but ideal for gardens.

A second part of the water husbandry programme is the carrying out of research into the available resources. In Al Ain, for example, the local National Drilling Company and the United States Geological Survey are currently engaged in a major Ground Water Resources Project, which not only searches for new aquifers, but also

monitors current rates of extraction. The programme has already discovered substantial new aquifers deep under the earth's surface that can be used in the years ahead.

Finally, to prevent rainwater rushing down the valleys and discharging either into remote desert areas or into the sea, a number of water retention dams have been built to hold back the water, both so that it can be directly tapped for irrigation, and so that it can percolate through the earth to the aquifers. Tens of millions of gallons a year of rainwater are already being retained by the dams already built, like those at Shwaib, near Al Ain, Wadi Bih, in Ras al Khaimah and Wadi Ham in Fujairah, while a number of others are nearing completion. Besides their importance for agriculture, they are also, of course, delightful additions to the scenic beauty of what is still a largely arid land.

Agriculture goes beyond the mere growing of crops to include animal husbandry in all its forms. One area where growth has been dramatic is in the keeping of poultry, for meat and for eggs. Twenty years ago, the only poultry in the country were those kept by farmers for their own use, but now there are a number of modern poultry farms, in Fujairah, Al Ain, Falaj al Mu'alla, Dubai and other places, which are producing thousands of tons of meat and millions of eggs a year, eagerly snapped up by local consumers. An additional benefit, of course, is the reduction of the country's food import bill.

The same is true about dairy products. Herds of imported cattle in Digdagga (Ras al Khaimah), Al Ain, Al Habab (Dubai), and in Dibba and Rugheilat in Fujairah have adapted swiftly to the climate and are now producing growing amounts of milk, as well as products like cheese and yoghurt for the local market. Gradually, too, local beef production is getting under way, to supplement other traditionally-kept livestock.

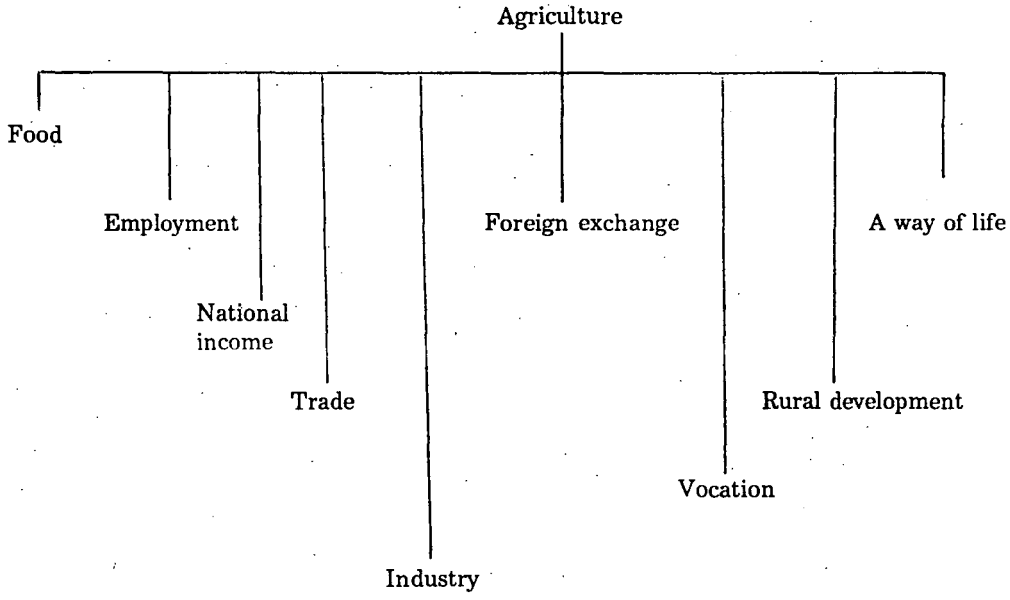
Ministry of Agriculture figures suggest that over a million head of livestock are now kept in the UAE, including camels, goats and sheep, and the number increases every year thanks to the greater availability of feed and to the provision of financial subsidies for herdsmen. (Ministry of Information 1992)

4.2.2 Contribution to the national economy

Despite the dominance of oil in the economy of the UAE, Agriculture still contributes effectively to the economic life and welfare of the State. Generally, Agriculture is known to have supported a variety of crucial activities in the economy as indicated in Figure 4.1.

Figure 4.1

Areas of contribution by the agricultural sector



The Agricultural Sector in the UAE contributes to all areas of human activity indicated in Figure 3.1 It provides food, employment (about 6% of the population in 1991), vocation and a way of life to the local people. Processed agricultural products and trade in these products and other agricultural products are commonplace in the UAE. As we will discuss shortly, Agriculture also earns foreign exchange, albeit insignificant compared with revenue from oil. Rural development in the State is now pivoted on Agricultural Development based on the Zones. Agriculture contributes to the National Income. Table 4.4 shows the relative contribution of the sector in the GDP of the country in 1991.

Table 4.4

Origin of Gross Domestic Product (GDP) 1991

Sector	% of total	% since 1991
Agriculture	1.7	16.7
Oil and gas	42.8	13.9
Manufacturing	7.4	17.2
Power and water	2.0	19.5
Construction	8.0	18.7
Trade and catering	9.4	18.2
Finance and insurance	12.0	30.3
Real Estate	12.0	19.7
Government services	10.8	22.5
Other services (net)	5.5	27.0
GDP at factor cost	100.0	16.7

Source: Economist Intelligence Unit (EIU) (1993), *Country Report: United Arab Emirates*, London, The EIU, p3.

It can be seen that the contribution of Agriculture to the GDP stands at 1.7% in 1991. This is clearly the lowest contribution in 1991. A detailed analysis of the Table will show that the dominance of the oil sector accounts largely for the poor showing of the agricultural sector. All the other sectors in the economy relate very strongly to the buoyant oil sector and the Agricultural sector is thus pushed to the back.

However, the relative growth of the contribution of the sector to the GDP since 1971 shows an interesting level. The contribution of the sector has increased by 16.7% since 1971 and compares favourably with all the sectors except Finance and

Insurance. Government Services and other services.

In fact, the growth of Agriculture's contribution equals the growth of GPD at factor cost since 1971. This indicates that the Agricultural sector is making a significant contribution to the National Income and will continue to do so because of the recent focus of attention on the sector by the Government.

4.3 GOVERNMENT AGRICULTURAL POLICY

Though a traditional agricultural State, the UAE did not give appropriate recognition to agricultural development until the end of the 1970s. Understandably, this was because of the emergence and prosperity of the oil sector. But as the oil sector slows down because of decreasing world prices and the relative impact of imports of food and raw materials on the national economy increases, the Government of the UAE, and indeed those other Arab countries in the GCC, have recognised the importance of the Agricultural sector and set up policies for its development.

With respect to the UAE, two main sources reflect the current attitude of the Government towards the Agricultural sector. These are:

(a) the Project of Economic and Social Development, 1981-1985; and

(b) the Ministerial Decree No. 511/7 of 1983.

Following directives in the Project of Economic and Social Development, (1981-1985), a Ministerial Committee established by the Ministerial Council in its Decree No. 511/7 of 1983, recommended the development of an Agricultural policy and plan for the State. At its meeting of 19th December 1983, the Ministerial Committee agreed on a set of objectives to underline agricultural development policy in the State.

4.3.1 Objectives

The main objectives of agricultural development in the UAE are:

1. To protect the natural resources of the State and utilise them to their maximum.
2. To increase the percentage of self-sufficiency in food production to satisfy local needs.
3. To encourage farmers, breeders and fishermen to maintain and develop agricultural employment by providing them with reasonable income for their produce.
4. To diversify sources of income in the State by raising the share of agriculture in National Income.
5. To steadily reduce agricultural manpower through the introduction of mechanisation and modern techniques of production.

These objectives were quantified in the 1981-1985 Development Plan as follows:

(a) at the end of the Plan period in 1985, production of fruit, vegetables and other agricultural produce should grow at an annual rate of 11.3% to reach 332,000 tons in 1985 compared with only 194,000 tons in 1980;

(b) animal production (meat, milk and its derived products) should increase by 9.3% per annum to reach about 5,301,000 tons in 1985, while poultry output (mainly eggs) should increase at an annual rate of 20%, achieving a yearly target of 200,000,000, compared with the 80,000,000 achieved in 1980; and

(c) fishery output was to increase by 9.3% per annum, achieving a target of 106.3 thousand tons in 1985 compared with 68.3 thousand tons in 1980.

Compared with the 1976-1981 Plan investment of 1.7 Million DHS in the agricultural sector, the 1981-1985 Plan allocated about 3.7 million DHS for agricultural development. This represented about 218% increase over the 1976-1981 Plan allocation. In the main, these objectives were more than achieved at the end of the plan period. The policies and programmes of the government and municipalities to encourage agricultural development provided much of the impetus towards the achievements.

4.3.2 Agriculture development policies

To achieve the objectives set out above, the following Government policies are pursued:

1. Improvement of the efficiency of the agricultural sector by the adoption of modern farming methods that minimize labour and water inputs, assisted by improved crop selection, the formation of farming co-operatives, improved subsidy schemes and the continuation of extension services;

2. establishment of central authority to evaluate and plan the use of the State's water and land resources;

3. regulation of agricultural support and loans given to farmers to achieve a comprehensive and more effective application;

4. increased research effort, concentrating on practical problems of production, marketing, development of the desert areas and introduction of modern methods and techniques of cultivation;

5. provision and extension of guidance services to improve performance of farmers;

6. continuation of free distribution of land to locals;

7. provision of training programmes and centres to develop and upgrade technical efficiency;

8. encouragement of sheltered agriculture (ie. greenhouse farming) in the State;

9. improvement of the sector's data-base to provide reliable information for analysis by both public and private sectors and assist the overall management of the agricultural sector;

10. encouragement of the private sector in the development of large-scale agricultural projects ranging from major integrated agricultural projects to individual crop, dairy and livestock projects.

4.3.3 Performance of policies

The effectiveness of government policies in achieving the objectives set may be measured directly or indirectly; directly, through statistical indicators and indirectly, through the socio-economic welfare of the people of the UAE. Though the indirect measurement presents some problems of objectivity, the increases in agricultural productivity as shown in Table 4.2 reflect increasing food sufficiency and hence increasing social welfare in that direction. In addition, Table 4.1 shows increasing land use for agricultural purposes which also suggest higher welfare and more productive employment. All of these lead to a higher level of social and economic welfare of the people.

The direct measures are quantitative. Table 4.5 shows the rapid increase in free services offered to farm holders between 1985 and 1990. This was the period after the agricultural policies had been established by the Ministerial Council in 1983.

Table 4.5

Free services offered to farm holders in the UAE: 1985-1990

		Year					
Services	Units	1985	1986	1987	1988	1989	1990
Extension visits	No	34772	44241	40780	42560	41350	40155
Plant protection services: total area treated	Dunam	330972	323445	225849	261125	425100	416340
Tractor services:							
Working hours	Hrs	105818	103625	96220	161339	123882	125041
Total area ploughed	Dunam	462195	398605	378014	226541	380934	380153
Maintenance services: waterpumps services	No	13931	16344	20273	23302	15098	11755
No of wells dug	No	-	126	543	148	761	879

There is a general increase in the free services provided between 1985 and 1990 which imply an increase in the use of such services. Extension visits increased from 34,772 in 1985 to 40,155 in 1990, while the number of wells dug increased from 126 in 1986 to 879 in 1990 - a seven-fold increase over a period of four years. The average decrease in total area ploughed over the period reflects the increase in private capital involvement in agriculture to replace **free** government services.

Table 4.6 presents another picture of the effectiveness of government policies. Agricultural holdings in the UAE by regions is reported in the Table and the general picture is the holdings increased from 4,940 units in 1973 to 19,942 units in 1991. This represents about 400% increase over the period, which is significant.

By regions, the Abu-Dhabi region has the highest growth of about 23-fold between 1973 and 1991, followed by the Central Region with about a seven-fold increase. The Eastern Region has about a three-fold increase while the Northern Region has about a two-fold increase over the same period. Thus, on regional as well as national level, agricultural holding in the UAE increased significantly after the setting of national agricultural objectives and policies. It is evident, therefore, that government agricultural policies have been effective.

Table 4.6
Agricultural holdings in the UAE by regions: 1973-1991 (Units)

	Year								
Region	1973	1984	1985	1986	1987	1988	1989	1990	1991
Abu Dhabi	339	5664	5701	5780	5808	5902	5999	6628	6850
Central	745	4081	4277	4350	4473	4630	4721	4802	4894
Northern	1800	2501	2532	2634	2658	2716	2765	2792	2843
Eastern	2056	4780	4849	4899	4923	5082	5207	5290	5355
Total	4940	17026	17359	17663	17862	18330	18692	19512	19942

Source: Ministry of Agriculture & Fisheries (1991) Annual Statistical Bulletin for 1991 Abu Dhabi, UAE, Statistical Section

4.4 THE AGRICULTURAL ZONES IN THE UAE

For effective development and administration of agricultural activities, Geographical Agricultural Zones (GAZs) were created. A GAZ has recognized boundaries on sketched on maps and its land may extend into more than one Emirate, thus reflecting the common interest of effective agricultural development in the UAE (see map in Figure 4.2). Among the reasons for establishing GAZs are:

(a) to implement Government as well as Municipal Agricultural policies in the zones;

(b) to provide technical and administrative supervision and draw up plans that will improve the performance of the specific agricultural activities of the zone;

(c) to assist farmers and animal breeders to obtain access to the various relevant services available to improve their productivity;

(d) to encourage efficient distribution of agricultural produce to all parts of the Municipality as well as the State; and

(e) to provide guidance, advice and training to farmers on how to produce more as well as how to sell their produce.

Each GAZ has a "Zone Centre" and a number of "Guidance Units" to administer the Zone.

4.4.1 Zone Centre

The Zone Centre is the planning nerve-centre as well as administrative headquarters of the GAZ. The "Guidance Centres" are directly under the control and administration of the "Zone Centre". The Zone Centre performs, among others, the function of intermediary between the higher authorities (ie. the Government and the Municipality) and the Guidance Units. It also co-ordinates, assesses and controls the activities of all the units (Guidance Units) under its control. Most important, the Zone Centre is the planning nerve-centre of the GAZ and the overseer of the effective implementation of the Government agricultural policies.

The Zone Centre, which is headed by an Administrative Manager, is generally located at a central location within the GAZ to provide easy access to the "Guidance Units". The Administrative Manager is usually supported by a team of technical and administrative staff. Policy matters and agricultural development planning are centralised at the Zone Centre and fall directly under the responsibility of the Administrative Manager. On the other hand, the tactical implementation of the plan as well as the practical field services and assistance are decentralised to the "Guidance Units" which also take responsibility for a given area in the GAZ.

4.4.2 The Guidance Units

Each GAZ is divided into a number of Guidance, Veterinary and Fishery Units. The number of Units in each GAZ differs according to the agricultural area covered, output produced, spread and number of farmers. Thus, AL Liwa, with the largest number of farms (3,388) farms) has the highest number of Guidance Units, followed by Al Ain, with 3509 farms (see map in Figure 4.2). Each Guidance Unit has a clearly identified and recognised area of administration which consists of villages and agricultural units within the GAZ to which it belongs.

The Guidance Unit has a "Guidance Centre", located centrally within the Unit area in which the activities of the Guidance Unit is centralised. Often the "Centre" takes the name of the village in which it is located (eg. Centre 1 in Agricultural Zone 1). The Guidance Unit, under the leadership of a Unit Administrative and Technical Manager, is responsible for all activities within the Unit Area. These include provision of support in line with Government policies, implementation of development and training programmes as well as provision of advice to farmers. The Unit Administrative and Technical Manager reports directly to the Administrative Manager of the GAZ.

The country is divided into four GAZs (see map, Fig 4.2), consisting of:

(a) the Southern Zone

(b) the Middle Zone

(c) the Northern Zone, and

(d) the Eastern Zone (see Fig. 4.2).

4.4.3. The Southern Zone (Areas A and B on map)

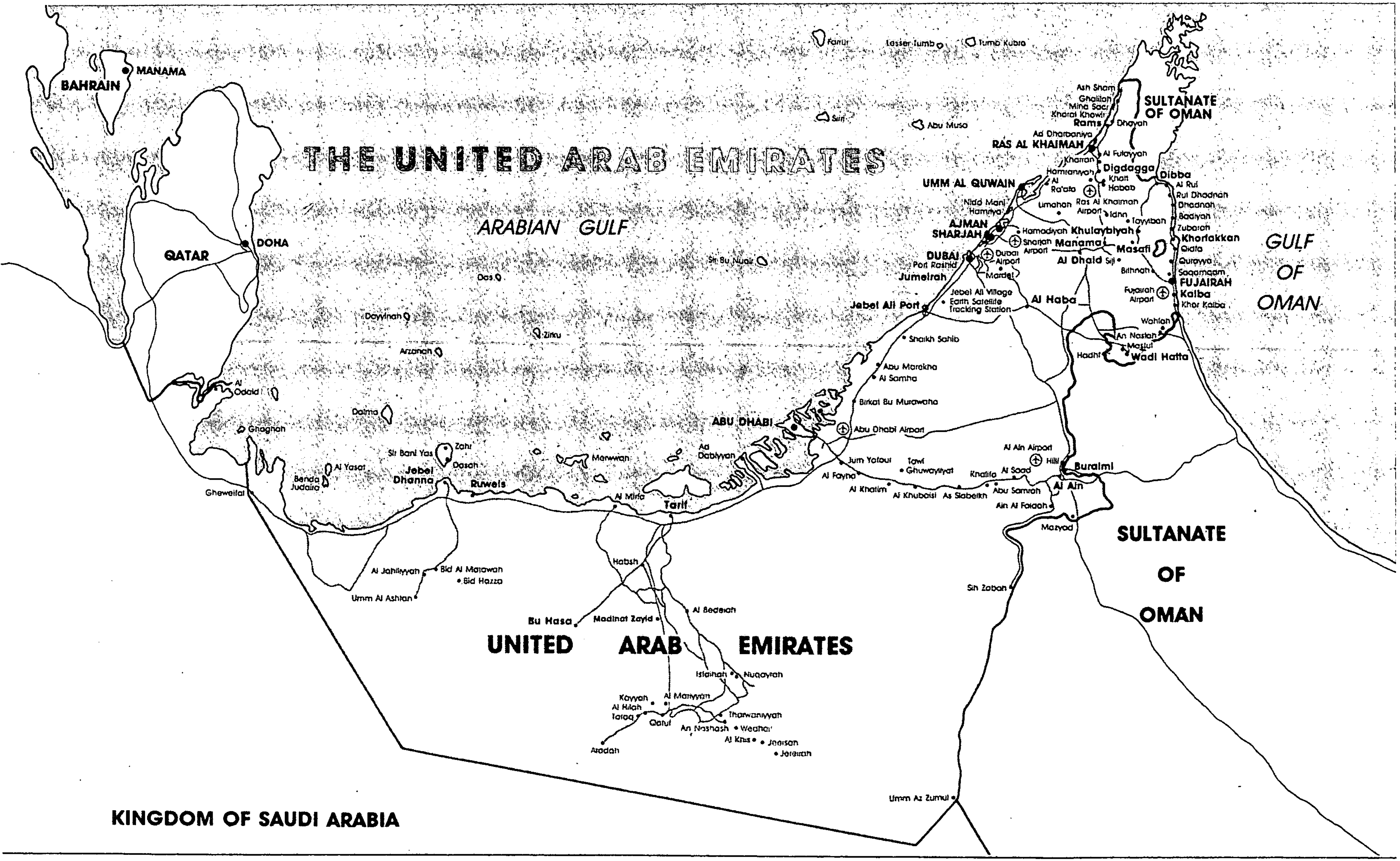
In Fig. 4.2 (map) this GAZ consists of the areas designated as (A) which consists of the Zone "West of Abu Dhabi" and (B) consisting of the Zone "East of Abu Dhabi" (AL AIN). The Southern Zone, therefore, includes the whole area of the Abu Dhabi Emirate, whose boundaries extend to the UAE boundaries with the northern neighbouring countries of Saudi Arabi, Qatar and the Oman Sultanate, where their boundaries meet with the Central Zone at Saih Shaib. From this position, the boundary runs westwards along the Abu Dhabi/Dubai highway. The constituent two areas of the Zone extend as follows:

4.4.3.1 Area A: - west of Abu Dhabi

This area covers the agricultural region which spreads west of Abu Dhabi City, including Bidaa Zaid, Lewa, Giatty and Al Sailla, which have been under the supervision of the Ministry of Agriculture and Fisheries since 1978. The area consists of seven separate Agricultural and Veterinary Units and one Fishery workshop. The Centre which administers the activities of this region is now located in the municipality of Abu Dhabi (Abu Dhabi City).

