Government policies affecting the sheep industry in the northern Jordanian badia and Bedouin responses

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GOVERNMENT POLICIES AFFECTING THE SHEEP INDUSTRY IN THE NORTHERN JORDANIAN BADIA AND BEDOUIN RESPONSES

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Abstract

This study investigates the Bedouin awareness of and responses to the government's policies that are related to the livestock industry in Jordan. It presents the government's policies that have both a direct or an indirect impact on the livestock industry. Policies with direct impact are related to credit, rangeland, feed and subsidy, animal health, co-operatives, water, export and import policies and the Bedouin's vehicles. Policies with an indirect impact on the livestock rearing related to health and education. The study area was the Jordan Badia Research and Development Programme.

Information about the government's policies was obtained from all the responsible organisations. Interviews, using semi-structured interview and focus group methods, were held with Bedouin from the study area in order to know the Bedouin awareness of and responses to the government's policies.

The most significant finding of this study is that there is a gap between the government's policies and their implementation from one side and between the government and Bedouin from the other. Bedouin have no clear idea about these polices and no idea at all in many cases.

Other countries' experience, from the literature, has been discussed in this study. Jordan can learn lessons from these experiences in order to bridge the gap mentioned above.

Declaration

I, the author of this dissertation, declare that this thesis results entirely from my own work, and that none of the material here has been previously submitted by me or any other candidate for a degree in this or any other university.

Statement of copyright

Dedication

To my parents, my brothers and sisters. To my small lovely family, my wife Muna and my sons: Ammar and Abed.

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Abbreviations

ACC	Agricultural Credit Organisation
AFESD	Arab Fund for Economic and Social Development
APC	Agricultural Policy Charter
ARC	The Agricultural Research Council of South Africa
ASAR	Agricultural Structural Adjustment Programme
BRDP	Badia Research and Development Programme (Jordan)
CARDNE	Regional Centre on Agrarian Reform and Rural Development for the Near East
CBJ	Central Bank of Jordan
CIDA	The Canadian International Development Agency
CLW	Community Livestock Worker
DFID	Department for International Development
DoS	Department of Statistics
DM	Deutsch Mark
ESCWA	Economic and Social Committee for West Asia
FAO	Food and Agricultural Organisation
FMD	Foot and Mouth Disease
JUST	Jordan University of Science and Technology
HCST	Higher Council for Science and Technology
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
JCC	Jordanian Co-operative Corporation
JCO	Jordanian Co-operative Organisation
JD	Jordanian Dinar

LoC	Library of Congress
LSS	Livestock Services Society
MoA	Ministry of Agriculture
MoE	Ministry of Education
MoF	Ministry of Finance
MoH	Ministry of Health
MoI	Ministry of Interior
MoP	Ministry of Planning
MoS	Ministry of Supply
MoSD	Ministry of Social Development
MoTI	Ministry of Trade and Industry
MoWI	Ministry of Water and Irrigation
NGO's	Non-governmental Organisations
NRF	National Relief Fund
OVI	Onderstepoort Veterinary Institute
PPR	Peste de Petits Ruminants
RGS	Royal Geographical Society (UK)
RSCN	Royal Society for Conservation of Nature
SCPR	Social and Community Planning Research
SRMP	Sustainable Rangeland Management Project
UN	United Nation
VBA	Vietnam Bank for Agriculture
WFP	World Food Programme
WTO	World Trade Organisation

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Chapter One

Introduction

1.1 Introduction

Livestock, in Jordan, play an important role in the household economy in the Badia region in general and in the northern Badia in particular. The Bedouin livestock system comprises interacting environmental, biological, cultural and economic factors. Although the presence of drought, for the past three years in Jordan (1997/8-1999/2000), has had a major effect on livestock husbandry, government policies have also had a strong impact over a much longer period of time. In fact, the Bedouin responses to these policy initiatives are the most important issue that this research is investigating.

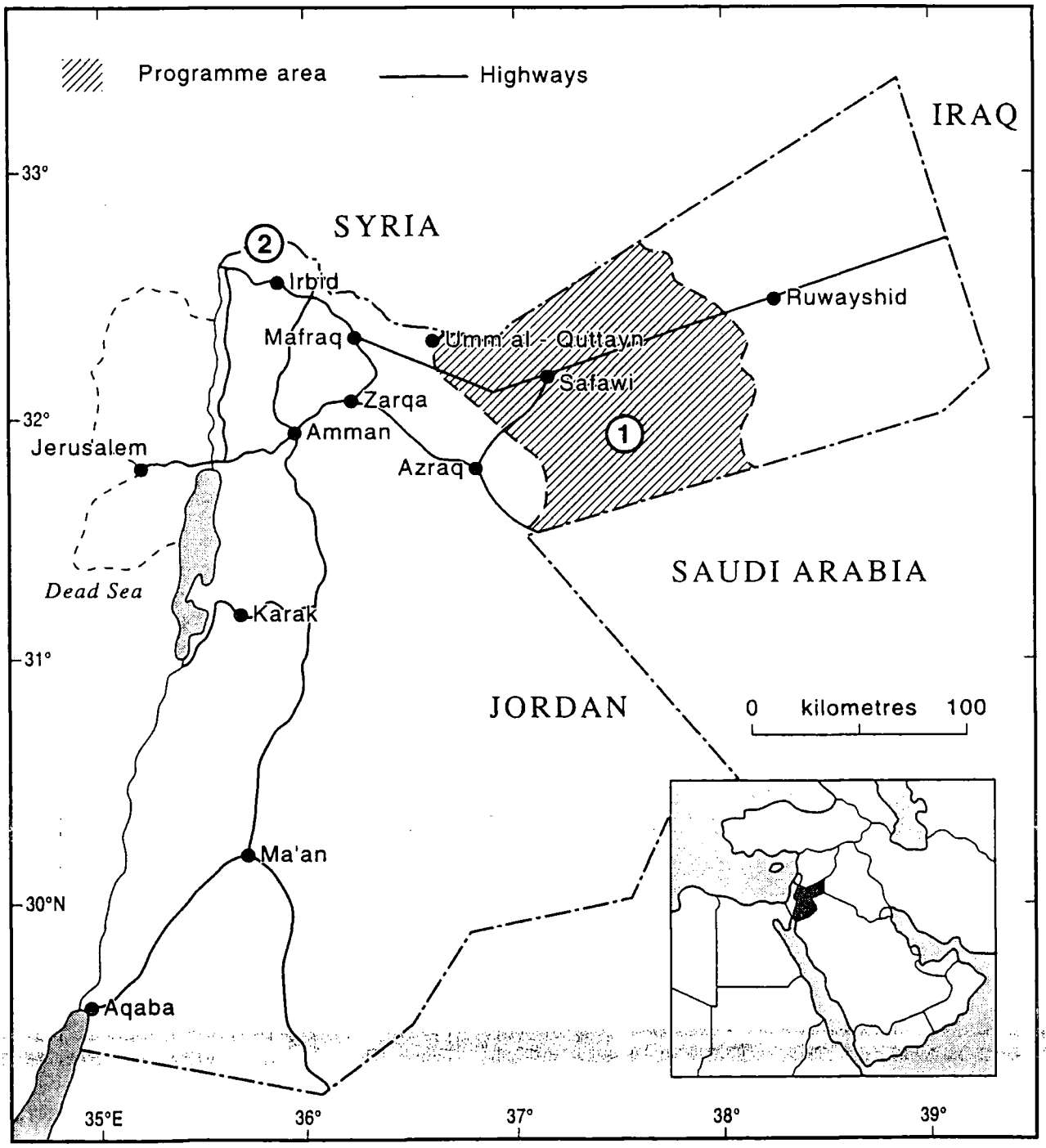
The overall objective of this study is to provide a better understanding of the Bedouin (awareness of and) responses and attitudes to the government's policies (in the Jordan Badia Research and Development Programme (BRDP) area (Map 1)) related to the livestock industry in Jordan. In fact, there is a substantial need to understand the existing government policies, how they were implemented in the past and how they might be implemented in the future. In general, the research investigates and describes the government's policies and their impact on the livestock industry and then, at the household level, provides a possible understanding of the Bedouin behaviour and attitudes that exist among different households.

1.2 The study problem

The Badia of Jordan is the main area of livestock breeding and production in the country and plays an important role in providing the local and regional markets with meat. It is also important to emphasise that livestock provide the Bedouin with their livelihood. In addition, the sheep and goats are important because they provide products for the Bedouin diet. The most important factors that affect livestock rearing are rainfall and drought. More rainfall means that there will be better rangeland, more water, more lamb for sale, etc. However, high feed prices and a bad health situation will negatively affect Bedouin profits even in a good season. In effect, Bedouin have always faced and still face problems related to livestock rearing (e.g. animal health, rangeland, credit, etc). The government has intervened by attempting to create suitable policies in order to make owners able to keep and breed their livestock. In spite of the importance of sheep in the household economy of this region, little emphasis has been given to research on the government's policies or their impact on the Bedouin and the livestock industry.

The government has sought to play an important role in enhancing the ability of the Bedouin to maintain and increase their livestock numbers. Al-Oun (1997) showed that livestock production had received attention from many agricultural development programmes in Jordan. In this study, the government's policies (and programmes and projects that have stemmed from these policies) will be presented, whenever they have a bearing on issues related to livestock rearing, initially from the government's point of view. Then, the livestock owners' degree of awareness of these policies and their responses to and their ideas about these policies will be presented.

Map 1: The BRDP area and Irbid governorate



Source: Dutton et al (1998)

1 The BRDP area where the Bedouin usually live.
2 Irbid Governorate where the Bedouin moved in during the fieldwork.

Within this context, the statement of the problem centres on the existence of government policies that are related to livestock rearing in Jordan and the Bedouin awareness of and responses to them.

1.3 The study goals

The broad study goal outlined on the opening page can be further broken down into the following specific objectives:

(1) To explore and present the government's policies affecting livestock, which traditionally has been the major source of income for the Bedouin;

(2) To explore, in part of the Northern Badia, the Bedouin awareness of and responses to the government's policies, whether they have a direct or an indirect effect;

(3) To explore the Bedouin awareness of and responses to the government's policies implementation;

(4) To describe and present the impact of these policies on the livestock industry and Bedouin economy from both the Bedouin and government points of view;

(5) To explore the gap between implementation of these policies and the actual situation in the field;

(6) To see if experience from other countries suggests ways in which the gap can be bridged in Jordan; and

(7) To envisage the likely longer-term consequences of government policies (and ones under consideration) on the sheep industry, in the study area of the Badia region in particular.

1.4 Structure and organisation of the thesis

The thesis is divided into six chapters. Chapter 1 is an introduction including information about the geography, population and economy of Jordan, the population of the study area, a statement of the problem and the organisation of the thesis. Chapter 2 presents the methods of data collection. Chapter 3 presents the main government policies that have a direct or an indirect impact on the livestock industry in Jordan. Chapter 4 presents the livestock owners' awareness of and responses and attitudes to the government's policies that are discussed in chapter three. Chapter 5 includes a general discussion with reference to some other countries' experience.

The conclusions and recommendations drawn from the foregoing analyses and discussions of the problem, possible solutions and a revised strategy for improvement of the livestock industry is presented in the final chapter.

1.5 Jordan: geography and population

It is necessary to examine Jordan's geography, climate, population and economy in order to understand how the livestock husbandry interacts with other vital variables. There should be an interaction between the population and the country's demographic features and the environment in which the population lives. Any changes depend upon the population and environmental relations. Population growth is seen by Findlay and Maani (1998) as one of the most important factors influencing both economic development and environmental change. They also pointed out that population and the environment are interlinked on the one hand by the economic process of production, and on the other hand by the demographic process of reproduction.

The history of Jordan goes back to 1921 when King Abdullah I established the Emirate East of Jordan, which later became the Hashemite Kingdom of Jordan. Jordan was under the British Mandate until 1946 when Jordan became independent. Jordan is situated east of the Mediterranean, between 29° N and 33° N, and 35° E and 40° E. It is bordered by Syria to the north, by Iraq to the east, by Saudi Arabia to the south and by occupied Palestine and Israel to the west. Jordan can be divided into three main regions distinguished by topography and climate: the highlands, the Jordan Valley, and the arid and semi-arid land of the Badia. The Jordanian Badia is subdivided into three geographical areas, as follows:

1) The Northern Badia, comprises 35.5 per cent (25,600 km^2) of the total area;
2) The Middle Badia, comprises 13.5 per cent (9,700 km^2) of the total area; and
3) The Southern Badia, comprises 51 per cent (36,900 km^2) of the total area (HCST, 1993)

The Badia holds few natural resources in quantities of value for overall development. These resources include mineral deposits, surface and ground water, tourist sites, sunny weather, cultivable land and renewable natural range suitable for improved agriculture and livestock production. The area also has the potential for the development of non-polluting renewable energy sources, namely solar and wind energy. Because the Badia extends into the borders of neighbouring countries, there is the additional benefit of its being a junction for export-import activities at the regional level.

Jordan has a Mediterranean climate. Temperatures vary from one region to another as well as between summer and winter. Rainfall amounts also vary regionally and from one year to another, and affect agricultural production on a large scale. The Badia may

also be referred to as arid land. Arid land in Jordan is defined as land that receives less than 200mm of rainfall. Approximately 79 per cent of this zone receives less than 100mm of rainfall. The development of this vast area therefore depends on the harvesting of surface water, the availability of groundwater and the availability of substantial funds to reclaim and improve the soil and to increase soil productivity. By contrast, in the highlands, the annual rainfall sometimes reaches 600mm. Low rainfall leads to low groundwater and surface water that the livestock owners rely on for watering their livestock. It also affects negatively the natural rangeland and the livestock industry in general.

Air temperature, in the Badia, fluctuates widely from a mean minimum of 10° C to a mean maximum of 24.5° C, with an annual average temperature of 17.5° C. Occasionally, minimum and maximum temperatures might reach –5° C and 46° C respectively (Kirk, 1998). High temperatures, during summer season, affect negatively the store of the groundwater as well as the surface water through evaporation. Low temperatures and frost, during the winter season, affect also the natural land cover and the irrigated agriculture, which eventually affect the livestock industry in the Badia.

Concerning the population of Jordan, it was estimated, in 1999, at 4.9 million (DoS, 2000a). Seventy five per cent of the area of the country is sparsely populated desert or semi-desert, otherwise known as the Badia (FAO, 1999).

According to HCST (1993) by 1987, the total population of the Badia had fallen to about 4.7 per cent of the whole population of the country (3.06 million). In 1989, the population of the Badia was estimated to be 164,105 (2.5 per cent of Jordan's

population) (MoA, 2000). According to the same source, the Badia inhabitants are distributed over three areas: 50 per cent in the Northern Badia, 27 per cent in the Middle Badia and 23 per cent in the Southern Badia. According to MoA (2000), the true Bedouin nomadic pastoralists constitute 4 per cent of the population in the Northern Badia, 3 per cent in the Middle Badia and 10 per cent in the Southern Badia (MoA, 2000). Most of the remaining people are pursuing semi-sedentary livelihoods. Current numbers of nomadic pastoralists in the Badia are unknown, but they are generally perceived to be a shrinking minority (Findlay and Maani, 1998). From the figures above, it is clear that the true Bedouin population has fallen over the years.

The Bedouin in Jordan have not been less affected by modernisation than nomadic pastoralists elsewhere in the Middle East (Chatty, 1996). Abu Jaber and Gharaibeh (1981) stated that the process of settlement in small rural communities was taking place in Jordan's frontier zone between agriculture and pastoralism. In the opinion of Chatty the existence of a pastoral community in Jordan was vital, taking into consideration that a large part of fresh meat consumed in Jordan is provided by Bedouin livestock owners (Chatty, 1996). Furthermore, Chatty (1996) argued that only the Bedouin could use the arid and semi-arid land in an effective way. Findlay and Maani (1998) say:

> "...more significant than the number of pastoralists is the change in environment-pastoral linkages, which has taken place over recent decades as a result of the possibility of importing feedstuffs and of transporting water within the region to support the animals being grazed there. This development has broken the effective linkage of grazing resources and numbers of animals being grazed, and has removed the imperative for moving animals from one area to another to find grazing" (p.200)

The government has recognised that there is no easy substitute for the Bedouin and their role in the contemporary economy. However, the imported chilled meat from foreign countries is becoming a cheap substitute for the *baladi*[1] meat and threatening the existence of the livestock farmers. So the government and the international agencies (involved in regional development) are, at present, interested in supporting the Bedouin and in encouraging them to maintain their livestock rearing activities (Chatty, 1996).

1.6 The Jordanian economy

Historically, the Jordanian economy made remarkable progress during the period 1972-1982, due to political and economic stability assisted by foreign transfers in the form of substantial foreign loans and grants and expanding remittances from Jordanians working abroad (FAO, 1999). During this period real GDP registered an impressive annual growth rate of over 8 per cent. The boom in transit trade to and from Iraq after the start of Iraq-Iran war in 1980 accounted for much of the growth. However, despite the extra money and demand that the government injected into the economy, GDP growth eventually stagnated in the late 1980s. GDP growth in 1989 was estimated at only 2 or 3 per cent (LoC, 1989). CARDNE (1998) argues:

> "The later half of the eighties witnessed a sharp decline in oil prices. This was eventually accompanied by economic depression, which inflicted the region and resulted in a reduction of the main external sources of funding to the Jordanian economy, namely Arab countries assistance to the budget and the remittances of Jordanians working abroad. This was reflected on the economy of Jordan in the form of serious hardship leading to decreased rates of growth below the rate of population growth, lower standards of living, higher unemployment levels, growing deficits in the balance of payments and government budget, and increased debt burden" (p.4).

[1] Baladi meat is local meat

FAO (1999) confirmed that, by saying that economic recession was as a result of a downturn in the regional economy brought on by a fall in oil revenues, which had serious repercussions on the various sectors. Demand for Jordanian labour in the Gulf fell sharply, cutting workers' remittances and creating domestic unemployment. In 1989, the government embarked on an ambitious reform agenda to stabilise the economy, improve efficiency, and broaden the role of the private sector.

However, Jordan also received 300,000 Palestinians as a result of the Gulf War in 1991. These events put the economy of Jordan in a difficult condition taking into account that Jordan has few natural resources. However, those people brought money into the economy by building a house or establishing a small enterprise. But they needed jobs and social relief in many cases and some of them came without money. The Gulf War in 1991 and the subsequent imposition of the United Nation trade embargo on Iraq led to a further deterioration of the economic climate with a loss of more than 40 per cent of the country's export market. Over the period 1992-1996 real GDP growth rates averaged 9 per cent in total, with a low average rate of inflation of about 4 per cent (FAO, 1999).

Jordan signed a peace treaty with Israel in 1994. Piro (1998) claimed that the peace between Jordan and Israel is an important opportunity for Jordan in the process of market reform. He said "Trade delegations between Israel and Jordan have become part of the political and economic landscapes of both countries. Yet, one of the key issues for Jordan is whether economic integration and co-operation with Israel will help move along the process of economic reform in Jordan"(p. 103).

Since 1996, economic growth has almost ground to a halt. Major problems have been the slow revival of Jordan's traditional export markets in the wake of the Gulf War, and political factors coupled with the oil price collapse that hampered the revival of Gulf markets (FAO, 1999). The GDP growth rate at the current prices was 3.3 per cent, 5.0 per cent, 4.7 per cent and 2.2 per cent in 1996, 1997, 1998 and 1999 respectively (CBJ, 2000a). The situation in Iraq is negatively affecting the Jordanian economy. The shrinkage of Iraqi markets due to economic sanctions has limited the capabilities of the private sector to export to what has been among Jordan's largest export areas. Moreover, inspections at the port of Aqaba have hampered the flow of goods to Jordan. They also impose delays on the receipt of inputs, thus causing production delays and making several Jordanian industries less competitive.

Because Jordan's economy has been affected by all the factors mentioned in this section, there has also been an important impact on Jordan's economic sub-sectors, including livestock and agriculture. Inevitably, these also affected the people in the Badia and the livestock owners in that part of the country.

1.6.1 The agricultural sector

The agricultural sector was one of the most important sectors of the economy, even though Jordan is a country with limited agricultural resources. The agricultural sector includes the crop sub-sector and the livestock sub-sector. The total arable land is 4 million dunum[2] in 1997. This suffers from a scarcity of renewable freshwater resources, which do not exceed 750 million cubic metres per year, or an average of 170 cubic metres per capita for all uses (MoA, 2000). Moreover, the agricultural sector is

[2] Dunum = 1000 m^2

characterised by unstable production because it largely depends on rainfall, and its distribution over the cultivation season, which directly affects production of the rainfed lands, ranges, and livestock as well as irrigated agriculture because of its impact on the storage of water in the dams and groundwater (MoA, 2000). The agricultural sector still represents the fundamental sector in the national economy, in spite of the sector's low contribution to GDP. It is the base for integrated rural development and a source of income and employment for rural and Badia people. It also plays a central role in food security and trade balance improvement and represents the main source of income for about 15 per cent of the population and employs around 62,000 Jordanians (6 per cent of the work force) (MoA, 2000).

Up to and during the 1940s, agriculture was the principal component of the economy in Jordan. During the period 1973-1975, the share of the agriculture sector in GDP was 9 per cent, then decreased to 8 per cent during the period 1976-1980 (Abdulrahim and Arabiat, 1986). During the seventies and eighties, the agricultural sector achieved a high growth rate. However, by the end of eighties and the early nineties, the growth rate of the sector had declined due to the economic crisis in Jordan. This was related to the international and regional political developments and the Gulf crisis with the ensuing closure of most traditional markets to Jordanian agricultural exports. According to the Ministry of Planning report for the period 1980-1990, the agriculture sector's contribution fell to 7 per cent (MoP, 1993). In 1993, agriculture's contribution to GDP was 9.6 per cent (CBJ, 1994). According to CBJ (2000a) the contribution of the agricultural sector to GDP, at constant factor cost, was 6 per cent, 6.3 per cent, 5.3 per cent, 5.7 per cent, 4.5 per cent in 1995, 1996, 1997, 1998 and 1999 respectively. The decline of this sector's contribution was partly due to the drought that prevailed

throughout the three rainfall seasons of 1997/8-1999/2000. Partly as a result of that, the situation has changed and the country relies increasingly heavily on the international market to meet its food needs.

1.6.1.1 Livestock sector

Livestock is considered a major component of the agricultural sector. According to MoA (2000), there are four kinds of livestock production systems in Jordan. They are as follows (MoA, 2000, pp.54-55):

(1) Traditional breeding system- nomadic and mobile system: this is the system prevailing in the eastern and southern regions of the country, which is characterised by low rainfall. It is the most wide spread system as the sheep rearers move from one place to another looking for grazing or according to the availability of fodder and water.

(2) Semi-nomadic husbandry system: sheep depend partially on natural ranges and on the by-products of field crops. They move to the areas adjacent to the fields after the harvest and return to spend the winter period around the houses.

(3) Extensive husbandry system: herds are reared in sheep fattening units. They go to graze on the range in the morning and return in the afternoon. They depend on crop by-products and the adjacent ranges. Complementary feeds are provided for them as required.

(4) Resident (semi-extensive) system: sheep are reared in permanent farms that have full modern facilities and equipment. They depend, for their food, on scientifically balanced ratios. They also benefit from direct health care provided to them.

The share of animal production in the agricultural gross product was 47.8 per cent in 1976 but decreased to 32.1 per cent in 1983. In 1990, MoA estimated that the livestock sector contributed 38-45 per cent of total agricultural production (MoA, 1990). Local production of sheep contributed about 61 per cent to overall consumption while goats contributed 23 per cent and camels 2 per cent (MoA, 1992). According to 1996 statistics, the natural livestock herd was composed of 3.16 million head of sheep and goats and 16.5 million cattle (MoA, 2000). In 1999, there were 2.55 million head of sheep and goats (MoA, 2000). However, by mid-2000, the estimated number of sheep and goats had fallen to about 1.5 million- a major drop in numbers, related to the drought years and poor market conditions.

Traditionally, the main form of economic activity practiced by the Bedouin is livestock rearing. In fact, livestock have a central role in most agricultural economies and play an important role in feeding and clothing people and providing traction, transport, and fuel. This vital importance of livestock dictates a need for a strong service infrastructure (FAO, 2000). However, despite the significant role of the livestock industry in the national economy it has received less attention and remains undeveloped, hence the large bill for livestock and livestock products that are imported by the government to meet the country's needs. Further details about imported chilled, frozen and fresh meat will be presented in Chapter 3.

As a result of settlement, many young Bedouin have given up their nomadic lifestyle and joined the military forces or taken other jobs. The new generations see that there is no future in livestock as work for them (Oughton and Adas, 1999). Furthermore, Oughton and Adas (1999) stated that the children's fathers have also expressed this in

practice by investment in education in order to equip their children to enter other preferences. Chatty (1996) states:

> "The nomadic pastoralists of the Middle East are constantly changing their way of life to best suit their needs. The adoption of truck transport and the equally rapid obsolescence of the camel, the change in water and grass management and the experiments in fodder farming all point to the primacy of livestock raising to these populations....change is part of their life as it is part of life in all societies" (p.25).

Al-Oun (1997) stated that Bedouin life has changed. The creation of states and frontiers early this century limited Bedouin mobility and pushed them into sharing the responsibility with others for the degradation of their environment. It should be also mentioned here that the attitudes of the new generation of Bedouins to livestock rearing have changed. Different lifestyles have become more attractive to them and the Bedouin's enthusiasm for education has become clear (Chapter 4) in order to attain these new lifestyles.

The importance of this information is that it provides the context in which the government has been attempting to formulate policies and projects to support the Bedouin and their livestock industry. The explanation of any failure to introduce effective policies will partly be due to the rapidly changing economic and social climate in which they are being implemented.

1.6.2 The economic adjustment programme

In early 1989, the government adopted the package of the economic adjustment programme based on national effort, the co-operation of the International Monetary Fund (IMF), and the support of the international community (CARDNE, 1998). This

programme has aimed at increasing the growth rate of GDP, reducing the deficit of the government budget and the balance of payments current account, and curbing inflation (CARDNE, 1998). In order to achieve the above goals, the government had to meet some requirements such as creating an attractive investment climate, privatisation, further liberalisation of the external trade system and improvement of the Social Safety Net. Regarding achievements, in the macro level, progress has been achieved although there has been a negative impact on farmers in the short-term. CARDNE (1998) stated that many achievements have been accomplished. For instance, the government budget deficit dropped from 21.6 per cent of GDP in 1988 to 4.6 per cent in 1996. Also, the GDP growth rate averaged 6.5 per cent during the period 1990-1996 compared with 3.5 per cent for the period 1983-1989. According to CBJ (2000a) the GDP growth rates, at the market prices, were lower: 5.0 per cent, 4.7 per cent and 2.2 per cent in 1997, 1998 and 1999 respectively.

1.6.2.1 Adjustment in the agricultural sector

According to CARDNE (1998), the impacts of the Structural Adjustment Programme on the income and livelihoods of pastoralists and small-scale farmers in low rainfall areas are very severe (particularly in drought periods). The traditional users exploit whatever resources are available to maximise results prior to abandoning their traditional livelihood based on the rangeland.