4.4.3.2 Area B: - east of Abu-Dhabi (Al Ain)

This agricultural region lies to the east of the Abu Dhabi Emirate and extends between the Oman Sultanate boundary and the Beriemi Oasis from the East to a position near Al Khatam town on the highway between Al Ain and Abu Dhabi from the West. This region includes Al Ain City and its suburbs which consist of seven villages that were previously separately administered because of the lack of road connections. With a new road network connecting the villages to Al Ain, a single


THE UNITED ARAB EMIRATES
ARABIAN GULF
GULF OF OMAN
BAHRAIN
MANAMA
QATAR
DOHA
SULTANATE OF OMAN
KINGDOM OF SAUDI ARABIA
UNITED ARAB EMIRATES
Farur
Lesser Tumb
Tumb Kubra
Sirri
Abu Musa
Sir Bu Nuair
Das
Dayyinah
Zirku
Arzanah
Dalma
Sir Bani Yas
Zahr
Dasah
Al Yasat
Benda Judaira
Ghagnah
Al Odaid
Gheweifat
Jebel Dhanna
Ruweis
Merawah
Ad Dabiyyan
Al Mirfa
Tarif
ABU DHABI
Abu Dhabi Airport
Birkat Bu Murawaha
Al Samha
Abu Marakha
Shaikh Sahib
Jebel Ali Port
Jebel Ali Village
Earth Satellite Tracking Station
DUBAI
Port Rashid
Jumeirah
Dubai Airport
Mardet
SHARJAH
Sharjah Airport
AJMAN
UMM AL QUWAIN
RAS AL KHAIMAH
Ras Al Khaimah Airport
Rams
Ash Sham
Ghalilah
Mina Saqr
Dhayah
Al Fulayyah
Digdagga
Dibba
Al Rul
Rul Dhadnah
Dhadnah
Badiyah
Zubarah
Khorfakkan
Qidfa
Qurayya
Saqamqam
FUJAIRAH
Fujairah Airport
Kalba
Khor Kalba
Wahlah
An Naslan
Masfut
Wadi Hatta
Hadhf
Khulaybiyah
Manama
Masafi
Al Dhaid
Siji
Bithnah
Tayyiban
Idhn
Hamadiyah
Umahan
Al Haba
Al Ain Airport
Hili
Buraimi
Al Ain
Ain Al Faidah
Mazyad
Al Saad
Abu Samrah
Khatim
Khatim
Al Khubaisi
As Sabeikh
Jum Yafour
Tawi Ghuwayfiyat
Al Fayha
Al Khatim
Sh Zaban
Umm Az Zumul
Habsh
Bu Hasa
Madinat Zayid
Al Bedeiah
Al Jahiliyyah
Bid Al Matawah
Bid Hazza
Umm Al Ashtan
Islainah
Nuqayrah
Al Mariyyah
Kayyah
Al Hilah
Taraq
Qatuf
An Nashash
Tharwaniyyah
Weahar
Al Khis
Jeeisan
Jerewah
Aradah

administration has been established and located in the municipality of Al Ain (Al Ain City).

Al Ain is the most important single agricultural oasis in this region, and Al Ain City accommodates the Zone Centre of this agricultural region. There are sixteen agricultural and animal units in this region.

4.4.4 The Middle Zone

This zone is located in the middle of the country and includes the northern Emirates of Dubai, Sharjah, Ajman, Ras Alkhaima, Um Algewen and Al Fujairah on the West coast of the country. It is bounded in the South by the Abu Dhabi Emirate/Sultanate of Oman Boundary; in the East, by the western parts of the mountain ranges the UAE and Oman; in the North, by the Azeen lands; and, in the West, by the coasts of Um Algewen, Ajman, Sharjah and Dubai.

The Zone has seven Directive Units, eight Veterinary Clinics and six Fishery Workshops. The Zone Centre is located at Al Zaid.

4.4.5 The Northern Zone

This zone is located on the northern part of the country and includes most of the land of the Ras Al Khaima and Ras Al Fujairah Emirates. The zone is bounded in the East by the mountain lands of Ras Al Khaima and part of the Ras Al Khaima mountain range; in the North by the Sultanate of Oman; in the West, by the Ras Al Khaima coast; and in the South, by the boundary of the Middle Zone.

The Zone has six Guidance Units, five Veterinary Clinics and two Fishery Workshops. The Zone Centre is located at Al Dagdagah in the Ras Al Khaima Emirate.

4.4.6 The Eastern Zone

The Eastern Zone includes lands located on the eastern coast. It consists of lands belonging to the Emirates of Fujairah, Sharjah and Ras Al Khaima. The Zone is bounded in the South by the borders of the Middle zone and the Sultanate of Oman; and in the West, by the mountain ranges of the UAE and Oman.

The Zone has eight Guidance Units, four Veterinary Clinics and four Fishery Workshops. The Zone Centre is located in Fujairah City in the Fujairah Emirate on the Eastern Coast.

Thus, the agricultural policies and development of the country are planned and implemented within the Zones by the constituent Guidance, Veterinary and Fishery Units. As Table 4.7 shows, the Zones have increased agricultural activities significantly.

Table 4.7

Area under agricultural holdings by Zone 1987/1988 - 1989/90 (Area in dunams)

Zone/Year	1987/88*	1988/89*	1989/90*
Southern Zone	158,600	164,922	185,224
Middle Zone	131,593	134,773	137,068
Northern Zone	79,607	81,184	83,060
Eastern Zone	46,400	47,467	48,704
Total	416,200	428,346	454,056

Source: Ministry of Agriculture and Fisheries, UAE.
*Excludes area grown with date-palms

The area under agricultural holdings in the Zones increased from 416,200 dunam (237,970 hectares) in 1987/88 to 428,346 dunam (237,970 hectares in 1988/89 and to 454,056 dunam (252,533 hectares) in the year 1989/90. In relative terms, the Southern Zone has the highest growth, with a 120% increase between 1987/88 and 1989/90, followed by the Eastern Zone with 106%, then the Middle Zone with 104%, and the Northern Zone with 103%. Aggregated over the four Zones, the increase is 109% over the period. The Zones are thus responding to the policies of the Government and the challenges of developing agriculture in the UAE.

4.5 THE IMPORT AND EXPORT OF AGRICULTURAL PRODUCE

The UAE, being a major oil and gas exporter, has traditionally enjoyed a substantial trade surplus. Imports first peaked at Dh36 bn in 1981, following the oil price rises of 1979-80, the much increased budget of 1980 and the fresh influx of immigrants

the occurred after the second oil boom. From 1982 onwards, imports declined, reaching a low of Dh24 bn in 1986. In subsequent years they rose again, reaching Dh41 bn in 1990. The trade balance, meanwhile, reflected the sharply fluctuating export earnings during that period: the trade surplus peaked in 1986 at Dh36 bn, falling to a low of Dh13 bn in 1988 before recovering to Dh20 bn in 1989 and increasing significantly to Dh33.8 bn in 1990 as oil exports rose dramatically. However, the surplus dropped by 27% in 1991 to Dh26.6 bn.

On analysis of the commodities export structure (excluding crude oil exports; oil by-products and gas), the value of such exports increased by 20% in 1991. This was attributable mainly to the fulfilment of production and development requirements of various capital and production goods, in addition to provision for consumer goods to meet the excessive demand caused by high incomes and world-wide inflation.

The contribution of the agricultural sector to the external trade of the UAE is shown in Table 4.8 below.

Table 4.8
Import/export/re-export of agricultural produce of UAE: 1981-1990

	Import		Export		Re-export	
Year	Value (million Dh)	% of total	Value (million Dh)	% of total	Value (million Dh)	% of total
1981	3518		44		647	
1982	3362		42		421	
1983	3260		53		611	
1984	3465		55		652	
1985	3633		68		746	
1986	3986	16.0	102	6.3	939	21.1
1987	4395	16.7	128	5.5	1609	23.9
1988	4491	14.1	137	4.8	1294	17.6
1989	5259	14.3	171	5.4	1742	18.6
1990	5530	13.5	184	5.6	1856	15.9
1991	6350	13.9	206	6.1	2360	16.6

Source: Central Statistical Dept (1991) *Foreign Trade Statistics: 1990*, Abu Dhabi, Ministry of Planning

As can be seen in the Table, the UAE imports more agricultural produce, mainly for home consumption, than it exports. Imports increased from Dh3518 million in 1981 to Dh6350 million in 1991, while exports increased from Dh44 million to Dh206 million in 1991. Despite the 4.7-fold increase in the export of agricultural produce over the period 1981-1991 compared with about a 2.0-fold increase in imports, the absolute contribution in terms of value is disappointingly low.

A comparison of the relative contribution of agriculture to external trade shows that agricultural exports lag far behind. As can be calculated from the Table, the average annual contribution of agriculture to the import-export trade over the period 1986-1991 was 14.8% for imports as against 5.6% for exports. However, it must be conceded that while the relative contribution of agriculture to export has been increasing over the period 1986-1991, albeit slowly, the relative share of imports has been declining over the same period. This suggests not only a positive prospect for export of agricultural products but also indicates the awakening awareness that the agricultural sector in general and agricultural exports in particular needs to be developed to diversify the one-export-commodity economy of the UAE.

The Table also shows the value in absolute and relative terms of the re-export trade. While re-exports have been increasing in value terms from Dh647 million in 1981 to Dh2360 millions in 1991, the relative contribution to the total value of re-exports in the UAE has been declining over the period 1986-1991. In 1986, about 21% of the re-export trade was accounted for by the re-export of agricultural imports. This increased to 23.9% in 1987 and declined continuously to only 16.6% in 1991. This trend added to the trends in imports and exports combine to indicate that agricultural development in the UAE is progressing well towards self-sufficiency.

A disaggregation of the value of import/export/re-export of agricultural produce for the year 1990 is shown in Table 4.9.

Table 4.9

Import/Export/Re-export of agricultural products of the UAE:1990

Agricultural produce	Re-exports*		Exports*		Imports	
	Weight (tons)	Value Dh'000	Weight (tons)	Value Dh'000	Weight (tons)	Value Dh'000
Food and live animals	789413	1786300	97895	180426	2410160	5529730
Live animals chiefly for food	4925	24225	29	206	51145	231133
Meat and meat preparations	18947	87190	663	5432	117322	721203
Dairy produce and poultry eggs	3541	25452	1412	6939	91655	590496
Fish, crustaceans, molluscs and preparations thereof	5035	50445	7360	33413	6196	53294
Cereals and cereal by-products	195035	275084	51820	65457	545981	781440
Vegetables and fruit	331927	697023	26095	33082	982852	1711170
Sugar, sugar by-products and honey	137554	254248	631	2667	323646	591141
Coffee, tea, cocoa, spices and manufactures thereof	51503	275671	217	1099	81684	474420

Table 4.9

Import/Export/Re-export of agricultural products of the UAE:1990

Feeding stuff for animals (not including unmilled cereals)	19652	14549	4357	3390	178003	153287
Miscellaneous edible produce and by-products	21294	82413	5311	28741	31676	222146

Source: Central Statistical Dept (1991), Annual Statistical Abstract, 7th Edn, Abu Dhabi, Ministry of Planning, p.249.

* Excludes data for Sharjah Emirate

The dominance of two groups of agricultural produce - vegetables and fruit, cereals and cereal preparations - as the main export and import items in the food and live animals classification is very evident in the Table. Fruit and vegetables groups accounted for 39%, 18.3% and 31% respectively of the totals of re-exports, exports and imports in 1990 compared with 15.4%, 36.1% and 14% respectively for cereals and cereal by-products group. However, cereals and cereal preparations are exported more than fruit and vegetables as shown by the relative contribution of 36.1% and 18.3% respectively by the two groups to export earnings in 1990. This is not surprising because fruit and vegetables are consumed in large quantities in the UAE. The import figure adds credence to this claim. In general, the export performance of agriculture needs to improve significantly if the economy is to diversify meaningfully.

4.6 PROBLEMS OF AGRICULTURAL DEVELOPMENT

Agricultural development in the UAE faces four types of problems, namely:

(a) natural problems

(b) marketing problems

(c) human problems, and

(d) technical matters.

Combined, these groups of factors have limited to a large extent the development of agriculture as was expected to enhance the diversification of the economy.

4.6.1 (a) Natural problems

These include the lack of sufficient arable land; water resources and the harsh climate of the region. Few parcels of land are suitable for cultivation in the arid desert areas of the country. This limits the extent of agricultural activity that might be undertaken. De-desertification and soil treatment become necessary, pushing up the cost of land cultivation beyond the individual rural farmer's reach. The result is that fewer parcels of land are cultivated. The problem of increasing smallholdership is also causing concern to agricultural development.

Water is extremely scarce in the UAE as there is not a single river in the whole country. The water bed is also very deep, compounding the problem of water supply. The Government has provided assistance in the form of irrigation and the digging of wells but this is not sufficient to support the level of agricultural development expected to provide self-sufficiency in agricultural produce.

Being a desert state, the climate of the UAE is arid and dry. It is not appropriate for extensive agricultural development. The rainy period is very short and the amount of rain that falls each year makes hardly any significant difference to the dry and scorching desert climate.

4.6.2 (b) Marketing problems

The marketing of agricultural products is poor and ineffective. As a result, much wastage of agricultural produce occurs which might be discouraging to farmers. Similarly, trade in agricultural produce is open and free, which encourages imports at the expense of domestic production. The government has not imposed any duties

or restrictions on the import of agricultural produce, as is the case in neighbouring Saudi-Arabia. This results in huge imports, which displace domestic produce in the markets and thus discourage large-scale farming. This is particularly the case in fruit and vegetable imports.

Capital for developing agriculture is not provided on a sufficiently large scale as in Saudi-Arabia. There is hardly any pricing policy and this leaves domestic produce poor competition against imports. There is no agro-bank to provide investment capital for farmers.

4.6.3 (c) Human Problems

As industrialisation progresses faster than agriculture and the cities with higher income become more attractive, rural farmers have started migrating to the cities, seeking better paid jobs. This affects agricultural labour in the rural areas and hence agricultural development. Furthermore, appropriate training facilities and programmes are slow to come on screen. Trained and capable farmers are thus few, giving rise to slow agricultural development. Government efforts in this direction have been slow and, when provided, it is focused on very technical areas such as veterinary care. The farmers need general agricultural training to be more productive and efficient.

4.6.4(d) Technical problems

Some rural farmers are suspicious of modern technology in agriculture, hence tend to resist the introduction of modern methods of cultivation. This affects the size of agricultural land holding and cultivation, hence the level of development and

output per farmland. Soil treatment is also a problem area. Because of the lack of appropriate training, rural farmers tend to over treat the soil, leading to the absorption of poorly diluted chemicals by agricultural produce.

All these problems and more constitute the challenge to agricultural development in the UAE. The Government is now aware of these problems and are poised to address them. We hope that improvement will emerge soon.

4.7 LAND OWNERSHIP STRUCTURE

The structure of land ownership in the UAE is simple - the Government owns the land and in accordance with Government policy, land is distributed to citizens of the UAE, irrespective of sex. The policy of the Government is implemented by the municipalities in the Emirates.

In the agricultural sector, two main types of agricultural land are available. The first of these is Government Agricultural Land, which is used mainly for test farming to establish the suitability of crop species, treatment of crops, etc. These pieces of land remain in Government hands and are not distributed to individuals. Various types of crops including wheat, vegetables, dates etc. are test-planted in these farms.

The second type of agricultural land is that owned by citizens of the UAE. This land is distributed by the Government through the Municipalities or Emirates, to all citizens who may apply, whether they be male or female. Land is allocated for

agricultural purposes, as well as for other reasons, such as for building homes or production facilities. Foreigners may apply for land but approval is subject to various strict conditions and the personal consent of the Sheik of the Emirate. In addition, the foreigner must demonstrate the availability of sufficient capital to develop the land.

Land ownership in the UAE is thus free. In addition, the Government ensures that lands to be allocated for agricultural activity are sufficiently serviced with the necessary facilities such as wells for water. In the Municipality of Abu Dhabi, the authorities reclaim the land, drill water wells and prepare the land before allocating it to individuals. Similarly, necessary agricultural machinery for cultivation and other facilities are installed before allocating the land to individuals. Thus, land ownership in the UAE, though restricted in most cases to citizens, is free. This, in addition to other subsidies and incentives, has made agricultural activity easy. The average size of the land distributed depends on whether the beneficiary is an individual or a company and other factors, such as the total area of land ready for distribution relative to the number of applications; the fertility of the land and the availability of water; the applicant's qualifications and experience in agriculture, as well as other economic and social factors. The area distributed to individuals of UAE origin normally ranges from between 5 and 10 hectares. Each family member may apply separately. Generally, because of the scarcity of arable land, much care is taken not to give very large pieces of land to individuals without the approval of the Council of Ministers. Larger parcels of land may be allocated on special conditions for special projects such as the Agricultural Project at Al Ain.

CHAPTER FIVE

RESEARCH METHODOLOGY:

METHOD OF DATA COLLECTION

CHAPTER FIVE

RESEARCH METHODOLOGY: METHOD OF DATA COLLECTION

5.1 INTRODUCTION

This chapter explains how the data/information used in this work has been collected. The main objective here is to show that the data/information are as reliable as possible within the resource (time, finance, human-resource etc) constraints of the research.

Reliability and accuracy of research data and the sources of data provide confidence in the results and analysis of the study, as well as the policy implications derived. This chapter is thus important.

The chapter comes mid-way through the thesis for two main reasons. The first of these is that the chapter focuses on the method of collection of the primary data used mainly in the chapters that follow. Primary data consists of 'raw information/data' collected for a specific purpose by the researcher with no other independent source of verification in respect of reliability and accuracy (see Emory and Cooper, 1993). There is therefore a need to explain how the data was collected.

The method of gathering information for the earlier chapters is generic - ie Secondary Data Research (or Desk Research) - and requires no specific discussion.

The second reason is that it is more appropriate for this chapter to come immediately before the chapters that will use its output than elsewhere. This is because the location makes it easier for the reader to relate method of research and data-flow to the use of the data in the subsequent chapters. The chapter and its location are thus relevant.

5.2 SECONDARY SOURCE INFORMATION/DATA

Secondary information/data used in the study are largely macro-data which provide essential background to the specific topic of research. For instance, information used in the chapters on literature review, the economy of the UAE and the Agricultural Sector derive from secondary sources. Such sources include, among others:

- the literature on the topic;
- the UAE Ministries of Economic Planning; Finance; Agriculture; Commerce; Culture and Industry, etc;
- publications on the UAE and its agricultural and economic activities;
- UAE; Saudi; Kuwaiti Embassies;
- the library of the Department of Agricultural Economics at Durham University;
- other libraries in the UK and UAE;

- other relevant sources including international bodies such as agencies of the UNO; The Economist Intelligence Unit (EIU), etc.

Some micro-data relating to the marketing of agricultural products (vegetables) were also collected from some secondary sources. These include registered co-operative agricultural institutions; government agricultural marketing agents; volume of agricultural production; acreage and other relevant and documented information in the agricultural sector. Secondary information was thus used extensively in the study.

5.3 PRIMARY DATA/INFORMATION

Because secondary data were not specific enough to provide answers to the specific research problems of this study, primary data research was undertaken. The type of information required at this stage consists of those that provide:

a) explanations for observed situations such as the high level of wastage of agricultural output in the UAE; volume of production and land usage;

b) explanations of motives - why certain activities were undertaken. For example, why more land was put into cultivation, despite the high level of wastage;

c) impression or opinion on issues, observations, etc;

d) evaluation of existing policies, activities, trends, marketing approach, distribution systems etc;

e) description of methods of cultivation; distribution of agricultural products; method of marketing agricultural products, etc;

f) suggestions for solving the current problem of agricultural wastage in the UAE.

These items of information are not readily available in documentary form, particularly in the details that will satisfy the specific requirements of our topic. This explains our main reason for undertaking primary data research despite the limitations and high cost associated with this method of research (see Jankowicz, 1991; Phillips and Pugh, 1989; Rudestam and Newton, 1992; Emory and Cooper, 1993).

The first field-work was undertaken between February and April 1994. This involved a combination of postal survey and personal interviews. In June 1994, a smaller-scale field work was carried out to clarify some issues that arose in the earlier field-work.