The agricultural sector is one of the sectors that is most affected by the Economic Adjustment Programme. Due to the fact that it contains the largest share of the poor rural population it is the major recipient of subsidies and constitutes the main source of income for a significant portion of rural people (CARDNE, 1998). It was decided in

1994 to design and implement the Agricultural Structural Adjustment Programme (ASAP) with the objective of making the necessary transformation towards using economic efficiency as the criterion for making decisions regarding the utilisation of agricultural resources especially water, and inducing market led modernisation to encourage private sector investment and production in accordance with the principles of comparative advantage (CARDNE, 1998). ASAP considered many measures, such as the removal of monopolies on agricultural commodities and inputs and the elimination of direct and indirect subsidies given to agricultural commodities and inputs (CARDNE, 1998).

This programme has been implemented through the World Bank Agricultural Adjustment Loan. The programme has liberalised agricultural trade by phasing out government pricing interventions and monopoly marketing roles in agricultural inputs and production for domestic markets. For the pastoralists in the rangeland and also low rainfall mixed crop and livestock farmers, the agricultural adjustment programme has generated major changes, not all positive. Up until 1996 all livestock owners with 100 or less head of livestock received a subsidy for each animal. The subsidy was removed entirely in 1996. However, government still applies subsidy temporarily for barley by JD 19 per tonne, as a result of drought years. ASAP has led to a reduction in profit for most livestock enterprises in low rainfall areas and in the rangeland. The increase in the cost of fodder and removal of the subsidies for pastoralists with small flocks has led to the need to reduce the number of animals on the rangeland (MoA, 2000; CARDNE, 1998). For many farmers, keeping livestock is no longer profitable.

1.7 The Bedouin household

The household is a debated area. It can be defined as a group of people who share the same home, same meals and the same resources. It might also be considered as a residential unit, based on the family or a social unit based on kinship, marriage and parenthood. Ostergaard (1992) said that the household is assumed to be the basic economic unit and unit of distribution. In fact, there are three different forms of household in the Badia. These types are: nuclear household, joint household and group households (Oughton and Adas, 1999). In the Badia society, there were and still are extended families, in which three or even four generations of the same family live together.

In this study the "household" means people who live in the same house, including the head of the household, his wife (wives), son(s), daughter(s) and other direct kin in the same household such as father, mother, sister(s)and brother(s) and their dependants.

Livestock production is an important source of the Bedouins' livelihoods. Government policies aim for agricultural improvement. The livestock raising is inextricably linked to many factors. These are credit, feed, rangeland, animal health, water and vehicles, and indirect factors such as education and human health. Therefore, achievement of this study objective depends on an investigation into the policies mentioned above, as they affect these factors.

1.8 Conclusion

The specific objectives of this study are to provide a better understanding of the Bedouin awareness of and responses to the government's policies mentioned above. In

order to understand the Bedouin awareness of these policies, it is firstly very important to understand the government's policies themselves. This will make us see the gap (if one exists) between the Bedouin awareness of and ideas about these policies and the implementation of the policies. Also, it is useful to see the other countries' experience in this regard. As this study is investigating Jordan's policies, it has been necessary to provide some background about geography, population and climate and the economy of Jordan.

Chapter two

Methodology

2.1 Introduction

In this chapter emphasis is placed on the choice of the study area, data requirements and the methods employed in collecting data. Two techniques will be used in the field: semi-structured interviews and focus groups.

2.2 The study area

Some 80 per cent of Jordan consists of arid and semi-arid lands known as the Badia. The Badia is located east of the Jordan highlands and is divided administratively into the North, Middle and South Badia regions (Chapter 1). The Badia is an important part of Jordan in terms of land area, availability of resources and potential for development. However, the Badia receives low priority in national and international policy initiatives despite its economic and structural vulnerability. In fact, over 80 percent of Jordanian land (including most of the Badia) can be utilised for grazing. On this land livestock has played an important part in agricultural production.

The study area extends for 11,210 km^2 and constitutes over 15 per cent of the total Badia of Jordan. It is coincident with the BRDP area. It is located in north-east Jordan, in the north Badia, in the governorate of Mafraq (Map 1). The north-western part of the area is divided among 34 villages (BRDP, 1994). Most of the people in the area depend, at least in part, on livestock for their livelihood. According to the 1993 BRDP

population survey, 35 per cent of the people list livestock production as their major economic activity.

BRDP is a joint venture between the Higher Council for Science and Technology (HCST) in Amman and the Royal Geographical Society (RGS) in London. The main aim for BRDP is to achieve the sustainable development of the desertified Badia environment and the improvement of the standard of living of the inhabitants (BRDP, 1994). It was established in 1992. The BRDP area is an important centre of livestock production in Jordan. It includes villages as well as areas of *Hammad and Harrah*. The *Hammad* is a very large flat plateau extending between four countries: Jordan, Syria, Iraq, and Saudi Arabia. In Jordan it measures 19,270 km^2. *Harrah* is a desert covered in black basalt boulders (Budieri, 1995).

2.3 Data collection (requirement)

Information on Jordanian government policies that might impact on the livestock industry was required in order to fulfil the aims of this study. This information had to encompass the past, present and likely future policies. Those policies that have a direct impact on the livestock are related to: credit, rangeland, feed and subsidy, exports and imports, veterinary services, Bedouin vehicles and water. In addition, other policies have an indirect effect. These include health and education. Information about government agricultural policies that are likely to be implemented in the future are mentioned in the summary of APC of 1999. Information from farmers relating to their awareness of, responses to and ideas about government policies, as mentioned before, was also required.

Information about relevant experience in some other countries was also required. This comparative information, from the experiences of other countries to bridge the gap between government policy and responses to it, were obtained from the literature in order to suggest improvements to be tested in Jordan.

2.4 Methods (techniques) of data collection

The previous discussion sets out the required data for representing the government's policies that either have a direct or an indirect effect on the livestock industry. These data were obtained in the first stage of the fieldwork, July to September 1999 (see Appendix 1). During the second phase of the fieldwork, January-September 2000 (see Appendix 2) information about Bedouin awareness of and responses to government policies was collected through direct discussion with the Bedouin themselves.

The process of collecting data in Jordan, like everywhere in the developing countries, proved difficult. There is no a separate detailed central source of information on the livestock industry, as part of the documentation on agricultural policy. The secondary sources that provide data, regarding the government's policies, were not enough to give a coherent view with respect to the changes in the policies over the years. Some of the policies were not documented in special reports. Some information was only found in the relevant ministry's files as formal letters and in many cases it was difficult to obtain copies. There has been little work done in this area. Furthermore, the majority of these works deal with the Jordanian economy in general or the agricultural sector (crops) in particular (see Al-Oun, 1997). However, these government documents are complemented by some recent studies on the livestock sector, including limited

investigations of the government's policies (see Oakeley, 1996; Rowe, 1998; Papadopulos, 1999; MoA, 2000).

Most government offices and departments publish annual reports and statements of their activities, although such publications are often incomplete and poorly organised. In addition, there are formal letters, which are issued between the governmental organisations, but these suffer from the disadvantage of being very short and limited to formal use. References written on the livestock sub-sector have not enough details about the government's policies as they often deal with the livestock sector in general.

During the fieldwork, most of the livestock owners settled in Irbid governorate (outside the Programme area) and its villages as a result of the drought that dominated the northern Badia. They moved to Irbid in the north of Jordan searching for rangeland, which was available there (Map 1). The intention of the field research was to collect information from different villages and mobile farmers who normally reside within the Badia Programme area. Two qualitative techniques were used for data collection in the field. These were semi-structured interviews and focus group techniques.

Semi-structured interviews (one to one interview) were chosen because they create open discussion. Nichols (1991) stated that a characteristic of the semi-structured interview is that the researcher has prepared a list of topics though still not a set of questions. Phillips (1966) claimed that in the semi-structured interview, the interviewer might have to ask a number of supplementary questions in order to probe beyond the answers to the primary questions. A semi-structured interview can be held in a location and a time

most convenient to the interviewee (Krueger, 1988). According to Baker (1991) personal interviews enable the researcher to obtain more specific answers and repeat a question if the respondent misunderstands. Answers need not be confined within rigid protocols and thus material that had not necessarily been foreseen as relevant would be allowed to emerge (SCPR, 1972).

The second method used to collect data in the field was focus groups. These allow people to talk freely and interact each other, which also allow the researcher to discover new issues he or she had not previously thought about. Morgan (1997) defined the focus group as a research technique that collects data through group interaction on a topic determined by the researcher. Focus group interviews have many characteristics, which are related to the ingredients of a focus group. Krueger (1988) claimed that focus group discussions have high validity. The technique is easy to understand and the results are valid and reliable to those who use the information. Morgan (1997) stated that the main advantage of focus groups in comparison to participant observation is the opportunity to observe a large amount of interaction on a topic in a limited period of time. But this is based on the researcher's ability to assemble and direct the focus group sessions. However, the discussions do take place in some sense in unnatural social settings. Morgan (1997) also stated that focus groups not only give access to views on a wide range of topics that may not be observable but also ensure that the data will be directly targeted to the researcher's interest. In focus group discussions, the interviewer guides a conversation among a small group of six to ten members having one community of interest (Nichols, 1991). The interviewer is free to develop each situation in whatever ways he deems most appropriate for the purposes at hand (Phillips, 1966). This method

has advantages in that it may uncover new areas unknown to the researcher. A skilled interviewer, who is quite familiar with the broad purposes of the study, may be stimulated by the answers of the respondents to develop new ideas about the phenomena under investigation (Phillips, 1966). The interviewer can be quite flexible in adapting his approach to whatever appears to be of most value for a given respondent or sub-group of respondents.

However, focus groups have disadvantages. SCPR (1972) claimed that the disadvantages of focus groups are the greater time and cost involved in carrying out the interviews and in absorbing and analysing the scripts. SCPR also claimed that one or two talkative members dominate some groups and in these cases the leader requires a great deal of skill to encourage full participation of all members. Krueger (1988) argued that evidence from focus group interviews suggests that people do influence each other with their opinions and so an individual might shift his views. But the focus groups analyst can thereby discover more about how that shift occurred and the nature of the influencing factors (Krueger, 1988). It should be mentioned here that the group discussion could not give information about the characteristics and background of an individual. Morgan (1988) said that the weakness of the focus groups as noted in comparison to individual interviews is that the researcher has less control over the data that is generated.

The rationale behind the decision to adopt the two techniques mentioned above was because of the research nature and topic. As they are both open interviews, farmers are able to talk freely about their ideas related to government policies. And when (as in this

case) the interviewer is also a Bedouin, the livestock owners are going to feel confident to discuss sensitive issues related to government policies related to their livelihood. So, the methods mentioned above were the most appropriate methods to adopt in this research.

An attempt to obtain quantitative data would not have suited the research purposes or the situation in the Badia. It was thought that attempts to obtain quantitative data would have been met with suspicion. Quantitative procedures do however allow for more breadth of information to be gathered across a large number of cases (Krueger, 1988). On the other hand, Krueger (1988) stated that qualitative research will provide in depth information into fewer cases and that decision makers welcome qualitative data because the results can be presented in a conceptual and understandable manner.

2.5 Selection of the sample

For the purposes of this study, information was obtained from the livestock owner who is regarded as the head of the household and who is responsible for household affairs. The household is defined in this study as including all members who usually live in one house.

In the selection of the sample, there were no restrictions or conditions. It was important to talk to Bedouin who have (or have had) livestock. So I talked to a sample of 90 households. A total of 22 were interviewed in their villages, before they moved to the Irbid area. The rest (68 households) was interviewed in the Irbid area (Map 1). Irbid is a governorate located in the north of Jordan. It is the place where Bedouin often move to, if the drought dominates their area, because it has a better climate and better soils so

there is always some cropping and the possibility of gleaning the stubble after the harvest. I conducted four focus groups, with 25 households, during the fieldwork (January-September 2000). The first group was conducted, at the beginning of the fieldwork (March 2000), in Mathnat Rajil village with seven farmers. Two focus groups were conducted in Irbid area with seven farmers each. The last one was conducted in Irbid too but with only four farmers. The group members were from different villages but they were living in the same area in Irbid when the fieldwork was conducted.[1]

Seventy-five households were interviewed using semi-structured interviews. They were visited without any advance arrangement. However, I needed some time (up to half an hour) to prepare them for the discussion by introducing myself, asking about their life, their sons and kinship, and answering inquires about my relatives and myself.

The interviews reveal changes in Bedouin livestock numbers (see Appendix 3) and their sources of income. The study sample included owners with different flock sizes. The average was about 270 head, the smallest was 20 head while the largest was 1500 head. Livestock was the main source of income for 88.9 per cent of the people in the study sample, but 8.9 per cent had another source such as a pension, a private enterprise or a small monthly social relief from the Ministry of Social Development (MoSD). About 2.2 per cent relied on their sons who are working in the armed forces in order, at least, to cover the household expenditures in the village. The sample covered almost all the villages in the Badia Programme area. Table 2.1 shows the villages in which the

[1]Focus groups were conducted in areas in which many Bedouin live around each other, especially in Irbid area. Farmers were helpful in gathering and inviting each other, to be interviewed, within not too long time.

interviewees usually live, their percentage of the study sample in each village and their numbers of sheep. Map 2 shows the location of these villages in the Northern Badia.

Table 2.1 Number of interviews conducted with farmers, their villages and the location of interviews

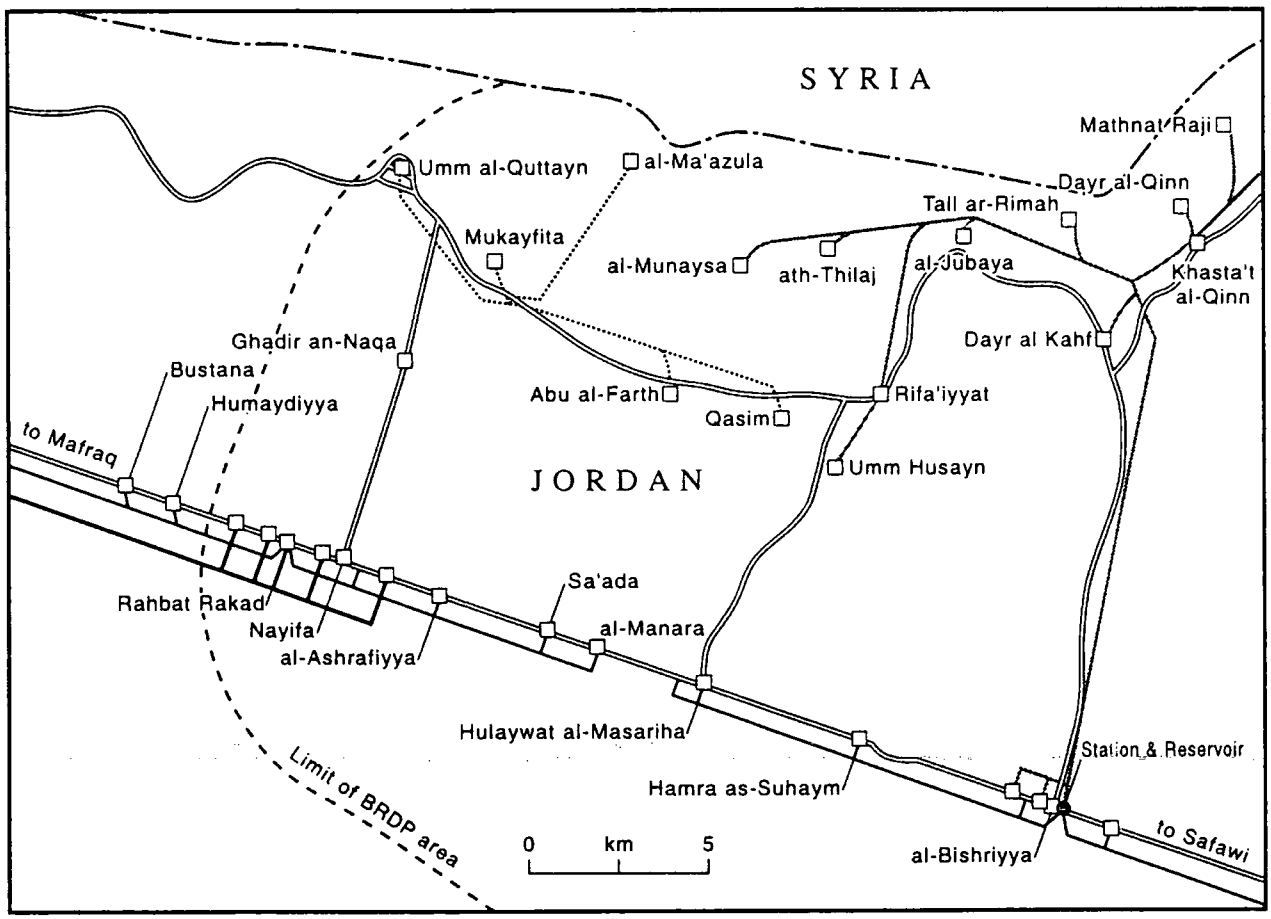
Village	Number of interviews	Percentage	Location of interviews
Mathnat Rajil	8	8.8	Village and Irbid
Hamra as-Suhaym	9	9.9	Irbid
al-Bishriyya	6	6.6	Irbid
Abu al-Farth	6	6.6	Irbid
al-Ruwayshid	6	6.6	Irbid
Hulaywat al-Masariha	5	5.5	Irbid
Dayr al-Kahf	4	4.4	Village and Irbid
al-Manara	5	5.5	Irbid
as-Safawi	5	5.5	Irbid
al-Munaysa	4	4.4	Irbid
Azraq	4	4.4	Irbid
Tall ar-Rimah	3	3.3	Irbid
Nayifa	3	3.3	Irbid
al-Jubaya	5	5.5	Village and Irbid
Mukayfita	4	4.4	Irbid
Rahbat Rakad	4	4.4	Irbid
al-Ashrafiyya	4	4.4	Irbid
Qasim	3	3.3	Irbid
Umm Husayn	1	1.1	Irbid
Dayr al-Qinn	1	1.1	Irbid
Total	**90**	**100**	

Source: Field study conducted by the researcher, 2000

2.6 The pilot study

Having prepared the draft of the fieldwork questions, it was decided to test the research methods in small-scale pilot studies so that maximum accuracy could be ensured. The first draft of the field questions were designed and piloted on a focus group that

Map 2: The BRDP villages



Source: Dutton et al (1998)

included seven farmers in Al-Zatariyya village, which is outside the study area. In addition, three farmers were interviewed using the semi-structured interview. The fieldwork for the pilot study started in February 2000. The main aim was to determine the best way of conducting the interviews and to develop and organise the questions.

The overall impression received from conducting this pilot study was that farmers were unwilling to discuss the government's policies or anything related to their situation. Their reluctance was not because they did not want to talk but because they do not wish to discuss anything in which they believe there is no benefit. In addition, they had some frustration and bad emotion as a result of their situation, which is getting (in their view) worse and worse. Therefore, the researcher being Bedouin, a Bedouin advantage of talking to them had to be made, by saying, for example, "I am a Bedouin", "I am not from the government", "I need your help", "you are all my family", "I am your son"...etc. In addition, it was important to be faithful and honest in explaining the aim of the study, especially in not promising them that anything will happen soon.

After the pilot study was completed, it was decided to conduct not more than two or three interviews per day because I had a list of policies and it needed more than one hour and half to discuss them. Moreover, in order to obtaining a better understanding of the policy under discussion, I needed to listen carefully to them and write the main ideas of the discussion down. So, as it is difficult to do that more than two or three times, I decided to have just two or three farmers per every day's fieldwork. However, some days had only one interview as a result of having to travel long distances looking for Bedouin through the Irbid area.

It was decided to place education and health policies at the bottom of the list for discussion as they have only an indirect impact on livestock rearing.

After piloting the interviews, it was realised that a new policy had to be discussed in the field. It is the policy of the registration of Bedouin vehicles and its impact on their sheep husbandry. This issue was a big concern of the livestock owners and had a direct impact on the livestock industry in general. Appendixes 4 and 5 show the list of topics and questions that were discussed with the Bedouin during the fieldwork.

2.7 Problems with the methodology

First of all, no applied research, particularly in social sciences, is error free. Most of the information was collected from men (usually heads of household) for reasons of cultural sensitivity, which means that gender issues have largely gone unexplored. However, another researcher is investigating the gender issues in the Badia programme area. Her work is designed to be complementary to mine. She and I are both funded by the Department for International Development (DFID).

Concerning data collection from the government, it was not easy to obtain information from some organisations. Some officials were not willing to co-operate because they did not wish to disturb themselves by moving from behind their office desks. These included people in the Ministry of Water and Irrigation (MoWI), some in MoA and many in the Ministry of Trade and Industry (MoTI). In MoTI, I had to write an application with a stamp of 10 piastres to the minister in order to obtain what I wanted.

Concerning data from the field, the results showed that some people might appear to exaggerate events for one reason or another in the hope that they will make some gain. For example, some respondents over-reported the problem of high prices of feed and low prices of sheep. Some other people were unwilling to be interviewed. The impact of the drought years made them not only hate discussing their situation but also hate researchers themselves. Most researchers have promised them that something good will happen for them soon but the Bedouin have not seen anything. In effect, whatever the Bedouin say will not adequately represent the reality of the bad situation they face, which I saw during my fieldwork.

2.8 Conclusion

Because of the shortage of secondary data sources, the decision was taken to carry out the fieldwork during the year 2000 using focus groups and semi-structured interview methods. Ninety livestock farmers were interviewed by using these two techniques. Preparation and initial visits to the study area took place in February 2000, followed by the pilot study.

The research is also based on other sources of information obtained from the governmental organisations in Jordan and on secondary sources that provide comparative experience in other countries.

Chapter Three

Government policies related to the livestock industry in Jordan

3.1 Introduction

This chapter presents the government's policies in Jordan that are related to the livestock industry. Some of these policies have a direct impact on the livestock industry. They include credit, feed, subsidy, rangeland, veterinary services, water situation, policies concerning the co-operative movement, export and import policy and Bedouin vehicles. Other polices have an indirect effect, for instance health services and the development of education. In effect, policies such as these may affect the Bedouin attitudes about adapting to a new way of life and new jobs. In such situations the livestock industry could be negatively affected.

This chapter also outlines some government policies that are likely to be introduced in the future. However, there is little information about them. Information was taken from all relevant ministries and governmental organisations in Jordan.

Externally introduced policies such as ASAP and the World Trade Organisation (WTO) are also having a direct impact on the government's agricultural policies.

The order in which the policies are presented in the whole thesis depends firstly on whether these policies have a direct or an indirect effect. Policies with direct impact come first and other policies with indirect effect second. Within the direct policies, the order depends on the researcher's point of view of the importance of these policies,

which depended basically on the importance of these policies to the Bedouin themselves in the field, although all policies are important. The drought situation imposes priorities for implementing policies. The credit policy has been presented first because it was a big concern for the livestock owners during the fieldwork and it was a well-known policy for them.

3.2 The credit policy

The government gives loans to farmers who are working in the agricultural sector in order to contribute effectively to agricultural development and the investment process in Jordan.

The credit policy is one of the main policies that the government of Jordan deals with. All issues related to this policy come through the Agricultural Credit Corporation (ACC), which was established in 1960. It is an independent organisation in terms of its finance and administration. Although it is independent it nevertheless works under the government umbrella, through a board of directors. In fact, the Minister of Agriculture heads the board of directors. The Director General of ACC is the vice-chairman of this board. However, the board also includes two governmental representatives from the Ministry of Finance (MoF) and the Ministry of Planning (MoP) in addition to five non-governmental representatives assigned to the board for three years upon a resolution by the cabinet (ACC, 1998). The board members are nine in total.

ACC is not the only organisation that loans money to the agricultural sector. In addition, there was the co-operative bank under the Jordanian Co-operative Organisation (JCO), which financed farmers who are members of one of the co-operative societies.

However, in 1997, the government terminated its work because it wanted to have one source of credit and the bank had financial difficulties.

According to ACC (1998), the government has a number of objectives of these policies. One of these objectives is to maintain livestock production as an important source of livelihood for many Bedouin. Second, it aims to help farmers, especially the small farmers, to overcome some of the financial difficulties related to animal rearing. It also tries to help the rural people to escape from poverty and unemployment problems by reaching the rural families and giving them loans covering all types of agriculture. It offers loans in the event of especially difficult situations such as drought and low livestock prices. In this context, the beneficiaries have to complete some official procedures in order to obtain the loans that they apply for. An application form should be filled. Also, property or land should be mortgaged as collateral. Its value must be more than or equal to the loan value. These procedures need at least one month to complete. The maximum amount of money for loans is JD 50,000 per farmer but it differs from one type of loan to another. However, small farmers never obtain this amount. The period for repayment of credit depends upon the type of credit. It usually fluctuates between 12 months and 10 years. However, if farmers do not repay the loans on time, ACC then will take an additional interest. This interest fluctuates between 1 per cent and 2 per cent. But if farmers do not repay as a result of difficulties such as losses, drought, etc, the government through ACC can help them in rescheduling their loans for a year or more.

The Jordanian government subsidises agricultural credit. The credit subsidy takes two forms: first, through the low interest rate on the loans, second, through the number of

loans that are overdue. The government, in this case, either allows extensions for the loans or reschedules them and, in some cases, the government, as a result of financial difficulties suffered by farmer in certain years, makes the loans free of interest (ACC, 1998). The government in some years gives this concession to all farmers. ACC has made loans free of interest rate many times. It did so in 1985, 1986, 1991, 1994 and, recently, in 1999. However, MoF pays the value of the interest rate to ACC instead of the farmers. Cases such as these happen as a result of difficult circumstances (e.g. drought).

The government through ACC offered, from 1960 to 1998, approximately JD 239 million, at current prices, in the form of development and operational loans (ACC, 1998). Table 3.1 shows the main categories of loans by ACC.

Table 3.1: Main categories of ACC loans 1960-1998

Main investment areas	**JD million**	**%**
Improvement and reclamation of agricultural land in the rain-fed areas	41	17
Improvement and construction of agricultural land in the irrigated areas	53	22
Development and improvement of livestock and poultry	51	21
Agricultural mechanisation and manufacture	18	8
Erection of rural and farm buildings	15	6
Purchase of agricultural production inputs (plant & animal production)	61	26
Total	**239**	**100**

Source: based on ACC's annual report, 1998

It is clear from Table 3.1 that a number of the main investment areas impact on the livestock industry. The most important ones concern the development and improvement of livestock and poultry, which totalled around JD 51 million for the period from 1960

to 1998, which represents 21 per cent of the whole amount over the period. In this regard, there was no information could be obtained, from ACC, for the last 10 years or more (e.g. 1980-1990, 1988-1998, etc)

Table 3.2 shows the total amount of money offered by ACC at current prices to the improvement of livestock and poultry in selected years.

Table 3.2: ACC Loans for livestock and poultry improvement in selected years 1990-1998

Year	JD million
1990	1.2
1994	4
1998	4.3

Source: ACC, various years

Table 3.2 shows the small amount of money paid to the livestock and poultry industries together (there was no percentage listed for each industry) at the time that livestock improvement alone required more than this, taking into account the increasing numbers of livestock.

Another important category of loans, which may include loans to the livestock industry, is the purchase of agricultural inputs for both plant and animal production. The total amount over the period was approximately JD 61 million, which represents 26 per cent of the total (ACC, 1998). However, in this type of loan, there was no information about how much money went to the livestock industry.

Furthermore, ACC adopts and develops specialised credit programmes such as the rural families credit programme, which aims to contribute to the solution of poverty and unemployment problems in the Jordanian rural areas. In 1998, the total loans under this

programme reached JD 198.5 thousand, from which 127 rural families benefited across all Jordan (ACC, 1998).

Have the families in the northern Badia benefited from such programmes? In addition to the rural families' credit programme, there is a programme for unemployed groups. Indeed, some unemployed beneficiaries who achieved productive agricultural income are establishing projects in the field of livestock raising. But are such programmes available everywhere in the Badia? And how many Bedouin from the northern Badia could benefit from them? Do they know about programmes such as these? Chapter 4 will examine these questions.

One project managed through ACC is related to income diversification. It is financed by the International Fund for Agricultural Development (IFAD) and the Arab Fund for Economic and Social Development (AFESD). The project aims at improving the standard of living for small farmers and activating the role of women in income diversification. It has done that through projects such as sheep fattening and improving and reproducing the Awassi and Shami goats. But do the women in the northern Badia know about it? Also, have small farmers there benefited from projects such as these?

A third way in which ACC supports the agricultural producers is through fodder loans for sheep. These are one of the main investment fields that come under the general policy of ACC. ACC has always financed the sheep raisers with seasonal loans in order to purchase fodder. The amount given, under this type of loan, by ACC during 1998 reached JD 5.3 million, which is approximately 27 per cent of the total loans that were given by ACC in that year (ACC, 1998). A number of the livestock owners benefit from

loans such as these. However, as will be seen in the field, many of those who have livestock have not benefited from these loans (Chapter 4).

In 1999, as a result of the drought, the Drought Committee asked the government to make available JD 12 million to lend to the small farmers. These loans were free of interest in order to encourage farmers to keep their flocks (MoA, Drought Committee, 1999g). In this context, the Secretary General of ACC announced through an interview with the Jordanian Al-Dustour newspaper that ACC loaned JD 13.5 million as feed loans to the livestock owners. He said that ACC gives such loans in order to maintain and keep the animal resources in Jordan. These loans were given to 800 livestock owners who have in total 1.5 million head, which equals 50 per cent of the estimated animal resources in Jordan at that time (personal communication, ACC, 1999). However, these loans were stopped at the beginning of September 1999.

The livestock owners in the study area deal with ACC through the Mafraq Branch. Since 1981 information has been available about the amount of money that has been loaned by ACC in its Mafraq Branch. Table 3.3 shows that livestock farms benefited from these loans. The amounts shown in the table are the total that was paid to the livestock farms in general and to these farms in Mafraq governorate at current prices. It is also worth questioning if the livestock farms mean those people who have livestock or just these farms in the Badia that are owned by investors. In effect, the researcher was told, at the beginning of his study, that these loans went to investors either in the west or east of Mafraq and some of those from outside the area (personal communication, ACC, 1998). However, he has also been informed in another discussion that the previous information was wrong and these loans went to the livestock owners in Mafraq area

(west and east of Mafraq) (personal communication, ACC, 1998). ACC says it always has financed the sheep raisers with seasonal loans in order to purchase fodder. In 1998, Mafraq Branch was loaned about JD 1, 036,100 as seasonal loans (ACC, 1998).

Table 3.3: Loans for livestock farms (1981-1998) (JD million)

Year	Whole amount of loans for livestock farms	Amount of loans in Mafraq governorate for livestock farms	% of livestock loans to Mafraq
1981	0.616	0.109	18
1982	0.217	0.022	10
1983	0.115	NI[1]	NI
1984	0.170	0.098	57
1985	0.264	0.057	22
1986	0.183	0.074	40
1987	0.154	0.016	10
1988	0.321	0.027	8
1989	0.247	0.029	12
1990	0.553	0.211	38
1991	1.7	0.080	5
1992	3.7	0.456	1
1993	2.7	0.217	8
1994	2.4	0.185	8
1995	2.2	0.163	7
1996	3.9	0.249	6
1997	2.2	0.207	9
1998	1.6	0.197	12

Source: ACC, Annual Reports, from 1981 to 1998

As seen in Table 3.3 the percentage that went to Mafraq Governorate fell sharply between 1992 and 1998; a much lower percentage than during the 1980s. In fact, farmer situations became worse since the mid-1990s as a result of the drought and the subsidy removal. I therefore believe that the amount of money available for loans during the 1990s should have been more. This amount (which was given to Mafraq Governorate in general) was less than the farmers' demand in the northern Badia. Moreover, this amount is very small as a part of the whole amount that was available for loans.

[1] NI: no informatiom

To sum up, credit policy is one of the important policies that are affecting the Bedouin. ACC is the only organisation that deals with credit and with all agricultural farmers in general. ACC includes many credit programmes such as fodder loans, which are very important to the livestock owners. The amount of money that went to Mafraq Governorate was very small as a part of the total amount was available for loans.

3.3 The livestock feed, subsidy and livestock numbers

The Government of Jordan has adopted a programme for the Agricultural Adjustment Sector since 1994. This programme was supported by a loan of $ 60 million from the World Bank and another one of DM 30 Million from the Government of Germany (Al-Su'bi, 1999). Linked with these loans, Jordan has had to meet conditions relating to liberalising trade and to support the strategy of market-led growth and modernisation. Also, the government of Jordan agreed under the IMF Standby Arrangement Programme to phase out producer and input subsidies on cereals over the 1993-1995 periods.

The subsidy policy on sales of livestock feed was introduced in Jordan in 1981 (Papadopulos, 1999). Papadopulos said that the subsidy programme initially included feed for sheep, goats, cattle (beef and dairy), poultry, camels and horses but the subsidy for beef cattle, camels and horses was subsequently removed. For sheep and goats the subsidy was paid on a per head of livestock basis in barley, which was initially mixed with sorghum and wheat bran.

In terms of the livestock feed, the government had two ways to subsidise the feed for sheep. A very small quantity was bought locally at prices announced by the Ministry of

Supply, which was less than the world prices. However, the government imported the majority of barley through the Ministry of Supply at world prices but the World Bank Report also requested the government of Jordan to adopt the following policies and procedures which represented the World Bank loan conditions. First, the government had to announce that it would buy the cereal production from farmers for the season of 1994/1995 at certain prices. These prices had to reflect a decrease in the subsidy level down to 50 per cent compared with the season 1993/1994. Second, feed prices for 1994/1995 had to reflect a decline in the subsidy level down to 33 per cent compared with the season 1993/1994. Third, the prices of feed sale for 1995/1996 had to reflect a decrease in the subsidy level down to 66 per cent compared with the season 1993/1994 (Al-Su'bi, 1999). The price of barley from the government centres rose from JD 60-65 per tonne in 1993/1994 to JD 120 per tonne in 1996 and wheat bran from JD 45 per tonne in 1994 to JD 90 per tonne in 1996 (Oakeley, 1996). Finally, on August 1st 1996, the subsidy on barley and wheat bran was removed, raising their prices overnight from JD 85 per tonne to JD 120 per tonne, and JD 52.5 per tonne to JD 90 per tonne respectively (Oakeley, 1996). In 1998, the government reduced the price of barley and wheat bran to JD 79 per tonne and JD 65 per tonne respectively. It was further reduced in July 2000 to JD 75 per tonne for barley and JD 60 per tonne for wheat bran. The government made these reductions as a result of the drought, which means that the government is keen to help the livestock owners. In fact, the subsidy was continued and is still continuing today. The government is, at present, temporarily subsidising barley by JD 19 per tonne because of the drought.

The Jordanian government agreed in a positive way with all the World Bank's requirements. However, the government buys Jordanian-grown barley and wheat every

year at world prices in order to encourage farmers to cultivate lands with barley and wheat. For example, in 1996, the procurement price for domestic barley was JD 157. The sale price for domestic and imported barley was JD 100 per tonne and the subsidy, for domestic barley, was JD 57 per tonne in the same year (Papadopulos, 1999). Likewise, the world price for barley was JD 137 in 1996 and the subsidy, for imported barley, was JD 37. The government has continued this policy and there are no indications that the government will stop it in the future. The government has also undertaken several measures aimed at reducing the harmful effects of the Economic Adjustment Programme (CARDNE, 1998). Small farmers, who owned less than 100 head of sheep or goats in 1996, were compensated for the loss of the feed subsidy by paying them of JD 5 per head per year. In 1997, the government continued the financial compensation for livestock owners at the same level, as in the previous year. This compensation lasted for only 1996 and 1997. MoA has justified this subsidy in order to reduce the harmful effect of the subsidy removal. The government created the subsidy in order to encourage farmers to breed animals because it believes that livestock are an important source of national income (MoA, 1999a). In addition, many people of the Badia depend upon animal rearing as a main source of their income. According to MoA (1997) the number of livestock owners in Jordan is 45,000. This means that the number of people who depend upon livestock for their income is more than 300,000. Most of them live in the Badia region where there are limited alternative labour opportunities (MoA, 1997).

In September 1999, MoA declared, in an interview with the Jordanian Television, that as a result of the drought year, the government would continue the barley subsidy policy by JD 19 per tonne until the end of 1999. Bear in mind, as mentioned before, that the

prices of barley and wheat bran were reduced to JD 79 per tonne and JD 65 per tonne respectively and the prices have further been reduced in July 2000 to JD 75 for barley and JD 60 for wheat bran. In effect, the government has maintained the subsidy to the present day because barley and wheat bran are the most important livestock feeds.

Table 3.4 shows the cost of imported barley, sale prices per tonne and the amount of subsidy in the years 1990-1997. By the summer of 1998, the government price for barley had fallen to JD 115 per tonne (Papadopulos, 1999).

Table 3.4: Cost of imported barley, sale prices and the amount of subsidy per tonne by JD 1990-1997

	1990	1991	1992	1993	1994	1995	1996	1997
Cost of imported barley	105	92	87	84	80	88	137	115
Sale price	60	60	60	65	70	85	100	120
Subsidy	45	32	27	19	10	3	37	-5

Source: based on Papadopulos, 1999

As seen in Table 3.4 there was quite a jump in the price of imports and a high subsidy value in 1996. This was because the world prices for barley in that year were substantially higher than in previous years, and the quantity imported increased as producers were no longer rational in the quantity of feed which they could purchase at the government prices (Popadopulos, 1999). There was a gradual reduction in the subsidy, in general, 1990-1995. This reduction was a step toward removing the feed subsidy completely.

However, it must be noted that barley and wheat bran are not the only feed used by the sheep owners. Oakeley (1996) found that at least nine supplementary feeds were being used in the mid-1990s. In addition to barley and wheat bran, there were: alfalfa, maize,

stubble, straw, concentrates, field crops and bread. The prices of these alternatives were JD 3 per bale for alfalfa, JD 130 per tonne for maize, concentrates quoted at JD 115 - JD 170 per tonne and JD 3 for a full feed sack of straw (Oakeley, 1996). In effect, the price of these alternatives was also affected by the reduction of the feed subsidy. For example, the price of maize increased from JD 116 per tonne to JD 130 and JD 160 per tonne (Oakeley, 1996). However, Campbell (1996) found out in his initial survey in the BRDP area that feeds were used in ratios of 57 per cent for barley, 17 per cent for wheat bran, 20 per cent for straw. Other feeds made up the remaining 6 per cent.

Increasing the price of feed has had an effect on the livestock owners because the production costs have increased. In response, the livestock owners decreased their flock size and sold some of the female sheep, as reported by MoA in 1997 (MoA, 1997). As a result of that, the supply of local sheep (*baladi*) in the markets increased which resulted in declining prices of *baladi* meat and sheep. According to MoA the number of sheep rose to 2.9 million by the mid-1990s but then declined rapidly to 1.9 million by 1997 (Table 3.5). Also, it led to exports totalling 900,000 head in 1997. Of these, 443,000 head were female and the rest male. So there was a negative effect on the number of sheep for rearing and their participation in meat production (MoA, 1997). After the removal of feed subsidy, in August 1996, the number of sheep declined to 1.9 million and goats to 650 thousand (DoS, 1998). It is clear that the removal of the feed subsidy had a negative effect on the number of livestock. Rowe (1998) observed, between August 1996 and November 1997 that 8, 380 animals were sold from the 25 households of his study sample. However, the decline in the livestock number in 1997 might also have arisen for other reasons. It might have resulted from the increase of the mortality rate in that year or an increase in slaughtering as a result of special social occasions and

obligations. It also might have resulted from the Bedouin desires to have new cars and houses or getting married. It might also have resulted from the difficult drought situation and the import of sheep and chilled meat. These features will be examined in the next chapter. Table 3.5 shows the number of sheep and goats in selected years. However, these numbers indicate to a trend rather than correct absolute numbers.

Table 3.5: The numbers of sheep and goats 1990-1997 (million)

Years	Sheep	Goats
1990	1.6	0.479
1991	2.5	1.062
1992	2.5	1.062
1993	2.9	1.2
1994	2.2	0.814
1995	2.9	0.852
1996	2.4	0.807
1997	1.9	0.650

Source: Ministry of Agriculture, 1990-1998

According to MoA, the number of sheep was also 1.9 million, in 1999, and goats was 461 thousand (personal communication, MoA, 2000). As is seen in Table 3.5, in 1997 there was a big decline in the livestock numbers, which was basically a result of the drought situation, removal of the subsidy and the low livestock prices. In mid-2000 the estimated number of sheep and goats had fallen dramatically to about 1.5 million. This was partly as a result of the past three drought years (1997/8-1999/2000) and bad market conditions.

To sum up, livestock feed is available nowadays in sufficient quantities. The government still subsidizes the barley price by JD 19 per tonne. At present, the prices are not as high as they have been but the livestock industry suffers from low animal prices and drought. The number of sheep is going down because Bedouin have to sell

some of their animals to meet their requirements and they are losing confidence that keeping breeding stock will result in a bigger profit in the future.

3.4 Rangeland management and improvement

Rangeland in Jordan is one of the most important issues related to the livestock industry. In general, rangeland could be defined as low rainfall lands that the people do not cultivate and are grazed by livestock. The overall objective of the government's policies regarding rangeland is to protect and manage the rangeland with policies that lead to rangeland protection from grazing.

In Jordan, the Agricultural Law Number 20, of 1973, defined rangelands as the areas that receive less than 200mm annual rainfall. Estimates of the area of rangeland vary from 85 per cent to 97 per cent of the total area of the country (IFAD, 1997). The main national organisations involved in rangeland activities in Jordan are MoA, the Jordanian Co-operative Corporation (JCC), BRDP and some of the Non-government Organisations (NGO's) such as CARE international. MoA has a special department for rangeland. It deals with all activities related to rangeland everywhere in Jordan. The policies of MoA are based on Agriculture Law Number 20, of 1973, in which the State is made the owner of the rangelands.

One of the important issues related to the rangeland, is that of land tenure. The main land tenure categories are as follows: privately owned land (*Miri and Mulk*), tribal land (*Wajehat El Ashayer*), and the state land (free access to all resources) [2] (IFAD, 1997).

[2] Private land (*Mulk*) is the land that owned by individuals. Tribal land (*Wajehat El ashayer*) is the land that owned by the whole tribe members. State land is the land that owned by the state based on Agriculture Law Number 20, of 1973.

Action is needed to put an end to early grazing and overgrazing, which have been devastating the range resources (Al-Sirhan, 1998). Nowadays, most of the farmers or landowners are renting their barley fields to the livestock breeders as unharvested barley. In the past, the Jordanian State claimed that local communities are not efficient resource users, so the state took the responsibility to set up new rules of access and create resource control mechanisms. However, government institutions have not been efficient and effective controllers of rangeland management in Jordan (IFAD, 1997).

In the present land tenure situation, in the case of the land under state ownership, the state leases this land to co-operatives or individuals for range improvement. Regarding land under community ownership, this ownership creates a lot of problems in terms of fragmentation. A good example of this is the current conflict between Al-Sharafat tribe members about the Shubeka area fragmentation in the BRDP area. Being one of this tribe, I can confirm that some clans and individuals wanted more than others. However, they finally agreed, after more than one-year of discussions, upon fragmentation.

Rangeland reserves are one of the ways that the government uses to achieve the goal of improved management. There are many rangeland reserves, located in all governorates in Jordan. MoA manages some and the rest are managed by JCC. Concerning rangeland reserves, it is important to say that Jordan has a good experience in rangeland development techniques. In 1946, MoA established the first rangeland reserves at Khanasri and Surra.

The total number of rangeland reserves is 22 in the whole country covering a total area of 759.81 km^2 (Al-Sirhan, 1998). In addition, Jordan has started since 1975 to establish

nature reserves such as Dana and ash-Shaumari, which are managed by the Royal Society for the Conservation of Nature (RSCN)[3] (RSCN, 1996).

However, there is limited technical expertise in rangelands in Jordan. The University of Jordan is accepting MSc and PhD students in agriculture but without specialisation in rangeland sciences.

In addition to MoA, JCO was involved in rangeland development. JCO managed rangeland reserves covering a total area of 128.35 km^2. These reserves are located in

Ma'an, al-Balqa, al-Karak and Madaba (Al-Sirhan, 1998). In the 1960s, JCO established the Rangeland Development Project in co-operation with the World Food Programme (WFP), aiming to develop a new system of range development through co-operative members participating in all project activities. WFP assistance for the project will be extended four different times up to 2002 (MoA, 1996). In fact, this project dates back to 1968 when the Government of Jordan and WFP entered into a Basic Agreement concerning assistance from WFP (JCC, 1986). The programme in the long-term aims at regenerating the natural vegetation and forest cover and supporting animal husbandry in the vast semi-arid regions by undertaking afforestation, soil conservation and range development activities. Also, the programme has immediate objectives such as reducing soil erosion, improving environmental conditions, improving animal production and encouraging the participation of co-operative members and small farmers in the programme area to develop their lands by planting fodder shrubs. However, it is

[3] RSCN is a non-governmental organisation established in 1966. It aims at conserving nature that includes the flora and fluna. It also aims at protecting the environment and conserving it from the pollution (RSCN, 1996) (for more detail see Al-Sirhan, 1998)

important to note that despite the fact that the northern Badia has the biggest area of rangeland, it is not involved in this project.

JCO in the past and JCC today participate with the co-operative societies by helping them to obtain rangelands from the government and planting them with shrubs and other plants for grazing. During the period 1980-1996, JCO rehabilitated 87,580 dunum in nine different sites throughout the country of which 11,500 dunum belong to private farmers (MoA, 1996). Nine co-operative societies were put in charge to implement the management of the range reserves. These co-operatives included farmers who own 226,629 head of sheep.

At a workshop about rangeland research in Jordan held in 1996, it was claimed that the Government of Jordan started a national programme for range development in the 1950's by establishing a number of rangeland reserves protected by fencing. However, the government efforts faced different serious problems, some of which were due to the absence of the pastoralists' awareness of the importance of such efforts, especially by those who were living in the project areas. Others problems were seen to be due to the free access of livestock keepers to graze any of the rangelands in Jordan. In 1997, MoA reissued instructions in regard to the use of rangeland reserves.

The key instructions are as follow:

(a) A priority is given to the livestock owners who live around the reserve;

(b) The number of livestock that enter the reserve should not be more than the reserve's carrying capacity;

(c) Grazing should just be during the day;

(d) Vehicles are not allowed to drive off the main road inside the reserve;

(e) Livestock should always be moved from one place to another inside the reserve in order to avoid overgrazing;

(f) The maximum number of livestock allowed to enter a reserve is 200 head for every owner;

(g) Grazing should be under the direct supervision of forestry employees; and

(h) A grazing licence should be obtained and then the livestock owners should pay two fills per head per day for grazing.

MoA is also responsible for some projects dealing with rangelands. One of these projects is the Sustainable Rangeland Management Project (SRMP). It is funded by the Canadian International Development Agency (CIDA) and is being executed by MoA as a governmental institution and RSCN as a non-governmental organisation. It started its activities on May 1998 in two pilot areas in Madaba and Tafilah and recently Muagger area taken as a third zone (MoA, Range Department, 1999b). This project aims to achieve a regional and national aim. Regionally, the project is strengthening regional relationships and contributions between Middle East countries in exchanging experience about rangeland management in arid and semi-arid zones (MoA, Range Department, 1999c). The project has four sorts of activities related to four different types of work in order to decrease the pressure on rangeland resources. These activities are: rangeland management in Tafila and Madaba, income generating, socio-cultural targets, and infrastructure.

Concerning rangeland management, many activities are undertaken including improving rangeland and grazing management, fattening projects, reforestation, soil and water conservation techniques and water harvesting techniques. The income generating

activities revolve around diversification of income sources, such as bee keeping, poultry and rabbits, fattening for sheep and cattle. In addition, there is the food industry (medical herbs, dairy, fruit conserves) and contributions to women's associations in trade (handi crafts). The socio-cultural activities consist of tutorial programmes in rangeland management in co-operation with schools. Also, the introduction of rangeland programmes into elementary schools, drama about rangeland activities, seminars, study tours and workshops on rangeland management have been organised. With respect to infrastructure activities, the project is dealing with wells, establishing and maintaining agricultural roads, veterinary centres and soil dams. It is important to say that the range department staff in MoA are pleased with the implementation of this project (personal communication, MoA, 1999). However, this project does not include the Northern Badia.

Another project is the national programme for Rangeland Rehabilitation and Development. It is a programme in co-operation with IFAD. It aims at developing rangeland and its rehabilitation. It is also designed to provide decision-makers with new information about rangeland conditions in addition to developing ways for evaluating the rangeland resources. The main principle of this project is to make the local people contribute to rangeland management in partnership with the government staff. It also aims at increasing environmental awareness about rangeland resources. Furthermore, the project aims to help beneficiaries and pastoralists by guiding them to a correct way to use range through rangeland development plans. This project has two pilot areas in Menshieate Alkeath in the northern Badia and Mouregha in the southern Badia. In Menshieate Alkeath, near Ruwayshid, the project started at the beginning of 1999 in order to execute a technical programme for rangeland management after identifying five

thousand dunums. The project budget is about JD 9 million. IFAD pays 44.7 per cent, the government of Jordan pays about 13.8 per cent, and the local community and other fund sources pay the rest (MoA, 1998). However, the project's work is not going well. So, the Minister of Agriculture is now considering working with BRDP to make the project more effective, in an area east of Tall ar-Rimah village (personal communication, BRDP, 2001)

But do the Bedouin in the northern Badia know about JCC and MoA rangeland activities? Also, have they benefited from rangeland development either through the work of MoA or JCC? And are they members of one or more of the livestock co-operative societies, of which there are 14 in Mafraq Governorate? If so, has membership benefited them? All these questions will be answered in Chapter 4.

In summary, the main aim for the rangeland policy is to protect and improve rangelands. There are many organisations (governmental and non-governmental) dealing with rangeland management in Jordan. Each organisation has its own projects and rangeland reserves. Most of these projects are located in the Southern Badia area. The success or the lack of success of these projects will be examined in Chapter 4 by explaining the Bedouin ideas about them.

3.5 Animal health and veterinary services

Animal health care is one of the most important issues related to the livestock industry everywhere. The animal health situation is a reflection of the animal health services in any country. In Jordan, there is a free governmental vaccination programme.

However, IFAD (1997) claimed that the effectiveness of the government vaccination programme is low in Jordan as a result of poor coverage and ineffective vaccines, particularly for the Peste de Petits Ruminants (PPR) (IFAD, 1997). Also, IFAD (1997) says, "It was reported that the government veterinary service provides a free vaccination service for farmers but experience from the field showed this is not provided to the farmers"(p.9). Moreover, Dutton (1998) stated that "in theory there is a free veterinary service but in practice this has either not been available to the people of the study area or is held in such low repute that people make little or no use of it" (p.15). In this context, it seems that there is a gap between the purpose of producing policies and their implementation in the field. Situations such as these might have resulted in part from the bureaucracy and the routine that dominates the public administration in Jordan. It also could have resulted from the ineffective government monitoring system on the departments, especially those far from the centre.

Regarding this policy, MoA claims that programmes for extension and farmers' training as well as veterinary services have been provided by MoA to the farmers everywhere. MoA has a governmental veterinary centre in every governorate (personal communication, MoA, 1998). In fact, MoA claims that extension covers all aspects of natural resource development and management as well as issues related to livestock. Most of the important themes connected with livestock are: flock structure and its impact on productivity; feeding charges, lamb batching; animal health; means of minimising costs to maximise additional live-weight after weaning, weaning age and its impact on productivity (IFAD, 1997).

Nearly, all the extension officers in MoA are office-based graduates. However, the government facilities for training extension workers and training farmers are inadequate. Therefore, there is a great need for training in health care, nutrition, natural resource management and animal management (IFAD, 1997). The Livestock Services Society (LSS), as a private sector organisation, is involved in the provision of veterinary services in co-operation with MoA. Some of the major diseases present in the sheep in the Badia have only been recently identified. These diseases are foot and mouth, PPR and blue tongue, though MoA still does not recognise that blue tongue is a problem. People want their sick animals treated, they want a cure with an injection (IFAD, 1997).

In January 2001 a DFID-funded project working with BRDP and MoA published a comprehensive manual on agricultural and livestock extension, following extensive discussion with farmers and MoA officials. The manual will be formally launched at a workshop in February 2001 and will include some reports from the field on its impact.

In the Northern Badia, Bedouin have a choice of visiting the government vets in Ruwayshid, Safawi (where BRDP is located) and Subha. In addition, they can use private veterinary clinics or pharmacies in Mafraq or Umm al Quttayn, which have recently opened. Oakeley (1997) claimed that some necessary vaccines are available from government clinics, and enterotoxaemia vaccine can be bought at pharmacies. In 1999, the government of Jordan, in response to the Drought Committee suggestions, allocated JD 0.5 million to buy vaccines and veterinary medicines (MoA, Drought Committee, 1999a).

In January and April 2001 the DFID-funded project (mentioned above) working with BRDP and MoA will convene two international workshops to discuss, respectively, alternative strategies for delivering livestock health services and the role of community animal health workers (paravets) in the strategy. This may result in a bigger role for the private sector.

3.6 Water policy

Water is one of the key commodities affecting the livestock industry in Jordan. Providing Bedouin with free water is one of the government's policies affecting the livestock industry in the Badia. In fact, there are two water sources: surface water and groundwater. Groundwater includes both renewable and non-renewable resources. MoWI (1997) claimed that surface water potential in Jordan estimated 692 million cubic meters per year. Because of aridity in the eastern, south eastern and southern basins and because of geographic and other constraints, only about 475 million cubic meters of this potential can be developed economically. The government has invested heavily in the development of surface water resources with priority given to the construction of dams and irrigation projects in the Jordan Rift Valley (United Nations, 1997) and in the Badia, including a dam on Wadi Rajil. Wells have been drilled in the north east Badia, as well as elsewhere in the country. In the early 1960s the government introduced water-harvesting methods for water collection through the construction and maintenance of a number of earth dams in the arid zone (Nesheiwat, 1991). Table 3.6 gives the names, capacities and aims of the dams in the northern Badia region, up to 1991.

Table 3.6: Names, capacities and aims of dams in the north-east Badia

Name of dams	Capacity mcm/year	Aim
Burku	1.5	Drinking water & livestock
Loranz, sealar (Fida)	0.6	"
Umm Jemal	1.8	"

Source: based in Nesheiwate, 199

As seen in Table 3.6, the dams are mainly used for drinking water and livestock. The development plans of the government since 1991 included the construction of new earth dams in the Badia on Wadi Rajil and at Abu Hafna. These were built by the government in the mid-1990s.