5.3.1 Location of field-work

The UAE is divided into four agricultural zones. These are:

(a) The Southern Zone, comprising:

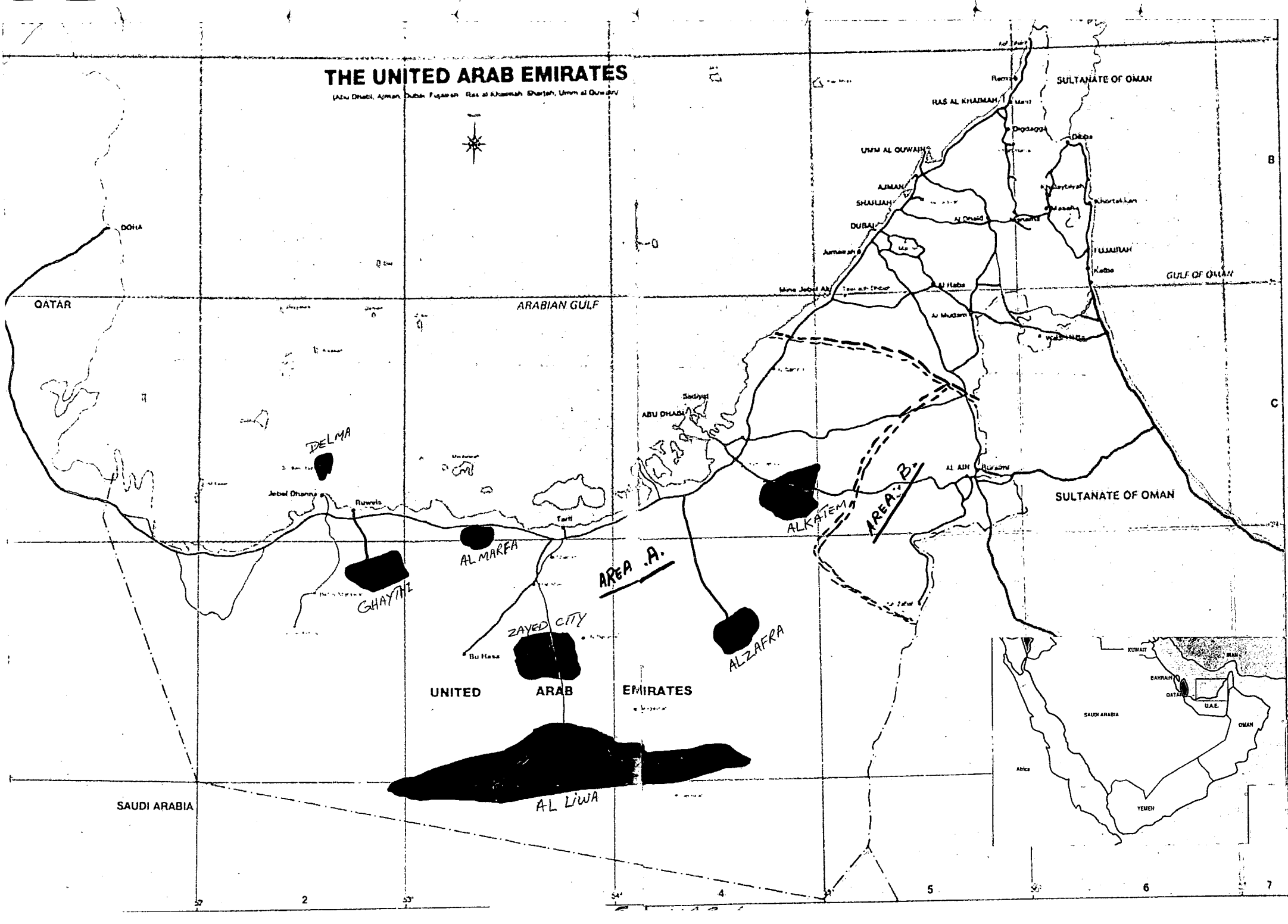
  (i) west of Abu-Dhabi Zone;

  (ii) east of Abu-Dhabi Zone (Al Ain);

(b) the Northern Zone;

(c) the Eastern Zone, and

(d) the Middle Zone.


THE UNITED ARAB EMIRATES
(Abu Dhabi, Ajman, Dubai, Fujairah, Ras al Khaimah, Sharjah, Umm al Quwain)
QATAR
DOHA
ARABIAN GULF
SULTANATE OF OMAN
RAS AL KHAIMAH
UMM AL QUWAIN
AJMAN
SHARJAH
DUBAI
GULF OF OMAN
ABU DHABI
DELMA
Jebel Dhanna
Ruwais
AL MARFA
GHAYTHI
ZAYED CITY
Bu Hasa
AREA .A.
ALKATEM
AREA .B.
AL AIN
Buraimi
SULTANATE OF OMAN
ALZAFRA
UNITED ARAB EMIRATES
AL LIWA
SAUDI ARABIA
KUWAIT
IRAN
BAHRAIN
QATAR
U.A.E.
SAUDI ARABIA
OMAN
YEMEN
Africa
2
4
5
6
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D

In Figure 5.1, the zones are indicated with their constituent regions. For example, the Southern Zone comprises the following regions:

(i) Liwa

(ii) Alkarem

(iii) Zayed City

(iv) Ghayth

(v) Aldafra

(vi) Delma

(vii) Almarfa

- all the above are west of Abu-Dhabi Zone;

(viii) Al Ain - east of Abu-Dhabi Zone.

The Northern, Eastern and Middle Zones area located north of the Abu-Dhabi-Al Ain express road.

Among the four zones, the Southern Zone produces about 90% of all the agricultural output of the country. As a result of this overwhelming dominance of this zone, we decided to eliminate the other zones from our choice of location in the field-work. The Southern Zone constitutes the location of our field research.

The Southern Zone itself consists of two sub-zones - West of Abu-Dhabi and East of Abhu-Dhabi (ALAIN) Zones. Though the latter zone produces a relatively higher volume of agricultural produce than the former, our simple random sampling approach led to the choice of the West of Abu-Dhabi Zone as our sample area for the field-work. Our random sampling approach involves drawing one of the two

zones out of a "hat" after a thorough shuffling of the two balls containing the names of the two zones (see Emory and Cooper, 1993).

Our sample area for field-work - the west of Abu-Dhabi Zone - consists of seven regions as listed above. It is from these regions that we chose our various samples for detailed research.

5.3.2 The research samples

The objective of this study requires us to research four main sample groups. These are:

(a) the farmers;

(b) the Co-operative Societies and retailers;

(c) the government agents and

(d) the consumers.

While the farmers cultivate the land and sell the produce to the Government Agents for distribution to the Selling Centres, the Co-operative Societies are a combination of farmers and produce distributors. The consumers constitute those who go to the Selling Centres or Co-operative Societies to purchase agricultural produce for consumption. The views of these groups of individuals and institutions will provide a good clue to the observed high level of wastage of agricultural produce.

5.3.3 Sample size

To obtain the sample size of each of the four groups of sample, we considered mainly the budgetary and time constraints on the research. Another constraint considered was the distance between Abu-Dhabi (where we resided during the research) and each of the regions within the West of Abu-Dhabi Zone. Table 5.1 shows the actual distance.

Table 5.1

Distance between collection centre and central collection centre in west of Abu-Dhabi zone

Region	*Distance in Km from Abu-Dhabi*	*Number of farms*	*% of total number of farms*
Liwa	210	3388	68%
Alkatem	80	661	13%
Zayed City	165	383	8%
Ghaythi	230	250	5%
Aldafra	110	140	3%
Delma	300	101	2%
Almarfa	13	54	0.9%
Total		4976	%100

Given the three main constraints a decision was made on the sample size of each group.

5.3.3.1 Farmers' sample

A population of 1000 farmers was compiled from government sources. Out of this total, we chose randomly 61 farmers to research in some detail. The distribution is as follows in Table 5.2.

Table 5.2

Farmers' distribution sample

Region	*% of total number of farms*	*Quota in sample of 60 farmers*
Liwa	68	41
Alkatem	13	8
Zayed City	8	5
Ghaythi	5	3
Aldafra	3	2
Delma	2	1
Almarfa	0.9	1
		61*

**Rounding up*

As Table 5.2 indicates, the Quota sampling method was used to obtain the number of farmers to be chosen out of the total in each region. The quota of farmers was drawn randomly from the farmer population of each region.

5.3.3.2 *Government agents*

A population of 42 government agents (comprising 10 Receiving and Collection Centres and 32 Selling Centres) are available for the West of Abu-Dhabi Zone. Out of this total, we selected randomly 6 Receiving and Collection Centres and 14 Selling Centres to make up a sample size of 20. The relatively large sample size is explained by the fact that the centres are concentrated and hence easily accessible compared with the farmers group.

5.3.3.3 *Co-operative and retailer sample size*

A total of 172 Co-operative Societies and Retailers are registered and this figure was taken as the population. A sample of 25 Co-operative Societies was chosen randomly for our research.

Because of the standard form of regulation under which the Co-operatives operate, the sample turned out to reflect a fair representation of the regions.

5.3.3.4 *Consumer sample size*

The population of the consumer group is very large, but we chose a sample size of 200 randomly at strategic locations in the city of Abu Dhabi where almost all the consumers of fruit and vegetables reside.

Table 5.3

Consumer size distribution sample
Where consumers buy vegetables in Abu Dhabi

Retailer	*Response of 200 customers*	*% of sample*
Supermarket	45	22.5%
Grocery shop	20	10.0%
Government Selling Centre	35	17.5%
Co-operative Society	55	27.5%
Open market	45	22.5%
Anywhere	-	-
	200	100%

The conditions for accepting an individual as a sample member are:

(a) the individual is above 18 years of age - the voting age; and

(b) a frequent purchaser of agricultural produce - mainly vegetables.

5.3.3.5 Sampling strategy for consumer group

The 200 consumers of vegetables were drawn through systematic sampling method (see Tull and Hawkins, 1990; Crimp, 1990). At strategic locations in the city of Abu Dhabi we interviewed 200 consumers who were chosen through a systematic random sampling procedure in which every fifth person who satisfied the conditions above and bought some vegetables was chosen as a sample unit for interview.

To interview 200 consumers, it means that about 1000 consumers must have been seen in all the locations. The systematic sampling was considered as the most appropriate procedure for choosing a broad cross-section of the society after considering other possibilities such as random extraction from the telephone directory. The telephone directory, for example, is not up-to-date in its entries and not all consumers possess a telephone at home.

5.4 METHOD OF COLLECTING DATA

A combination of postal survey and personal interview methods was used to collect the data. Apart from the Consumer Group. the other groups were reached through postal survey in the first instance. A follow-up personal interview was carried out concentrating on those government agents, co-operative societies and farmers who failed to respond to the postal survey. The personal interviews were conducted in Arabic.

Personal interviews using a structured questionnaire were carried out with the consumer sample. This improved the response rate and, more so, reduced the effect of misunderstanding. For our female consumers, we employed female field-workers to conduct the interview in keeping with Islamic religious tradition and Arab culture.

5.5 THE RESEARCH QUESTIONNAIRE

Four different types of questionnaire were designed (see Appendices 1-4) which were largely close-ended. Multiple choice answers were given in many cases and in others, the questions required simple "Yes" or "No" answers. This approach was used to simplify the task of the respondents.

As the surveys were mainly aimed at eliciting information from the general public, the existence of inarticulate as well as uninformed respondents was anticipated. An inarticulate respondent consists of an individual who is unable to verbalise the answers, while an uninformed respondent is one who does not know the answers (see Tull and Hawkins, 1990). Therefore, by providing the possible answers in the form of multiple choice, it was easier for the respondents to make a decision.

The questionnaires were in Arabic, which is the language universally used in Arabia. However, in some cases of illiterate respondents, explanations were necessary. This was, however, minimised, because the questionnaire, particularly that for the consumer group, was administered by way of personal interviews.

As stated earlier, some of the questionnaires were posted while others were administered by personal interviewing. The questionnaires were pre-tested before they were used and the field-workers employed were well briefed on what to do and expect.

5.6 THE SURVEY RESULTS

Generally, the response rates were very good in all the samples. An average of 50% response rate was obtained in all the sample groups. This is mainly because of the careful and committed approach we used in the field-work.

The results are discussed in the following chapters. We have used appropriate statistical techniques and presentation methods to analyse and present the findings.

5.7 LIMITATION OF THE FIELD-WORK

As mentioned earlier, the shortage of financial, time and manpower resources constrained the scope and intensity of the research. The potential adverse effects of these were minimised by using a smaller but effective sample size chosen through appropriate sampling method. The second field-work carried out in June 1994 was used as a control measure to cross-check information collected during the first field-work. This assures us of a high degree of reliability in our findings.

Any bias in the research or findings may not be significant and, certainly, derive from random sources.

CHAPTER SIX

RESEARCH FINDINGS: MARKETING OF AGRICULTURAL PRODUCE IN THE ABU DHABI MUNICIPALITY

CHAPTER SIX

MARKETING OF AGRICULTURAL PRODUCE IN THE ABU DHABI MUNICIPALITY

6.1 ABU DHABI EMIRATE

The Emirate is situated along the Arabian Gulf, between latitude 22.5°:25° North and longitude 51°:55° East. It is the largest of all the seven Emirates of the UAE, with an area of about 67,350 square kilometres, which constitutes about 87% of the total land area of the country, excluding the islands (see Table 6.1). The city of Abu Dhabi is the capital of the Emirate, with an estimated population of 772,00 in 1990. The Emirate comprises the following three regions:

(a) The Abu Dhabi Region

The Abu Dhabi Region includes the city of Abu Dhabi, the capital of the UAE. It is the headquarters for the president of the state, the cabinet and most of the ministries, federal institutions, foreign embassies, radio and television broadcasting, Zayed Port, Abu Dhabi Airport and most of the oil companies, businesses and commercial markets. The Abu Dhabi Corniche, with its public parks and fountains, is a noteworthy city landmark.

(b) The Eastern Region

The Eastern Region has its capital in Al-Ain City. This region is very fertile, and rich in greenery, with plenty of farms and public parks. The region is also very rich in ground water, with numerous artesian wells. The most attractive landmarks in this region are the Ain-Faydah Parks, Hafeet Mountain, Al-Leili Leisureland, the Zoo and the Al-ain Museum. The most admired cultural landmark is the UAE University.

(c) The Western Region

The Western Region has its capital in Beda-Zayed. It has a wide stretch of grown forests to combat the desert climate. The grown forest area is about 100,000 hectares, having about 20 million green trees. Certain off-shore oil field are located in this region. The biggest oil-refinery in the country is located in this region at Al-Ruwais City.

A number of islands form part of this Emirate, the most significant in this chain being Das Island, Mubraz Island, Zerco Island and Arzana Island, which constitute the main off-shore oil fields. Other islands include Dlama, Al-Sadyaat and Abu El-Abyaadh.

Table 6.1

Population and area of UAE by Emirates: 1991

Emirate	*Area (sq km)*	*% in total area*	*Population*	*% in total population*	*Density (per sq km)*
Abu Dhabi	67,350	86.7	798,000	41.8	11.8
Dubai	3.900	5.0	501,000	26.2	128.5
Sharjah	2,600	3.3	314,000	16.5	120.8
Ras al Khaimah	1,700	2.2	130,000	6.8	75.5
Ajman	250	0.3	76,000	4.0	304.0
Fujaairah	1,150	1.5	63,000	3.3	54.8
Umm al Quwain	750	0.1	27,000	1.4	36.0
Total	77,700	100.0	1,909,000	100.0	24.6

Source: Central Statistical Department, Ministry of Planning, Sharjah, 1991.

In virtually all aspects of economic activity in the UAE, the Abu Dhabi Emirate contributes the dominant proportion. Table 6.2 below shows the distribution of Gross Domestic Product from 1988-1991 at factor cost by Emirates.

Table 6.2
Gross Domestic Product of UAE by Emirates
1988 - 1991 (by factor cost) (current price)

Emirate	*1988 Dh (mil)*	*1989 Dh (mil)*	*1990 Dh (mil)*	*1991 Dh (mil)*	*Total over the period*	*% in total over period*
Abu Dhabi	51,215	61,094	79,629	79,539	271,477	61.4
Dubai	22,827	25,878	28,978	28,718	106,401	24.1
Sharjah	8,467	8,928	9,481	9,390	36,266	8.2
Ajman	1,149	1,276	1,352	1,458	5,235	1.2
Umm Al-Quwain	621	699	742	792	2,854	0.7
Ras Al-Khaima	3,197	3,171	3,452	3,577	13,397	3.0
Fujeirah	1,325	1,503	1,632	1,750	6,210	1.4
Total	88,801	102,549	125,266	125,224	441,840	100.0

Source: General Planning Department (1992) *United Arab Emirates: Annual Economic Report 1992*, Ministry of Planning, Abu Dhabi.

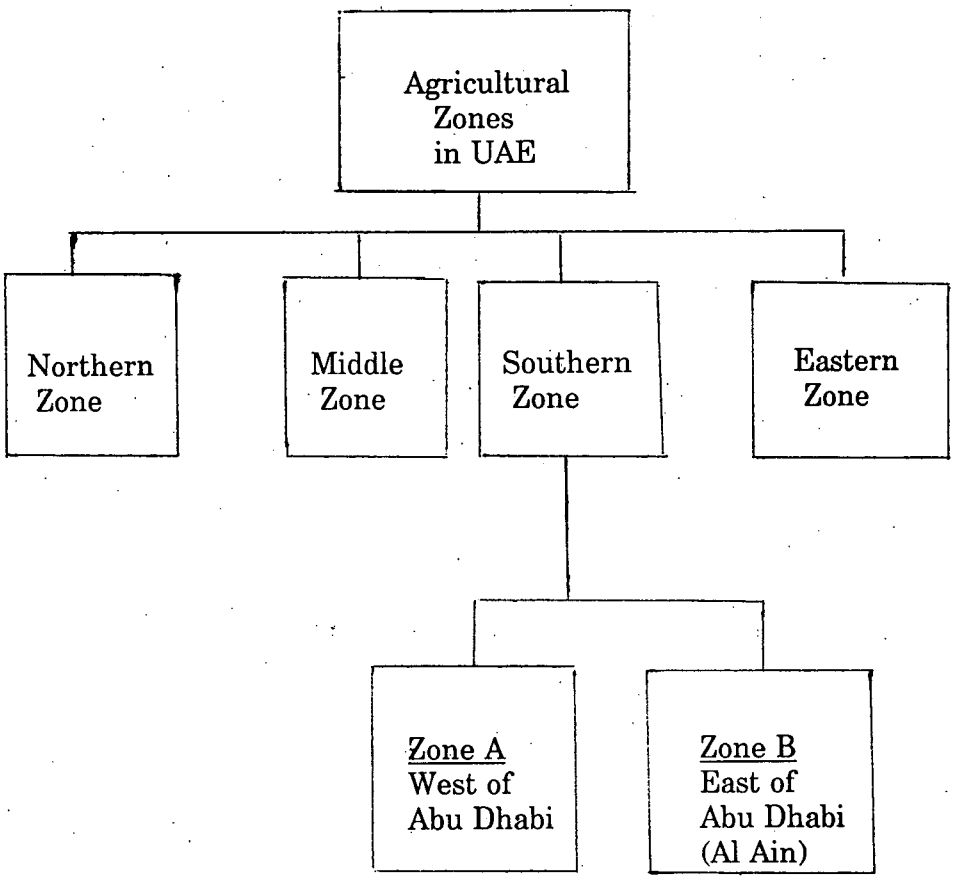
The contribution of the Abu Dhabi Emirate is unambiguously dominant. Taking the total and percentage contribution of each Emirate over the period 1988-91, the Table shows that the Abu Dhabi Emirate accounted for Dh.271,477 million out of the country's total of Dh.441,8409 million. This means that the Abu Dhabi Emirate contributed over 61% of the Gross Domestic Product of the country over the period 1988-1991. The Emirate of Dubai followed in second place with 24%; Sharjah with 8.2% was in third place, while Umm Al-Quwain contributed the least with only 0.7%. The choice of the Abu Dhabi Municipality as our case- study for this research is thus based upon the size of the contribution of this Emirate to the Federation.

6.2 AGRICULTURAL ZONES

Figure 6.1 shows the agricultural zones in the UAE and the relationship of the Abu Dhabi Zone to the others:

Figure 6.1

Agricultural Zones: Abu Dhabi Zone



The Abu Dhabi Emirate is in the Southern Zone. The Zones have been discussed in some detail in Chapter 4. While all the other Zones that constitute the four agricultural zones in the UAE have a single area, the Southern Zone has four

distinct sub-zones: (a) West of Abu Dhabi, and (b) East of Abu Dhabi. This is partly because of the large land area occupied by the Emirate, and partly because of the level of output from the region and the extent of the administration required to cover this vast region. We shall concentrate on agricultural marketing based on fruit and vegetable produce from the West of Abu Dhabi Zone.

6.3 AGRICULTURAL PRODUCTION IN ABU DHABI

The Abu Dhabi Emirate produces very large quantities of fruit and vegetables. In Table 6.3 below, we show the quantity and value of each type of fruit and vegetable produced in Abu Dhabi in 1990-91, along with the area of cultivation.

Table 6.3
Area and Agricultural Production in Abu Dhabi Emirate for year 1990 - 1991
Area: Dunam Qty: Ton Value (000) Dh

	Area and Production			
Vegetable Crop	*Value*	*Yield (Ton/Dnm)*	*Qty*	*Area*
Tomatoes	121,266	5.001	68,857	13,770
Eggplant	53,452	11.641	47,771	4,104
Okra	306	0.184	80	436
Beans	468	0.580	95	164
Cowpeas	510	0.227	107	472
Mallow	16,634	5.384	8,872	1,648
Chard	11,525	15.770	16,984	1,077
Squash	4,487	0.815	2,649	3,254
Cucumber	16,830	8.827	6,249	708
Cabbage	55,561	6.592	47,345	7,183
Cauliflower	7,319	2.479	5,616	2,266
Potatoes	5,978	1.486	2,888	1,944
Onion	2,326	0.776	1,734	2,237
Water melon	2,210	1.266	2,040	1,612
Sweet melon	2,781	0.742	1,033	1,393
Lettuce	10,776	6.027	8,087	1,342
Radish	3,985	3.884	8,462	2,179
Parsley	1,814	3.670	1,156	315
Carrot	875	2.465	700	284
Pepper	11,695	7.980	6,216	779
Other	8,186	-	5,699	4,594
Total	338,994	-	242,640	51,761

Sources: General Planning Department (1992) *United Arab Emirates: Annual Economic Report 1992*, Ministry of Planning, Abu Dhabi.

It can be seen from the Table that from an area of 51,761 dunams, a total of 242,640 tons of fruit and vegetables were produced, at a total value of Dh.338,994,000. This averages out at Dh.6452.6 per dunam.

Findings of Research

Both Government officials and farmers (Questions 10 and 11) were asked whether the Government does encourage increase agricultural production, and which policies provide the required support.

All the Government officials (20 officials) and farmers (61 farmers) interviewed agreed that the Government does encourage increased agricultural production in various ways. They also indicated which policies are most effective, as reported in Table 6.4 below.

Table 6.4

Response of government officials and farmers on effects of government policy

Policy	*Govt officials (20)*	*% of govt officials*	*Farmers (61)*	*% of farmers*
Price subsidy	1	5%	-	-
Free storage facilities	-	-	-	-
Free land	1	5%	2	3%
Guarantee of sales	16	80%	52	85%
Marketing support	-	-	-	-
Interest-free loan	1	5%	3	5%
Tax-free income	1	5%	1	2%

The responses of both groups of interviewees show clearly that government guarantee of purchase of agricultural produce from the farmers is the most important policy instrument in encouraging agricultural development and productivity in the Abu Dhabi region. 80% of the Government officials and 85% of the farmers agree that guarantee of purchase of agricultural produce is the most important inducement for increased productivity.

Similarly, in absolute terms, the Abu Dhabi region produces more tomatoes than any other vegetable. Questions 3 and 4 in the Farmers' Questionnaire ask respectively: Which is the main product you cultivate? and: What is the main reason for your producing the crop mentioned in (3) above? Tables 6.5 and 6.6 below show the responses.

Table 6.5

Which is the main product produced?

Crops	*Response (61 farmers)*	*% in sample of 61*
Tomatoes	28	46%
Chard	6	10%
Cabbage	3	5%
Cucumber	1	2%
Potatoes	3	5%
Eggplant	12	20%
Lettuce	3	5%
Others	5	8%
	61	100

Table 6.5 shows that 28 out of the 61 farmers indicated that their main crop is tomatoes; 12 of them planted mainly eggplant; six planted mainly chard and five planted other varieties of fruit and vegetables. This gives 46% of the respondents to tomatoes; 20% to eggplant; 10% to chard, and 5% each to cabbage, potatoes and lettuce.

Table 6.3 provides additional confirmation of the research findings.

A total of 68,857 tons of tomatoes were produced in 1990-91, compared with 47,771 tons of eggplant, 47,345 tons of cabbage and 16,984 tons of chard, which came second, third and fourth respectively. In relative terms, however, the yield of tomatoes (in tons per dunam) is much lower than that of eggplant and chard, including cucumber, cabbage, pepper, lettuce and mallow. The tomato yield is only 5 tons per dunam, while chard is about 16 tons, and eggplant about 12 tons. This reflects the relative productivity of the different areas or under-employment of the land devoted to tomato production.

Table 6.6 shows the response of farmers in answer to the question as to why they concentrate on producing the main crop indicated in Table 6.5 (ie. Question 3)

Table 6.6

Reasons for producing main crop

Reasons	*Response by 61 farmers*	*% of sample*
Market research results	-	-
Government policies	28	46%
Traditional crop	25	41%
Most suitable	6	10%
Market demand	-	-
Others	2	3%
	61	100

Once again, Government policy of encouraging agricultural productivity has influence concentration of production. 28 farmers (about 46%) of the 61 interviewed stated that Government policy influenced their concentration on a particular crop, while a good proportion (20 out of 61, ie. 41%), stated that it had been their 'traditional crop', hence thêir concentration on it. It is interesting that 'market demand' and market research findings' played no role in the shifts and concentration of cultivation, as would have been expected in theory. Of course, this derives from Government policy of guaranteeing purchase of whatever was produced , regardless of its quality. Market research thus has no role to play in influencing decisions regarding production of a particular crop.

6.4 THE MUNICIPALITY AGRICULTURAL MARKETING POLICY

The Abu Dhabi Municipality has clearly defined agro-marketing policies intended to improve the marketing of fruit and vegetables in the region and increase sales revenue. The policies include among others:

(a) pricing policy

(b) distribution policy

(c) export development policy

(d) sales development policy, and

(e) training, storage and advertising policy.

The objectives of these policies are to:

(a) increase volume of sales;

(b) fix competitive prices which will be reviewed periodically;

(c) supply different varieties of fruit and vegetables in season through the use of storage facilities, in order to compete with imports effectively;

(d) encourage export of surplus fruit and vegetables to other Arab countries;

(e) encourage the sale of spoilt or damaged produce to fertiliser producing companies;

(f) identify market needs and local requirements so that national production will meet actual requirements for domestic produce throughout the year;

(g) encourage bottling and packaging of products;

(h) encourage introduction of modern methods of storage in order to reduce spoilage;

(i) develop a marketing plan to establish new Sales Centres on the basis of population density; and

(j) encourage advertising and improve the distribution system.

Findings of Research on Policy

(a) Government Officials: responses

Question 1 in the Questionnaire for Government officials asks for the position occupied by the official filling in the questionnaire.

Out of the 20 officials interviewed, two were managers; four were assistant managers; eight were buyers and six came from various other lower positions, including clerical officers.

Question 3 asks: From whom does your agency buy agricultural produce?

All 20 officials responded that their agencies buy directly or indirectly from local farmers only.

Question 4 asks: What type of farm produce does your agency buy?

All the 20 respondents stated that they buy only fruit and vegetables from the local farmers in the Abu Dhabi region.

Questions 8 and 9 ask about pricing policy. All the 20 respondents stated that both the buying and selling prices are set by the Government, after discussion which

more often than not focuses on the social welfare of the farmers rather than on economic cost-benefit analysis. The latter approach requires market information, which is not available because of the lack of market research and data-base.

Questions 10 and 11 refer to encouragement of agricultural production and, as stated earlier, all the respondents replied that government policies are very supportive of agricultural development.

Questions 15 to 19 ask whether market research is carried out; by whom; when; what information is obtained and how reliable is the information? All the respondents stated clearly that no formal marketing research is ever undertaken. Therefore there is no data-base about customers, competition, the market or the performance of the marketing mix. The data that are available relate to the volume of production, as given by the amount collected at the Collection Centres; sales figures and wastage as given by what was sold to Selling Centres, and quantities unsold or spoiled. Other forms of market information are obtained through informal sources, such as friends, discussion groups etc. Decisions with respect to agricultural marketing mix are thus made without appropriate data and information. All the officials interviewed stated this and wished for a review of the position with a view to improving the data collection, storage, retrieval and use situation.

From the responses of the government officials, the following deductions can be made:

(a) that government policies and instruments have encouraged development of agriculture and production;

(b) that government agencies buy mainly from local producers of fruit and vegetables;

(c) that 'buying and selling prices' are set by the government on the basis of social welfare rather than economic rationality; and

(d) that formal market research, is never undertaken and hence policy decisions are not informed by any 'rational' data-base or information-flow.

These conclusions are supported by the responses of the farmers and co-operatives. Questions 10, 11, 12, 13 and 14 in the Questionnaire for the Farmers refer to government policies and request to know if the policies encourage agricultural development and production. As reported earlier, all the respondents (farmers) stated that government policies encourage agricultural production and development. Question 18 of the Farmers' Questionnaire asks about price setting mechanisms and all the respondents stated that prices are set by government and not by market forces. Similarly, farmers' answers to questions 22 - 25 on marketing research are firm on the fact that no marketing research is undertaken. All respondents stated this categorically.

Similarly, the Co-operatives in questions 4 and 5 of their questionnaire stated unambiguously that government policies have encouraged domestic agricultural

development and production. They stated that more land had been put into cultivation as a result of government 'free land policy'; 'guarantee purchase policy' and other forms of incentives.

Successful implementation of the policies to achieve the above objectives depends not only on the organisation of the marketing activity but also on its actual planning and execution. This involves the practical activities of marketing, including distribution, pricing and promotion.

6.5 THE MARKETING SYSTEM

The marketing system consists of:

(a) operators in the market, and

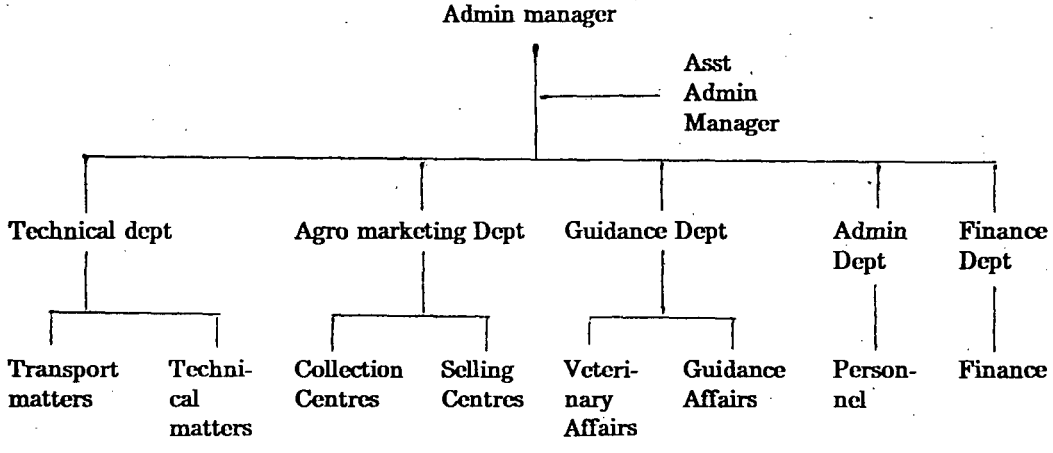
(b) types of markets.

6.5.1 Operators in the Market

There can be many participants in any given marketing system. In the Municipality of Abu Dhabi, the general participants in the production and marketing of fruit and vegetables are shown in Figure 6.2 below.

Figure 6.2

Agricultural Zone Administration
Municipality of Abu Dhabi

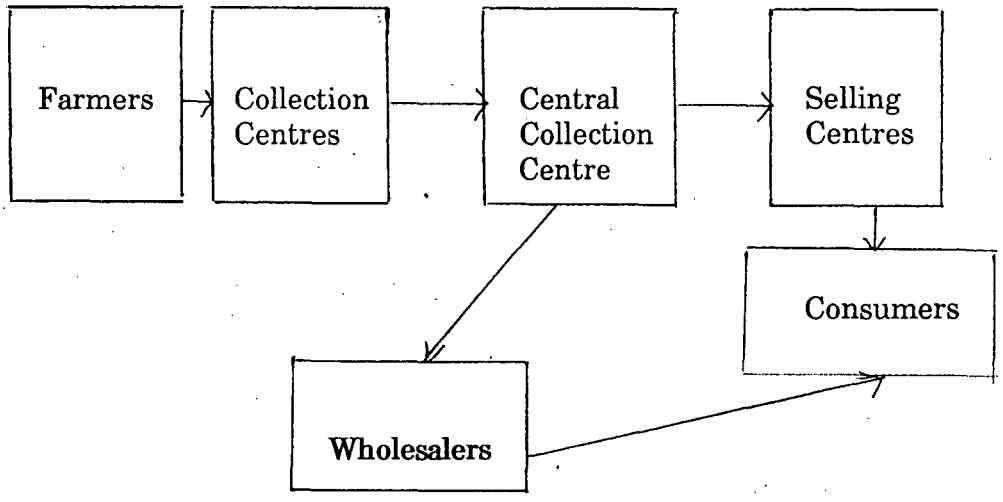


The entire Zonal administration is involved in both production and marketing of agricultural produce. As discussed earlier in Chapter 4, the Administration Manager has overall responsibility for agricultural development and marketing in the Zone. He is assisted by an Assistant Administration Manager and by the heads of the various component units of the structure.

If Fig 6.2 can be extracted from the 'Agro-marketing Department' and enlarged, we will identify the directly marketing-related main players in the system. Figure 6.3 below shows the system and its operators in the Abu Dhabi region.

Figures 6.3

Agro-Marketing System in Abu Dhabi Region



Shows direction of flow of fruits and vegetables in the system

As the arrows indicate in Figure 6.3, fruit and vegetables from the farms reach the final consumer through three or four intermediaries. Thus, the operators in the system are:- the farmers, Collection Centres, Central Collection Centres, Selling Centres, Wholesalers and Consumers.

(a) The Farmers

Table 6.7 shows the research finding with respect to size of farm-holding. Question 2 in the Farmers' Questionnaire asks about size of farm, and the response is as follows (Table 6.7):

Table 6.7

Size of farmholdings

Size (in acres)	*Response of 61 farmers*	*% of sample*
0 - 5	47	77%
6 - 10	12	20%
11 - 20	2	3%
21 - 50	-	
Over 50	-	
	61	100%

The Table shows that 77% of the sample of 61 farmers hold between 0 - 5 acres; 20% hold between 6 - 10 and only 2% hold anything above 10 acres. Large farmholdings are yet to place in Abu Dhabi West, though some cases exist in the Al Ain region.

Question 16 in the Farmers' Questionnaire asks: 'To whom do you sell your produce?' All 61 respondents answered that they sell all their produce to the government Collection Centres. This confirms the flow of produce as shown in Figure 6.3

Most of the farmers in the Abu Dhabi Region are smallholders who are mainly concerned with growing crops. Their awareness of marketing as a tool to increase income is non-existent, or is limited to what they may learn from other small farmers. To all the smallholders in the region, marketing means the sale of their

produce to government agents at the Collection Centre closest to them. Prices for their produce have been fixed by the government and they are paid the value of their output irrespective of the condition of the produce when collected or delivered.

The farmers do not sell directly to consumers. They do not need to do so because there is no risk of their produce being rejected or not being purchased by the Government agents at the Collection Centres. The job of the farmers is to deliver the produce either directly by themselves or through a representative. The Collection Centre is duty-bound to receive all that the farmer can produce at the set price. This encourages higher output and ensures a reasonable and stable level of income for the farmer.

However, because of poor training in the handling, storage, packaging and preparation of produce, much of the fruit and vegetables arriving at the Collection Centres is of low quality. Since even low-quality produce is purchased in order to encourage productivity, there is a very high level of spoilage and wastage of agricultural produce in the region. This is confirmed by the response to Questions 14 and 15 in the Farmers' Questionnaire, where nine farmers stated that the lack of appropriate training, knowledge and marketing skills on the part of the farmers has compounded the problem of wastage. About 15% of a largely satisfied sample of 61 farmers indicating such problem areas is very significant and worth noting.

(b) The Collection Centres

The Collection Centres buy directly from the farmer, as the findings in (a) above show. There are 10 Collection Centres in the Abu Dhabi region which supply the Central Collection Centre. The Collection Centres are located at varying distances from the Central Collection Centre, and Table 6.8 shows the distance between each Collection Centre and the Central Collection Centre in Abu Dhabi.

Table 6.8

Distance between Collection Centre and Central Collection Centre in Abu Dhabi

Collection Centre	*Distance from Central Collection Centre (Abu Dhabi) (km)*
Liwa Mezera }	210
Liwa Husan }Liwa	210
Liwa Al Tharwanea }	210
Alkatem	80
Zayed City	165
Ghaythi	230
Al Dafra	110
Delma	300
Al Marfa	130

Research findings

The successful sale of produce, therefore, depends largely upon the transportation and distribution system. Collection Centres or their representatives are expected to travel long distances to deliver their produce to the Central Collection Centre. The relatively poor road system in the region accounts partly for the high spoilage level of fruit and vegetables. The methods of packaging, handling, storage and preparation are matters of serious concern. The Collection Centres are part of the Zonal Administration System, hence they are Government establishments. The Centres collect, weigh, document and receipt the farmers' produce. Furthermore, the Centres record their daily collections and separate the spoilt or damaged produce from the fresh and good, and record each quantity separately. The Collection Centres then supply the produce to the Central Collection Centre.

(c) Central Collection Centre (Abu Dhabi)

The Central Collection Centre collects from the Collection Centres and distributes to the 30 Selling Centres in the region.

(d) The Selling Centres

There are 30 Selling Centres in the Abu Dhabi Region which sell fruit and vegetables direct to consumers. The distribution of produce by the Collection Centres to the Selling Centres is based upon the following:

(i) the demand level in the area under the control of the Selling Centre;

(ii) the population density of the area;

(iii) the volume of produce that the Selling Centre can carry in terms of storage, handling and packaging.

Each Selling Centre, therefore, is allocated an area to serve and a specific quantity of produce to carry at each round of distribution.

Question 11 in the Questionnaire for Consumers asks: where do you prefer to buy your vegetables? Table 6.9 shows the responses of the 200 consumers sampled.

Table 6.9

Where consumers buy vegetables in Abu Dhabi

Retailer	*Response of 200 customers*	*% of sample*
Supermarket	45	22.5%
Grocery shop	20	10.0%
Government Selling Centre	35	17.5%
Co-operative Society	55	27.5%
Open market	45	22.5%
Anywhere	-	-
	200	100%

It can be seen in the Table that consumers buy from the Government Selling Centres but only 17.5% of the sample do so. About 28% of the sample said that they buy from co-operatives; 22.5% each buy from supermarkets and open markets, while 10% buy from grocery shops. Considering that only the Government Selling

Centres sell local produce, while the other retailers sell imported produce, then the research findings show clearly that an overwhelming 85.5% of the consumers buy imported fruit and vegetables.

This deduction is collaborated by the response to Question 12 in the Questionnaire for the consumers, which asks whether they prefer to buy imported or locally produced vegetables. Out of the sample of 200 consumers, 150 (ie. 75%) said that they prefer imported vegetables to local produce. Only 35 (ie. 17.5%) prefer local produce, while 15 (ie. 7.5%) said they are indifferent.

The preference for imported vegetables is significant because all those who said they prefer imports stated that it was because of:

(a) the high chemical content in local produce;

(b) the poor presentation of local produce; and

(c) the lack of promotion and marketing of local produce.

The Selling Centres are veritable retail outlets, but because they sell locally produced fruit and vegetables, they are the preferred retail outlets. The Selling Centres sell largely to the low income groups (mainly foreign migrant labourers), and their products are poor in quality, presentation and promotion.

However, the Selling Centres do sell to some other buyers as well. These are the wholesalers and co-operatives which are private, independent companies.

(d) Wholesalers/Co-operatives

The wholesalers and co-operatives operate on their own accounts and are thus independent companies. In the scheme of things, these companies are not expected to retail vegetables produced locally. They deal in imported produce, which retails at a price considerably higher than that of the domestic product.

Response to Question 6 in the Questionnaire for Consumers, which asks about the level of price of vegetables between imports and local produce is given in Table 6.10.

Table 6.10
Price comparison between imports and local produce

Price level	*Response of 200 consumers*	*% in sample*
Import price is higher	165	82.5%
Import price is lower	-	-
Both are comparable	35	17.5%
	200	100.0%

It can be seen that consumers believe that the price of imported fruit and vegetables is higher than that of local produce. About 83% (ie. 165 out of 200) of the respondents stated that prices of imports are higher while only 17.5% (ie 35 out of 200) thought that both sets of prices were comparable.