In the northern Badia, there are 91 government wells; 27 are agricultural wells and the rest are to provide water for people. MoA monitors some of the agricultural wells for purposes of irrigation projects and watering livestock (MoWI, 2000). Wells have also been drilled by the private sector. Waddingham (1998) stated that there were 26 farm boreholes near the villages east and south of Umm al-Quttayn village. Some of these farms concentrated on tomatoes and watermelon farms, others grew a greater range of crops including fruit trees and vegetables. A major problem facing the northern Badia is the pumping of water from the Azraq well fields to Amman (Dottridge, 1998).

The government provides Bedouin, who have a certificate saying that they own livestock, with free water through its wells in the desert (*Hammad and Harra*) (Rowe, 1998). In the villages, Bedouin water their livestock from the domestic water supply. But it is difficult to know the actual water cost for livestock (for more detail see Chapter 4 and Rowe, 1998). In addition, the government subsidises water that is used for

irrigation and daily use in the households. According to CARDNE (1998), in this context, the Structural Adjustment Programme requested the government to:

(1) Prepare and adopt a national policy for water resources aimed at regulating water consumption and using water more efficiently. This requires that water policy is based on accurate information with respect to further availability and demand;

(2) Address the water use strategy, water quality control, and water pricing; and

(3) Improve the management of water resources through government supervision.

In response, the government prepared a water strategy that was approved by the cabinet in April 1997. The strategy defines the long-term goals that the government seeks to achieve in the water sector (MoWI, 2000). However, there is no indication in the water strategy, which was approved by the cabinet in April 1997,[4] of any improvement in the programme of watering livestock in the future. In effect, the new water policy utility in MoWI adopted in 1997, confirms the availability of surface water in the Badia rangeland. It is considered economically infeasible to develop these surface water sources as part of the national water development strategy. The Department of Range in MoA says that the development of an integrated water policy and strategy, with priorities for water use, has been effectively implemented and a complementary water pricing policy adopted. The water pricing policy now requires the full cost of operations and maintenance of water facilities developed by the government to be paid by the user (MoA, 2000).

[4] The Government of Jordan prepared the water strategy as a requirement of the Economic Adjustment Programme. The strategy defines the long-term goals that the government seeks to achieve in the water sector (MoWI, 2000).

Rowe (1998) discussed the transport of water as an important aspect of the transport costs regarding livestock expenditures. In spite of the fact that water accounts for only a small part of the total livestock costs, the transport of water accounts for a large part of the transport budget for those owners without access to a water source at their houses. An increase in the transport budget occurs during the summer's heat when livestock require more water. Some livestock owners during this period were making two journeys daily. Rowe's study is confined to privately purchased water and it took no account of owners who routinely water their herds from the domestic water supply. He claimed that it is difficult to gain access to household bills, or to discern what proportion of consumption was attributable to livestock (Rowe, 1998).

From the above, it may be concluded that water is one of the most important issues to the livestock owner. Water's cost is not low and rises during summer season and the drought years. In principle the government provides Bedouin with free water from the government wells, as a result of the drought, but in practice not all livestock owners can access these wells. Problems faced by the Bedouin will be discussed in Chapter 4.

3.7 The co-operative movement

The co-operative movement in Jordan goes back to 1949 when the unity between the West and East Banks was declared. The first Co-operative Law was issued in 1952. It is Law Number 59, of 1952, which allowed for the establishment of the Co-operation Department. This Department was responsible for the creation of the co-operative societies. After that, in 1959 the Jordanian central co-operative combination was established and then in 1963 the Co-operative Training Centre was established (Al-

Nabir, 1996). In fact, discussion or research into the co-operative movement in Jordan means a study of two organisations, JCO in the past and JCC at present.

JCO was established in 1968 through Law Number 55, of 1968. It is an organisation with limited capital with a financial contribution from the co-operative societies and the government. The government initially offered JD 50,000 per year to JCO. However, this amount has decreased through the years.

The overall JCO's objectives as set out for the Five-Year Plan for Economic and Social Development (1981-1985) (MoP, 1981) are as follows:

(a) To provide the necessary facilities to complete the establishment of a co-operative base;

(b) To encourage co-operative work in the different sectors by providing incentives and training and developing the services of the Co-operative Training Centre;

(c) To expand the services of co-operative societies in the field of input supply, production and marketing. In addition to give special attention to extension, management and technical services;

(d) To achieve a balance between different co-operative sectors, both agricultural and non-agricultural, according to the public need for each sector. In addition, to provide financing for production and marketing to meet development requirements; and

(e) To develop the co-operative bank and raise its capacity to offer banking services and credit facilities with an emphasis on opening branches to serve co-operative directorates on location.

(f) To expand the range of parallel markets with the objective of streamlining marketing procedures governing domestic and imported products. In addition, providing import substitutes of good quality and at lower prices.

The government encouraged farmers through JCO to get involved in the co-operative societies. The farmers who became members of a co-operative society could then obtain livestock feed and take the loans that they needed. The loans, through JCO, were offered from the co-operative bank that was linked to JCO.

In the northern Badia, there are 11 co-operative livestock societies (JCC documents, 1998). According to JCC, these societies are investing in the fields of feed trade and offering loans to their members. Moreover, the degree to which in practice the Bedouin are aware of these services or have access to them will be discussed in Chapter 4.

JCO provided its services to the co-operative societies' members in particular and to the whole society through 17 official branches located in the whole country. In addition, there were seven stations for agricultural machines, five stations for sheep breeding and fattening and 13 branches for the co-operative bank (Al-Nabir, 1996).

Furthermore, there were many projects working under the umbrella of JCO. These projects were very useful in providing markets with red meat and improving livestock productivity. The first one was the Awassi sheep breeding and improvement project. It was located in the Mafraq area on land totalling 600 dunums and had 7 pens with a capacity of 2000 head of sheep. JCO provided the project with necessary machines and it established a dairy factory in order to produce dairy products. There was, however, no improved flock of Awassi sheep in Jordan. Therefore, JCO since 1992 has undertaken a

breeding programme in order to create 1000 head of improved Awassi sheep. For this reason, JCO imported a number of improved rams from Iraq, which they sent to Sumaia where the project was located (Al-Nabir, 1996). However, this is nowadays not the situation because of the complete change of JCO structure.

The second project was created with co-operation between JCO and the Government of Jordan. They established in 1991 a lamb-fattening project. It consisted of 5 stations, which were located in Mafraq, Azraq, Karak, Tafeleh and Ramtha. Every station included a pen for fattening with a capacity of 3600 head of lambs (Al-Nabir, JCO, 1996). In addition, there was a centre for storing and selling veterinary vaccines. Farmers had to follow certain procedures to join this project. They had to hand their lambs over to the station at a weight of 15-20kg. Then the station provided the lambs with feed, water, veterinary services and technical and administrative supervision. The duration of fattening lasted 70 days and then the lambs were handed back to the farmers at a weight of 40-45kg. However, farmers had to pay all of JCO's expenditures during the fattening period. Usually the farmers paid after selling their lambs (Al-Nabir, 1996). In fact, projects such as these might be useful for small farmers who cannot provide their lambs with feed and all other requirements that are necessary to the fattening process and/or do not have the time or staff to fatten the lambs properly. At the same time, it was hoped that there would be a positive effect on the production of red meat in the country as a whole. However, in 1998, JCO's work was stopped and most of its projects such as the lamb fattening and Awassi breeding stations transferred to other organisations such as LSS, General Department of Intelligence (as a private investment to the department), etc (personal communication, JCC, 1998). The lamb-fattening project, however, failed because of diseases and all the stations were closed. JCO faced

financial difficulties and the stations were not profitable. Likewise, these stations were not able to secure a permanent income for JCO. JCO also no longer gives loans to the livestock farmers for the reasons mentioned above.

Regarding co-operative marketing, JCO undertook some actions. In 1991, for example, JCO established the co-operative market in Amman for marketing the products of the co-operative societies and their members. In addition, JCO encouraged the establishment of specialist societies for marketing. However, the JCO position was reconsidered, especially when it started to face difficult financial crises regarding the Co-operative Bank and the cash in the hands of JCO. The critical situation of the Co-operative Bank resulted from its financial losses, which meant no cash was available for JCO. As a result, the government of Jordan and the Central Bank of Jordan made a decision to cease the credits through JCO (Al-Nabir, 1996). In 1996, a special committee was appointed to start the work of reorganising JCO. In 1997, after many discussions with the relevant sectors, JCC was established. This establishment came through the Co-operative Law Number 18, of 1997. Since that date, JCC only supervises and monitors the accounting system of the whole co-operative sector. It works to raise the economic, social and cultural position for co-operatives and local communities. It also tries to enhance self-dependence in order to achieve the economic and social benefits of co-operatives. However, according to the World Bank (David Gerber, personnel communication), the government will probably close JCC in the near future because it is perceived as being too "top-down" and bureaucratic and therefore harms rather than helps the co-operatives.

BRDP is recently also involved in the co-operative movement. It is preparing to establish a dairy product factory in co-operation with MoP (Social Security Net) in Tall ar-Rimah village, which is located in the BRDP area. According to BRDP (2000), the overall objectives of this project are:

(1) To maximise the benefits of dairy products for farmers;

(2) To protect the livestock owners in the area from monopoly of cheese makers;

(3) To diversify the income sources for farmers by using the project's profit to invest in a number of new projects; and

(4) To increase employment opportunities in the area.

This project is funded by MoP (Social Security Net) and BRDP runs it. It is owned by the livestock owners in the area throughout their co-operative society, which was established September 2000 for the purpose of the project. This society called the Co-operative Society for the North-East Badia. In fact, the livestock farmers have had a chance to discuss and choose the type and structure of the factory form through a meeting held in BRDP, which is very useful in the co-operative work. The factory will probably be started in 2001 and its performance will be monitored thereafter (for further details see BRDP, 2000).

3.7.1 The Livestock Services Society

A new style of co-operative societies came into being in response to a 1995 workshop on the privatisation of veterinary services, and the later support of the Ministry of Planning and the World Bank. As part of a programme of co-operative reorganisation that will eventually affect all sectors, LSS was established in June 1998 as an "apex society" for the livestock co-operatives. LSS has many objectives; the most important

one is to provide a complete service to livestock owners in regard to health, nutrition and access to genetically improved animals. With this end in mind LSS established a pilot project at Ramtha station in September 1998 for testing lamb and goat fattening, vaccinations and feed (personal communication, LSS, 1999).

With respect particularly to Badia farmers, LSS offered a trial vaccination service in 1997, taken up by the owners of 50,000 sheep who paid for the service. In the future they hope to offer a comprehensive vaccination service on a twice-yearly basis, undertaken jointly by LSS and MoA, with inputs from BRDP in the Badia, by notifying and co-operating with livestock owners. LSS aims to employ the staff and equipment to vaccinate up to 10,000 animals per day and establish a package of vaccines for foot and mouth diseases, clostridia, PPR, pox and brucella. Since LSS only aims to cover its operating cost, the owners should benefit from comprehensive and cost-effect services. The cost of vaccines is not covered by MoA and will be passed on to the owners. However, it is the intention to keep costs to an absolute minimum, in order to encourage farmers to join the scheme (LSS, 1999). Also, pilot lamb and kid-fattening trials have been in progress and the evaluation of improved Awassi sheep in both intensive and extensive management have been carried out (LSS, 1999, personal communication). Although the first priority is to improve animal health, the pilot project at Ramtha is also working on reducing the cost of livestock feeds through the inclusion of agricultural by-products, and is evaluating the possible longer term role of genetically improved animals. Feed based on by-products have been expanded to small-scale commercial production and supplied to the co-operative societies. Nevertheless, in the Badia this is today not available through the co-operative societies, because the co-operative societies in the Badia are either not available or not active. Under a project

financed through CARE International and CIDA, it is hoped to import a small factory from Switzerland to prepare much larger quantities of feed more cheaply. Similarly, ultra-sound pregnancy scanners were imported in January 2000, and are being tested. They will be of value to farmers if they distinguish between sheep that are carrying one foetus, or two, or are not pregnant. The latest situation of the machine is that the Swiss company finally demanded pre-payment of 36 months rent before they would agree to send the factory to Jordan. However, LSS does not have the funds to take the machine on these terms (personal communication, CARE Director, Amman, 2000).

The government strongly supports LSS. It has provided LSS, free of charge, with a number of vaccines. LSS has also had MoA approval for providing the livestock owners with veterinary services and for charging a fee for doing so. MoA also permits LSS to co-operate and benefit from having access to the government veterinary clinics through using their staff, equipment and their vehicles (MoA, 1999d). LSS co-operates in its activities with MoA, JCC society members, the Queen Alia fund, the Institute of Animal Health and the Centre for Tropical Veterinary Medicine in the UK (LSS, 1999). In October 2000, LSS voted in a new Board of Directors that have a much stronger entrepreneurial background than the original Board, which was very bureaucratic. It is hoped that the new Board will be more pro-active.

A new combined vaccine against PPR and Sheep Pox, tested by the pilot project at Ramtha, has given a very promising initial result (personal communication, Edward Allonby, 1999) and will be tested further in both sheep and goats, now that a safe PPR vaccine is available. Also, many trials have been designed and the breeding programme using improved Awassi is now based at Ramtha station. However, there is still no clear

plan by MoA or LSS for a national vaccination programme. The reason for this might be because neither the government nor LSS have a budget to buy vaccines for sheep. In fact, programmes such as these are very important to help farmers to control livestock diseases with no or low cost, which will hence forward affect positively their sheep numbers, and quality.

3.8 Exports and imports

According to MoA (1997), the overall objectives for creating policies concerning sheep and goat imports and exports are:

(1) To make red meat available at low prices (so the government allowed the importation of live sheep);

(2) To improve and develop the animal resources (therefore the government allowed the importation of sheep for breeding purposes); and

(3) To help the livestock farmers to compensate their losses that resulted from rangeland deterioration, the reduction of the feed subsidy, the high prices of the livestock feed and the removal of the subsidy.

With respect to the export and import policies, the government put the policies into effect for the reasons mentioned above (MoA, 1997). However, it also had to produce the policies regarding liberalisation of the external trade system, as a result of the requirements of the World Bank, ASAP and IMF (CARDNE, 1998).

The main livestock products (and inputs) that are imported to and exported from Jordan are red meat, live sheep and goats, animal feed, milk and milk products, wool and grains. In general, the government policy was for open exports and restricted imports.

The government has applied this policy to encourage domestic production. In 1980, export was allowed for breeding and slaughtering purposes. In addition, the import of goats for slaughter was allowed. The policy has fluctuated. For example, in 1988 the government banned exports of sheep including lambs and left the door open for imports. This resulted in huge losses for herders and fatteners (Nabulsi *et al.*, 1993). The government has allowed the import of male live sheep and goats since 1990 for consumption purposes and the importation of female sheep for breeding purposes. Since 1990 the exports of live sheep (male and female) and goats have been allowed without conditions. The government made this decision as a result of the drought situation, which certainly affected the rangeland, and because of the increase of feed prices. Nabulsi *et al.* (1993) stated that the exports for 1990 were low compared with 1991. Because the export of sheep and goats was banned, the sheep and goats owners suffered heavy losses of income. Since 1990, export of sheep has been allowed, and never stopped, to the Gulf countries. However, political crises such as the Gulf War in 1991 and the 1997/8-1999/2000 drought reduce exports (personal communication, Bedouin traders, 2000).

According to the export procedures, Oakeley (1997) stated that there are five steps for exporting animals, and they take at least five days to complete with the relevant offices. Procedures such as these still exist nowadays but the sheep export is low. These procedures are as follows:

(a) Obtain a declaration from MoA to export a stated number of live sheep;

(b) Animals must be registered as Jordanian, so, if brought from Syria or Iraq, they are registered by the payment of a JD 5 per head import tax to MoA;

(c) Payment of an export tax of JD 3 to MoA;

(d) Random veterinary checks for basic health and disease regulations; and

(e) On receipt of all the above documentation at the customs office at point of exit, and the payment of JD 7 per load for administrative charges, the licence is issued.

The main destinations for exports have been some of the Gulf countries such as Qatar, Saudia Arabia, the United Arab Emirates and Bahrain. On the other hand, the main sources of imports have been Australia, Romania, Bulgaria, Poland and New Zealand (Nabulsi, *et al.*, 1993). Nabulsi *et al.* (1993) claimed that the average number of sheep exported from 1982 to 1986 was 209,000 per year whereas the average number of goats exported was 9,200 per year. In 1997, the total sheep export was 900,084 head, 443,837 of which were female (MoA, 1997). This increase came as a result of the three-year drought (1996/7-1998/9) (Table 3.7) that led to the deterioration of the rangeland, and as a result of the removal of the feed subsidy. In Jordan, the rainfall is about 8,500 million m^3 each year (Allison, *et al.*, 1998). However, in 1998/9, for example, the precipitation fall was 3500 million m^3, which means 50 per cent less than the general average (HCST, 1999). Table 3.7 shows that the drought became worse in successive years (DoS, 2000b). So the livestock owners preferred to sell their animals in order to obtain cash for expenditure on the remainder of their flocks (MoA, Annual report, 1997).

Table 3.7: Rainfall in 1996/7-1998/9 (in mm)

Area	Season		
	1996/7	1997/8	1998/9
Mafraq	158	183	65
Safawi	98	87	35
Ruwayshid	110	95	17

Source: DoS, 1998-2000

Table 3.8 shows value of the exports and imports of live animals in the last three years (1998, 1999 and until July 2000).

Table 3.8: Value of exports and imports of live animals 1998-July 2000 (JD million)

Year	Export	Import
1998	33.7	13.5
1999	24.3	24.3
Till July 2000	11.1	14

Source: CBJ, 2000

From the Table above, the export of live animals fell sharply since 1998. This has resulted from the poor local market conditions as well as the regional markets conditions. However, the import of live animals nearly doubled in 1999 but it fell dramatically in July 2000. This decrease came as a result of the large supply of sheep in the local markets. In addition to live animal imports, the total import of meat, fish and preparations thereof, by JD million, was 58,584, 48,665 and 27,260 for the same years respectively (CBJ, 2000b).

Table 3.9: Number of sheep slaughter, imported and exported in selected years ('000)

Year	Number of slaughtered sheep	Number of exported sheep	Number of imported sheep
1970	28.0	36.0	60.0
1978	210.0	-	91.0
1980	270.0	173.0	412.0
1986	270.0	144.0	59.0
1990	566.0	257.0	248.0
1994	494.0	127.0	562.0

Source: MoA, Annual Reports, various years

Sheep slaughters, imports and exports are shown in Table 3.9 for various years. Most red meat consumed in Jordan is imported and yet lambs are exported. The reason for this is that Awassi lambs command a high price in Saudi Arabia and the Gulf countries. The imported meat was cheaper than Awassi and therefore there was a net increase in the balance of trade for Jordan (for more detail and figures see Nabulsi *et al.*, 1993; Abdulrahim and Arabiat, 1986). The imported meat is also still cheaper today and, I believe, it will continue to be so in the future. Table 3.10 shows the local production, imports and total red meat available for consumption, and also the degree of self-sufficiency of red meat from 1994 to 1998. Local production increased over this time period, as did the degree of self-sufficiency. But this was a reflection of the sale breeding stock for slaughter rather than true increase in productivity. MoA (2000) also confirmed this by saying that the major cause of these increases was the drought, which accompanied by an increase of number of animals slaughtered. No information could be obtained or was available about the exports of red meat.

Table 3.10 Red meat: local production, imports, available for consumption and self-sufficiency 1994-1998 (000 tonnes)

Red meat	1994	1995	1996	1997	1998
Local production	15.8	14.3	16.3	15.2	22.0
Imports	33.1	23.4	26.7	27.4	23.7
Available for consumption	48.9	37.7	42.7	42.6	45.7
Sulf-sufficiency	32.3%	37.9%	37.5%	35.7%	48.2%

Source: Based on MoA, 2000

Regarding the import of feed, the Government of Jordan, through the Ministry of Supply (MoS), used to be the unique source for feed imports. However, as a step towards privatisation in this sector, the government has, since 1996, invited the private sector to work with it in providing livestock owners with barley and wheat bran. In 1998, the government secured enough profit for the private sector by fixing the price of barley and wheat bran to be sold to farmers at JD 79 per tonne and JD 65 per tonne respectively. MoF suggested that the government could encourage the private sector to import barley and wheat bran (MoF, 1999). According to the same source, this encouragement proposal was through feed price liberalisation with monitoring and storage carried out by MoTI. The question is, what organisations do the Bedouin prefer to deal with? What can public or private organisations offer them? Questions such as these will be answered in Chapter 4.

In summary, the exports and imports policy fluctuated over the years. The government is the main importer and provider for animal feed, although the government now allows the private sector to import feed. Also, the government imports chilled red and white meat, which puts the local meat (*baladi*) in competition with the imported chilled meat.

3.9 Bedouin vehicles

Bedouin vehicles licensing is an important issue for the livestock owners. It came up during the discussions in the fieldwork. Bedouin vehicles had Saudi plates[5] until the mid-1990s. Then the government asked the Bedouin to license their vehicles as Jordanian vehicles, which has added an additional cost (licensing fees and vehicle maintenance) to the livestock owner's budget (the cost could be anything between JD 300-700 per year). The impacts on the Bedouin and their livestock of this simple and apparently unrelated change of policy will be examined in Chapter 4.

3.10 Health services

One of the areas of policy that is affecting livestock rearing in an indirect way concerns the health service. The health service in Jordan is one of the best in the region in terms of both access and health care. An estimated 80 per cent of Jordan's population has formal health insurance coverage (IFAD, 1997). Services are delivered through an extensive network of public and private facilities and overall capacity in terms of beds and physicians is high. However, the continued viability of the public health care system is threatened by the increasing demands being placed upon it and persistent deficit within the sector (World Bank, 1996a).

During the last twenty-five years, there has been significant progress in the health sector at all levels. In the country as a whole, the percentage of physicians to population increased from 1.8 per 1000 in 1961 to 11.4 in 1984 and to 17.4 in 1993 (MoP, 1986; Al-Kour, 1998). The population per physician was 506 in 1999 (MoH, 2000). The health centres increased from 61 in 1981 to 150 in 1984. There were 368 and 381

centres in 1998 and 1999 respectively (MoP, 1986; MoH, 2000). The Ministry of Health (MoH) budget rose from JD 1.0 million in 1961 to JD 20.0 million in 1984. In 1999, the total expenditures on health were JD 467 million (MoH, 2000).

For the most part, health services are available in the Badia including the study area in the northern Badia. MoH has made a great effort to provide most villages with at least a primary health centre. In the northern Badia, in the 1960s, two health centres were established one in Ruwayshid and one in Sabha and, in the 1970s, ten more health centres were established in ten different villages. In the 1980s, an additional six centres were established in other villages and another nine were established in the region during the 1990s (personal communication, MoH, Mafraq Branch, 1999). The comprehensive health centre at Umm al-Quttayn, which is open for 24 hours, provides health services in the programme area. There are also five primary health centres at Dayr al-Kahf, Safawi, ar-Rifa'iyyat, al-Mukayfita and al-Ashrafiyya, and eight peripheral clinics at al-Bishriyya, Hamra Suhaym, al-Manara, Abu al-Farth, al-Jubaya, Tall ar-Rimah and Dayr al-Qinn (Al-Kour, 1998). However, some villages are small making it difficult to justify service outlets in each settlement (Spicer, 1998). Al-Kour (1998) claimed that the area is suffering from a severe shortage of health manpower, especially of specialists. It is served by just 10 physicians, one per 1600 inhabitants, whereas in Mafraq governorate as a whole, there is one physician per 650 inhabitants.

In addition, the government has applied a national immunisation programme. This programme has been a resounding success in terms of reaching the majority of the population (Brandenburg, 1998). Through MoH, lectures are given from time to time in

[5] The Bedouin vehicles had Saudi plates because they brought them from Saudia Arabia in the past through car traders. Also, they had not to license them until the mid-1990s.

the region as a kind of extension about issues such as how the Bedouin can avoid diseases when they are working with their animals. The target of the lectures is mostly women because women are closer to milking, dairy products and the care of sick animals than the men (personal communication, MoH, Mafraq Branch, 1999). With respect to the cost of the health services, the majority of the Bedouin obtain concession cards either through the military organisation or the civil governmental organisations. However, there are some Bedouin who do not have this card. Therefore, they have to pay cash in order to receive treatment.

From the above, it is clear that the government tries to provide health services in every part of the country, including the Badia but only in the villages. This might have had a negative effect on livestock rearing by encouraging Bedouin to settle. And it might be having a positive effect by reducing the occurrence of livestock-related human illness. These questions will be examined in Chapter 4.

3.11 Education:

During the past few decades, the education sector has witnessed significant progress in the improvement of educational facilities and the provision of educational opportunities to all segments of the population in urban, rural and Bedouin areas. IFAD (1997) says, "progress in increasing education access and improving education quality has led to rises in attainment and literacy levels, particularly among women" (p. 2). Illiteracy rates were more than halved between 1979 and 1994, falling from 34 per cent to 14 per cent, while the proportion of secondary schools graduates doubled and college graduates tripled (IFAD, 1997). Female illiteracy fell from 48.2 per cent in 1979 to 21 per cent in 1994 (IFAD, 1997). It fell further to 17 per cent in 1998 (World Bank, 2000). Over the

same period, the proportion of female secondary school graduates more than doubled, and the percentage of female college and university graduates increased four times (IFAD, 1997). The number of students in Jordan rose from 240,000 in 1955 to 578,000 in 1975/1976 and from 742,000 in 1979/1980 to 864,000 in 1984/1985 (MoP, Development plans for 1981-1985 and 1986-1990) and rose to at most 1.3 million by 1997/1998 (MoE, 1999). However, the actual number is less important than the proportion of those eligible who, in fact, attend school.

In Mafraq governorate, the illiteracy rate in 1991 was17 per cent for males and 40 per cent for females, whereas it was in Amman only 7.3 per cent for males and 19.2 per cent for females for the same year (DoS, 1993). Table 3.11 shows the number of schools for both sexes, the number of students, the number of teachers for the northern Badia region (which extends from Rudet Basma village to Ruwayshid) and the number of students per teacher during the period 1994/5-1998/9.

Table 3.11: Number of schools, students and teachers in the Northern Badia (1994/5-1998/9)

Years	Number of schools	Number of students	Number of teachers	Number of students per teacher
1994/1995	178	27436	1682	16.3
1995/1996	187	27128	1150	23.6
1996/1997	191	28187	1958	14.4
1997/1998	114	13960	952	14.7
1998/1999	116	14796	1129	13

Source: MoE, Department of planning, Northern Badia, 1999

The apparent very big fall in school, student and teacher numbers in 1996/7-1997/8 (Table 3.11) is explained by a change in the way the statistics are registered. Initially there was one department, for education, for the two parts of the northern Badia (north-

east and north-west). From 1997/8, north-west Badia has become a part of the Mafraq department of education. But Table 3.11 shows that the number of students is increasing each year.

Also, Ministry of Education (MoE) is keen to establish schools if there are at least ten students in any village and if there are no schools in the area (personal communication, MoE, 1999). So it builds new schools, if possible, where necessary. In addition to basic education MoE also concentrates, through its department in Mafraq and the Northern Badia, on vocational training, through which students can more easily get jobs. As a result, there are a number of students from the Badia region who are studying in vocational schools in Mafraq (personal communication, MoE, 1999).

At the higher education level, the Jordanian government gives special consideration to those students who graduated from the Badia schools as well as some schools from other parts of the Kingdom. The government applies a system in this context called, in the near past, "schools of the lowest luck" and, nowadays, "schools with special circumstances". These schools have fewer facilities, such as computers and buildings, than schools in the cities and towns. Therefore, in the past and nowadays, all the Bedouin students who could get 65 per cent (which is the minimum average for university admission) in the General Secondary Certificate Examination can have a bench in one of the Jordanian universities. However, they have to study at the expense of their fathers. Nevertheless, this positive discrimination has helped people in the Badia (males and females) to have an opportunity to continue their higher education. But what impact is this increasing access to education in the Badia having on the livestock industry? Is the present generation of school children, and other young people,

less interested in livestock than the older generation, as a result of education? This was studied in the fieldwork and is updated in Chapter 4.

To sum up, the government has made available schools in most of the villages in the Badia in general and the Northern Badia in particular. It encourages Bedouin to educate their children. In higher education, the government gives Bedouin special opportunities to study at universities with no competition with other students from the whole country. But as Chapter 4 will show, the increased access to education is having a growing impact on Bedouin attitudes to livestock rearing.

3.12 Likely future government policies

It was difficult to obtain specific information about future policies in Jordan. In fact, there is no certain scheme to reform future policies. However, a comprehensive agricultural policy was approved for Jordan by the Council of Ministers in its session of 16 November 1996. This policy depended upon the recommendations of the Development Council set forth in its session of 6 November 1996 (MoA, 1999e). As MoA (1999e) stated, the overall objectives of the agriculture policy are:

(1) To increase Jordan's degree of self-sufficiency in food production;

(2) To improve and increase the profitability of the agricultural sector as well as the standard of living for farmers, agribusiness entrepreneurs and agricultural workers;

(3) To promote the export of agricultural and livestock products, and help improve the national balance of trade; and

(4) To define agricultural development as the core of the integrated development of Jordan's rural areas.

The Government of Jordan is committed to achieving the objectives mentioned above. In order to attain this objective, the government is encouraging interaction between the private sector and the public sector. It will encourage the private sector to establish strong private sector agricultural institutions, and will focus its activities on necessary agricultural services where the private sector is unable to provide them (MoA, 1999e).

Furthermore, the government will introduce the necessary legislation to ensure the effective participation of farmers by encouraging them to be members of public agricultural institutions such as the farmers union. In addition, farmers are encouraged to establish agricultural co-operatives (MoA, 1999e). Al-Su'bi (1999) stated that the government is going to review and restructure its legislation, such as the Agricultural Law Number 20, of 1973 and the Agricultural Council legislation. The government is also going to review the legislation related to land tenure and land use in the Badia regions in order to avoid the problem of rangeland overgrazing, to control desertification and to ensure sustainable land use in order to reverse the process of desertification. However, no details could be obtained from the government about this policy.

With respect to the marketing and pricing policies, the government plans to encourage exports, in particular, and it will review all administration and legislation restrictions, which might affect this activity. However, it is the implementation of policies that counts. But it seems that the export and import activities will stay in the hands of the private sector and the government will just supervise and monitor (al-Su'bi, 1999). Again, it will be the achievement and implementation on which the government will be judged.

Concerning extension, the government extension services will be provided to certain areas of agriculture and for target groups not adequately catered for by private or other extension institution services free of charge to farmers and other target groups in the agricultural community. It also will encourage farmers to establish organisations and associations, which would facilitate the provision of such extension services (MoA, 1999e).

Regarding agricultural credit, the government will develop ACC into a fully-fledged agricultural savings and credit bank, having extensive financial and marginal autonomy. The operations of the new bank will be complementary to the activities of private banks. In addition, it will target individuals and groups in rural areas who have inherent difficulties in becoming eligible for private bank loans. The government will, in particular, assist farmers in obtaining loans that are in accordance with Islamic law (MoA, 1999e). However, nothing has happened since the government has made these declarations. Many policies exist only as written documents.

Al-Su'bi (1999) and the APC summary (1999e) explained that the government aims to adopt the following policies in terms of animal rearing:

(a) The development and promotion of an integrated crop-livestock production system. The government will encourage the production of forage in rainfed and irrigated areas, introducing forage plants as part of the production system in marginal lands, and expanding feed production from agricultural and food industries by-products;

(b) Distributing the water resources equitably between irrigation agriculture and livestock;

(c) Rangeland resources will be rehabilitated, developed and managed to achieve a higher level of productivity as well as sustainable livestock production;

(d) Improving the preventative health care of livestock, with special emphasis on endemic diseases.

(e) The monitoring of imported and locally produced and traded veterinary medicines will be strengthened and the private sector will be encouraged to provide curative veterinary services. In addition, processing plants will be established for the production of veterinary products;

(f) Price regulations for livestock and poultry products will be abolished; and

(g) Special attention will be given to the promotion of exports and to minimising trade barriers to livestock products.

Jordan first applied to become a member of WTO in 1995 and became a member in December 1999. The overall objectives of WTO are:

(1) Raising standards of living;

(2) Growing volume of real income and effective demand;

(3) Expanding the production of and trade in goods and services; and

(4) Sustainable development and environmental protection.

The basic principle of WTO is trade without discrimination and transparency (Friedheim, WTO, 2000). As a result, Jordan will have to meet some commitments with respect to the livestock industry (MoA, 2000). These commitments are:

(a) All unnecessary inspection of imported meat and meat from imported animals will be eliminated, and national treatment will accord fully to such products as

part of Jordan's programme for the development and adoption of guidelines and or rules for food inspection and testing procedures;

(b) All remaining prohibitions on the use of powdered milk by industrial users of dairy products will be abolished as soon as legislatively possible upon accession and in any event no later than within 12 months from the date of accession; and

(c) All restrictions of imported livestock will be eliminated on April/2000 (Al-Su'bi, 2000).

The changes mentioned above will place local agricultural products in direct competition with imported agricultural products, but exported agricultural products will also be in fair competition with the exports of other countries. Implementing these policies is likely to affect the Bedouin farmers. Policies such as these might negatively affect livestock numbers and livestock production costs.

3.13 Conclusion

This chapter has presented the governmental policies that might be having an impact on the livestock industry in Jordan whether this impact is direct or indirect. In addition, it has outlined the government's reasons for each policy.

The Structural Adjustment Programme has affected the government's policies since it was applied in 1989. This is clear, through the government decisions on feed subsidy, water policy, feed prices, imports and exports.

Chapter 4 will provide a Bedouin perspective on these policies and their implementation. To what extent are the Bedouin aware of these policies? Where

policies are being implemented, what is their impact in practice and how are the Bedouin responding to them? What impact are the policies having on the size, structure and quality of the livestock industry?

Chapter Four

Findings from the field survey

4.1 Introduction

The main aim of this research is to understand the nature and strength of the Bedouin response to government policies related to the livestock industry. It is also very important to find out if the Bedouin ever know about the government's policies, which is not always the case. This chapter presents the Bedouin point of view. It examines their awareness of and responses to government policies. Every single policy has an impact on the aggregate livestock industry and therefore on every single livestock owner. To summarise, the aims are to determine:

(1) Whether the people have heard about the policies, and changes to the policies over the years;

(2) Whether the people in the Badia have been directly affected by the policies and their implementation;

(3) Whether and how the people have responded to the policies and their implementation; and

(4) Whether the people feel that they have benefited from the policies or suffered from them.

The chapter outlines the main findings of the research and discusses them with respect to their implications for the livestock industry. The data collected were qualitative, for the reasons outlined in Chapter 2. In this way we have allowed people to discuss more sensitive areas.

4.2 Credit policy

The government credit policy and all issues related to it have been presented in Chapter 3. The government, as mentioned in Chapter 3, implements this policy, through ACC, in order to ensure that livestock remain an important source of income for the Bedouin. The policy was also introduced to help farmers overcome their financial difficulties.

ACC is the only organisation that the Bedouin have ever had dealings with to get fodder loans. ACC offers loans for the development and improvement of the livestock and poultry industries. It also gives loans for purchasing agricultural production inputs for both plant and animal products. ACC also supports the agricultural producers through fodder loans for sheep, which are well known to the livestock owners. In addition, there are specialised credit programmes such as the rural families credit programme.

Everyone in the study sample had information about the fodder loans through ACC. However, the majority of the sample (61 per cent) had not dealt with ACC. Table 4.1 shows the number of the livestock owners who have got loans up to and including 1999.

Table 4.1: Number of owners who obtained loans and those who did not up to and including 1999

Owners	Numbers	Percentage
Owners who obtained loans	35	39
Owners who did not obtain loans	55	61
Total	90	100%

Source : Field study conducted by the researcher, 2000

Some 31 per cent of owners, who had not taken loans, had not taken them for religious reasons. They believe that obtaining loans is at odds with Islamic tradition or is forbidden (*Riba*). *Riba* in Islam is repaying more cash than the loaner provided (interest on a loan). Moreover, in the Holy Quran, Allah asks people to avoid interest (*Haram*).

These owners preferred to suffer rather than obtain loans with interest. In fact, even the 39 per cent of people who had obtained loans believe that they had done wrong. They were unwilling to get these loans but the drought years forced them to do so. They said that they have two bad alternatives. One is seeing their sheep die in front of their eyes as a result of the lack of feed. The second is interest and *Riba*. These farmers chose the second bad choice.

Another group of owners (29 per cent) have not taken loans because they are worried about the loan repayment, which might come at a critical time. The Bedouin usually take into account everything that might happen. So they calculate that if the drought continues next year and the time of repayment comes, then they will not be able to repay and hence will have to sell their sheep at a low price in order to meet the terms and conditions of the loan.

A third group of the farmers (23 per cent) who have not obtained loans said it was a result of ACC procedures and routine. The procedures take a long time, up to four months, to be completed. The majority of the first group applied in June 1999 and obtained the loan in November or December 1999. The procedures are not only lengthy but also the Bedouin have to spend a lot of money for travel between their villages and Mafraq where the credit office branch is located and this is in addition to the effort that they have to make looking after their sheep.

Owners should apply for loans in May and June, another group of owners (7 per cent) had not taken loans because they applied in October and November 1999, which was very late. One owner has not obtained a loan because he did not hear about loans. The final group of owners (4 per cent) have no desire to deal with the government therefore

they have not taken loans. Table 4.2 shows the reasons the livestock owners did not take loans.

Table 4.2 Reasons for not taking loans, farmer numbers and their percentage

Reasons for not taking loans	Number of owners	Percentage
Religious	17	31
Repayment may come at bad time	16	29
Procedures	13	23
Applying late	4	7
No need	2	4
Do not know about the loan	1	2
No desire to deal with the government	2	4
Total	**55**	**100**

Source: Field study conducted by the researcher, 2000

Almost all the people questioned know about the credit policy. As is seen in Table 4.2, just one owner had no idea about this service. Two owners preferred not to deal with the government. They justified this just because it is a government. They preferred to obtain money from anywhere but the government, because the government might ask them, after one year, to repay the loans anytime.

The amount given to most Bedouin was JD 500 - JD 3000. However, a limited number of them have taken up to JD 9000. The size of the loan depends upon the livestock numbers that the Bedouin have registered through the "*al-koushan*" [1]document. The "*al-koushan*" is one of the requirements that the credit branch asks for. However, some owners have a small number of sheep or they have no sheep but are still given a large loan, and vice versa. The majority of the owners in the study sample had obtained less than they applied for. For example, some owners applied for JD 1500 but they were given JD 800. ACC often lends less than the amount that the owners apply for either

[1] Al-koushan is a certficate obtained from the Ministry of Agriculture, Veterinary Department, which recorded the number and type of livestock owned.

because ACC believes that the owners exaggerate the sheep numbers or because ACC have only the limited amount that the government makes available for lending. All the Bedouin said that this amount of money was not enough, even for a week in many cases. They also said that this amount was spent to buy barley and wheat bran or to repay previous loans (normally from one to two years) or to buy a field of growing barley in the same year. Furthermore, in the recent drought years, they could not repay the loans.

Loans such as these, from the Bedouin point of view, are very useful and help them to avoid being in a huge debt to the traders from buying feed. However, they always argue that it would have been better if they had not taken the loan. They take loans in order to avoid selling their sheep cheaply, hoping for higher prices in the future but in many cases they were forced to sell for cheaper prices to repay the loan. In fact, sheep prices seem to be rising in 2001 (Salem Al-Oun, BRDP, personal communication). One man in the sample said that "if I spend the loan on myself and my family it will be better because it will be enough for a year while the sheep eat it in a week or less". Another man said that he took JD 4000 in 1999 and after just two weeks sold 50 head of sheep. Another man told us that he took JD 5000 in the year of 1999 and borrowed another JD 5000 a short time after taking the first loan.

The majority of the people in the sample mentioned that loans such as these have no positive effect on the sheep because of the three-year drought (1997/8-1999/2000). They might delay selling the sheep for a month or two but they cannot prevent sales completely. Moreover, some people informed me that because the owner has to sell part of his flock to repay the loan, these loans have a negative impact. Furthermore, one household considered that the deaths of part of his sheep herd were due to the loan,

because he believes that loans are forbidden by God (*Riba*). One hundred per cent of the loan takers in 1999 feared the time of the loan repayment, which was at the beginning of July 2000. However, King Abdullah II directed his government, in the middle of 2000, to help the borrowers. As a result, the Prime Minister announced, in the council of parliament, that these loans will be rescheduled for five years. This decision made the Bedouin very happy because they did not have the ability to repay their loans this year. Furthermore, this decision was a good idea, from the Bedouin point of view, because they had a hope that the coming years will be better.

The majority of the borrowers suffered from the very long government routine for taking the loan. All loans must be guaranteed by immovable property and two reliable guarantors. Acceptable guarantors tend to be government salaried people, preferably soldiers, whose salary can be deducted at source if loans are not repaid (Oakeley, 1997). These terms prevented many owners (23 per cent) continuing the loan procedures, after the first visit to ACC's branch in Mafraq, and so they did not take the loan. Another important point related to the government procedures is that a few of the livestock owners did not know any employees working in the government or the army forces, so they could not apply for a loan. In effect, this seems to be because those Bedouin are mobile and nobody from their kinship group entered the army or is employed in a civilian job. However, even settled people have often faced this problem because some employees do not like to act as a guarantor for others because they are afraid of losing their salaries.

No one in the entire sample had any idea about the specialised credit programmes through ACC, which are detailed in Chapter 3. For example, nobody in the sample in

the Badia programme area has benefited from the rural families credit programme, the unemployed groups programme or the income diversification programme.

At the end of this discussion, it is important to say that the Bedouin suggested, through the field discussion, that the government gives them loans free of interest rate for more than one year, or that they should be able to buy barley and wheat bran from the government (instead of traders) without interest. They also suggested having loans for three or four years in the form of feed. The government response was demonstrated through the Prime Minister's announcement of loan rescheduling for five years. The loan takers were happy about his declaration because nobody had an ability to repay his loan. This also encouraged other owners who had not obtained loans for the reason of repayment to apply for a loan. This would give them time to gain and save money every year to repay the loan without selling some of their livestock.

No one in the study sample has had any idea about the likely future government policies that are mentioned in Chapter 3. The government said that it is going to develop ACC into a fully-fledged agricultural savings and credit bank. However, they suggest that government should have more credit specialised organisations (learn lessons from other countries' experience), this will be discussed in Chapter 5.

To sum up, the majority of the people in the study sample have some information about this policy, especially fodder loans. However, most of them have not dealt with ACC in terms of obtaining loans for the many reasons mentioned above. The rest have dealt with ACC regarding only obtaining fodder loans. The majority of the livestock owners who had taken loans believe that these loans have no positive impact on their livestock.

4.3 The feed, subsidy and livestock numbers

The big issue uppermost in the minds most of the sheep owners was the continuing drought, which lasted for three years from 1997/8-1999/2000. People were also worried about what would happen if the drought continued, though early rain in October 2000 led to the sowing of large areas of wheat and barley. As a result of the drought, the livestock prices were very low in 2000 but there are reports (Salem Al-Oun, personal communication) saying that sheep prices are rising in 2001.

With respect to the feed, the availability of barley and wheat bran and their prices are the most important issue to the Bedouin. Before 1994, feed was not as readily available as it is nowadays. The feed centres used to be filled with Bedouin waiting for a long time to take what they wanted. They suffered most during the winter season, when there were more people in the centre waiting to buy feed. Nowadays, barley and wheat bran are available in the government distribution centres as well as in the traders' stores. This makes owners satisfied about the availability of feed. But the problem is that the sheep owners have no cash, which forces them to buy barley and wheat bran from traders at prices, which have reached up to JD 150 per tonne for barley, in the past three years (1997/8-1999/2000). Whereas the official government prices for barley fluctuated from JD 79 to JD 75 per tonne in the same years. The buyers then remain in debt for up to six months and more in some cases.

All the owners spoken with have experienced obtaining feed from the government in the north east Badia. They have visited the government distribution centres, which are located in Ruwayshid, Azraq, Saeedeah, and Mafraq and, during the field season, in

Irbid. Table 4.3 lists the government distribution centres that the Bedouin visited (and still visit), their location and the degree of Bedouin satisfaction with them.

Table 4.3: Feed centre names, their location and the degree of Bedouin satisfaction with them

The name of the centre	Location	Degree of Bedouin satisfaction
Ruwashed	Ruwashed	Good
Azraq	Azraq	Very good
Al-Saeedeah	as-Saleeheah	Very bad
Mafraq	Mafraq	Not too good
Irbid	The university area	Good

Source: Field study conducted by the researcher, 2000

Local traders visit some of these centres every day. In the case of Al-Saeedeah centre, there are five or six traders daily. They are well known to owners as well as to the administrative employees there.

The majority of sheep owners, as is seen in Table 4.3, said that the best centre is Azraq and the worst one is Al-Saeedeah. They considered the latter centre to be just for traders because they can take whatever they want whenever they want. Furthermore, traders visit it every day whereas the livestock owners have to wait many hours and sometimes many days to have the feed they want. There is something wrong in this centre and the majority believes that the employees are the main reason for this situation. The majority said that there are many problems in this centre and there is much conflict between some owners and the centre employee. He upset these owners so much that they complained to the administrative officer responsible in the area. But there was only a temporary solution, in some cases for the same day only, and everything returned the next day to the previous state of conflict. This situation forced them to deal with traders and buy feed from them at high prices as mentioned before. This, in fact, affected their

livestock negatively because they had to sell some of their animals to repay their debts to the traders.

The other problem related to feed is the feed subsidy and prices. The subsidy policy has changed over the years, as mentioned in Chapter 3. A subsidy on sales of livestock feed was introduced in 1981, a drought year, during which the availability of pasture for grazing was severely reduced (Papadopulos, 1999). Then, as Jordan has been undergoing a programme of structural adjustment since the late 1980s, the subsidy was finally removed in August 1996 (Papadopulos, 1999). In 1997, all flocks of 100 heads or less were awarded JD 5 per animal per month for one year to help with the increased feed costs. A lot of research has mentioned the subsidy removal policy and its impact on the livestock industry (see Papadopulos, 1999; CARDNE, 1998; Rowe, 1998). The findings of this research were that the removal of the subsidy led to a fall in the number of sheep. However, the majority of the livestock owners in the study sample have no idea even about the word 'subsidy'. Moreover, they do not know anything about the subsidy policy and its changes through the years. But when the government changed the subsidy structure in 1997 by paying JD 5 per head of sheep, all the livestock owners knew about it. However, many have not benefited from it because they own more than 100 head of livestock. They have said that some people who did not have any livestock benefited because they were able to obtain a certificate from MoA (*Al-koushan)*, which recorded the number and type of livestock owned during the latest census in 1991. I am also able to confirm this because I know some people who obtained a certificate just because they were members or knew members of the committee that were employed for the census in their area. In effect, practices such as these made the government cancel the census in 1999. However, one man told us that he had a "*koushan*" with 100 heads

but they did not give him his subsidy and he did not know why. He said, "We are blind".

Despite the fact that the government subsidises barley, by as much as JD 19 per tonne before the last price reduction, the Bedouin have no idea about it. They say in the best case "we hear that it is subsidised, but we do not know how much". I believe that the Bedouin have another interpretation for the word subsidy - as a relief or giving them cash. So they knew the monetary subsidy. From the Bedouin perspective, it is difficult to determine what the effect of the removal of the subsidy has been. This is because since the subsidy stopped, in August 1996, the drought situation has dominated the Badia region.

In addition to the subsidy removal, there were and still are many other factors that affect livestock numbers in Jordan, although some of these factors are part of the same problem; for example, low sheep prices, high feed costs, no rangeland, etc. Therefore, it is difficult to calculate the effect of the subsidy removal on livestock numbers without taking into consideration the other factors. However, the subsidy removal affected the feed prices (see below), which, in fact, affected the livestock numbers negatively.

Turning to the feed prices, in 1996, the feed prices were JD 42 per tonne for barley and but rose to JD 120 per tonne in the same year as a result of the subsidy removal (Oakeley, 1996). Also, in 1997 the price of wheat bran rose from about JD 52 per tonne before the subsidy removal to JD 90 (Papadopulos, 1999). By the summer of 1998 the government price for barley had fallen to JD 115 per tonne (Papadopulos, 1999). We have been told that from this point the problems associated with the drought started. In effect, the official prices of barley and wheat bran were JD 79 per tonne and JD 65 per

tonne respectively during the period of fieldwork. Taking into consideration that all farmers throughout the world complain, the Jordanian farmers complaints might have resulted from the effect of drought years. The majority of the sample considers that these prices are very high in comparison with the livestock prices during the same period. However, in June 2000, the new government decreased the official feed prices to JD 75 per tonne for barley and JD 60 per tonne for wheat bran. Nevertheless, the majority of the sample would have liked, to judge from our discussions during the fieldwork, the government to reduce the prices still further. The owners want lower prices because they believe that it is the most important way to help them to keep the rest of their livestock. The government does not think that this is justified either economically or politically.

Traders exacerbate the problem for the livestock owners by having no restriction on taking the quantity they need from feed centres, especially al-Saeedeah centre, or by selling barley and wheat bran at a high prices to the Bedouin. My entire sample has had bad experiences with feed traders. They have had to buy barley from the traders at prices up to JD 150 per tonne and wheat bran up to JD 85 per tonne. They have been doing that for a long time. When talking with me, they justified their relations with the feed traders in two ways: first, they had to deal with the traders in the past because of the unfair situation in the government centres; second, because nowadays they have no cash to buy the quantity they need and so have to buy on credit. Sometimes, some owners ask feed traders to deliver their feed from the centre instead of taking it themselves despite the fact that they are present in the same centre. They do this in order to save time and effort because the traders have the capacity to deliver feed.

The majority of the study sample suggested that the government should treat them like the Syrian government, which offered, during the season of 1999, feed to farmers for three years without any payment. Then farmers repay to the government during the next three years period after the first three years. High feed prices forced the livestock owners in the Badia to sell some of their animals to secure their livestock feed.

Barley residues are another issue related to livestock feed. Bedouin, both in the past and nowadays, pay a lot of money to buy these residues. The cost of a dunum of barley residues in the Irbid area, during the period of fieldwork, was JD 5 - JD 14. Some paid JD 4 for a dunum and others paid JD 6 or more. Some also paid JD 14 for a dunum. These costs depended on the sort of barley residues that were bought. Commonly prices paid ranged from JD 500 – JD 3000 for all land in total, which had barley residues and which had been bought during my study period. The barley residues were enough for one or two months in many cases. One household paid JD 1250 for 10 days. This still affected their livestock badly because they had to sell some of their sheep to pay the cost of the barley residues. At the same time, the entire sample who bought this kind of barley believed that barley in this case is just against hunger. They believe it is just to fill the sheep's stomach and they think that there is no further nutritional benefit from it at all. However, barley residues do have nutritional value even though it is low. For example, Oakeley (1996) stated that barley residues (straw) are low in protein, can be hard to digest, and have a low feed value.

The subsidy policy with reference to some other countries experience will be discussed in Chapter 5.

In summary, most of the owners in the study sample were satisfied regarding feed availability but they were dissatisfied about the administration of feed in the government feed distribution centres. The Bedouin had no clear idea about the subsidy policy and its changes and impact over the years. However, they were aware of the monetary subsidy that existed in 1997 but they did not benefit from it. High feed prices affected their livestock numbers negatively because they had to sell some of their animals to meet their feed requirements. They have also suffered from feed traders, who sell them feed at high prices. Bedouin needed low feed prices and that these prices should be commensurate with livestock prices.

4.4 Rangeland

As has been stated, the rangeland area represents 85-97 per cent of the total area of the country. As discussed in Chapter 3, MoA gives special attention to the rangeland issue and establised a rangeland directorate in 1998 (MoA, 1999f). Jordan's natural rangeland and other cultivated fodder play an important role in covering the livestock feed requirements. In spite of the damage they sustained during the five past decades, the rangelands are still the basic foundation for livestock feed. They cover feed requirements for a period of 2-3 months without complementary feeding, or 30 per cent of food requirements (MoA, 2000). In addition to MoA, many other organisations deal with rangeland, both governmental and private. JCC is one of these through its projects in the south. I also listed many projects run by JCO in the past, JCC today and MoA (Chapter 3).

Every member of the study sample said that the rangeland comes from Allah as a result of the rain. It is very important to have a wet winter season. The majority of the sample

believe that the rangeland in the past was a thousand times better than now. This, in fact, is true because the Bedouin in the past could graze wherever they wanted because there were no boundaries between the neighbouring countries. There is serious problem only if the drought dominates the whole region, as was the case during the recent three years. The people say that good rainfall could be relied on every year, which meant good rangeland even if there was an occasional drought year. When there were open borders between the neighbouring countries like Saudi Arabia, Iraq, Syria and Jordan. Sheep owners could enter any country to graze there without difficulty, unlike today. However, the fact that there was no subsidised fodder meant that sheep numbers were kept closer to the levels that the rangeland would support.

None of the people in the study sample have heard about the rangeland projects, even the project mentioned in Manshieat al-Keath village (near Ruwayshid), which works through JCC. In effect, this means that there is no government attention or effort paid to the rangeland issue in the northern Badia. However, some of the sample said that the government reserves were not beneficial projects. One said "They are just to reserve the land". In fact, the government, through the drought committee, declared that it opened all the government reserves, in the last three years (1997/8-1999/2000), to the livestock owners everywhere as a result of the drought situation. In response to that, the livestock owners said 'that is a good help from the government'. However, none of the sample have actually benefited from this decision. Those who had experience of rangelands said that they had never entered a rangeland reserve without paying fees. The best example is the person who bought the rangeland within the fenced area of the air force centre in Mafraq. He bought it at price of JD 5000, but there was not enough range produce to feed his sheep for two months. Other people reported that they paid a fine

just because MoA thought that they entered Serrah fence (which is located near Mafraq) with their sheep.