However, because of the high propensity to consume imported fruit and vegetables, as a consequence of the high level of wealth, the relatively high prices of imported produce do not discourage consumption. Another reason for the continuing high level of imports is the lack of any form of restriction or control of imports.

Question 23 in the questionnaire for government officials ask: Does the lack of import control or restriction increase the desire to consumer imports at the expense of local produce? Out of the sample of 20 government officials, 18 (or 90%) agreed that the lack of import control intensifies the desire to consume imported vegetables. This means that local vegetables are ignored, even though they are cheaper and comparable in quality. The Government of the UAE believes in free-market forces and an 'open' market policy, even when such policies are hurting sales of domestically produced fruit and vegetables, as reflected in the surpluses that accumulate at both the Collection and Selling Centres.

Some of these surpluses are sold to the wholesalers and co-operatives to retail to the public. The intention here is twofold. First, the Selling Centres use this approach to sell their surplus to consumers who ordinarily might not buy domestic produce. The involvement of the co-operatives and wholesalers in selling domestic produce seems to give some form of reassurance of quality and 'safety' to the consumer. This is understandable, because research carried out by German agriculturalists indicates a high level of chemical content in fruits and vegetables produced in the UAE. As a result, Germany does not import fruits and vegetables from the UAE. Second, by selling the surpluses to the wholesalers and co-operatives, the Selling Centre administration aims to reduce the level of imports

and boost the sale of domestic produce.

(e) The Consumers

Two types of consumers of fruit and vegetables may be identified in the market . One group prefers imported fruit and vegetables to domestic produce. The other group buys mainly domestic produce.

When asked (Question 12) which produce they prefer buying, the consumer sample of 200 responded as follows:

(a) 150 respondents (or 75% prefer imports;

(b) 35 respondents (or 17.5) prefer local produce;

(c) 15 (or 7.5%) were indifferent.

Clearly, an overwhelming proportion of consumers in Abu Dhabi region prefer to buy imported vegetables rather than local produce.

The research results show that one of the main reasons for this situation is the abject lack of marketing and promotion of local vegetables. In response to Question 12 in the Questionnaire for government officials, which asks: 'how does your Agency promote the farm produce it sells?' all respondents (ie 100%) answered categorically that no promotion, advertising or sales-promotion is undertaken. Other marketing activities meant to boost sales such as packaging, labelling, etc are not undertaken either.

The co-operatives which sell imported fruit and vegetables, on the other hand, engage in extensive marketing activities, which create awareness of the product, thus encouraging purchase. The co-operatives undertake advertising, sales promotions, branding, good packaging etc, to add more attraction to the product. The Selling Centres, on the other hand, undertake hardly any advertising or sales promotion, thus failing to create any significant awareness of the quality and freshness of domestic produce. Other reasons for the co-existence of the two groups of consumers are; the high chemical content in domestic produce; the high social status attached to import consumption; the lower quality implication of the lower price of domestic produce; the lack of import controls, and the failure of the government to liberalise the marketing of domestically produced fruit and vegetables.

6.6 TYPES OF MARKETS

From the above discussion, it may be discerned that there are mainly two types of market operative in the fruit and vegetable market in Abu Dhabi. These are (a) Assembly Markets and (b) Retail Markets.

6.6.1 Assembly Markets.

In an assembly market, producers deal with traders instead of dealing directly with consumers. In the Abu Dhabi Municipality, the dealings at the Collection Centres between the farmer and the Collection Centre n the one hand, and then between the Collection Centre and the Central Collection Centre and the Central Collection Centre and Selling Centre on the other, known as the assembly market.

Assembly markets tend to start from a natural need by both buyers and sellers, and their location will usually be determined by proximity to good transport facilities, whether road or water, so that traders can quickly move their purchases onward to market. In the Abu Dhabi agricultural zone, however, the Municipality has not only created the Assembly Market but has also provided the required facilities. The problem is that they are inadequate to ensure the efficient movement of the produce.

6.6.2 Retail Markets

In Abu Dhabi, the wholesale and retail markets tend to merge, because the wholesalers and co-operatives operate both systems simultaneously. In fact, most of the wholesalers and co-operatives run the supermarkets in the city, in addition to other types of retail outlets.

However, smaller retailers are also available. These are not as numerous as in many other countries, particularly developing countries. There is the prospect that smaller retailers, such as retail shops, and public markets, will emerge strongly to distinguish the wholesale market from the retail market in the fruit and vegetable trade.

The activities of the Selling Centre also include retailing. The Centre, however, also sells to smaller retailers, who sell to the public.

6.7 MARKETING STRATEGIES

The aim of commercial marketing strategy is to sell a commodity at the time and place that can bring the highest possible return. To develop a marketing strategy for fruit and vegetables is far more complex than, for example, manufactured goods, because of the fragility and perishability of fresh produce. These factors place limits on the time produce can be stored, the distance it can be moved and the handling costs that customers will be expected to bear. Such marketing uncertainties bring a speculative element into trading activities, and thus the attendant risk of market manipulation.

Generally, trading in fruit and vegetables operates as a free market, so we expect the law of supply and demand to regulate the market price; influence non-price competition; location, etc. In the case of the Abu Dhabi region, trading in domestically produced fruit and vegetables does not adopt a free market approach, as does that in imported produce. There are, therefore, no competitive strategies, because the market does not operate on the principle of competition. The element of the tactical mix (price, product, promotion and distribution) hardly operates, as in a free market situation.

6.7.1 Supply of Fruit and Vegetables

The Abu Dhabi Municipality provides various forms of incentives to encourage a higher output of fruit and vegetables. Indeed, this is a general UAE Government approach which has resulted in increased production, as the research findings discussed earlier indicates unambiguously. Table 6.11, which shows the same trend on a national basis over the period 1985/86 to 1990/91, is very eloquent and self-explanatory.

Table 6.11
Quantity of vegetables in the UAE from 1985/86 up to 1991

Crop	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
Tomato	44,144	24,653	25,992	43,738	40,716	81,731
Eggplant	19,044	11,796	15,276	30,277	38,792	55,803
Okra	4,209	3,102	2,907	3,525	3,574	3,676
Bean	352	442	1,199	1,913	2,292	1,985
Cowpea	2,835	2,544	2,093	1,913	1,720	1,701
Mallow	2,061	2,156	3,893	3,948	5,566	10,409
Chard	4,720	6,448	7,502	8,610	14,731	19,745
Squash	14,215	12,146	8,842	13,191	12,955	15,800
Cucumber	7,638	4,800	3,976	6,158	6,963	10,468
Cabbage	11,272	17,616	12,625	34,393	41,165	54,644
Cauliflower	20,797	7,465	7,933	15,207	11,400	10,953
Potato	4,164	2,871	5,489	5,039	3,983	3,134
Onion	10,490	9,189	8,158	9,410	7,998	8,115

Table 6.11
Quantity of vegetables in the UAE from 1985/86 up to 1991

Watermelon	33,688	18,528	9,007	5,381	4,373	4,137
Sweet melon	15,792	5,634	2,769	1,555	1,414	2,588
Lettuce	2,966	3,038	4,167	6,025	8,509	10,045
Radish	4,667	3,581	2,945	7,079	9,214	10,233
Parsley	3,431	3,883	1,290	1,615	1,278	1,759
Carrot	2,741	2,560	1,589	3,469	3,463	2,808
Pepper	4,610	4,252	3,177	8,688	9,574	11,642
Other	18,456	17,338	16,859	19,943	19,763	20,885
Total	232,292	164,042	148,228	231,095	249,442	342,261
% of annual development	-	- 0.30	- 0.10	+ 0.60	+ 0.08	+ 0.37

Source: General Planning Department (1992) United Arab Emirates: Annual Economic Report 1992, Ministry of Planning, Abu Dhabi.

Fruit and vegetable production increased steadily since 1987 from a total of 148,228 tons to 342,261 tons in 1991. The same trend was recorded in the Abu Dhabi agricultural zone.

This increase in supply has not been matched by an increase in demand, with the effect that high levels of wastage of fruit and vegetables have been reported. For example, while the percentage sale of agricultural produce in the region has declined from a high of 85% of total production in 1986 to only 10% in 1992, wastage as a result of non-sale and spoilage has increased correspondingly from a low of 15% of total production in 1986 to a staggering 90% in 1992. One of the major reasons for this situation is the lack of effective marketing of domestic produce. Imports have consequently taken advantage of this situation and are now increasingly dominating the market.

The package of incentives to increase output and supply seems to have worked, but demand has not been correspondingly developed. Effective marketing planning and implementation is required to change the situation.

6.7.2 Promotion

As the research findings discussed above show, neither the Municipality nor its agents engage in any significant promotion of domestically-produced fruit and vegetables. No advertising, sales promotion or personal selling, either at home or abroad, are undertaken by the Government or the Municipality. The effect is that there is little awareness and appreciation of the high-quality fresh fruit and vegetables produced locally.

When asked why domestic agricultural produce is not advertised or promoted at home or abroad in order to develop the market for these products, , officials of the Collection and Selling Centres replied that they thought it was unnecessary, while farmers hardly understood the benefits of such a strategy. After all, farmers are able to sell whatever they can produce, hence lack of promotion was not of undue concern to them.

The only advertising and promotion of fruit and vegetables is undertaken by the co-operatives to market their imports. This accounts partly for the increasing market share of imports, while wastage of domestic produce increased.

6.7.3 Pricing

The law of supply and demand, which determines price in free markets, particularly of agricultural produce, does not apply in the case of Abu Dhabi agro-marketing. Prices are fixed by officials through a process of uninformed discussion, as the responses to Questions 8 and 9 in the Questionnaire for government officials discuss earlier, show. That is to say, the officials often do not have data to work with and, in most cases, are not knowledgeable in the economics of price-setting. Prices are thus fixed solely to achieve the Government's objective of keeping the farmers in their traditional rural locations by increasing their incomes from agriculture and their social welfare through pricing and other financial subsidies and incentives. Question 18 in the Farmers' Questionnaire ask: 'What determines your selling price? All 61 respondents stated categorically that their prices were always set by the government. They are never consulted. Similarly, prices of agricultural produce are held fairly steady, even when the market suggests

otherwise. Table 6.12 below shows the agricultural price index in the UAE from 1988-90 by Emirates.

Table 6.12

Agricultural product price index in the UAE: 1988 - 1990

ANNUAL CONSUMER PRICE INDEX: NUMBERS BY GROUPS & ITEMS OF EXPENDITURE IN THE UAE, 1988 - 1990

(BASE YEAR, 1985 = 100)

	UAE			Ras Al-Khaima			Sharjah		
Groups & items of expenditure	1990	1989	1988	1990	1989	1988	1990	1989	1988
Food	99.6	99.8	101.1	101.5	101.0	98.9	96.7	99.7	99.4
Cereals and bread	97.8	98.1	101.9	99.2	98.3	98.1	98.9	100.3	97.2
Meat, poultry and fish	94.3	97.5	101.5	99.5	104.5	99.0	93.0	97.5	99.1
Dairy products and eggs	110.0	106.9	103.9	112.1	109.9	107.1	110.2	106.6	109.9

Table 6.12

Agricultural product price index in the UAE: 1988 - 1990

ANNUAL CONSUMER PRICE INDEX: NUMBERS BY GROUPS & ITEMS OF EXPENDITURE IN THE UAE, 1988 - 1990

(BASE YEAR, 1985 = 100)

	UAE			Ras Al-Khaima			Sharjah		
Oils and fats	105.0	96.6	95.2	104.5	100.5	93.2	101.0	94.0	94.5
Fruits and vegetables	95.4	94.9	96.5	93.4	90.4	93.5	88.6	93.4	93.4
Sugar and sugar preparations	173.6	156.3	125.1	178.9	157.0	123.8	169.6	165.7	123,9
Tea, coffee and cocoa	93.1	90.7	97.6	96.2	97.7	102.8	90.3	88.8	94.7
Other food	99.0	110.4	110.5	106.5	108.2	107.0	101.4	111.7	111.8
Food away from home	106.0	110.0	111.0	111.1	100.0	100.0	100.0	111.1	111.1

Source: Research report

Table 6.12

Agricultural product price index in the UAE: 1988 - 1990

ANNUAL CONSUMER PRICE INDEX: NUMBERS BY GROUPS & ITEMS OF EXPENDITURE IN THE UAE, 1988 - 1990

(BASE YEAR, 1985 = 100)

	Dubai			Abu Dhabi		
Groups & items of expenditure	1990	1989	1988	1990	1989	1988
Food	102.4	101.2	102.2	98.6	99.5	100.8
Cereals and bread	97.1	99.7	98.4	96.4	95.8	105.3
Meat, poultry and fish	98.9	94.9	100.5	94.4	99.8	102.6
Dairy products and eggs	112.5	107.6	104.4	111.1	106.6	99.4
Oils and fats	106.6	97.7	91.7	103.5	94.3	95.8
Fruits and vegetables	98.5	99.5	101.7	94.8	95.2	95.5

Table 6.12

Agricultural product price index in the UAE: 1988 - 1990

ANNUAL CONSUMER PRICE INDEX: NUMBERS BY GROUPS & ITEMS OF EXPENDITURE IN THE UAE, 1988 - 1990

(BASE YEAR, 1985 = 100)

	Dubai			Abu Dhabi		
Sugar and sugar preparations	180.7	162.3	131.0	145.2	128.6	105.7
Tea, coffee and cocoa	96.3	91.4	97.1	91.3	92.1	100.4
Other food	100.0	115.0	112.7	98.8	109.3	111.1
Food away from home	103.7	109.3	111.1	110.0	110.3	112.0

Source: Research report

The steadiness of the index for fruit and vegetables over the period and for both the whole country and individual Emirates is striking. The Abu Dhabi index was virtually anchored at 95 over the three years. Interestingly, this was a period of relatively rising inflation in the other sectors of the economy. An appropriate pricing strategy is thus required.

6.7.4 Distribution system

An efficient produce distribution system is an essential part of the marketing system. A distribution system includes transport, a good network of roads, storage facilities, packaging skill, warehouses, etc. The available distribution system in the Abu Dhabi region is very inadequate to support the increasing agricultural production.

The Collection Centres are too few (only 10 in the region) and far from the Central Collection Centre located in Abu Dhabi City (see Table 6.8). As a result, fruits and vegetables ripen prematurely en route to Collection or Selling Centres. There are few well equipped transport and storage facilities. These have worsened the spoilage and wastage levels. To establish a good distribution system, much data and information will be required and these are not available.

6.8 Problems and solutions of Agro-Marketing in Abu Dhabi

The main agro-marketing problems in the Abu Dhabi agricultural zone, and indeed in the entire UAE, may be summarised as follows:-

(a) Lack of market information

As the research findings indicate, no marketing research is undertaken at any level. The ability of a grower or an organisation to plan and act on an efficient marketing strategy will be greatly aided by access to accurate, adequate and timely information on all aspects of the commodities traded. Such information/data is not available in Abu Dhabi. The Municipality should therefore embark on market research to assemble information and data for planning. Such information may include:

- market price information
- cost information
- customer analysis
- market analysis
- competitor information
- distribution information
- product and promotion information.

A marketing information system needs to be set up in every agricultural zone to collect, store, retrieve analyse and interpret information for decision making.

(b) Lack of Marketing Plan

All the government officials interviewed stated that no form of marketing plan for vegetables and fruits has ever been designed or developed. Of course, such a plan will be based upon marketing research data, which is not available. Without a plan

to provide clear objectives, strategies, tactics, implementation procedures and control, the marketing of fruit and vegetables in Abu Dhabi and the UAE will remain poor and inefficient.

Before developing a marketing plan, a thorough marketing audit and 'SWOT Analysis' should be carried out. Such an evaluation must identify the size and shape of:

- all inefficiencies in the present marketing operation;
- all inadequacies in services, and
- all weaknesses traceable to poor organisation.

The social and economic targets to be achieved need then to be redefined, and the deficiencies in the present system ranked in order of importance with respect to goals and resources to solve them.

(c) Lack of Training of Marketing Personnel

In Questions 14 and 15 of the Farmers' Questionnaire, nine out of the 61 respondents said that the lack of training and knowledge in marketing and handling of vegetables is partly responsible for the high level of wastage.

The lack of qualified personnel is a major constraint to marketing improvement. Experience and knowledge will be required in order to implement:

- an advisory service to assist farmers and post-harvest handling agencies;

- the management of storage facilities and packing houses; and
- the organisation of market facilities.

Farmers and traders will need training, not only in the newly-introduced technologies, but also in the need for continuing improvements in marketing.

(d) Import Control; Export Drive

As the research findings discussed earlier indicate, there are no import controls on vegetable import. The Government needs to impose some control on the import of fruit and vegetables. This will enable domestic produce to expand and compete effectively in the market.

At the same time, efforts should be doubled to seek export outlets for domestic produce. This will not only earn foreign exchange, but also reduce the increasing level of wastage as a result of surpluses.

6.9 CONCLUSION

The immediate aim of a marketing improvement programme is generally to generate a higher income to farmers through:

(a) reduced costs of production and marketing;

(b) reduced post-harvest losses by the introduction of better farming and handling methods;

(c) achievement of higher market prices because of the improved quality of the produce; and

(d) training in marketing principles and strategies.

Though the Municipality of Abu Dhabi operates a system of agro-marketing which protects the farmer from these areas of concern on free-market competition, it should nevertheless recognise the problems and the benefits that will be derived they are resolved. It is, however, not possible to achieve all the suggested goals in an initial marketing improvement programme. Priority must be given to identifying and tackling the main obstacles to progress. Perhaps the starting point is to carry out a thorough marketing research project in order to build up a data-base for future planning.

CHAPTER SEVEN

AGRICULTURAL PRODUCE WASTAGE IN ABU DHABI (THE SOUTHERN ZONE, AREA A: WEST OF ABU DHABI)

CHAPTER SEVEN

AGRICULTURAL PRODUCE WASTAGE IN ABU DHABI

(The Southern Zone Area A: West of Abu Dhabi)

Government agricultural policies have encouraged higher production, despite the many problems surrounding agricultural development in the country. One of the policies that has had a significant impact on agricultural production is the system of produce purchase, where farmers are paid for all their produce, whether it is saleable or not. The impact was greatest in the production of fruit and vegetables in the Abu Dhabi Emirate. However, the higher fruit and vegetable production was not matched by a higher level of demand or sales of the produce. Consequently, 'wastage' or 'spoilage' emerged as a result of the inability of farmers government marketing agencies to sell all their produce. In this chapter we will examine the magnitude of wastage, the sources and why it occurs in such a high proportion.

7.1 MAGNITUDE OF WASTAGE

Table 7.1

Production of fruit and vegetables in Abu Dhabi Emirate: 1986 - 1993: level of wastage

Year	*Total production in tons*	*Total sales in tons*	*Wastage in tons*	*% Sales in total*	*% wastage in total*
1986	870	737	133	85%	15%
1987	4821	3413	980	71%	20%
1988	9874	5025	4192	51%	42%
1989	18837	8196	10238	44%	54%
1990	31798	9697	21629	30%	68%
1991	91573	16774	74799	18%	82%
1992	199535	20801	177433	10%	89%
1993	301129	12336	287540	4%	95%
Total	**658447**	**76979**	**576944**	**11.7%**	**87.6%**

Source: Research report

In Table 7.1 above, we report the proportion of wastage in fruit and vegetable production in the Abu Dhabi Emirate. Over the period 1986-1993, it can be seen in the Table that a total of 658,447 tons of fruit and vegetables were produced in the Emirate but only 76,979 tons or 11% of the total were sold. A staggering 576,944 tons of fruit and vegetables were left to rot and be thrown away.

The trend of wastage over the period 1986-1993 is even more worrying than the absolute volume. The trend of sales as a proportion of total production and the trend of wastage as a proportion of total production have a clear inverse

relationship. From a high of 85% of total production in 1986, the proportion of sales declined continuously to 30% in 1990 and almost petered out to only 4% in 1993. On the other hand, the proportion of wastage in total production started at a low level of only 15% in 1986, but increased continuously to 68% in 1990 and a staggering 95% in 1993.

Such an ominous trend is not only indicative of future disaster in the agricultural sector, particularly in the Abu Dhabi Emirate, but it also reveals some of the problems of domestic agricultural production. These are discussed later in the chapter.

Disaggregating the total figures given in Table 7.1 into some selected product types, the intra-sector differences in the level of wastage is revealed.