During 1999/2000 many owners faced a lot of troubles in the Irbid area (Zebdeh village) either with the government or with the local people regarding grazing. In fact, it was forbidden for Bedouin to enter areas fenced by the government or the government forests whereas the local people can. Some of the local people also prevented the Bedouin from entering their lands or allowed them to erect their tents and, therefore, the Bedouin had to look for other places. Practices such as these made them hate their sheep and life during the summer of 2000. One man said "There is a fenced area in the Jordan University of Science and Technology (JUST) belonging to the agricultural department. However, after the crops are harvested it is usually ploughed or burned in order to prevent anybody benefiting from it". JUST might either fear livestock getting into the university and then destroying its trees, for example, or it may not want to deal with Bedouin because there were a lot of Bedouin around the area. However, JUST could arrange this matter, by making agreements, with Bedouin and allowing them, or some of them, to graze their sheep.

It is clear that there was no arrangement or contract between the government and the local people in the Northern Badia regarding rangeland improvement. This is, in fact, because there were no effective rangeland projects in Jordan in general and the Northern Badia in particular. However, the government said that it is going to rehabilitate the rangeland resources and develop their productivity. Jordan can learn lessons from other countries' experience will be discussed in Chapter 5.

From the above, it can be seen that most of the people in the study sample had no idea about the governmental rangeland projects developed through MoA or JCC. Most of them also have not benefited from the government's decisions to open all rangeland reserves and fences to the livestock owners. Moreover, some of them have purchased fenced grazing areas such as these and others have been prevented from entering them. They believed that rangeland reserves and fences are just to reserve land. Good rangeland for them is connected to good rainfall seasons. In fact, because the rangeland projects have not been effectively implemented, or managed in the recent drought years, the Bedouin livestock have been negatively affected.

4.5 Veterinary services

Animal health is another important issue to the livestock owners. Animal disease is a major cost to livestock owners. The recent veterinary investigations have shown that there are no disease-free animals and most suffer from a combination of diseases and infestations (IFAD, 1997). The potential benefits of better nutrition in terms of animal productivity cannot be isolated from the health and condition of the animals (Oakeley, 1996). In effect, the majority of the people in the study sample know that the government is supposed to make available free vaccinations against the common diseases from which the Bedouin sheep suffered and still suffer. According to Oakeley (1997) the dominant ailments are pneumonia, parasitic diseases, enteritis, ectoparasites and viral diseases including foot and mouth disease (FMD), PPR, blue tongue, sheep pox and brucella.

In fact, having discussed this policy with people in the study area it is clear that the veterinary services have very little impact. Whether or not the service is available, the

result is the same. The majority of the sample were buying medicines from private pharmacies in Mafraq or Irbid during the field season. In fact, I was told that the role of the government services did not exceed writing prescriptions in order to buy medication from the private pharmacy in many cases. Most people also mentioned the "turn" problem. If the farmer asks the government vet to visit him in the field he will have to wait for a long period, often for as long as two weeks. Also, the farmer has to rent a car to take the vet to his house and may also pay JD 5 -JD 10 to the vet, though not all of the vets accept such payments. The farmers, who pay, do so because they expect better treatment and help from the same vets in the future. Most of them assured me that this happened. The reason for presenting this discussion is not to prove that there are faults, such as these, but to show the cost that the farmer has to pay, even though it seems marginal from other people's points of view. But, if the government vets go out to the field to work they are paid a salary for it at the end of the month. Livestock owners also complained that the vets in the Badia have not enough experience treating animals. Some of the sample said that some mistakes are due to the vets not knowing the exact disease that the sheep are suffering from. One man spoke about an experience with vets in the Badia: "One day the vet vaccinated my sheep not in the right place of the sheep's body, which made the sheep abort". Another man said: "one day I asked them to visit me at home, they said "no problem" but you should wait the "turn" and please bring the medicine with you". Another man said "I do everything by myself; there are no veterinary services..... there is no extension". Another said, "I deal just with the private pharmacy because there is no benefit from the government". It is important to note that a small number of farmers did show their satisfaction with the veterinary services in the Irbid area during the field season.

Although the government said that it is going to improve the veterinary services and give more attention to the role of the private sector, no detail could be obtained from the government about this likely future policy.

In summary, the farmers are concerned about the poor quality of the government services. So they prefer to deal with the private pharmacies directly. So, although the livestock owners are aware that MoA has a policy to provide free livestock health services, the quality of the services is very poor and typically not free. This has a big negative impact on the growth rates and quality of the animals.

4.6 Water

Jordan has few natural resources, including very little water. Already one of the world's most water-scarce countries, Jordan faces increasing deterioration in the quantity and quality of its water resources (FAO, 1999), including those in the study area.

The water policy is no less important to the livestock owners than rangeland, feed, veterinary services and so on. They need water everyday for themselves and their livestock. The use of water is a complex issue since it is available from a number of different sources. It is freely available from natural pools, traditional wells and rainfall itself (Oakeley, 1997).

As seen in Chapter 3, the government of Jordan has announced on many occasions, during the last three years, that the government provides the Bedouin with free water. This decision was made by the drought committee as a result of the drought situation (MoA, drought committee, 1999g). FAO (1999) stated that the Government of Jordan

provides free water to flocks. Rowe (1996) said that the water from the rangeland wells, which are far from sedentary populations, is free to all-comers in unlimited quantities.

But despite this, the majority of the study sample had not benefited from free water at all, although it is true that this decision is working in the desert area (*Hammad and Harrah*). But the water there has been free since life began.

According to Rowe (1998), the average production cost of sheep per year among his 25 study households was JD 48.49. Water accounts JD 0.36 whereas feed accounts for JD 32.77 and transport accounts for about JD 5.11. Water accounts for the larger part of the transport budget (Rowe, 1998). Rowe also said that a small increase in the transport budget occurs during the summer's heat when livestock require more water. However, water costs Bedouin a lot and they sometimes travel a long distance to bring it. In fact, Rowe conducted his fieldwork in 1995 and 1996, in the Badia Programme area, where there was no drought. However, in the three years 1997/8-1999/2000 severe drought has affected most Bedouin in the desert where the water is free, or near villages. But during my fieldwork, the water cost, including the price of water and the transport cost, was high, with quite a big increase in the transport cost if the Bedouin did not have their own tankers. Some livestock owners during this period were making two journeys daily to bring water. In addition, the result of Rowe's study is confined to privately purchased water and thus the graphical representation of costs is misleading since it takes no account of those village-based owners who routinely water their herds from the domestic water supply. During his study it proved difficult to gain access to household water bills, or to discern what proportion of consumption was attributable to livestock.

Since the drought situation started three years ago, the Bedouin have left the eastern desert to live around their villages and the vegetables farms close to their villages. In the year 2000 all the Bedouin left to the Irbid area searching for rangeland and farm residues. In fact, only two per cent of the sample benefited from the free water in Irbid in 2000 and only 6.6 per cent in 1999 despite the fact that the government wells are available everywhere in Irbid and in many cases are located close to the Bedouin tents. The percentage of the livestock owners who have benefited from the free water in Irbid area is very low because of the government decision that providing people with free water does not include the Irbid area. However, the government has not said this in its announcement about providing people with free water. In fact, some said that they asked for free water and there was no benefit because the water is only free in the desert. Furthermore, some said that they bought water from the government wells.

Farmers buy water from the private wells by using their own tankers at prices of JD 5 and they pay more if they rent tankers. One tanker load might be enough for one or two days depending on the livestock numbers. Also, there is no free water in the eastern region except one well in al-Bishriyya village and nobody benefits from it except those who live around it. In effect, the price of water itself is not as big a problem in the eastern Badia as the tanker prices, which if rented, cost JD 10 - JD 15 per load.

From the above, it is clear that the Bedouin were aware of the government policy regarding providing them with free water but they have not benefited. Indeed, there is a big gap between the government's decision to provide Bedouin with free water and the policy implementation. All the people in the study sample have had to purchase water. This, in fact, increases the cost of water in particular and the livestock rearing costs in general, especially in the drought years. This affects their livestock numbers negatively

because they have always to sell some animals under the drought conditions to purchase water.

4.7 The co-operative policy

As discussed in Chapter 3, many polices have been presented under the supervision of JCC. JCC is responsible for the entire co-operative movement in Jordan. One significant project is related to Awassi sheep breeding and improvement in the Mafraq area. A second is the lamb-fattening project, also in the Mafraq area.

After many discussions with Bedouin about this policy, I discovered that the majority of the sample had no idea about JCC or the co-operative policies and their changes over the years. They could not distinguish between JCO and JCC. Furthermore, they could not define the co-operative movement in Jordan or say anything about it. In fact, I am not surprised by this finding. JCC concentrates its work in some areas and is not active over the whole country. The Awassi sheep breeding and improvement project is located in Mafraq but no one in the study sample has benefited from it. The livestock owners in the study sample had no idea about it. One reason for this is, Bedouin were busy managing their flocks and travelling from one place to another following rangeland and water. Their concern was to keep their flocks. None of the Bedouin has benefited from or dealt with the lamb-fattening project. However, 15 per cent of the sample have been involved in the co-operative societies. These livestock owners have had some experience of buying barley and wheat bran through the co-operative societies in which they were members. In fact, societies such as these were established for many purposes. They are not specialists in providing livestock feed in particular.

The majority of the owners in the study sample, who were involved in the co-operative societies, said that dealing with the co-operative society to buy feed is better than the government distribution centres for many reasons. First, it is easier to obtain from the co-operative societies the quantity that the owner needs at the time he needs it. Second, the co-operative societies are more convenient because the owner can save time and effort in getting his feed whereas in the government distribution centres the owner needs to spend many hours during the day, or sometimes many days, especially during the winter season, at the centre trying to secure his feed. Third, in the case of not having cash, some societies give their members more time to pay for the feed. While, in the government centre, if the farmer is short of only 10 piastres of the feed price he might not be able to take delivery of his feed. Despite the fact that the society price is a bit more than that of the government distribution centres, farmers with experience of the co-operative societies said that the availability of societies such as these would be helpful if the feed is not available in sufficient quantity as it was before. Nowadays the feed is available. Many of those who were members of co-operative societies left them because of the deterioration of the co-operative societies either because of bad administration or a bad financial situation. One man in the sample said, "if these societies employ people who fear Allah, they will be good".

On the other hand, the government centres had an advantage over the societies, from the point of view of some people. One man said "To deal with the government centres is better because the societies store the feed in the sun, which might degrade the barley and wheat bran, whereas the government distribution centres store it indoors away from the sunshine". Another disadvantage of the societies is that the supply of feed might stop suddenly either because of decisions made by the people who are working in the society or by JCO itself. Some people in the study sample have suffered from that.

However, 85 per cent of the study sample know nothing about the co-operative societies or their work. Moreover, no one knows anything about LSS, even though LSS is potentially an important provider of veterinary and other services.

In order to improve the co-operatives' work and enable them to play an important role in improving the livestock industry in general, Jordan is invited to learn from other countries' experience, which will be discussed in Chapter 5.

To sum up, most of the people in the study sample had no idea about the co-operative policy and the co-operative societies' work. Some of them had had an experience with the co-operative societies but not for a long time. Therefore, today the policy of the government to create a network of co-operatives to support the livestock farmers in the Badia has little or no positive impact in the field study area.

4.8 The Bedouin vehicles

An important issue is the problem of the government procedures related to vehicle licensing. In effect, the government made a decision in 1997 that all Bedouin vehicles that had Saudi plates should be licensed as agricultural vehicles and have a black Jordanian plate. In fact, the government made everything easy initially, which encouraged farmers to make the change. At the first time of licensing, the government did not ask for a comprehensive maintenance. So the Bedouin did not have to pay more money for maintaining their cars. The owners also did not have to spend many days licensing their vehicles. However, more recently this has been very much complicated because of new government procedures related to licensing vehicles. The government has asked the Bedouin to license their cars every year. Fees for licensing are also very

high from the Bedouin point of view, in addition to the high technical maintenance cost that the Bedouin now have to make on their vehicles. The procedures also take a very long time. High costs force the Bedouin to sell a number of their sheep to mend their cars. However, the majority of the sample has not licensed their vehicles, especially their lorries, for three years. It is questionable whether it is fair to treat these vehicles, which are always in the desert and driven on very difficult, stony roads in Hammad and Harrah, like the city cars, which do not experience the desert roads. The majority of the livestock owners in the study sample think it is unfair and have suggested that the government should do the following:

(a) The license should last for three years;

(b) The government should not request unnecessary maintenance, on condition that the vehicles do not enter the cities;

(c) Decrease the license fees; and

(d) Return the procedures to as they were previously.

In fact, I have read in Al-Rai newspaper (December 2000) about a decision that has been made by the government saying that the Bedouin have to pay customs and license their vehicles before April 2001. Otherwise, the government will take these vehicles until the owners license them. However, the government will encourage them to do so by allowing them to license their vehicles without paying the registration and license fees in the first year. Likewise, it will make their vehicles free of any fines[2] that they had to pay before. The required value of the tariff depends on the car model. It is anything between JD 100 and JD 300. This amount could be paid in two payments within one year (Al-Rai Newspaper, 2000).

[2] Bedouin before this decision had to pay fines because most of the Bedouin had not licensed their vehicles for more than three years.

To sum up, although the livestock owners are aware of the government policy regarding licensing their vehicles, the majority of the people in the study sample felt it unfair to deal with their vehicles in the same as those in cities. Many households in the sample said, "If they take our vehicles it will be better". This policy, in fact, has a negative impact on the livestock numbers, because the Bedouin have to sell some of their animals in order to license their vehicles.

4.9 Exports and imports policy

Jordan's export and import policies have changed over the years. In 1980, exports were allowed for breeding and slaughtering purposes as well the import of goats, but just for slaughtering. Then, the export of local sheep and goats was banned, from 1988 to 1990. Jordan has allowed the import of male sheep and goats since 1990 for consumption and the importation of female sheep for breeding. Since 1991, the export of female sheep has been allowed without conditions.

As mentioned in Chapter 3, over 40 per cent of Jordanian lamb production went to the Gulf in 1991 (Oakeley, 1997). But the numbers have since fallen, largely due to problematic trade relations with Saudi Arabia. Total value of live sheep exports were JD 800,000, JD 400,000 and JD 300,000 in 1993, 1994 and 1995 respectively (Oakeley, 1997). According to CBJ (2000b), the total export of live animals was JD 33,700 and JD 24,300 in JD in 1898 and 1999 respectively.

As mentioned before, and in a greater depth, in Chapter 3, many changes have happened over the years regarding the export and import policy. However, the majority of the study sample has no idea about the government's policies and their changes. Some of

the households suggested that the government must open the door to exports in order to increase livestock prices. This means that the livestock owners really have no idea about the government's policies and their changes. In fact, the traders and not the livestock owners export sheep, which is why the owners do not know about export policy and its changes over the years. However, owners know the benefit that they can get from opening the door to exports because the exportation of sheep to the Gulf and Saudi Arabia, in particular, never stopped and is on-going today. According to information from the Bedouin traders who export animals to Saudi Arabia there is no ban, but because of the drought and the low prices of sheep in the whole region, exports might be at their lowest rate. However, new regulations might be introduced as a result of the outbreak of Nile Fever disease that hit the southern part of Saudi Arabia (Salem Al-Oun, BRDP, personal communication). It is expected to make exports more difficult because of the import restrictions that will be imposed as a result of the disease.

The majority of the Bedouin in the sample talked about the impact of imports on the livestock industry. All agreed that allowing sheep imports has reduced the price of sheep, especially during the recent drought years. They say that the price of a good lamb is around JD 45, though in the past it was about JD 75. The low price of sheep is the main problem for the Bedouin, which makes them struggle for their livelihood. The whole sample believed that the main cause of this problem is the government's decision to allow the importation of live sheep and chilled meat.

The majority of the people questioned were clear about asking the government to stop sheep and chilled meat imports, at least during the lambing season. But it is notable that while the price of local meat has remained the same since the 1980s until 2001 (it fluctuated from JD 4 to JD 4.5 per kg) the price of livestock has been going down and

down. For example, the price of a good lamb was around JD 70 three years ago but, for the same lamb, it was about JD 40 during 2000. However, the price of one kg of meat has remained the same, about JD 4.5. In fact, low sheep prices economically should encourage consumption and discourage production and visa versa. In other words, meat prices should follow sheep prices up or down and hence should be very low in Jordan. However, nowadays, the sheep price is very low and the consumption is also low or at least has not changed. The explanation is that sheep traders buy sheep at low prices and sell them at high prices. It clearly seems that the meat traders are increasing their profit at the expense of the livestock owners. However, sheep prises are rising, in Jordan, in 2001. This is also due to increasing chilled meat imports from Eastern Europe but people in Jordan need it and the government cannot look at Bedouin meat in isolation.

Some countries (e.g. Egypt in 1993) have imposed restrictions upon imports and hence have had self-sufficiency in some animal products. This will be discussed in Chapter 5.

In summary, Bedouin had no clear idea about the government's policies and their changes regarding imports and exports. They are strongly in favour of exports of live sheep and against the imports of chilled red meat, at least in the lambing season. Importing chilled meat and no or low exports to the Gulf countries have a negative impact on the sheep prices.

4.10 Education

Education is one of the most important issues affecting the livestock industry, but in an indirect way. The education opportunities, which the present Bedouin generation has had, might lead them to leave livestock breeding and look for more secure jobs. In fact,

the Bedouin view of education and its importance is the most important point that came up through discussion in the field. Schools are available everywhere in the Badia region, though there are not enough schools in villages that are very far from the centre, especially for girls, which forces the Bedouin to make girls leave school early. The Bedouin hope to educate their children until they finish their studies. One man said "I like to spend everything I have to teach them, even my blood, but they have to be clever and active". One man had a son at the University of Al-Hashemiiyya (which is located near Zarqa). His son was in the second year. He told us that he pays JD 500 every term. So he was forced to sell part of his flock of sheep to pay the university fees. He was very happy to have done this because he believes that the sheep have no future and the future is just for educated people. Another man said "one of my sons is in school and I refuse any help from him and leave him at home in order to concentrate on his study despite the fact that I am an old man and his mother is also old". Another man confirmed his interest in education by saying that when they were in *Al-Hammad* in 1986, he and his neighbours built a tent to be a school and hired an Egyptian teacher, with salary of JD 100 to teach their children.

But in spite of this strong desire for education, it is found that some households have children 8, 10 and 12 years old, who never enter schools. This is because their fathers needed them to work with the sheep and every year expected the next year to be better so that they would be able to enrol them in schools. They justified their sons and daughters leaving school in the past and nowadays not because they dislike educating them but because they have to move from one place to another. Nowadays, however, they have no financial resources to let them continue their education. In the field I found many youths who are not able to read or write.

Most people also support female education. The majority of the people in the study sample were willing to let their girls continue their education but transport is difficult between villages. The transport costs, the school fees, and the special expenditures are expensive, which have a direct impact on sheep numbers. One interviewee said, "If we could go back in time 20 or 30 years we would have taught our daughters". One girl, 18 years old, who left school after studying for only four years, said "I spent just four years in the school and then left because I had no desire for learning, but if I could go back in time I would never leave school". One man sent his daughter to the University of Mut'ah, though Mut'ah is in the southern Badia, while he lives in the northern Badia. He gives high priority to the education of boys and girls. However, another man was strongly against female education. He thinks that a girl should be at home until she gets married. Furthermore, he believes that teaching girls leads to corruption and a bad relationship with boys and then bad society. He said "I dislike educating girls because my honour is very expensive". Another man told us that he tried to put his daughter of 12 years in school but he could not because the school itself refused this. In fact, Bedouin who have no secondary schools in their villages suggested that the government could help them to transport their girls to and from schools and provide a special allowance for enrolling their children at school at any age.

Everyone in the sample believes that the livestock industry will not last, which is one reason why most of the people in my sample concentrate on education as being significant for the family. There will be more discussion about this in Chapter 5.

In summary, it is clear that Bedouin were and still are willing to educate their children, which will affect sheep numbers negatively. However, in the past, the Bedouin were travelling from one place to another and there was a need for all family members to

work in livestock rearing. This prevented them from teaching their children. Nowadays, there is a real desire to educate their children but their poor financial position prevents some of them from doing this. In fact, the weak sheep industry in the Badia region might lead to more interest in education, because the new generations, and old generation in many cases, see no future to livestock rearing.

4.11 Health

Health services are available in most villages in the study area but it is not up to the required level. Some clinics do not have a physician or cars and they close at 1 or 2 o'clock in the afternoon.

Everyone said that the health policy had no effect on their livestock. However, the big problem for the people in the study sample, in their opinion, was health insurance. Most people (if not all) have no medical insurance. In fact, they pay a lot for treatment even in the government health centres and hospitals, which will negatively affect their livestock numbers. Taking into account that they have no ability to pay especially at present, one man said "many times I do not even have 10 piastres in my pocket". So if anybody needs to enter a member of his family into a hospital for some days, he will have to sell part of his sheep flock to pay the hospital bill. This problem needs to be dealt with because it is very important for the welfare of the Bedouin.

To sum up, the Bedouin see that the availability of health services is necessary and does not affect livestock rearing. However, they asked for medical insurance like other people in Jordan, because they have to spend a lot of money if a member of their family

needs to enter a hospital. This will lead to livestock sales and a reduction in livestock numbers.

4.12 Conclusion

The methodology adopted in this present study is largely based on open discussion. This has provided a better understanding of the livestock owners' responses to government policies.

The study shows that the government's policies and their changes are generally not well known to the livestock owners. However, some policies are well known such as the credit policy in terms of obtaining fodder loans, free water, Bedouin vehicles licensing, education and health. But they have not benefited from policy implementations, especially the free water and rangeland projects. In fact, policies such as these have had no positive impact on the livestock industry. It also shows that the livestock owners suffer from the drought situation, the removal of the subsidy in 1996, cheap imports and low sheep productivity. These have affected the Bedouin sheep and their numbers (see Appendix 3).

The study also shows that there is a gap between the government's policies and their implementation. There is also evidence from this study that there is a gap between the government on one side and the livestock owners on the other in terms of decision-making. Some policies were announced but without actual implementation. These included providing the livestock owners with free water, opening the rangeland fences and the availability of veterinary services. The government officials who sit behind their desks in Amman, make decisions without consulting the livestock owners or even

asking them their opinions and ideas about policies. So, it was clear through this study that many livestock owners do not have any idea about many policies and their changes over the years. In addition, where livestock owners did know about policies, they expressed their dissatisfaction about these policies in many cases.

Policies and experiences from some other countries will be discussed in Chapter 5. Jordan may be able to learn lessons from these experiences in the interest of agriculture in general and livestock owners in particular.

Chapter five

Discussion with reference to some other countries' experience

5.1 Introduction

Having a clear idea about the government's policies that are related to the livestock industry in Jordan (Chapter 3) and the Bedouin awareness of and responses to these policies (Chapter 4), I will now discuss other countries' experience in this field. The aim is to suggest ways in which the gap, between the Bedouin experience and the Jordanian government policies, might be bridged. This chapter discusses Jordan's policies and examines them in relation to some other countries' experience. However, I have found no or little reference on international experience, in the literature, about some of the specific government's policies, for example those affecting Bedouin vehicles, livestock watering and health and education. This might be because the situation in Jordan is so different and Jordan has its special circumstances. These policies therefore will be excluded from this chapter.

5.2 Credit policy

As learnt from the from the field survey (Chapter 4), there are a number of problems concerning credit in Jordan. First, ACC is the only organisation that offers loans to the agricultural farmers in general. It is also the only organisation that the Bedouin have ever had to deal with to obtain their fodder loans. Its monopoly role is emphasised by the fact that it deals with all farmers: large and small farmers and crop and livestock farmers. ACC also adopts specialised credit programmes, which takes a proportion from the ACC budget for credit. Although there are many commercial banks in Jordan, like everywhere else in this world, they only offer credit to agricultural companies and, in

rare cases, finance some large farmers with high value collateral (UN, 1997). However, they rarely offer credit to livestock owners and in any case the livestock owners do not like to deal with these banks for the reason of *Riba* mentioned before (Chapter 4). In fact, it is questionable that just one organisation should deal with agricultural credit in Jordan. Second, there is a bureaucracy problem in dealing with loan procedures. Procedures take a long time to be completed. Third, there are no effective specialist programmes in the interest of Bedouin, especially women. Fourth, there is a problem related to credit distribution between large and small farmers. Large farmers can obtain a lot of many and small farmers cannot (Chapter 4).

A difference should be made between small and large farmers in Jordan. This difference is exaggerated by the fact that large farmers, in Jordan, especially crop farmers who own private wells or a vegetable farm can gain a lot of credit within one season. Crop farmers can easily change their work and they may own other private enterprises that can help repay a loan if their farms are not profitable whereas the livestock owners need many years to overcome the impact of drought years. Moreover, they are unable to change their job because they only know livestock rearing. Therefore, Jordan should learn from other countries' experience, mentioned before, to the interest of livestock owners. More consideration should be given to creating sources such as these in Jordan. Bearing in mind that most of the countries that have sources such as these have benefited their farmers. Jordan, at least, can make a detailed study of the countries' experience that will be discussed below.

Livestock rearing faced and still faces difficult situations that have been exacerbated by the drought years and so farmers continue to decrease their flock sizes. The government has not responded by improving the credit services. This might be because of the

limited amount of money available for credit or because they think that farmers will not be able to repay the loans.

To overcome the above problems, Jordan can learn from some other countries' experience examined here. However, any experience of them needs some modifications to be suitable for the situation in Jordan. There are a number of organisations that offer loans to farmers. Likewise, there are credit sources for the crop sub-sector and other sources for the livestock sub-sector. There are institutions that give credit to small farmers and others to medium and large farmers. In other countries, there are many institutions that only give loans to livestock production rather than livestock fattening. In South America, for example, there are official and quasi-official institutions that direct finance into cattle production and there the preference in the allocation of finance is given to breeding and rearing. This is because (a) it is reasoned that beef production cannot expand until more calves are born and reared, and (b) breeders and rearers as a group are poorer than fatteners (Crotty, 1980). This experience can valuably be implemented in Jordan because it distinguishes between rearers (small farmers) and fatteners (large farmers).

Lebanon, as an example of a country in the Middle East, has several credit institutions that offer loans to farmers. These are: the Bank of Agriculture, the Bank of Industrial and Real Estate, the National Union for Co-operative Credit and the National Bank for Agricultural Development (ESCWA, 1999). The availability of these sources of credit is limited to the medium and large-scale farmers. In fact, it is appropriate to find institutions for large farmers and others for small farmers. Jamaica, for example, has had two separate sources: one aimed at small farmers and the other at large farmers (Benjamin, 1981). Padmanabhan (1988) states that the Jamaican Development Bank

provided agricultural loans to large farmers. Likewise, there were other small farmers' credit programmes such as the Agricultural Credit Board, Crop Lien Programme and the Self Supporting Farmers Development Programme. However, officials implementing the programmes had no accountability and there were no effective sanctions against default. The overall Jamaican experience indicates that when loans are disbursed under government pressure without observing banking norms, the results can be disastrous. It also shows that the cost of supervision of small loans can be substantially higher than large loans but that such close supervision could reduce defaults.