Table 7.2

Percentage wastage in selected vegetable produce in Abu Dhabi: 1987-93

Year		1987	1988	1989	1990	1991	1992	1993	
Production in tons		4821	9789	18684	31798	91573	199535	301139	Average % wastage 1987-93
TOMATO	Income	1421.646	2497.332	5256.850	8894.873	33767.233	69839.914	107050.925	
	Sales	1251.924	1644.144	2675.854	4646.523	7456.880	11614.835	3842.488	
	Wastage	169.722	998.576	2514.762	4078.603	26417.669	57505.520	102520.803	
% wastage in income		1%	40%	48%	46%	78%	82%	96%	56%
CUCUMBER	Income	328.322	556.565	557.538	727.713	997.687	1582.792	2356.990	
	Sales	317.349	402.745	464.102	88.362	795.704	10066.285	1454.057	
	Wastage	10.973	186.423	93.048	558.180	104.258	386.617	685.963	
% wastage in income		3%	33%	17%	77%	10%	24%	29%	28%
CABBAGE	Income	274.433	717.368	2313.649	8188.540	35156.066	96578.580	155713.089	
	Sales	245.348	548.237	1215.009	6762.539	4016.258	3540.349	3701.645	
	Wastage	29.085	169.149	960.155	1588.203	32207.695	93150.290	151893.405	
% wastage in income		11%	24%	42%	19%	92%	96%	98%	55%
EGGPLANT	Income	238.183	566.796	1631.839	3537.824	13100.569	21571.893	30021.949	
	Sales	197.155	324.888	850.544	2548.760	1500.561	3216.052	1717.787	
	Wastage	41.028	243.404	780.663	882.876	12015.055	19685.749	28320.128	
% wastage in income		17%	43%	48%	25%	92%	92%	94%	59%

Table 7.2

Percentage wastage in selected vegetable produce in Abu Dhabi: 1987-93

Year		1987	1988	1989	1990	1991	1992	1993	
MARROW	Income	268.831	548.114	315.396	576.094	334.239	392.652	310.035	
	Sales	235.146	312.951	355.332	132.513	263.869	267.893	216.706	
	Wastage	33.685	237.539	124.044	362.598	78.420	97.371	74.802	
% wastage in income		13%	43%	39%	63%	23%	25%	24%	33%
ONION	Income	133.853	255.235	516.021	704.099	1033.733	1244.176	565.590	
	Sales	906.212	129.667	178.462	262.761	341.720	305.518	192.794	
	Wastage	37.641	154.473	262.048	263.501	382.761	879.543	355.938	
% wastage in income		21%	63%	51%	38%	37%	71%	63%	49%
POTATOES	Income	182.073	369.222	306.939	340.440	211.519	384.312	236.863	
	Sales	176.450	247.789	206.214	100.272	141.333	226.047	141.989	
	Wastage	5.623	121.675	97.296	195.194	42.113	114.748	70.951	
% wastage in income		3%	33%	32%	57%	20%	30%	30%	29%

Source: Research report

Table 7.2 reports the different levels of wastage among some selected products within the fruit and vegetables group. It can be seen in the Table that the general trend of wastage as reflected in the percentage wastage now follows the pattern of the trend in the aggregate figures in Table 7.2. The exceptions are the cases of cucumbers, marrows and potatoes, which show a relatively stable trend from 1988 to 1993. On average, egg-plant has the highest wastage, with an average of 59% over the period 1987-1993, followed by tomatoes with 56% and cabbage with 55%. The lowest average wastage over the period is shown by cucumber(28%) and potatoes (29%).

A closer examination of the figures in Table 7.2 shows that wastage was more pronounced after 1990 than before it, in all cases except cucumbers, marrows and potatoes. The low wastage in these three products is accounted for partly by the fact that local consumption is highest among these products. Added to this is the fact that the relative levels of production of these three products in total output are low compared to the others. Table 7.3 below shows this.

Table 7.3

Percentage of selected produce in total production (1987-1993)

Years	1987	1988	1989	1990	1991	1992	1993	Average share 1987-93 (%)
Total Production/tons	4821	9789	18684	31798	91573	199535	301139	
Tomatoes	29.49%	25.51%	28.14%	27.97%	36.87%	35.00%	35.55%	31.2%
Cucumber	6.81%	5.69%	2.98%	2.29%	1.09%	0.79%	0.78%	2.9%
Cabbage	5.69%	7.33%	12.38%	25.75%	38.39%	48.40%	51.71%	27.1%
Eggplant	4.94%	5.79%	8.73%	11.13%	14.31%	10.81%	9.97%	5.7%
Marrow	5.58%	5.60%	1.69%	1.81%	0.36%	0.20%	0.10%	2.2%
Onion	2.78%	2.61%	2.76%	2.21%	1.13%	0.62%	0.19%	1.8%
Potatoes	3.78%	3.77%	1.64%	1.07%	0.23%	0.19%	0.08%	1.5%

Source: Research report

It can be seen in Table 7.3 that the relative share of cucumbers, marrows and potatoes are the lowest compared with the other products, particularly in the years after 1988. This might reflect a relative shift in production to other more lucrative crops such as tomatoes, cabbage and egg-plants.

The average relative share of each of the products in the average total output over the period 1987-93 underscores the argument above. The figures confirm the relative low level of production of the three products (onions also coming into the picture), compared with the others; cucumbers accounted for only 2.9%; marrows, 2.2%; onions, 1.8% and potatoes, 1.5% of the total output over the period 1987-93. The dominant contribution of tomatoes, followed by cabbage, reflects the increasing cultivation and consumption of these products. The continuous increase in the share of cabbage over the period is significant. It reflects not only increasing production but also increasing domestic consumption and export trade.

It is interesting to note that the period of high wastage (ie. 1990-1993) in Table 7.1 coincided with the period when the UAE government and the Ministry of Agriculture focused attention on agricultural development in the State. The four-year plan of the government (1990-1994) as well as the preceding plan (1985-90) placed agricultural development as one of the major concerns of the Sate in its efforts to diversify the economy and reduce its dependence on oil as well as the migration of rural farmers into the cities in search of industrial jobs. Government activities to enhance agricultural development must therefore be one of the reasons for the increasing wastage in fruit and vegetable production. What other factors are actually responsible for such an alarming quantum and increasing trend of wastage?

7.2 FACTORS RESPONSIBLE FOR WASTAGE

The high level of agricultural produce wastage in the UAE in general and in the Abu Dhabi Emirate in particular is a matter of much concern. The wastage is explained not only by the traditional argument of non-marketability of the produce, but also by other significant factors. These include, among others, a poor distribution system; government policy; poor marketing; lack of export outlets; lack of a control and grading system; lack of import controls; technical problems and poor training in preservation technology.

7.2.1 Poor Distribution System

Questions 16 and 17 in the Farmers' Questionnaire ask: To whom do you sell your produce? How do you distribute your produce? All the 61 respondents stated that they sell their produce only to Government Collection Centres. They take the produce to one of the ten Collection Centres where it is purchased. When interviewed in depth, all the respondents criticised the method of distribution, stating that it was inefficient because of the lack of appropriate transportation, storage and handling facilities.

The criticism is reinforced by the fact that the distance between the Collection Centre in Abu Dhabi City, from where the produce is distributed to the thirty Selling Centres, is great (see Table 6.8 for the distances). The distance and the poor transportation system and facilities both contribute to the high spoilage rate.

Farmers in isolated areas, as well as others in road-connected parts of the Abu Dhabi Emirate, are not serviced effectively and efficiently in the evacuation and distribution of their produce. Co-operative marketing agencies, which are more active in the distribution and marketing of agricultural produce in the Abu Dhabi Municipality than any other marketing organ, do not stock, carry or sell domestic produce. This, added to the poor transportation system, delivery and storage facilities in the Municipality, have contributed to the high wastage level of agricultural produce in the Abu Dhabi Emirate.

7.2.2 Government Policy

Government policy of encouraging agricultural development in the UAE in general and the extension and implementation of this policy by the Abu Dhabi Municipality in particular has led to huge increases in the production of various agricultural products, particularly fruit and vegetables.

Table 7.4 shows responses from government officials, farmers and co-operatives with respect to the question: does government policy encourage agricultural development and production?

Table 7.4

Does government policy encourage agricultural production?

Respondent	Yes	No	% of 'Yes'
Government official	20	-	100%
Farmers	61	-	100%
Co-operatives	20	5	80%

The overwhelming agreement of all groups of respondents in the Table is that government policy encourages agricultural production. This is reflected in the level and trend of production in Abu Dhabi Emirate over the period 1986-1993, as shown in Table 7.1.

Similarly, the government has a policy of buying from the farmers whatever they produce, whether marketable or not. Table 6.4 shows the responses of government officials and farmers to the question: which policies provide the most encouragement to produce more? Guarantee of purchase was singularly identified as the most important policy that encouraged higher agricultural production. As the Table shows, 80% of government officials and 85% of farmers stated that government gurantee of purchase was the most effective policy in encouraging higher productino of agricultural output. Since whatever was produced had to be purchased by the Government Collection Centre, farmers continued to produce as much as possible.

Encouraging of greater effort and productivity as these policies are, they failed to provide any form of checks and balances to ensure appropriate utilisation of resources for optimum results. Buying whatever farmers produced to encourage more effort and productivity in order to give them a higher level of income and welfare is welcome, but this should have been tied to the supply of saleable and 'healthy' produce. The failure to ensure that saleable produce is supplied by the farmers has resulted in the supply of both good and bad produce. The effect is that the bad or spoilt produce contaminates the healthy produce, thus increasing the level of spoilage. The total effect is that wastage increases as the Receiving Centres

are unable to sell the damaged and spoilt produce.

7.2.3 Poor marketing of produce

Marketing of agricultural produce in the UAE is poor. This is even more so in the Abu Dhabi Emirate. Response to Questions 15 - 18 in the government officials questionnaire, which ask about the type and level of marketing research undertaken, shows that all the 20 officials interviewed stated that no marketing research was ever conducted.

Thus, no marketing research is conducted to identify the appropriate market segments in terms of quality, packaging, pricing and delivery methods in order to develop an appropriate marketing plan and mixes to satisfy the customers. Added to this is the fact that little promotion, if any, is ever undertaken to create awareness on the one hand and attract buyers on the other. Question 12 in the government officials questionnaire asks: 'how does your Agency promote the farm produce it buys? The 20 government officials interviewed answered that no promotion of any type is ever undertaken to create awareness of local produce as the co-operatives do with respect to imported fruit and vegetables. Most consumers of fruit and vegetables in Abu Dhabi buy mainly imported produce, partly because they are not fully aware of the availability of domestic substitutes.

The effect of poor marketing of agricultural produce is the availability of more stock than can be sold at any given time. Because the surplus stocks cannot be disposed of in any useful way, they are left to rot, thus increasing the level of wastage.

7.2.4 *Lack of export market*

As discussed earlier in this work, the UAE's export trade in agricultural produce is relatively low. Export trade in fruit and vegetables from Abu Dhabi municipality is even more scanty than that of the entire State. Response to Question 14 in the government officials' questionnaire shows that none of the 20 officials interviewed indicated that the surplus local produce was exported to any other country for sale. There have been attempts to export fruit and vegetables to Europe, especially Germany, but the attempts failed. This is because of the very high chemical element found 'undigested' in the produce. More than the required levels of chemicals are often added to the soil during cultivation and this is absorbed by the produce in raw form and retained. Foreign customers are very sensitive to the adverse effect of such high chemical content in fruit and vegetables, hence refuse to import produce from the UAE.

This has resulted in surplus stock at Collection and Selling centres, which cannot be sold. Wastage is thus increased because of the lack of export outlets.

7.2.5 *Lack of import control*

The UAE, unlike Saudia Arabia, does not have any form of import restriction on agricultural produce coming into the country. In fact, the co-operative marketing societies sell only imported fruit and vegetables. The societies do not carry or sell domestic produce and yet they control a substantial share of the domestic fruit and vegetable market.

Question 11 in the Consumers' Questionnaire asks: 'where do you buy your vegetables?' Out of the sample of 200 respondents, 55 bought from Co-operatives; 45 from supermarkets; 45 from open markets; 35 from Selling Centres; and 20 from grocery shops. Moreover, in Question 12, which asks the preference of consumers for imported or local vegetables, 150 out of the 200 consumers interviewed preferred imports. Since the Co-operatives sell only imports, this response indicates the level of control they have in the market.

The lack of import control does not augur well for the marketing of domestic fruit and vegetable output. It encourages imports which displace domestic produce not only because of the high chemical content but also because of the high import consumption propensity of consumers in the UAE. As domestic produce is not consumed because of import supply, wastage results from surplus stock.

7.2.6 Lack of grading and controlling systems

Farmers are not encouraged or required to sort out their produce and grade it according to quality or 'health' or any other standard for pricing and distribution. Response to the question, 'how are vegetable prices set?' in the questionnaires of government officials (Question 8) and that of farmers (Question 18) gives that both groups stated that prices are fixed by the government without any due regard to rationality and economic arguments. The price is set by a committee without much knowledge of the market, and reference to costs and the distribution system is poor. As a result, farmers lump together both good and bad produce, leading to down-grading and increase in wastage.

Similarly, the government has made no provision for controllers to oversee the grading of produce, to penalize when necessary or reward when appropriate. The lack of such control mechanisms has led to improper behaviour by mixing good and spoilt fruit and vegetables together, which increases the spoilage level and thus wastage also.

7.2.7 Training and technical problems

In the answer to Question 15 in the farmers' questionnaire, nine respondents indicated that farmers are not provided with adequate training. Also, personal interviews conducted with five top government officials in the Ministry of Agriculture and Fisheries, Abu Dhabi, revealed that a lower standard and quality of training is given to farmers. All the five top officials expressed this view.

In general, UAE farmers are not adequately trained in various aspects of agricultural activity. Sorting, grading, preparation, packaging, chemical treatment and storage approaches are some of the areas where appropriate training is lacking. Fruit and vegetables are high risk and perishable products, hence appropriate training in methods of handling and keeping this produce needs to be taught to farmers. This will increase the life of the product, maintain freshness and quality and thus reduce spoilage and wastage. But such training is not made available to the farmer. Even though veterinary staff are available at Veterinary Workshops to provide support, these are hardly available in large numbers to provide the level and scope of support farmers require.

Similarly, farmers do not know how to preserve their produce, in terms of treatment. Often chemical supplies are provided without adequate training on how to use the chemicals without damaging the product. The case of export markets in Europe rejecting fruit and vegetables from the UAE because of high chemical content is pertinent here. Without training in the preservation, storage and handling of fruit and vegetables, wastage is #not only bound to occur but will increase.

7.2.8 Other factors

Many vegetables are leafy products and these are often not packaged and handled appropriately. Farmers simply package the leaves in huge bundles without sorting to separate damaged and rotten from healthy, with the result that the latter are spoilt by the farmer. This leads to a higher level of wastage.

Furthermore, the transportation of fruit and vegetables hardly considers the sensitive and perishable nature of the product. Because of the hot climate of the UAE, fruit ripens quickly and therefore requires appropriate treatment and handling when in transit. Moreover, such produce requires speed of transportation and distribution to maintain its quality and prolong its shelf life. Off-loading the produce at its destination also requires training and appropriate facilities, which are not at present available.

Similarly, farmers need to be made more responsible to society at large for the produce they supply. Currently, the government seems to be concerned mainly with improving the income and welfare levels of farmers, without expecting

anything other than a positive response in the form of increased agricultural output. In the correct order of things, farmers should show as much responsibility for their supplies of produce in terms of quality, packaging, handling, sorting, grading and storage as for the increase in their income and welfare. Without these, and other factors discussed above, being corrected, the level of wastage in fruit and vegetable production in the UAE in general and Abu Dhabi Emirate in particular, will continue to increase.

7.3 EVALUATION OF CAUSAL FACTORS

The various factors responsible for the high and increasing level of wastage of fruit and vegetables in Abu-Dhabi do not contribute to it on an equal level. Some factors contribute more significantly than others, hence there is a need to evaluate their contributions and rank them. This is necessary because of the need to correct the situation for improved performance. Given resource constraints it is not possible to embark upon improving or changing all the factors discussed above at the same time - hence the ranking of the factors according to their relative weight of effect.

Table 7.5 reports the findings from 106 respondents stating the factors responsible for the observed high level of wastage in Abu-Dhabi Emirate.

Table 7.5

Factors that account for wastage

	Response (frequency of choice)				
Factors	Government officials	Farmers	Co-operatives	Total frequency	Ranking of frequency
Poor marketing	20	41	25	86	1
Lack of government control	18	30	18	66	3
Poor training	16	20	14	50	4
Lack of import control	12	5	9	26	
Lack of export market	15	8	20	43	5
Poor distribution	17	20	15	42	6
Poor transportation	10	10	12	32	7
Lack of sorting and grading system	5	5	10	20	9

Table 7.5

Factors that account for wastage

	Response (frequency of choice)				
Factors	Government officials	Farmers	Co-operatives	Total frequency	Ranking of frequency
Poor quality of produce	10	4	15	29	8
Poor promotion	18	30	22	72	2
Others	4	1	5	10	10

Note: Research findings. The samples are: government officials - 20; farmers 61 but only the 41 who said that they are aware of the existence of 'wastage' are included (see questions 26 and 27 of Farmers' Questionnaire); and Co-operatives 25. The responses reported show the frequency of choice of the individual factors as listed by the respondent. Therefore, the total responses in each column will not add up to the sample total of each group.

It can be seen in the Table that 'poor marketing' was the most frequently cited factor (86 responses) among the 10 factors mentioned as responsible for the wastage. This is followed by 'poor promotion' (72 responses) which, as an element in the marketing mix, underscores the significance of marketing or lack of marketing in the level of wastage. Following 'poor promotion' is 'lack of government control' (66) in the form of production control, grading, quality and expansion of cultivation. Poor training of farmers also scored significantly (50), indicating that improvement in the level of wastage may not necessarily come only through better marketing but through other related factors, as indicated in Table 7.5.

To evaluate the relative impact of the main factors mentioned in Table 7.5, the government officials were asked (see Question 24) to rank the factors from 1 - 8 (1 being the highest and 8 the lowest), according to their contribution. Table 7.6 shows the resultant ranking.

Table 7.6

Ranking of impact of factors on level of wastage

Factors	*Ranking*
Poor marketing/promotion	1
Lack of government control	2
Poor distribution system	5
Poor quality	8
Lack of training and knowledge	3
Lack of marketing research	6
Lack of import control	7
Lack of export markets	4

It can be seen that ranking in the Table underscores the frequency of response reported in Table 7.5. 'Poor marketing/promotion' is considered the most significant factor, followed by 'government policy and control', 'lack of training and knowledge' and 'lack of export markets' Product quality comes last in ranking, showing that government officials feel the issue of high chemical content in local fruits and vegetables can easily be resolved by providing appropriate training for farmers on how to use fertilizers and other chemicals appropriately.

However, government policy and control should be the starting point to reduce the level of wastage. This is supported by the response of the Co-operatives to Question 9 in their questions, which asks: 'who should solve this wastage problem?' All 25 respondents answered that the government is responsible and they have to resolve the problem.

Government policy to increase agricultural production should be accompanied by other regulatory and control mechanisms such as an appropriate and reasonable pricing mechanism; storage, packaging, handling, off-loading and quality control regulations. The failure of both the Federal Government and the Municipality of Abu-Dhabi to provide the required policies, regulations and directives to reduce wastage in agricultural production is seen as the major causal factor.

Poor marketing systems and techniques are seen as the most important cause of wastage - as Tables 7.5 and 7.6 show. This is not surprising because there is little marketing done by the Abu-Dhabi municipality or the Ministry of Agriculture to sell agricultural produce. The authorities do not undertake marketing research to

establish the requirements of consumers; the products are not appropriate packaged to attract buyers; no branding is done; pricing is wrong in most cases and the distribution system is not good enough.

The lack of appropriate training provision and facilities for farmers is seen as the third most important cause of the high level of wastage. This is consistently the response in Tables 7.5 and 7.6. Training in the art of producing high quality fruit and vegetables is essential, but just as important is training in sorting, grading, handling, storage, treatment and transportation and delivery of the product. Because of the sensitive and perishable nature of fruit and vegetables, such training is essential if wastage is to be reduced. Officials and farmers interviewed suggest strongly that training provision is absolutely necessary not only to reduce the wastage level but also to improve the quality and quantity of produce.

Above all, the authorities and the Buying Centres carry out hardly any systematic promotion or advertising of agricultural produce. Fruit and vegetables are not promoted in any form to encourage sales in Abu-Dhabi municipality. Similarly, neither the marketing agencies nor the government have designed any marketing plan with a clear objective to market agricultural products in Abu-Dhabi. Such deficiencies in a modern, competitive market place are bound to cause surpluses and, for perishable agricultural products such as fruit and vegetables, that means allowing the surplus to rot as wastage.