Jordan can benefit from the Indian experience, outlined below, in order to implement a development credit plan to deal with the livestock owners in the Badia. In India, there was and still is a district credit plan, prepared for each district in India. This credit plan covering a district is based on the district development plan. It is prepared by a task force consisting of a district planning official and representatives of various banks operating in the district. This would be approved by a district consultative committee, which monitors the implementation of the plan and removes constraints in implementation (Padmanabhan, 1988). India has also had a regional rural bank, which aimed to combine the advantages of both co-operatives and commercial banks. This bank operated in one or two districts with homogeneity in agroclimatic conditions and rural clientele. Padmanabhan (1988) claimed that most of the regional rural banks' lending was exclusively targeted to the rural poor. In fact, these banks were established with objectives of providing funds for integrated rural development (Roy, 1990). They provided short and medium-term credit for agricultural and non-agricultural purposes. This could be helpful for rural people in Jordan because banks such as these fund the rural development and provide loans for agricultural farmers.

Morocco established one of the more successful organisational innovations to meet the credit needs of small farmers (Padmanabhan, 1988). It has a national organisation for the agricultural credit. It operates two types of branch offices. One lends to large farmers, co-operatives and other groups. The second branch lends to small farmers, especially those who work in the field of cereal and livestock production. Padmanabhan argued that this organisation was a success story of building self-sustaining rural financial institutions. This experience could valuably be implemented in Jordan because there are two separate credit branches, one for small farmers and the other for large farmers.

Since 1982, Tunisia has realised that its formal credit system was not suitable to the needs of livestock farmers. So, it responded by establishing numerous short-run parallel credit sources through individual projects, authorities and public enterprises in order to help livestock farmers (Cleaver, 1982). Although such a response is short-run in nature and cannot substitute for a properly functioning agricultural credit system at the national level, it might be helpful for livestock owners in Jordan who have been living in difficult circumstances in recent years, made worse by the three year drought, 1997/8-1999/2000.

By the early 1980s, Bangladesh had created many credit institutions including sixty-two central co-operative banks, twelve central sugarcane growers banks, co-operative societies, and sixteen land mortgage banks (Wennergren *et al.*, 1984). However, Bangladesh resembled Jordan today in terms of the complicated procedures to obtain a loan. Wennergren *et al.* pointed out that these procedures limited the efficiency of the total credit system. Applications, as in Jordan today, took months to process, resulting in high time and travel costs' conditions that are difficult for most farmers. In this

regard, French's study, mentioned in Bathric (1981), about improving operational performance of credit in any country, stated that considerable improvement could be made in the administration of credit if: (1) loan procedures could be simplified; (2) communication and co-operation with the organisation should be improved; (3) better linkages would be established between the various agencies such as extension agencies and their clients; and (4) organisational and programme goals and action strategies were to be made. As mentioned in Chapter 4, 23 per cent of the people in the study sample have not taken loans, as a result of the complicated procedures. So, studies on other countries' experience from as long as two decades ago suggest that Jordan would be benefit by making these procedures simpler. Bearing in mind that Jordan, today, is entering a new era of information technology, it could use this expertise to serve the improvement of credit procedures by using computing systems and databases, that have the potential to speed up contact with the centre in Amman.

Bangladesh has also the Grameen Bank project, which provides finance exclusively to landless or near landless for undertaking a wide variety of farm and non-farm activities (Padmanabhan, 1988). It is now the largest micro-lending institution in Bangladesh, with 1046 branches covering 34, 913 villages, more than half of all the villages in the country (Rahman, 1999). This bank was subsequently converted into a public sector specialised credit institution. Its loans are given to individual members of a group in order to cross-guarantee each other's loans. Many factors have contributed to the success of this programme. Rahman (1999) claimed that this bank has pioneered a credit delivery system in rural Bangladesh bringing banking to poor villages and focusing primarily on women. Women take out as little as $25, to start a business. Only when she repays the loan the next woman in the group borrows (Economist Magazine, 2001). Separate female groups were organised by female bank workers. The field

workers were well motivated and trained and rural people developed a lot of faith in them. Also, the rules for group operation were simple and flexible (Padmanabhan, 1988).

Another type of credit called step loans exists in Africa and Latin America. Its target is women. The micro-lender lends a little money to a woman and she contributes roughly the same amount again. If she repays promptly, she can raise a larger loan (Economist Magazine, 2001).

In this regard, it is difficult to ask Jordan to have the big number of credit sources that are available in Bangladesh, but Jordan could, at least, make a detailed study of the experience of the Grameen Bank project, in Bangladesh, and similar projects in other countries, which are in the interest of rural people. The core principles of personal finance within a group or of step finance may be appropriate for Jordan but will probably need modification to suit local conditions.

Jordan might even learn something useful from the experience of Vietnam. In Vietnam, the Vietnam Bank for Agriculture (VBA), which works under state regulation sends its agents to villages to assess the capital requirements and repayment capacities of farming households (Que, 1998). This is never done in Jordan by ACC, but would provide the bank with a deeper understanding of the farmers' needs. Therefore, Jordan could benefit from Vietnam's experience in order to obtain accurate information about the real situation for the livestock owners in the Badia region. We have never heard that this minister or that official visited the livestock owners, during the recent drought years, asking about their situation and seeking suggestions in order to help them. However, ministries are not the only culpable organisations. The Bedouin representatives in the

Council of Parliament have never visited them in their locations, even during the difficult drought years. They only visit them whenever they are desperate for their votes in any elections. They need to be made more genuinely accountable.

ACC, as mentioned in Chapter 3, adopts also specialised credit programmes such as the 'rural families credit programme' and the 'income diversification project'. However, it was found that nobody from the study area has benefited from programmes such as these (Chapter 4). This might have resulted from the fact that Bedouin only need fodder loans and have no idea about other ACC programmes or because these programmes are not to the benefit of livestock owners. Programmes such as these could work through other organisations, such as MoSD or the National Relief Fund (NRF). Organisations such as these are responsible for the improvement of family situations and social development. ACC could be specialised only in credits for agricultural development, both the crop and livestock sub-sectors.

From the above, the fact that there is only one organisation dealing with credit in Jordan, dealing with all types of farmer, is a problem. In the countries mentioned above, there are several organisations. Some of these are oriented to small farmers and others to medium and large farmers. Jordan can learn from these experiences in order to improve its system of credit support for the different agricultural sectors in general and the livestock industry in particular.

5.3 Feed and subsidy

The availability of livestock feed, its subsidy and price are the main issues that the Bedouin are concerned about (Chapter 4). The fieldwork showed that there is no problem regarding feed availability, but there is a problem in the administration of feed

distribution. One of the problems is that the traders sell feed to farmers, in debt, at high prices when even the official prices are high from the point of view of the Bedouin, especially when they compare them with the livestock prices. So, the Bedouin income is collapsing, which is a big problem for the Bedouin. Also, the subsidy removal is a problem affecting livestock owners directly. Although there is a temporary subsidy for barley but there is a need to a long-term subsidy even if it is not direct as in Lebanon (see Lebanon experience).

Officially, it is not allowed for traders to buy feed directly from the government centres, but it happens. The position of the livestock farmers is further weakened by the fact that the government employees who work in these centres (usually there is only one person) know the traders very well and help them in many cases. This might be because there is a high quantity of feed, which exceeds the livestock owners' needs. However, it may be because the government employees get benefit from those traders. The government should not allow traders to buy feed from its centres because all the feed should be sold directly to farmers. Nevertheless, traders have a short-run positive role in solving the farmers' problem of not having cash by selling them feed on credit. However, the government can also play the traders' role by selling feed directly to the farmers, if they have no cash, on credit at prices higher than the cash government prices and lower than the trader prices that are mentioned in Chapter 4. In other words, the government can make two types of prices available to the farmers; one a cash price and the second a credit price. This will lead farmers to deal with the government instead of the traders, which will lead to decreases in the feed costs.

Feed subsidies were introduced in 1981. From this date till 1996, the livestock numbers increased and the rangeland faced deterioration (Papadopulos, 1999). It is also

important to say that Jordan has entered a new era of reform (structural adjustment) like many other countries. The elimination of any kind of subsidy was a term of this reform. Therefore, the government feed subsidy was removed in 1996. Since then, the livestock numbers have been decreasing (Appendix 3) but the livestock productivity has not improved. Improvement in productivity might be achieved by using improved feed, managed rangeland projects, good health and extension services, more credit, etc. Abu Zanat (1995) pointed out that productivity could be improved through increasing and improving feed resources and improving the management of livestock.

As a result of the drought, the government still today subsidises barley by JD 19 [1] per tonne. This subsidy is temporary and a special drought subsidy. So the government is going to stop it if the situation improves.

However, the government could also consider the creation of other forms of subsidy to support Bedouin incomes if it means to fulfil its policy of effectively supporting the Bedouin communities. It might, for example, consider the merits of following the example of Zimbabwe. In Zimbabwe, as a result of the drought that dominated the country during the 1980s and the 1990s, the government provided relief to the households in order to support their incomes. Much of this support was in a form of food and school examination fees and seed and fertiliser packs (Kinsey *et al.*, 1998). To prevent the Bedouin income, in Jordan, from collapsing, the Jordanian government could learn from Zimbabwe experience in this regard.

Lebanon changed its direct subsidy to wheat farmers to another form of indirect subsidy financed by the Lebanese consumers. This encouraged farmers to cultivate land and

[1] This amount was for barley when it was sold at prices of JD 79 per tonne. But it should be more now because the prices of barley have been recently decreased to JD 75 per tonne.

produce more local wheat and barley. This led to a reduction in the quantity of imported cereals and their prices, which affected the livestock industry. ESCWA (1999) reported that Lebanon, on average, produces around 30,000 tonnes of wheat per year while it consumes about 400,000 tonnes of wheat per year. The Lebanese importers are obliged by the government to purchase the entire amount of local wheat production at a high price of US $300 per tonne, and then are allowed to import the balance of the consumption at the price of US $150 per tonne. Through this practice, the Lebanese farmers are ensured a sizeable subsidy for the production of local wheat (ESCWA, 1999). Although the Lebanese experience mentioned above is targeted at wheat farmers, Jordan can do the same thing with livestock farmers. This could be possible by buying some of the livestock products (e.g. male lambs) and reselling them, whatever systems the government adopts in the local markets.

To sum up, Jordan can learn from the experience of Zimbabwe and Lebanon in order to overcome the feed and subsidy problems that were mentioned before. Jordan, at least, can make a detailed study of these experiences and modify them wherever it is necessary.

5.4 Rangeland

A number of problems have been discovered during the fieldwork survey concerning rangeland development. One of these problems is that there is no effective contact and discussion between the government and the livestock owners regarding rangeland projects. Second, there are no effective fodder banks and rangeland reserves that the Bedouin can benefit from. Third, most of the rangeland projects are implemented in one area, which is the Jordanian Southern Badia. Fourth, there are no effective groups of organisations implementing jointly any rangeland projects. To make Jordan able to

overcome these problems, it could learn and benefit from other countries' experience (e.g. Botswana, Iran, Nigeria and Lebanon), as will be examined below.

Many organisations have been involved in rangeland activities in Jordan, such as MoA, JCC and NGO's (Chapter 3). It also was found during the fieldwork that the majority of the people in the sample have no information about the rangeland projects (Chapter 4). This might be because most rangeland projects have been established in the southern Badia. Bedouin also have no idea about the IFAD project for rangeland rehabilitation and development, one of whose pilot areas is located in Manshieat al-Keath, near Ruwayshid. This is, in fact, because this project started its work in Manshieat al-Keath at the beginning of 1999 when most of the livestock owners were moving to other areas searching for rangeland and by-products. Nevertheless, this should not have stopped them being informed. Also, Jordan is not a large country, Irbid is not far from Ruwayshid and information is easy to pass on. Bedouin should have been informed about and involved in the project years before it started so that they understood all about it and approved before it started. Optimistically, I hope and believe that the BRDP project in Tall ar-Rimah village will be better because people are being informed and involved (Chapter 3). Projects such as these [2] are required but only if they work in close partnership with the local communities who are the base for successful rangeland projects. The local people should share with others their responsibility for establishing and improving the rangeland projects. Owners should be consulted frequently for their input because only when there is open consultation and participation of owners' representatives can workable agreements for change be reached. Brandenburg (1998) also said "a disregard for the importance of the individual's contribution and participation in development programmes has proven to be the most costly mistake,

[2] These include IFAD, MoA and JCC projects, mentioned in Chapter 3.

with failed project after project, attesting to the need for joint co-operation and communication between development planners and local inhabitants" (p. 79). Indeed, JCC participates, throughout its project in the Southern Badia, with the co-operative societies by helping them to obtain rangeland from the government for protection and planting with grazing shrubs (JCC, personal communication, 1998).

Sweet (1991) stated that from the experience of attempting to establish and operate communal grazing cells in Botswana, one conclusion should be mentioned among many conclusions. He said "ideas may be introduced but the actual initiatives for change should come from the people. There are no solutions that can be directly imposed and successfully enforced by government...ultimately management has to become an institutional force of the community itself" (p.29). Communal grazing cells are a national policy adopted by the government of Botswana on tribal grazing land. Tribal land was zoned into communal areas. The objectives of the communal area grazing units were (a) to provide a practical demonstration of the improved condition of the rangeland and of grazing management and control of stock numbers and (b) to enable a comprehensive evaluation of different grazing systems for rehabilitation of degraded rangeland (Sweet, 1991). In this regard, Roy (1990) pointed out that when the tribal grazing lands policy was introduced, a special effort was made to use radio broadcasts to explain the policy to the people. Therefore, groups were encouraged to make comments and to raise questions by post or any other way for further discussion in subsequent broadcasts. This provided some feedback to the government about people's reactions to the policy. Iran also had a good deal of information work for communications between the government and pastoralists in special areas. For example, river catchments, where new range programmes were being introduced, were discussed

among children in schools, where the audience is fairly captive and facilities exist to make use of audio-visual aids (Roy, 1990).

The experience in Botswana and Iran are two of many examples from which Jordan can learn the value of making fuller use of the media and of working with school children to enter into effective discussion with communities that will be affected by new policies and projects.

In terms of forage improvement, Nigeria tested the idea of a 'fodder bank' among Fulani agro-pastoralists in order to increase livestock production and improve cattle nutrition. The programme was initiated by the Subhumid Zone Programme of the International Livestock Centre for Africa (Powell, 1991). Settled Fulani cattle keepers were the programme's target group given the tendency among the Fulani to establish permanent residences within the Subhumid Zone. Powell (1991) described the fodder bank as a fenced area with a predominant forage legume that the producer can establish and maintain as a supplement to natural resources. Credit for the fodder bank implementation was available through the National Livestock Project Department. The fodder bank included the principal crops in the region such as maize, millet, yams and groundnuts. Only 32 households were settled year-round inside the 3100 ha reserve. However, feeding decisions in the use of improved forages by Fulani-agro-pastoralists were complex and different from those presumed by the project. There were no set, predetermined decisions of when the forage would be used or by which animals, which contradicted the principles on which the fodder bank concept were based.

Although Jordan has different circumstances from Nigeria in terms of rainfall, soil nature, credit availability and livestock flock size, Jordan can learn from Nigeria's

Fulani fodder bank experience by not presuming how such fodder banks will be used. This can be achieved by discussing all project aspects with local people before a project starts. The best example of this, in Jordan, is the latest BRDP project in Tall ar-Rimah village. For this project, BRDP intends amongst other things, to promote the cultivation of some irrigated forage crops that will act as a 'forage bank', but only if it suits the aspirations of the local community.

In effect, if groups of organisations implement any development project, there will be more opportunity for the success of this project. Responsibilities will be divided between these organisations in relation to their specialisms. This means that every organisation will do its best in order to introduce a very high level of performance. However, Jordanian rangeland projects are implemented by only one organisation for each project. MoA runs projects and other projects are run by JCC. It seems that every organisation prefers to implement its projects away from other organisations. This might have resulted from the factor that when organisations co-operate some organisations refer to other organisations' work as their own work. This leads to a decrease in the desire of organisations to co-operate in the future.

In Lebanon, there is a good example of the benefits of co-operation between organisations on an agricultural project. The project is the Lebanese-Agriculture Infrastructure Development project. It started in 1996 with co-operation between many organisations. This project has supported: (1) soil construction and land reclamation; (2) rehabilitation and construction of rural roads; (3) agricultural research, extension and training; and (4) studies and reconstruction of animal infrastructure (World Bank,

1996b). One of the organisations is the Green Plan[3]. It has a responsibility for the implementation of land and water development as well as the agricultural roads components. The second organisation is the Council for Development and Reconstruction. It has a responsibility for the implementation of the project activities related to the conduct of the agricultural census and sector database. The third organisation is MoA, which has a responsibility for field implementation (World Bank, 1996b). The project is characterised by the seriousness of the co-operation between the organisations in all parts of the country. Responsibilities are divided between these organisations in relation to their specialisms. This was beneficial to Lebanon because every organisation accomplished its work in an accurate way. In fact, this kind of work creates competition between organisations, which encourages everyone to be the best. There are similar cases of co-operation in Jordan but Jordan needs more of this kind of approach, especially in rangeland projects.

From the above, many problems have been found in Jordan concerning rangeland development and improvement. Experiences from some other countries have been discussed, so Jordan can make a detailed study of them and consider them in the interest of rangeland development in Jordan.

5.5 Veterinary services

From the field survey, it was found that the livestock owners in the Badia are facing a number of problems concerning animal health. First, animal diseases are one of the major costs for the livestock owners. The veterinary investigations have shown that in Jordan there are very few disease-free animals. As mentioned in Chapter 3, Jordan is supposed to have a free governmental mass vaccination programme. MoA has a

[3] It is a public agency set up to assist farmers and communities in land production development.

veterinary department and extension officers in every governorate and in many villages. However, it was found that there is no satisfaction about the veterinary services (Dutton, 1998; IFAD, 1997). There are, in practice, no free vaccination services. Second, there are no effective extension services. Third, there is no trained paravets from the Bedouin in the interest of veterinary service improvements. Therefore, the government is invited to make a general revision to its veterinary services either by improving the current public sector services or by privatising these services, or both. Perhaps there needs to be a new division of rolls between the private and public sectors. Already, in practice, the majority of the people in the study sample were dealing with private pharmacies. Most of them visit directly these pharmacies without going to the governmental veterinary centres.

In order to overcome the above problems, Jordan is invited to benefit from other countries' experience in this field. In some African countries (e.g. Sudan) trained health professionals and paraprofessionals successfully extend useful services (FAO, 1997). It is advisable to expand their role progressively as experience is gained (Roy, 1990). According to FAO (1997), in African countries, the smallholder livestock owner is seen as their primary client with the aim of preventing losses from diseases. In sub-Saharan African countries where livestock productivity was low, it was evident that either additional services were required or a more rational delivery system needed to be found, or both, in order to raise productivity (FAO, 1997). Sudan implemented a paravets programme to provide support for cattle veterinary services. This programme started its operations by selecting men in the programme district to be trained. The selection was based on their locally recognised abilities to handle cattle (Almond, 1991). The programme then divided the district into certain parts and each part was allocated a number of paravets based on the estimated population of each part. Once selected, the

paravets underwent training in basic veterinary health care. Almond (1991) stated that after completing the training course, they would then be in a position to provide their community with veterinary health services. Animal health drugs would be made available to them and they would then be able to administer them in a correct manner in the field. In effect, what is important in this programme is that during the training programme course, great emphasis was placed on the idea of 'prevention is better than cure' and the role that vaccination has to play in this respect (Almond, 1991). Oakeley (1999) also argued that the viability and effectiveness of the Community Livestock Worker (CLW) (Para-vets) depends upon communication, support and co-operation with the professional veterinary system. He continued by saying that the role of CLWs must be recognised in law and incorporated into the regulations governing animal health services. For example, CLWs in Ghana carry an annually renewable licence. This legal status of CLWs is particularly important with regard to the sale and use of veterinary drugs. A cost-benefit analysis of a CLW prgramme in Afghanistan estimated benefit-to-cost ratios of between 2:1 and 5:1 but offered little explanation of the methodology used (Oakeley, 1999)

It might be said that this project is not suitable in the case of Jordan because of the existing veterinary staff in both the government veterinary centres and the private clinics. However, those vets are not available in the desert (*Hammad and Harra*). Also, the government vets are not efficient and there are not enough of them and lack incentives. Farmers have to wait their 'turn' for a long time and often there are no medicines. Likewise, paravets might not be as expensive as private clinics staffed by fully qualified vets.

Like Sudan, Jordan's government veterinary services have not been able to mount mass-vaccination programmes due partly to lack of resources but also due to lack of political will. But just as paravets have helped Sudan towards achieving this objective, it might be that Jordan can do so either through MoA's veterinary clinics or LSS in co-operation with livestock owners. The training of paravets is a good way to encourage local people to co-operate and serve each other. So, Jordan is invited to consider this experience and make an appropriate legal framework for paravets because, at present, paravets are illegal in Jordan.

In India, a few years ago, each district in the dry areas had at least one veterinary laboratory able to do most routine diagnostic work (Roy, 1990). There was a hierarchy of animal clinics and hospitals at the district level, with different complexities of treatment available at different levels. For example, a district would have one or two district level hospitals with residential accommodation for animals and a capacity to do major operations on livestock (Roy, 1990). Below these, Roy (1990) stated that there were rural veterinary dispensaries under the control of veterinary officers able to do vaccinations, castrations, treatment of wounds and other minor veterinary work. It is difficult to ask Jordan to establish animal hospitals in each district, as in India, because they are very expensive. However, Jordan could make a detailed study of the Indian experience and try to establish new animal clinics and improve the services of the existing ones.

Tanzania has veterinary investigation centres, each has not only a fixed laboratory but also a mobile van equipped to do field investigations and which can go out to the area of disease outbreak. So information can be passed in both directions between livestock owners and animal health husbandry technicians about where disease has broken out or

where supplies and services need to be delivered. The cost-benefit effectiveness of the system could be studied for its suitability for the interests of livestock owners in the Badia.

In Morocco, the veterinary services are part of the Moroccan Ministry of Agriculture and Agrarian reform. This consists of nine central directorates, 16 institutions under guardianship, 38 provincial directorates as regional representatives and nine regional offices for agrarian reform. These units deal directly and indirectly with animal health and production and veterinary activities. Veterinarians' work depended and still depends administratively on the director of the division of animal production or the regional office for agrarian reform and they receive technical support from the directorate of animal health and production (Fassi-Fehri and Bakkoury, 1995). Morocco has had some institutions for veterinary education. There are also undergraduate and doctoral programmes. Likewise, there is the national agricultural school in Meknes, which offers programmes in animal science range management. Moreover, the Royal Institute for Livestock in Kenitra offers a three-year programme for training of livestock technicians. Women also join these programmes, so, in 1994, there were 44 women veterinarians in Morocco working in the public sector, mainly administrative services, diagnostic laboratories and teaching. According to Fassi-Fehri and Bakkoury (1995), veterinarians mentioned above deal with animal health and production, food hygiene and quality control. They claimed that the animal production sector had 26 veterinarians and 107 animal technicians.

Jordan, in fact, needs to pay attention to veterinary education at the school and college levels, as in Morocco. Moreover, just as Morocco has involved women in veterinary services, Jordan can do so and learn from this experience. It could be acceptable for

Bedouin in Jordan to educate their daughters this service in schools and colleges in the interest of their sheep. Despite the fact that this job is not available for women in the Badia, but it is a very worthwhile and profitable job.

Also, institutions at the regional level in the Middle East may be beneficial to the interest of animal health in the whole region. The Agricultural Research Council of South Africa (ARC) is one such institution, established in the interest of South African countries. It has contributed in the improvement of animal health. There are many institutions that are working under the supervision of ARC. One of them is the Onderstepoort Veterinary Institute (OVI). It is responsible for improving animal health as well as public health where animal products such as milk, meat and eggs are concerned. It carried out specialised diagnostics in infections diseases, parasitology and toxicology. It supported activities including: (a) collaborating with the local veterinary service to diagnose and control and outbreaks of lung sickness in the cattle of Botswana, (b) training a group of Zambian veterinarians on the toxic plants of southern Africa, and (c) conducting a course on the identification of tsetse files and survey techniques to veterinarians and technicians from Mozambique. Despite the fact that Jordan cannot financially support institutions such as these, Jordan could perhaps work in co-operation with other countries in the Middle East region to create them.

Extension is an important aspect of the livestock industry in general and veterinary services in particular. Jordan has a very weak extension service. None of the study sample has benefited from this service, which should be available from MoA, at the time that many countries have special effective institutions for extension. Nicaragua, for example, has re-designed the national agricultural technology services to include mass media and demonstration free of charge, co-financed (public services) and private

extension firms, through an institution for extension services, divided into five regions with its headquarters in Managua (Dinar and Keynan, 1998). Its budget, in 1997, included a loan from the World Bank, foreign contributions and proceeds of the sale of products and services. Also, payments from producers were taken but they went directly to extensionists and to private firms, who provided producers with contracted extension services. The major mechanism applied to develop the public extension in Nicaragua was the payment of a small sum by producers for agreed services. Dinar and Keynan (1998) stated that payment would be made to the technician and not to the institution, and would be divided among these providing the services. In terms of private firms, the company's technician together with the producers' diagnostics of the situation, identified problems and provided alternate solutions in order to upgrade production efficiency. This experience, in fact, could valuably be created in Jordan because it is based on the participation of farmers in the cost of the service provision. However, this is not expected to work effectively in Jordan in the short-term because of the impact of the recent three-year drought. But Jordan should consider this experience in the long-run in order to improve the livestock productivity.

5.6 Co-operative movement

The major and big problem of the co-operative movement in Jordan is that the co-operative movement is not playing a major role in the development of the agricultural sector in general and the livestock sub-sector in particular. The co-operative policy is absent in the livestock industry in the Badia. There is no relationship between owners and JCC in the BRDP area for the provision of feed or credit. Even those who used to deal with the co-operative societies gave up many years ago (Chapter 4). This might have come about as a result of availability of feed in the governmental distribution centres or because Bedouin do not trust each other when they know that the societies'

administrators are from the same area. It also seems that there is a bureaucracy problem in JCC's work.

If the Jordanian government is going to improve co-operatives it could learn from international experience in re-shaping co-operatives to be more responsive to the needs of the farmers. Perhaps the greatest need is in the Northern Badia where the original co-operatives have collapsed. Jordan could learn from a number of other countries' experience that will be discussed below.

In Egypt, the government uses the co-operatives as a link between the government and farmers concerning policy implementation. According to Burrell *et al.* (1976), 25 years ago, they played the key role in serving and supporting agricultural development. According to Hopkins (1987), the co-operative organisation, in Egypt, developed into a multi-purposes service co-operative. Its personnel in the mid-1980s included a technical director with a staff of clerks, agricultural engineers and an elected board of nine members (Hopkins, 1987). He also described a village bank, which took over the financial functions of the co-operatives, such as provision of loans and other inputs and marketing of special crops through the government officials. It represents efforts by central government to assert more control over agricultural processes at the village level. However, central government control leads normally to everything slowing down and not adapting to change.

The situation is completely different in Jordan. The co-operative societies are a multi-purposes service, as in Egypt, but there are no officials, technicians and agricultural engineers in their personnel. Elected boards made up of local people exist, but all the societies have failed in the northern Badia. This might have resulted from bad

administration or because the elected boards have not truly represented the society members and have not tried to know their requirements. There is no co-operative bank at the village level or even at the governorate level.