The lack of import control over foreign fruit and vegetables imports follows from the lack of government control and marketing. Farmers seem to emphasize this among the three classes of respondents. Farmers argued this point vehemently, while they also see the expansion of export trade as a means of reducing waste.

Poor distribution and transportation systems are also seen as significant in causing wastage. However, government officials argue that if the other major factors were corrected, then the effect of poor distribution and transportation systems will be mitigated. This is because the transportation systems in the UAE in general and in Abu-Dhabi Emirate in particular are improving rapidly, despite the hostile terrain.

7.4 CONCLUSION

Clearly, there are many factors accounting for a high and increasing level of wastage in fruit and vegetable production in Abu-Dhabi Emirate. However, the dominant factors are the following: poor marketing/promotion of local produce, lack of appropriate government policies; lack of effective training provision; the lack of export market and marketing data/information. An investigation is necessary into the reasons for the continued existence of these inhibiting factors and hence wastage in the production and marketing of fruit and vegetables in the UAE, in order to correct these ills.

CHAPTER EIGHT

RECOMMENDATIONS

CHAPTER EIGHT

RECOMMENDATIONS

8.1 INTRODUCTION

In this chapter we shall make some recommendations to resolve the problems identified in the study. The recommendations will provide a new way of approaching agricultural development, especially fruit and vegetable production, to maximise the use of scarce resources in the State, and to eliminate waste. The need for a review of current practices and strategy cannot be over emphasised in view of the findings of this study. It is, therefore, necessary to recap on the main findings and then identify the resultant problem areas which form the basis for my recommendations.

8.2 MAIN FINDINGS

The main findings of this study are:

(a) Agricultural production in the UAE, particularly of fruit and vegetables, has increased significantly since the formulation of the first set of agricultural policies by the UAE Government in December 1983.

(b) Government policies have been encouraging, generous and effective, but better direction, control and regulation are required to achieve efficient utilisation of resources.

(c) The high output of agricultural produce, particularly of fruit and vegetables, has not been matched by demand, hence supply is greater than demand.

(d) There is a very high level of wastage of fruit and vegetables, especially in the Abu Dhabi Emirate. Currently, over 70% of fruit and vegetables produced in the Emirate are dumped as wastage because of spoilage.

(e) No significant alternative use of the spoilt fruit and vegetables has been identified or developed.

(f) The import of fruit and vegetables is increasing, indicating that local propensity to consume fruit and vegetables is progressively shifting towards imports; there are no import controls of any form.

(g) The export trade in fruit and vegetables is very slow in developing, particularly to countries outside the Arab world.

(h) Fruit and vegetables produced in Abu Dhabi have a very high chemical content, which has affected local consumption and attempts to export the produce, especially to countries such as Germany.

(i) Agro-marketing in the UAE is poor and hence ineffective. Little marketing research is carried out to identify consumer preference, and product promotion and advertising hardly exist.

These findings, particularly those which limit the effective development, distribution and marketing of agricultural produce, derive from some fundamental problems within the economy. Our recommendations are directed at these problem areas, hence it is necessary to identify them.

8.3 THE PROBLEM AREAS

A number of problem areas underscore the adverse effects of the limiting factors of agricultural development and marketing in the State. These are:

(a) inappropriate and uncontrolled government policies leading to loss of control;

(b) the lack of an Agro-Bank to finance agriculture with government guarantees rather than with free capital;

(c) the poor agro-marketing system in the State;

(d) the inadequate distribution system which restricts effective distribution of agricultural produce;

(e) the lack of adequate and appropriate Research Institutes to research and develop the sector;

(f) the lack of adequate training facilities to improve the productivity of farmers and their farms;

(g) the lack of export markets and non-control of imports;

(h) the limited land-ownership structure, dominated by smallholdings;

(i) the poor organisational structure which is unsuited to a marketing approach; a rather administration-focused and inflexible structure;

(j) meteorological problems which affect production because of the climatic situation of the country;

(k) the poor link between the agricultural and industrial sectors.

These problem areas have collectively or individually contributed to the results obtained in this research. I argue that the elimination of all or most of these problem areas will lead to a much improved agricultural sector and agro-marketing operation. Wastage will be eliminated, revenue from the agricultural sector will increase, leading to a higher contribution by the sector to the national income. I therefore make the following recommendations to solve the problems.

8.4 SOLUTIONS TO PROBLEMS

8.4.1 Government agro-policy

Current government agro-policies aim at protecting natural resources and utilising them to the utmost to produce food for self-sufficiency and to diversify the economy. These policies also aim to keep the farmer in his rural region, increase his income through generous pricing and purchasing policies; increase mechanisation of agricultural activity, and raise the proportion of contribution of the sector to the national income. A barrage of incentives and schemes have been developed to support these policies in order to achieve these objectives. The

resultant increase in output of the sector is indisputable.

However, these same policies have led to indiscriminate production and wastage in the sector. The policy of purchasing whatever the farmer produces, irrespective of the nature, quality or type of produce, is not only irresponsible, but also encourages irresponsibility on the part of the farmers in the way produce is handled and stored.

I recommend, therefore, that a thorough review of all agro-policies, including pricing mechanisms, be undertaken. This should be supported by comprehensive market research to obtain the relevant data for policy formulation. Policies should not only encourage and support higher production in the sector, but should also be responsible in terms of having control mechanisms to ensure efficient implementation. Similarly, policies should discriminate between product divisions and within product divisions among product types, according to demand priorities. This can be achieved only if accurate data deriving from market research is available. The provision of a policy to encourage agricultural activity and increased production is necessary, but it is not sufficient to ensure efficient use of scarce resources such as land, water and manpower. Government policies should have control mechanisms to ensure appropriate implementation.

8.4.2 Financing of agro-business

Currently, the government provides capital on a highly subsidised basis. Loans obtained from banks are few, and are concentrated mainly among Co-operatives who import foreign agricultural produce.

Government supply of capital loans to farmers is hardly based upon rational criteria or feasibility of the project. Furthermore, the lack of an Agro-Bank means that expansion in the sector is limited and that the operation of market forces is stifled.

I recommend that an Agro-Bank be established to take over the financing of agro-business from the government. Such a bank will provide loans according to rational criteria based upon the feasibility of the project. Furthermore, the bank will introduce a more effective approach to agro-business development through stringent the financial controls, responsibility and accountability that may be required. This will mean that farmers will be more careful in the use of resources, handling of their produce and control of their operations, including reduction of wastage.

8.4.3 Agro-marketing corporation in the State

There is little agro-marketing in the State, as reflected by the lack of marketing research to establish consumer needs and preferences, planning, promotion of agricultural products and competitive pricing. Current marketing activity is based upon an ad-hoc approach. The effect is that domestic products, as opposed to imports, are not known by the consumer. No wonder, then, that the marginal propensity to consume fruit and vegetables is increasingly shifting towards imports, as is suggested by the level of wastage of locally produced fruit and vegetables.

I recommend that an Agro-Marketing Corporation be established, which will be responsible not only for marketing agricultural produce, but for implementing a pricing policy. Currently, the pricing of agricultural produce is undertaken by people who have neither the qualifications nor the appreciation of the issues involved. The Corporation will be able to set competitive prices, promote agricultural produce, establish appropriate marketing channels and manage them, package and brand the products for effective marketing. This will increase awareness of domestic produce available, leading to more effective competition against imports.

The level of wastage of fruit and vegetables in the State will be reduced if appropriate marketing is carried out. The Corporation will also be responsible for developing Marketing Plans with clear objectives, strategies and tactics to implement and control the programme. Such a plan is essential to absorb the ever-increasing output of the sector. In a world of increasing competition, even agricultural products require a consciously planned marketing programme.

The Corporation will also be responsible for advising on import licences and organising storage for surplus produce. Handling, packaging, loading, preparation and so forth of agro-produce for the market will all fall within the remit of the Corporation. We must emphasise here that one of the major causes of the identified high level of wastage in fruit and vegetable production is the lack of effective marketing. An agro-marketing organisation must be established in all the Emirates of the UAE.

8.4.4 Distribution system

Effective marketing depends very much on an effective distribution system. The present level and standard of agro-produce distribution system in the UAE in terms of transportation, handling, roads, communications, storage, packaging and preparation of the products, are inadequate.

The government should invest in these areas to improve the distribution of agricultural products. There are regions in the UAE which are not adequately served, either by the available road network, or by communication links. The farmers' produce is thus left uncollected for days, causing ripening before it reaches the Receiving Centres. This results in spoilage, which is the chief cause of wastage.

Much improvement has been made in the road network in the UAE. The same is true of communication links, but much needs to be done in view of the ever-increasing level of output of agricultural produce. More investment is required in this direction.

8.4.5 Research Institutes

Some research laboratories with modern scientific equipment have been established in Al Ain, Al Fujairah, Al Zaid and Dagdaga, to provide various forms of scientific research and services. However, these are not enough for the rapidly developing agricultural sector, which requires:

(a) in-depth research for water resources;

(b) research into soil samples;

(c) research into plant and animal nutrition, diseases, species etc;

(d) research to build up a data-base for planning and control.

I recommend that the government should establish more research institutions to provide adequate research services in the arid climate of the UAE which is not friendly to agriculture.

8.4.6 Training Facilities

Poor training of farmers and their workers is partly responsible for the inefficient performance of the agricultural sector. The achievement of the objectives of an organisation depends mainly on the efficiency, skills and capabilities of the employees. In the UAE, farmers, technical support workers and Guidance Unit employees are often inadequately trained. This has led to poor performance which is partly responsible for the high level of wastage of fruit and vegetables.

I recommend that adequately equipped training facilities be provided to train farmers and other support service providers, in order to improve their productivity. The existing training facilities in Al Dagdaga and the UAE University at Al Ain may be expanded in the short term, with a longer-term plan designed. Both farmers and support service providers should be required to undergo periodic re-training in order to top up their knowledge and skills.

8.4.7 Import-export trade

I recommend that the current policy of no import controls be reviewed in the light of the increasing domestic output. This is particularly the case with fruit and vegetable imports. Duties or other control systems should be imposed to stem the

flood of foreign agricultural produce into the UAE.

At the same time, the government should delegate the search for external markets for UAE agricultural produce to the Agro-Marketing Corporation and provide the company with active support. Availability of export outlets will achieve not only an increase in production and the welfare of farmers, but also in foreign exchange earnings and in contributions to the national income.

8.4.8 The structure of land ownership

The current prevalence of the smallholding and the policy of free distribution of land to locals should be reviewed. Agricultural land in the UAE is in short supply, therefore there is a need for effective allocation and use of land. Smallholding is increasing at the expense of large agricultural units, which are encouraged in neighbouring Saudi-Arabia.

I recommend that while the smallholding should continue to provide the basic unit, large farms organised in co-operative societies should be encouraged. Farmers should be encouraged to combine to form Agericultural Co-operatives. Such farms normally benefit from large-scale economics and thus better productivity than smallholdings. The government should give increased subsidies and incentives to encourage large farms and while reducing those given to smallholders.

8.4.9 Organisational structure of administration

The current organisational structure of agro-administration is too rigid and therefore unsuited to the flexible marketing structure required ti improve

efficiency. We recommend that the current organisational structure be reviewed with the aim of restructuring it to reflect the dynamics of the sector.

More marketing-orientated structure is required, rather than technical and administrative systems. Furthermore, functional areas down the stream should be given more responsibility in the field. There should be greater communication between the administrators, the field-workers and the farmers.

8.4.10 Meteorological factors

The UAE has an arid climate characterised by rare rainfall and poor distribution of rain from year to year. Because of this, research into underground water resources should be intensified.

The country has two seasons suitable for planting - the winter period, when the planting of fruit and vegetables is undertaken -and the summer period, when much less planting is done. There is thus a need to explore the possibility of introducing and encouraging 'shelter farming'. This will enable agricultural planting to be undertaken throughout the year, thus improving productivity and the more efficient use of the scarce resources of land and water. The government should encourage farmers through the provision of subsidies, machinery and other support services to develop 'shelter farming'. Thus, the State will have a dual farming system - 'open' and 'shelter' farming.

8.4.11 Links with industry

Links between the agricultural sector and industry are currently slight. One of the policy objectives of the government is to diversify the economy and provide local input into industry. However, this objective has not been achieved and little effort has been made to investigate various possibilities to develop domestic input for industry through the agricultural sector.

I recommend that research be undertaken to investigate the various sources of input that the agricultural sector may provide for industry. The current wastage can be used for industry as a basis for producing fertiliser and animal feed. Other sources of input should be investigated and developed to reduce dependence on imported raw materials.

8.5 IMPLEMENTATION OF SOLUTIONS

Marketing research

The starting point in the implementation of the various recommendations made above is to carry out research in order to build up a credible data-base. This will enhance forecasts, budgeting and control of plans.

Marketing plan

The second stage is to design a pragmatic and workable plan. Quantifiable objectives should be set and strategies to achieve them formulated. All alternative strategic options should be evaluated in order to choose the optimal one. Without a plan, it will not be possible to implement any of our suggested solutions.

With the plan, the budgets, policies, regulations, performance criteria and control mechanisms should be established. These will introduce responsibility, discipline and accountability into the operation of the plan. The UAE is still an oil-rich country, which suggests that budgetary constraints may not be as limiting as they would have been in other non oil-producing developing countries. To that extent, we expect that the government will have some leeway in planning and implementing the programme. Human or manpower constraints may be alleviated through the continuous import of expatriates while efforts are made to train local experts.

8.6 DEVELOPMENT OF LOCAL DEMAND

Central to the marketing plan should be strategy and tactics to develop local demand for domestic produce. Currently, most of the domestic produce is bought by the low income group and immigrant labour. Most of the middle and upper income group who are largely nationals of the UAE, hardly consume domestic produce. Deliberate efforts to improve the image of local fruits and vegetables must be made. This may be achieved through:

(a) improving the quality of local vegetables;

(b) more attractive packaging and labelling of domestic produce;

(c) better distribution system and channel management;

(d) high profile and better promotion, sales promotion, advertising and public relations activities;

(e) exhibition on national level.

To achieve these objectives, there is a need for thorough marketing research to identify the requirements of the local consumers, so as to provide what they require and satisfy them. There is a good market for local vegetables but the market needs to be identified and targeted with high profile advertisements and promotions to create awareness of the products and induce greater demand for the products.

8.7 PROBLEMS OF IMPLEMENTATION

One of the obvious problems in implementing our recommendations is human reaction to changes. However, a properly planned programme of change, which derives from the requirements of the people and marketed to therm as beneficial, will receive their support and blessing. It is the duty of the government to ensure the commitment of all concerned to its programmes.

The other problem is that of organisation. There is a serious lack of organisational skills and this needs to be developed. In the short term, expatriates may be employed to provide the required services.

Mismanagement may also be a problem. The government should eliminate this by appointed qualified and experienced locals in conjunction with expatriates to manage the programmes of change.

8.8 CONCLUSION

With appropriate research and planning, the government of the UAE will be able to eradicate the constraints upon agricultural development and efficiency. The current high level of wastage of fruit and vegetables can easily be reduced through the establishment of an appropriate and efficient marketing system, proper training of farmers, a good distribution system and export of surplus produce. The government should ensure that its plans are workable and that they are implemented efficiently.

CHAPTER NINE

CONCLUSIONS

CHAPTER NINE

CONCLUSION

9.1 INTRODUCTION

In this study I have examined the development of agriculture in the UAE and focused upon the marketing of agricultural produce, with particular reference to the marketing of fruit and vegetables in the Emirate of Abu Dhabi, where the level of wastage of fruit and vegetables is very high. I have investigated the wastage, identified the factors responsible and evaluated their differential contribution to the high level of wastage in the Emirate. My ultimate objective is to come up with a set of recommendations, together with their policy implications for reducing the level of wastage and increasing the level of commercial use of agricultural produce.

9.2 SUMMARY OF FINDINGS

My research has revealed quite a lot about agricultural development in the UAE in general and agricultural marketing and produce wastage in the Emirate of Abu Dhabi in particular. Firstly, evidence of government interest and commitment to agricultural development in the State is very evident. Subsidies, fee land, support services, cheap capital, purchase policy, incentive pricing, provision of water wells, purchase centres, guidance centres, zone administration, information and other rural welfare packages are some of the main government activities in support of

agricultural development in the UAE. The main driving force behind the government's interest and commitment, as demonstrated in the various Development Plans of the Federation since its establishment in December 1971, is the desire to diversify the economy and become self-sufficient in the production of food for the ever-increasing population of the State.

In the pursuit of this objective the government relies heavily upon its generous Agricultural Incentive Schemes, which may be grouped into three:

(a) provision of free land and associated facilities, including water wells and agricultural machinery and capital;

(b) provision of support services, including veterinary services, workshops, guidance centres, technical training and relevant information;

(c) provision of marketing incentives, including generous pricing policy; collection network, agricultural zone administration, collection centres and selling outlets.

Despite these incentives and support services, the government's ability, expertise and political will-power to ensure effective and efficient application of the policies as well as the incentive schemes, is questionable. Policies are developed without a carefully planned and evaluated method of implementation and control. The result has been a haphazard application of policies with little accountability. Resources have been wasted as a result; for example, the high level of fruit and vegetable wastage in the Emirate of Abu Dhabi. Incentives and other enabling provisions have been provided, but the control of the implementation of the incentive schemes and the evaluation of the impact have been inefficient.

The policies and incentive schemes have, however, led to high levels of agricultural production in the State. This is evident in all areas of the agricultural sector, including animal husbandry and fishing. Most pronounced is the increase in fruit and vegetable production, as reflected in the case of the Emirate of Abu Dhabi. It is also in this area of the agricultural sector that most of the problem of wastage in agricultural produce has occurred.

Secondly, my research findings have also shown that a high proportion of fruit and vegetable production in the UAE in general, and the Emirate of Abu Dhabi in particular, is wasted. The contributory factors are as follows:-

(a) poor marketing planning and control, including lack of marketing research;

(b) ineffective distribution systems, particularly transportation;

(c) poor promotion of agricultural produce;

(d) high chemical content in fruit and vegetables;

(e) uncontrolled application of agricultural development schemes and incentives;

(f) lack of export trade and outlets;

(g) uncontrolled import of fruit and vegetables;

(h) exclusion of the Co-operatives from distribution of domestic production of fruit and vegetables;

(i) lack of adequate training of farmers in the storage, handling, preparation, packaging, etc of fruit and vegetables;

(j) lack/absence of sufficient domestic demand.

Underlying these contributory factors is the unclear commitment of the government of State in terms of policy and direction. Unlike the government of neighbouring Saudi Arabia, which has unambiguous policies, regulations and direction for agricultural development in that country, the government of the UAE is yet to crystallize its agricultural development policies in a way that will eliminate the wastages observed. For example, while schemes and incentives geared towards higher levels of production of agricultural produce, including fruit and vegetables, are necessary and desirable, there is the need to ensure that production is distributed efficiently to various markets in the UAE, and other markets (eg export markets) are rigorously researched and located.

My findings in this research indicate strongly that the problems of the agricultural sector may be lodged squarely at the doorsteps of the government and Municipalities. Given the nature and dependence of the farmers and, indeed, of the entire population upon government actions and policies, definitive direction, regulations and policies geared towards an efficient development, distribution and marketing of agricultural produce, especially fruit and vegetables, would have reduced the problem of wastage to a minimum.

9.3 RECOMMENDATIONS

From the analysis of our findings, a number of recommendations have been made. These include, among others:

(a) improvement in planning and control of agricultural production, especially fruit and vegetables;

(b) a more effective approach to distribution and marketing of agricultural produce (fruit and vegetables);

(c) continuous marketing research and establishment of information/database about agricultural output, domestic consumption, distribution systems, changing trends, export-import trade, etc for more effective planning and control;

(d) technical improvements in the form of improved training programmes and facilities for farmers and the reduction of chemical levels in fruit and vegetables;

(e) more definitive commitment of the government in terms of policies and regulations to direct farmers and all involved in the sector into a more efficient use of the scarce agricultural land and facilities available;

(f) development of export trade in fruit and vegetables, while at the same time controlling imports;

(g) planned programme of domestic promotion to stimualte local demand.

There are obviously some limitations on the effective implementation of the recommendations such as budgetary constraints, resistance to change, development of export markets while reducing imports, etc. These constraints may be reduced through careful research and planning. The country has oil wealth which may be used to develop the agricultural sector to diversify the economy. Foreign markets may be developed through competitive pricing and reduction of the current high chemical level in fruit and vegetables. Better education and training of farmers

and consumers may reduce the resistance factor. Government policy and commitment is therefore crucial.

9.4 CONCLUDING REMARKS

My research has revealed an interesting situation in the agricultural sector of the UAE economy, particularly in the production of fruit and vegetables. Compared with the period before the establishment of the Federation of the UAE, the current level of development in the agricultural sector is significant and encouraging. There is a clear realisation of the need to produce food to feed the rapidly growing population, on the one hand, and to diversify the economy to reduce the dependence upon oil, on the other. The response to this need, as reflected in government policies and incentives in the agricultural sector, is fairly positive. The effects have also been significant and positive, as may be seen from the increased levels of production.

However, serious gaps still exist in the development, distribution and marketing of agricultural produce, particularly fruit and vegetables. These gaps need to be plugged effectively if the government's objective is to be achieved, of utilizing the scarce land, water and human resources to develop agriculture. Ways of reducing the wastages in fruit and vegetable production are available from the experiences of other countries, such as the United Kingdom, USA, Canada and others. The UAE could learn from these countries how to improve its agricultural performance.

For all these reasons, the crucial input is a more determined and purposeful commitment on the part of the government to improve the situation in this sector. The other players in the sector will, no doubt, follow if the planning, implementation and control of agricultural development, distribution and marketing are effective. It should be noted that 'levels of output relate positively to the amount and level of input'. This is true even for a government effort to improve its economy.

9.5 FURTHER AREAS OF RESEARCH

My study has been limited by various factors, including time, finance and human capacity. Another major limitation is the scope of the study. I have concentrated on the Emirate of Abu Dhabi because of the constraints stated above. It will therefore be useful to extend the research to cover the whole country in order to compare results.

Another specific area of research is the investigation of consumer reaction to fruit and vegetables produced locally, because of the high chemical content and the availability of imports as substitutes.

Research to identify appropriate foreign markets to exploit would also be useful. Such a study will indicate how competitive in the world market are fruit and vegetables produced in the UAE, and provide the government with data for planning and controlling its agricultural development.

Furthermore, focused research into the distribution of fruit and vegetables in the UAE will be educative. It will provide information for reviewing existing distribution systems, with a view to improving them.

The farmers, and their perception and assessment of the pattern and structure of agricultural development in the country, might also be a good topic of research. This will provide information for future planning for agricultural development, particularly as the sources of information are the practitioners themselves.

These areas are all worth investigating in order to develop a database for planning. Without accurate data, forecasting and planning come under serious question. This is more so for a government such as that of the UAE, which seeks to improve the socio-economic welfare of its people through diversification of the economy.

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APPENDIX A

Questionnaire for Farmers

Dear Farmer:
As a part of a study researching the marketing of agricultural products in the UAE we are very interested in learning more about why there is so much wastage of agricultural output in the UAE. Our objectives are to understand the agricultural production and marketing systems and distribution systems and to find out the factors responsible for the wastage. It will take you only a few minutes to answer the questions on the attached papers and your invaluable help will be greatly appreciated.

Questionnaire (please tick where appropriate)

1. Where is your farm located?

2. How big an area do you cultivate?
   ___ 0.5 acres
   ___ 6-10 acres
   ___ 11-20 acres
   ___ 21-50 acres
   ___ Over 50 acres

3. Which is the main product you cultivate?
   ___ Tomatoes
   ___ Cucumber
   ___ Eggplant
   ___ Chard
   ___ Cabbage
   ___ Potatoes
   ___ Other, please specify
   ___ Lettuce

4. What is your main reason for producing the crop mentioned in (3) above?
   ___ Market research results
   ___ Governmnt policies
   ___ Traditional crop
   ___ Most suitable
   ___ Market demand
   ___ Other, please specify

5. How much did you produce in the last couple of years?
   1992
   1993
   ___ 0.5 tonne
   ___ 5-10 tonne
   ___ 10-20 tonne
   ___ 20-50 tonne
   ___ Other

6. Out of this, how much did you manage to sell?
   1992
   1993
   ___ 100%
   ___ 99-75%
   ___ 75-50%
   ___ <50%

7. If not 100%, then why?
   ___ Transportation problems
   ___ Storge problem
   ___ Natural disaster
   ___ Government quotas/policies
   ___ Low demand

8.	What happens with the produce you cannot sell directly after harvesting?	___ Throw it away ___ Give it away to friends and relatives ___ Store it in hope to be able to sell it later ___ Other, please specify.....
9.	If 100%, why don't you cultivate more land?	___ Government policies ___ Land is too expensive/not available ___ Satisfied with present situation ___ Other, please specify .....
10.	Do government policies encourage you to cultivate more land?	___ Yes ___ No
11.	If yes, which policies encourage you the most?	___ Free storage facilities ___ Price subsidy ___ Tax free income ___ Interest free loans ___ Marketing support ___ Guarantee of sale
12.	Are the government doing enough to encourage farmers?	___ Yes ___ No
13.	If no, what could they do to improve the situation?	___ Raise prices ___ Financial assistance ___ Technical aid ___ Protectionist policies ___ Other, please specify.....
14.	Could better equipment and improved agricultural technology reduce wastage?	___ Yes ___ No
15.	If no, wherein lies your problem to improve your technological standards?	___ Insufficient technological support (Government) ___ Too expensive ___ No favourable loans available ___ Lack of proper training and knowledge
16.	To whom do you sell your produce?	___ Government buying agencies ....% ___ Co-operatives....% ___ Direct to stores ....% ___ Direct to the consumer .... % ___ To the open-market/export ....%
17.	How do you distribute your produce?	___ I depend on the buyer to pick it up ___ I distribute it myself
18.	What determines your selling price?	___ Demand ___ Fixed prices
19.	How is the competition?	___ No real competition (guaranteed sales) ___ Some competition, but still good profit margins ___ Fierce competition, small profit margins
20.	Who are your major competitors?	___ Co-operative farmers ___ Other private farmers ___ Imported goods

21.	How do you market your product?	___ Don't have to, I can always sell what I produce. ___ Posters ___ TV advertisements ___ Word of mouth ___ Other, please specify..... ___ A combination of the above
22.	Have you done any marketing research	___ Yes ___ No, but I've read marketing reports ___ No
23.	If yes, what kind of marketing research did you do?	___ Mail surveys ___ Telephone surveys ___ Interviews ___ Other, please specify .....
24.	How often do you do marketing research/get marketing information?	___ I've done it once only ___ Every year ___ Every five years ___ Once in a blue moon!
25.	Is the information collected usually correct?	___ Yes ___ No
26.	Are you aware of the high level of wastage of fruits and vegeables produced locally?	__ Yes -- No
27.	If 'Yes' in 26. above, which of the following factors account for the wastage? (Tick as many as possible).	--
		--
	Poor marketing	--
	Lack of government control	--
	Poor training of farmers	--
	Lack of import control	--
	Lack of export control	--
	Poor distribution	--
	Lack of sorting and grading	--
	Poor quality of produce	--
	Poor promotion	
	Others	
28.	What suggestions would you give to improve on agricultural wastage?	

APPENDIX B

Questionnaire for Government Agency/Officials

Dear Administrator

As part of a study researching the marketing of agricultural products in the UAE, we are very interested in learning more about why there is so much wastage of agricultural output in the UAE. Our objectives are to understand the agricultural production and marketing systems and distribution systems and to find out the factors responsible for the wastage. It will take you only a few minutes to answer the questions on the attached papers and your invaluable help will be greatly appreciated.

Questionnaire (please tick where appropriate)

1. What position do you occupy within the Government Buying Agency? .....

2. Which department of the agency do you work for? .....

3. From whom do the agency mainly buy?
   ___ Contracted farmers
   ___ Non-contracted farmers
   ___ Co-operative farmers
   ___ The open market

4. What kind of farm produce do you mainly deal with?
   ___ Grain
   ___ Vegetables
   ___ Fruit
   ___ Other, please specify
   .....

5. How do you decide upon buying quantity and product variety?
   ___ Market research
   ___ Fixed quotas and specified products
   ___ Other, please specify.....

6. How do you collect/distribute the products?
   ___ Collect from farmers/deliver to store
   ___ Farmers deliver to you
   ___ Farmers deliver to storage rooms, from where you distribute
   ___ Farmers deliver directly to store

7. Which distribution channels do you use to sell the produce?
   ___ Supermarkets/private stores
   ___ Central Collection Centres
   ___ Foreign countries (export)
   ___ Selling Centres
   ___ Co-operatives

8. How do you decide upon a buying price?
   ___ Market research
   ___ Fixed prices
   ___ Long-time contracts with farmers
   ___ Supply and demand
   ___ Other, please specify
   .....

9.	How do you decide upon a selling price?	___ Market price ___ Fixed prices ___ Fixed percentage subsidy ___ Supply and demand ___ Other, please specify .....
10.	Do the government encourage farm production?	___ Yes ___ No
11.	If yes, which measures do the government take to encourage farm production?	___ Price subsidy ___ Free land ___ Interest-free loans ___ Storage facilities ___ Guarantee of sale ___ Marketing support ___ Other, please specify .....
12.	How does your agency promote the farm produce its sells?	___ TV ads ___ Newspaper ads ___ Government booklets ___ Promotion exhibitions ___ Free samples ___ Special offers ___ No promotion at all
13.	What percentage of what you buy do you on average manage to sell?	___ 100% ___ 99-75% ___ 74-50% ___ Less than 50%
14.	What happens if you have a surplus supply?	___ Export ___ Store ___ Sell cheaply on the open market ___ Immediate disposal ___ Other, please specify .....
15.	Do you undertake market research?	___ Yes ___ No
16.	If you do market research, how often is this done?	___ Once a year ___ Every two years ___ Every five years ___ Irregularly ___ Other, please specify .....
17.	Who does your market research?	___ No market research ___ Own market research ___ Contracted research companies
18.	Do you think your market research is adequate/reliable?	___ Yes ___ No
19.	Can you match the market need?	___ Yes ___ No

20. Do you face major competitions from
___ Private farms
___ Co-operative farms
___ Imported goods
___ No competition

21. If yes, can you develop new markets for your products?
___ Yes
___ No

22. Which of the following account for wastage of fruits and vegetables in Abu Dhabi region? (Tick as many as possible).
___ Poor marketing
___ Lack of government control
___ Poor training of farmers
___ Lack of import control
___ Lack of export market
___ Poor distribution
___ Lack of sorting and grading
___ Poor quality of produce
___ Poor promotion
___ Others (please specify).....

23. What suggestion would you give to improve on the agricultural wastage?
.....
.....
.....

24. Please rank the following from 1 to 8 (1 being the highest and 8 the lowest), according to their contribution to the wastage:

	Rank 1 - 8
Lack of import control	____
Government policy	____
Poor marketing/promotion	____
Poor distribution system	____
Lack of export market	____
Poor quality	____
Lack of training	____
Lack of market research	____

25. What suggestions would you offer to improve on agricultural wastage?
.....
.....

Thank you for your time and expertise!

APPENDIX C

Questionnaire for Co-operatives

This research is a part of a larger project on the marketing of agricultural produce. The objective of the research is to find out why there is so much wastage of agricultural output in the UAE.

Please tick ✓ in the spaces provided.

1. Name of your Co-operative and Retail Outlet:

2. Address:

3. Telephone no:

4. Do government policies encourage the cultivation of more land?
   - ___ Yes
   - ___ No

5. If yes in question 4, which are the policies which most encourage greater cultivation?
   - ___ Tax free
   - ___ Free land
   - ___ Interest free loan
   - ___ Market support
   - ___ Others (please specify)

6. Do you think a large quantity of agricultural products are wasted?
   - ___ Yes
   - ___ No

7. What are the factors responsible for this wastage?
   - ___ Lack of government control
   - ___ Poor marketing
   - ___ Poor distribution
   - ___ Poor promotion
   - ___ Lack of export trade
   - ___ Lack of import control
   - ___ Poor training
   - ___ Poor transportation
   - ___ Lack of sorting and grading
   - ___ Poor quality

8. Do you think the wastage problem can be solved by:
   - ___ Exporting surplus
   - ___ Better marketing
   - ___ Better distribution system

9. Who should solve this wastage problem?
   - ___ Government
   - ___ Farmers
   - ___ Co-operatives

10. Do you think there should be more co-ordination in production between the farmers and the government?
    - ___ Yes
    - ___ No

11.	How do you set your selling price?	___ Government sets it ___ Competitive pricing ___ Arbitrary prices ___ Cost-plus pricing
12.	How do you promote/advertise your products?	___ Television ___ Newspapers ___ Posters ___ Radio ___ Sales promotion ___ Others
13.	Do you purchase from Government Collection Centres?	___ Yes ___ No
14.	How do you compare the quality of local vegetables with imports?	___ Imports are better ___ Local produce is better ___ No difference
15.	How do you compare the prices of imports with local vegetables?	___ Imports higher ___ Locals higher ___ Imports lower ___ Local lowers ___ No difference
16.	Would you like to see some import control on fruits and vegetables?	___ Yes ___ No
17.	Do you have any suggestions to give to assist in reducing the level of wastage? Please state them	Thank you.

APPENDIX D

Questionnaire for Consumers

This research is a part of a larger project on the marketing of agricultural produce. The objective of the research is to find out why there is so much wastage of agricultural output in Dubai.

Please tick ✓ in the spaces provided.

1. Name:
2. Address:

3. Telephone no:
4. Occupation:
5. How often do you buy vegetables?
   ___ Once a week
   ___ Twice a week
   ___ More
6. How would you compared prices of imported vegetables with those of local produce?
   ___ Higher
   ___ Lower
   ___ Comparable
7. Do you think that we produce excess quantities of vegetables?
   ___ Yes
   ___ No
8. Are you satisfied with the quality of agricultural produce?
   ___ Yes
   ___ No
9. Is agricultural produce easily available to you?
   ___ Yes
   ___ No
10. Do you buy agricultural produce in:
    ___ Bulk
    ___ Small quantities
11. Where do you prefer to buy your vegetables?
    ___ Supermarket
    ___ Grocery shop
    ___ Selling Centres (Government)
    ___ Co-operative Society Centres
    ___ Government open market
    ___ Others
12. (a) Do you prefer to buy vegetables which are:
    ___ **Home produced**
    ___ **Imported**
    ___ **Both**

    (b) Would the restriction of imported vegetables encourage you to buy loca produce?
    ___ **Yes**
    ___ **No**
13. Which products would you prefer to buy?
    ___ Fresh
    ___ Tinned
    ___ Both
14. Do you grow vegetables at home?
    ___ Yes
    ___ No

15. Do you grow large quantities at home?
___ Yes
___ No

16. If you grow vegetables at home, how much is consumed?
___ All of it
___ Half
___ Less

17. If you do not consumer the whole quantity, what do you do with the remainder?
___ Sell it
___ Waste it
___ Give it away

18. If you grow vegetables at home, do you also buy them from the market?
___ Yes
___ No

19. A large quantity of vegetables produced in our country are wasted. What do you think is the main reason?
___ Lack of storage capacity
___ Poor distribution
___ Poor marketing
___ Excess production
___ Lack of exports
___ Any other reasons? Please specify

.....
.....

20. Who do you think is responsible for the wastage?
___ Farmers
___ Government
___ Consumers
___ All

21. We would be truly grateful if you could give us some suggestions on how to deal with the problem of agricultural produce wastage in the UAE:

.....
.....
.....
.....

APPENDIX E

Findings: Government Agency Questionnaire

Sampling frame - 50 Agencies
Sampling size - 20 Agencies

Questions	Responses	
Q1	Managers	2
	Asst managers	4
	Buyers	8
	Others	6
Q2	Central Collection Centre	2
	Collection Centres	8
	Selling Centres	10
Q3	Farmers only	
Q4	Fruit and vegetables	
Q5	Government policy to purchase everything produced	
Q6	Farmers deliver to Collection Centres and Collection Centres transport products to Central Collection Centre, which then distributes to Selling Centre	
Q7	Mainly Selling Centres and sometimes Co-operatives	
Q8	Set by government officials	
Q9	Set by government	
Q10	Yes (all 20 respondents)	
Q11	Price subsidy 30%	
	Free land	50%
	Interest-free loan	30%
	Sales guarantee	70%
	Marketing support	20%
	Agricultural support	50%
Q12	No promotion	
Q13	Less than 50% since 1990	
Q14	Destroy as wastage	80%
	Sell to fertilizer companies	20%
Q15	No (all 20 respondents)	
Q16	None	
Q17	None	
Q18	None	
Q19	No (all 20 respondents)	
Q20	Co-operatives	70%
	Imports	30%
Q21	Yes (all 20 respondents)	

Questions	Responses	
Q22	Poor marketing	20
	Lack of government control	18
	Poor training of farmers	16
	Lack of import control	12
	Lack of export control	15
	Poor distribution	17
	Poor transportation	10
	Lack of sorting and grading	5
	Poor quality of produce	10
	Poor promotion	18
	Others	4
Q23	Yes 90% (18)	
	No 10% (2)	
Q24	Lack of training and knowledge	4
	Government policy on purchase	2
	Lack of marketing/promotion	1
	Lack of market research	9
	Lack of import control	6
	Lack of export market	5
	Poor distribution system	3
	Poor quality	7
	Poor transportation	8

APPENDIX F

Findings: Farmers' Questionnaire

Sampling frame - 1000 farmers
Sampling size - 61 farmers

Questions	Responses	
Q2	0-5 acres	30
	6-10	25
	11-20	5
	21-50	None
	More than 50	None
Q3	Mainly fruit and vegetables	
Q4	Market research	0
	Government policy	30
	Tradition	20
	Most suitable	10
	Others	1
Q6	All sold to government	(100%)
Q9	Government policies	28
	Land constraint	12
	Satisfied	21
	Others	0
Q10	Yes	61
	No	0
Q11	Marketing support	1
	Free storage	0
	Agricultural support	5
	Price subsidy	1
	Tax-free income	2
	Interest-free loan	3
	Guarantee of sales	50
	Others	
Q12	Yes	52
	No	9
Q13	Technical aid	5
	Financial assistance	2
	Raise price	0
	Import control	2
Q14	Yes	52
	No	9
Q15	Lack of training and knowledge	5
	Lack of marketing	2
	Lack of export	1
	No import control	1
Q16	Government buyers	61
	Co-operatives	0
	Consumers	0
	Open market	0

Questions	Responses	
Q17	Deliver to Collection Centre	61
	Supply co-operatives	0
	Others	0
Q18	Demand/supply	0
	Government	61
	Others	0
Q19	No competition	61
	High competition	0
	Some competition	0
Q20	None, except other farmers	
Q21	Do not carry out marketing; government buys all produce	
Q22	No	
Q23	None	
Q24	None	
Q25	None	
Q26	Yes	41
	No	20
Q27	Poor marketing	41
	Lack of government control	30
	Poor training of farmers	20
	Lack of import control	5
	Lack of export market	8
	Poor distribution	20
	Poor transportation	10
	Lack of sorting and grading	5
	Poor quality of produce	4
	Poor promotion	30
	Others	1
Q28	Introduce: • marketing of produce • more training for farmers • control of supply and import • improve distribution system	

APPENDIX G

Findings: Consumer Questionnaire

Sampling frame - 2000 consumers

Question	Response		
Q4&5	*Job*	*No*	*How often do you buy vegetables?*
	Managers	10	Once a week
	Housewives	70	Very often/week
	Skilled worker	40	Twice/week
	Professional	30	Once/week
	Others	50	Twice/week
Q6	Higher than others		165
	Comparable		0
	Lower		35
Q7	Yes		90
	No		110
Q8	Yes		95
	No		105
Q9	Yes		153
	No		47
Q10	Bulk		140
	Small quantities		60
Q11	Supermarket		45
	Grocery shop		20
	Selling Centres		35
	Co-operatives		55
	Open market		45
	Anywhere		0
Q12	Imported vegetables		150
	Local vegetables		35
	Both		15
Q13	Fresh vegetables		200
	Tinned vegetables		0
	Both		0
Q14-18	Yes		0
	No		200
Q19	Lack of storage		4
	Poor distribution		40
	Poor marketing		75
	Excess production		40
	Lack of export		30
	Poor quality		8
	Others		3

Question	Response
Q20	Government
Q21	Government should take control; export produce; marketing; training; promotion; distribution.

APPENDIX H

Findings: Co-operative and Retailer Questionnaire

Sampling frame - 172 co-operatives
Sample size - 25 co-operatives

Questions	Responses	
Q4	Yes	10
	No	15
Q5	Free land	5
	Tax-free	1
	Interest-free loan	1
	Purchase guarantee	3
	Others	0
Q6	Yes	22
	No	3
Q7	Government	25
	Consumers	0
	Farmers	0
	Co-operatives	0
Q8	Government policy	2
	Poor marketing	10
	Poor distribution	7
	Excess production	0
	Lack of export	3
	Poor quality	33