Jordan has to learn from Egypt's experience in terms of paying more attention to benefit from technicians and agricultural engineers in the personnel of the co-operative societies. But Jordan should encourage the establishment of specialist livestock co-operative societies. There should be a link between Jordan's co-operatives and the government and farmers regarding policy implementations. Also, co-operative societies should find the expertise they need either from the government, as in Egypt, or from the private sector.

Although village societies exist in Jordan, they are not available in most of the Northern Badia villages. Co-operatives at the village level are very important to implement in Jordan as in Iran, Egypt and so on. In this regard, in Iran, the co-operative movement as early as the 1970s, was serving priority areas, with the emergence of strong feelings of independence in the villages and encouragement from the responsible authorities in the centre (Burrell *et al.*, 1976). Iran later consolidated farming activities and encouraged village co-operatives. The number of co-operatives was grouped into more than 130 unions. What is interesting here is that although Iran grouped the co-operatives, the government gave a high attention to co-operatives and shared responsibilities with farmers at the village level. Although Jordan has different circumstances from Iran, Jordan can study the Iranian experience at the village level in the interests of co-operative improvement.

Unfortunately, the co-operative services are very weak in Jordan and there is no planned co-operative policy. A JCC official expressed it bluntly when he said to me 'which policies...there are no policies'. The co-operative policy should be stronger. Goletti (1996) claimed, while he was talking about Egypt, that the co-operatives could play an important role in many areas. The first area is seed production and distribution that would allow economics of scale and specialisation to benefit a large number of farmers. The second area is extension and credit facilities to its members in order to facilitate their access to agricultural inputs such as fertilisers. However, the livestock owners have not applied jointly or individually for credit because there was no source of credit for co-operatives. So, there could be activities at the village level with a source of credit only for the co-operative societies and their members. Also, the co-operatives need training in how to make small business plans and apply for credit.

In summary, although co-operatives play an important role in development in other countries, it was found that there is no role for the co-operative movement in development in Jordan. So, Jordan could learn from other countries' experience and pay more attention to the co-operative movement, especially at the village level.

5.7 Exports and imports

As mentioned in Chapters 3 and 4, Jordanian export and import policies have changed through the years. But Bedouin have had no clear idea what the government's policies are or how they have changed over time. It was found from the field survey that the problem concerning exports and imports is that there are no restrictions on imported chilled red meat and live animals. This, in fact, affects their livestock prices negatively. The livestock owners want policies that strongly encourage exports and discourage imports.

Jordan became an official member of WTO in 1999. So Jordan confirmed that, from the date of accession, it would eliminate restrictions on imports and would not introduce them in the future. However, Jordan had already eliminated import restrictions as a result of SAP. This has led to an increase in Jordan's imports of live sheep and chilled meat. Meanwhile, the number of exported live animals has been declining since 1997 (Chapter 3).

There is, therefore, a need to review the livestock export and import policies, at least during a serious of drought years. A high sheep price is what the livestock owner needs, in order to provide them with more cash in order to meet their family requirements. Abdulrahim and Arabiat (1986) said "The MoS policy of importing fresh chilled meat and selling it for less than half the price of the locally produced red meat has created unfair competition and discouraged investment in intensive sheep production, which is already characterised by many other risks which also act as investment disincentives" (p.87). They might call it unfair competition simply because of the difference of prices between the local meat and the imported meat. In the mid-1980s the price of imported red meat was JD 1.3 per kg compared with JD 2.75 per kg for local meat. Nowadays, The price of local meat has reached JD 4.5 per kg whereas it is JD 2.5 per kg for imported red meat. So the government, in critical situations such as drought, should consider temporary restrictions on the import of chilled red and white meat. Jordan needs to greatly increase the productivity of its sheep, which today is very low. For keeping local prices high (by restricting imports for a definite period of time) in order to encourage farmers to make this difficult transformation. However, the farmers must make the transformation or they are simply delaying the date at which the industry fails.

Egypt, in 1993, had a high self-sufficiency level for poultry products because of such import restrictions. Its self-sufficiency ratios became 87 per cent, 100 per cent and 100 per cent, respectively, for milk, poultry meat, and fish and eggs (Boer *et al.*, 1996). However, importing cheap chilled red and white meat serves the interests of poor people. Boer *et al.* (1996) claimed that to ban imports of chilled meat is not, therefore, recommended by WTO. Jordan can learn from Egypt's experience of imposing import restrictions in 1993. This, in fact, helped Egypt to have self-sufficiency as mentioned before. So, this policy may be of value in Jordan, especially in a series of drought years because it will lead to increased sheep prices and local meat prices. But it will only be of long-term value if it encourages increases in local productivity so that the price per kilogram of local meat is reduced, and can then be bought by poor people as well as rich people. However, importing red meat should be in a line with exporting live sheep and goats, which will lead to an increase of livestock prices.

5.8 Conclusion

The government's policies mentioned before have been summarised in this chapter. This discussion has been with reference to some other countries' experience, which Jordan can learn from and so try to bridge the gap between polices and their implementation.

Chapter 6 will summarise the main points that have been discussed in this and the preceding chapters, with reference to the list of aims set out in Chapter 1, and it will suggest ways to overcome the main problems.

Chapter Six

Conclusions and Recommendations

6.1 Introduction

It was mentioned earlier that the overall objective of this study is to know about the Bedouin awareness of, in the Northern Badia, the government's policies, which are related to the livestock industry in Jordan and their responses to that policy. Using what was learnt from the discussions in the previous chapters, this chapter draws conclusions for our better understanding of the Bedouin point of view about the government's policies as well as a better understanding of the policies themselves. This chapter will also provide some recommendations as an attempt to improve the situation of the livestock owners in the Badia region.

6.2 Findings

The fieldwork was dominated by three years of drought without effective government support. This made the Bedouin hate their animals and their way of life. In fact, a dramatic decline in the livestock numbers became evident during the recent drought years (Appendix 3). This decline is due to the Bedouin need for money in order to meet their family requirements.

- Despite the fact that government policies play a strong role affecting the livestock industry in Jordan, another strong variable is the rainfall rate. It was found that the Bedouin pay a lot of attention to the rainfall and they look for full support from the government through its policies when rainfall is scarce, especially as during the three-year drought of 1997/8-1999/2000.

• Despite the fact that the feed prices during the drought years were low compared with the previous years, feed was expensive in comparison with sheep prices, which were very low.

• In spite of the government's policy of providing a free veterinary health service, it was found that most of the livestock owners dealt with the private pharmacies. There was little effective government veterinary service. This affected the growth rates and quality of animals negatively.

• No rangeland was available during the three-year drought 1997/8-199/2000, or indeed before, and no actual governmental rangeland projects that the livestock owners could benefit from. It was found that many projects are implemented by MoA and JCC. However, most of them are located in the Southern Badia, so the Bedouin in the north have not benefited from them or even from the government reserves and fences that the government announced they would open, especially during the recent three-year drought (1997/98-1999/2000). Moreover, they considered that the projects were just for reserving land not to provide range resources for the Bedouin.

• It was found that owners have to pay a lot of money (anything between JD 300 and 700 per year) to license their vehicles and get no special consideration from the government.

• It was also found that there is no important role, at present, for the co-operative movement in the northern Badia. Nowadays, JCC only monitors and supervises the co-operative societies' work. In fact, there was little satisfaction about the work of the co-

operative societies, although the Bedouin only deal with the co-operative movement, for the provision of feed.

• There was no free water provided to the Bedouin, especially in the Irbid area, during the recent three-year drought, although that the government announced it on many occasions. This increased the cost of animal rearing.

• It was also found that the majority of the livestock owners in the study sample have no idea about the government export and import policies and their changes over the years. But they have strongly supported the export of live animals and have discouraged the import of chilled meat and live animals.

• Regarding credit, it was found that ACC is the only organisation that deals with credit for all farmers. The Bedouin have a clear understanding, for instance, about the credit policy and some of them have benefited from it even if they do not like to deal with credit. There were many reasons for that, as mentioned in Chapter 4.

• Turning to the government's policies with an indirect impact on the livestock industry. Although schools are available everywhere in the Northern Badia, it was found that many children above the school entry age, which is six years, were not enrolled in schools because they were needed for livestock rearing. However, it was clear that Bedouin are keen to educate their children, which will make the educated children lose their interest in livestock rearing. Regarding health services, there was a quite a high degree of satisfaction about the availability of these services in the Northern Badia. But it was found that the majority of the people in the study area had no medical security

card, which is necessary in order to obtain free services delivery. This forces some people to sell sheep in order to pay for medical attention.

These findings are of crucial importance to economic and social development planning concerning Bedouin welfare. In general, the livestock owners, in the Badia programme area, did not have sufficient knowledge about the government's policies. Moreover, in many cases, they have not benefited from the implementation of the government's projects.

6.3 Recommendations

First of all, the livestock sector is treated by MoA as a small part of the agricultural sector in general. It needs to receive much more attention from agricultural decision makers. In fact, the livestock sector needs to be more field oriented and less office oriented. The policy makers could be more aware of the Bedouin views, even though they might appear, in some cases, irrational. Moreover, there is a need to establish a complaints office, in MoA or elsewhere, if a farmer needs to complain or report problems.

Jordan has implemented many projects and policies for the benefit of the livestock owners (Chapter 3). However, it will be helpful if these projects are implemented in ways through which the target group (the primary stakeholders) can participate in the planning and implementation process. In this respect, Chatty (1996) said that the government should recognise the need to encourage the participation of the Bedouin in planning and implementation. If the views of local people are taken into consideration they will contribute to the long-term sustainability of projects.

With respect to the **credit policy**, livestock producers both large and small scale have specific credit needs that have been identified in Chapter 4. Small producers, in particular, suffer from lack of power in negotiating credit because of low collateral, poor access to lenders and excess bureaucracy.

Some ways for overcoming the problems associated with administering credit to farmers such as these have been suggested in Chapter 5 based upon experiences elsewhere.

In addition to economic difficulties surrounding the organisation and management of loans, many Bedouin owners have objections to repaying interest on religious grounds. This objection can be overcome by more sympathetic loan management in accordance with Islamic tradition. Giving Bedouin loans in accordance with the Islamic tradition is the best way to make them get involved in the credit policy. Differentiating between different types of loans, whether for emergency drought conditions or for longer term flock development, would permit more targeted lending and loan conditions suitable for different circumstances. In this regard, the government could, in some cases, give the livestock owners loans free of interest for up to three years. The Bedouin in the sample suggested (and I support their suggestion), especially in the drought years, that the government, instead of giving owners loans, could make feed available on credit for owners and take their repayments up to three years later. Further research upon the viability of different credit options is required.

Concerning **feed and subsidy,** livestock owners suffer from high feed prices, especially in the recent three-year drought, in comparison with sheep prices. They suffer more if they deal with feed traders because the traders' feed prices are very high. The method of

feed distribution is a problem bothering most of the livestock owners in the study sample. Livestock owners have also suffered from the subsidy removal since 1996, although the government still temporarily subsidies barley by JD 19 per tonne.

For overcoming the problems, Jordan can make a detailed study of the other countries' experiences that are mentioned in Chapter 5. Also, I argue that the government could continue to subsidise feed, at least today (2000/01), to give a chance for the sheep industry in the Badia to recover from the three-year drought, although Jordan has become a member in WTO, which means that it has to meet the requirements mentioned in Chapter 3. Moreover, the government can change the structure of the subsidy by giving owners barley and wheat bran on credit directly (Chapter 5).

The government could also think seriously about reviewing and monitoring the feed situation in most of the government distribution centres, especially, in my study area, Al-Saeedeah centre (Chapter 3). At present, the feed is given to anyone who visits the centre even if he does not have any livestock. The government could, through MoTI, regularly visit this centre and ask livestock owners about their degree of satisfaction and for their suggestions. The government can play the trader role with the livestock owners by selling them feed on credit at prices a bit more than the present cash prices. So there will be two kinds of feed prices, one if the farmer pays immediately and another if he takes feed on credit. For example, the government can add JD 10 per tonne to the barley price instead of the added JD50-70 per tonne that the traders demand.

With respect to the **co-operative movement**, the Bedouin have had no successful experience in dealing with co-operative societies. Although the co-operative movement plays a key role in the agricultural development in the countries that are mentioned in

Chapter 5, Jordanian co-operatives have not had this role. There were and still are difficulties concerning co-operatives' organisation and management.

Some ways for overcoming the above problems have been based upon experiences elsewhere (Chapter 5). Also, the government could encourage the establishment of specialist livestock co-operative societies unlike the multi-purposes societies that are available nowadays. If the co-operatives only need to focus on livestock this will assist, for instance, improving livestock productivity and better marketing for livestock and their products. The co-operatives have a very important role of linking the farmers to the suppliers of services, which might come from the public or private sectors. If farmers act through a co-operative, the co-operative should give the farmer stronger bargaining power. So, the farmers therefore could receive better services and a realistic price.

Furthermore, the co-operatives could have a technical director, agricultural engineers, specialist accountants as well as the elected board from the local communities but this would be expensive. Perhaps the 'apex' society (which is what LSS was created to be) should have technicians and agricultural engineers, but will only have them if they receive money for the services they deliver.

The co-operatives will need to be inspected by some kind of 'audit commission' to check their sincerity and honesty and to which members can complain if they think that something is wrong. But the main requirement is that the members themselves are able to check the work of the co-operative and to see that the co-operative works in the interest of the members.

Regarding the **veterinary services**, livestock producers suffer, in the Northern Badia, from the lack of government veterinary services. The situation in the Badia is desperate for these services, not only because there are many animal diseases but also because there are no veterinary services in the northern Badia. Owners also suffer from the lack of free national vaccination campaigns, poor access to extension services and the 'turn' problem that they face in the veterinary clinics.

To overcome these problems, the government could benefit from other countries' experience that has been discussed in Chapter 5. In addition, it could develop and improve the service by taking the responsibility for regular free national vaccination campaigns (public good), but individual farmers with their sick animals could pay in order to cover the medicine and administration costs (private good). In addition, veterinary clinics need to be provided with government vehicles in order to enable vets to move to the field at any time and reduce the cost that the Bedouin have to pay for transferring vets to and from their houses. In addition, the government needs to consider the appropriate legal framework for paravets and benefits from the results of DFID pilot project in this regard, which is linked to BRDP and MoA. Paravets can provide their community with veterinary health services. The government also needs better contact with the local people in the Badia in order to implement the vaccination programmes in much more effective ways. LSS, as apex society for livestock co-operatives, can play a role in this regard taking into consideration that it has its special staff, equipment and ability to contact people.

As the overall aim is delivering efficient and effective animal health services, three parties in any country could be involved in this process. These parties are: livestock owners and their animals, private animal health care providers (e.g. LSS) or individual

private vets and paravets, and government agencies. The above can be achieved by focusing on what each party is best able to contribute. The livestock owners raise livestock; health care providers deliver appropriate services to farmers; and government agencies secure overall stability through regulation, monitoring and the provision of an enabling environment.

As there is very little **extension** activity in the BRDP area, this service needs to be activated by introducing training programmes in co-operation with BRDP and visiting farmers in the field. So, farmers therefore will be informed about the latest information about animal diseases and treatment. The government could encourage the establishment of public and private institutions for extension such as those, in some other countries, mentioned in Chapter 5.

With respect to **water**, water costs Bedouin a lot of money, especially in drought years. Although that the government talks about free water, livestock producers have not benefited, especially in the Irbid area.

The availability of water encourages overstocking around the water source, particularly when combined with open access to grazing. The government could implement its policy of providing people with free water not only in the desert (the Bedouin tend to take their animals from the desert in long periods of drought) but also in any place that the Bedouin are present. For example, in Irbid (where the Bedouin were present during the fieldwork) the government could have been able to provide them with free water, taking into consideration that the government wells were available. There is a need for drilling more government wells in the BRDP area as well as the Northern Badia villages, for watering livestock.

As for **Bedouin vehicles**, livestock owners suffer from the government decision about licensing their vehicles because they have to sell animals to do so. The problem is that the government deals with the Bedouin vehicles in the same in which it deals with licensing vehicles in the cities.

Some ways for overcoming the above problems have been suggested by Bedouin in the field (Chapter 4). In addition, my suggestion is that the government obtains fewer fees for licensing and that a license lasts for, at least, three years. Another important point in this regard is that the government could distinguish between the vehicle owners who have sheep and those who have vehicles without having sheep or even any sort of agricultural activity. Many people, even from Amman, have new cars with black agricultural plates.

With respect to **export and import** policies, livestock producers suffer from low sheep prices that combined with high feed costs. The imported chilled red and white meat is one of the reasons for their suffering. Another reason for that is the export of lambs, which was and still is very low. Selling the young female sheep is a big current problem for the livestock owners in Jordan.

To overcome the above problems, the other countries' experience, based on Chapter 5, could valuably be adapted in Jordan. In fact, there is a need to find a way of modifying imports of live sheep and chilled meat in some periods during the year, although it is against international regulations that Jordan has agreed to. In addition, the government could help facilitate the export of lambs to neighbouring countries by making official agreements with other governments. In fact, in theory, the export doors are open nowadays but it is not effective. In effect, the season of selling lambs lasts for only two

months during the year. Egypt in 1993, as mentioned before, had a high level of self-sufficiency in livestock products because it imposed some restrictions on imports.

There is a very urgent need to improve the productivity of the sheep in Jordan. It is only if the sheep become much more productive that there will be a chance for the sheep industry in the Badia to survive.

There is, at least, a social and political need to prevent Bedouin incomes from collapsing because the Bedouin then have to sell their young female sheep in order to survive.

Concerning **rangeland** improvement, livestock owners, in the Northern Badia, suffer from lack of rangeland projects. Most of projects such as these are located in the Southern Badia (Chapter 3). Opening all rangeland reserves and fences, which the drought committee suggested, for the livestock owners was not the case in the recent three-year drought 1997/8-1999/2000. Livestock producers also suffer from lack of productivity of the government's rangeland projects. In fact, the absence of rainfall has made these projects less productive.

Some ways for overcoming the above problems associated with improving rangeland in the interest of livestock owners have been suggested based upon experiences elsewhere in (Chapter 5).

The government could distribute its rangeland projects all over the country, especially in the Northern Badia. However, projects such as these can be implemented in areas with a high rate of rainfall such as the Irbid area where the livestock owners were

located during the fieldwork. The area is suitable for establishing rangeland projects. It is an open area, especially Ramtha and Houarah (in Irbid governorate) areas.

Establishing new rangeland reserves, expanding the present reserves and managing them in a good way in co-operation with the local people are required. Also, the government could improve and implement regulations and legislation regarding land tenure and land uses. BRDP is initiating a very interesting pilot project, involving the people of the area through extended discussion.

Regarding **education and health**, the government is applying a good education policy. Schools are available in most of the Badia region in general and the Northern Badia in particular. Bedouin are keen to educate their children and the government can allow them to enrol their children in schools even if they exceed the allowed age. Also, the government could help by providing them with some school costs, such as school fees and food.

However, the new generations of Bedouin are losing their interest in livestock rearing partly because they want to be educated and have jobs. To overcome this problem, schools can be used as well as media to encourage people to keep their livestock, which is an important source of income for them.

Concerning health, livestock producers suffer from not having health security cards. As we have seen, this will increase the likelihood that the Bedouin will sell sheep to pay for medical attention. So, They could be included in the health security system and treated like those who work in the government and the armed forces.

As we have shown, there are many ways in which the government can plan and make new policies that will be better known, more relevant and more effective if they are developed through discussion with people of the Badia. The discussions will also give the Bedouin a better understanding of why, for financial, economic and organisational reasons, there are some actions that the government is unable to take. In these areas the Bedouin must be given more responsibility for the management of their own resources and for the health and well-being of their livestock.

But it is also of crucial importance that a combination of government action and private sector initiative leads to a rapid increase in the productivity of the sheep in the Badia and elsewhere in Jordan. Technically the Awassi sheep in Jordan can become much more productive than at present. Such increases in productivity are essential if the Bedouin are to be able to compete with imported live animals and livestock products in the long-run.

This study has contributed to a better understanding of the livestock owners' awareness of and responses to the government's policies in many issues. In addition, it has provided a better understanding to the government's policies themselves, as discussed in Chapter 3. There is a need for on going efforts to achieve a better understanding of and use of improved decision-making processes that will promote the livestock industry and the role that the livestock owners should have in these processes.

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Appendix 1: Fieldwork timetable (stage one)

Month	Ministries and Organisations visited	Subject of the obtained data
July 1999	Ministry of Agriculture and all its relevant departments and its Mafraq branch	Rangeland, Export and Import, Veterinary Services policies and etc
	Agricultural Credit corporation and all its relevant departments	Credit policy
August 1999	Jordanian Co-operative Corporation and all its relevant departments	Co-operative policy
	Ministry of Planning	Development plans
	Department of Statistics	Livestock numbers
	Ministry of Trade and Industry	Subsidy and Feed prices
September 1999	Ministry of water and Irrigation	Water policy
	Ministry of Interior	Drought committee
	Ministry of Education and its department in the Northern Badia	Education policy
	Ministry of Health and its branch in Mafraq	Health policy

Appendix 2: Fieldwork timetable (second stage)

Month	Dates for interviewing and required vehicles	Locations	Activities
January 2000	2/1-30/1	Amman	Obtaining the additional required data
February 2000	5,6,7,12,13,14,19,20,21/ 2000	Outside the programme area (Al-Zattiryya village)	Testing the fieldwork methods
March 2000	4,5,6,11,12,13,18,19,20, 25,26/2000	Al-Jabaya&Dayer al-Kahf	Doing an interviews by using semi-structured interviews and focus group
April/2000	2,5,9,12,18,23,30 /2000	Irbid area	Making an interviews by using semi-structured interviews
May/2000	8,9,11,15,17,21,23,24,2 9,30/2000	Irbid area + Ramtha	Doing an interviews by using semi-structured and focus group interviews

June/2000	7,8,12,13,20,21,26,27 /2000	Ramtha area	Making an interviews by using semi-structured and focus group interviews
July/2000	5,10,12,17,19,23,25,27, 30,31 /2000	Irbid area	Doing interviews by using semi-structured and focus group interviews
August/2000	The whole month	Writing up (at the University of al-Al-Bayt)	Writing up
September/2000	The whole month	Writing up (at the University of al-Al-Bayt)	Writing up
October/2000	4/10/2000	Returning back to Durham	

Appendix 3: Number of sheep in 1997 and 2000 per household of the study sample and the percentage of numbers change from 1997 to 2000

household	Number of sheep in 1997	Number of remaining sheep in 2000	% Change 1997-2000
1	200	50	- 75
2	200	120	- 40
3	305	110	- 64
4	700	400	- 43
5	500	150	- 70
6	700	500	-29
7	800	600	- 25
8	300	170	- 43
9	300	100	- 67
10	200	70	- 65
11	250	120	- 52
12	350	200	- 43
13	450	200	- 56
14	200	100	- 50
15	500	200	- 60
16	500	300	- 40
17	450	200	- 56
18	400	250	- 37
19	100	20	- 80
20	140	70	- 50
21	120	90	- 25
22	600	270	- 55
23	200	150	- 25
24	1500	900	- 40
25	1500	1000	- 33
26	600	150	- 75
27	300	150	- 50
28	250	100	- 60
29	300	180	- 40
30	1000	500	- 50
31	1000	300	- 70
32	800	400	- 50
33	700	300	- 57
34	200	100	- 50
35	700	350	- 50
36	2000	700	- 65
37	500	250	- 50
38	1000	200	- 80
39	900	400	- 56
40	500	200	- 60
41	200	90	- 55
42	160	20	- 87

43	30	30	∴
44	500	200	- 60
45	600	350	- 42
46	1300	700	- 46
47	180	50	- 72
48	130	60	- 54
49	600	400	- 33
50	300	150	- 50
51	500	150	- 70
52	100	40	- 60
53	700	500	- 29
54	360	230	- 36
55	1500	400	- 73
56	250	100	- 60
57	400	200	- 50
58	1500	400	- 73
59	300	150	- 50
60	300	140	- 53
61	400	200	- 50
62	500	300	- 40
63	100	250	+ 150
64	1000	600	- 40
65	3000	100	- 67
66	300	200	- 33
67	300	250	- 17
68	700	420	- 40
69	800	250	- 37
70	400	150	- 62
71	2500	1000	- 60
72	3000	1500	-50
73	500	200	- 60
74	870	300	- 66
75	700	280	- 60
76	50	20	- 60
77	150	60	- 60
78	400	100	- 75
79	700	500	- 29
80	1400	300	- 79
81	500	200	- 60
82	400	300	- 25
83	700	250	- 64
84	1400	400	- 71
85	800	450	- 44
86	500	150	- 70
87	400	200	- 50
88	200	200	∴
89	150	100	- 33
90	450	200	- 56

Source: Field study conducted by the researcher, 2000

Appendix 4: The focus group topics

1. Credit policy.

Could we talk about the government credit policy?

2. Co-operative policy.

Could we please move to co-operative policy?

3. Rangeland policy.

What about the rangeland policy?

4. Export and import policies.

Could we please talk about export and import policies?

5. Animal health and veterinary service policies.

What about the animal health policy?

6. Feed subsidy and feed prices.

Tell us please about feed, its subsidy and prices?

7. Water policy.

Could we please move to the governmental water policy?

8. Bedouin vehicles.

What are the vehicle problems?

9. Education policy.

What do you think of education and the government services?

10. Health policy.

What about health, please?

Appendix 5: The Semi-structured interviews

1. Credit system.

(1) What do you think of the existing credit system in Jordan?

(2) Where do you get loans from when you need them for your sheep?

(3) Do you think that ACC is a sort of a useful organisation in terms of credit?

(4) Do you face problems in terms of getting loans from ACC?

(5) Did ACC give you as much as you wanted?

(6) What do you think of ACC credit programmes?

(7) Do you think a success credit policy can help the animal breeding? How?

(8) What do you think of JCO and JCC credit system?

2. Co-operative movement.

(1) Do you think that the co-operative movement (through JCC activities) in Jordan plays a useful role in terms of livestock breeding?

(2) What do you think of the co-operative society work?

(3) Did you have problems regarding getting feed through the co-operative societies?

(4) What benefits can farmers get being members in societies such as these?

(5) What are your suggestions to improve JCC and the co-operative societies work?

3. Rangeland.

(1) What do you think of the rangeland situation in the Badia?

(2) What do you think of the government policies in this regard?

(3) What do you think of the governmental projects for rangeland improvement?

(4) What are the real reasons for rangeland deterioration from your point of view?

(5) How do you think that the land tenure and its issues affect the rangeland?

(6) What do you suggest to improve rangeland?

4. Exports and imports.

(1) What do you think of the government policy in this regard?

(2) Do you think that policies changing affected the livestock husbandry?

(3) What is your opinion about the government procedures in terms of export and import livestock or livestock production?

(4) What do you think of the liberalisation of export and import markets?

(5) Do you think policies such as these come from the government or the government has to do that?

(6) What are your suggestions in this regard?

5. Animal health and veterinary services.

(1) What do you think of the government health services? Is it enough? Is it available? Is it useful?

(2) What do you think of the government vaccination programme?

(3) What do you think of the government extension in this regard?

(4) What sort of problems do you have when you deal with the government veterinary clinics?

(5) What do you think of the private vets and medicine?

6. Feed subsidy and feed prices

(1) Do you have problems of getting your livestock feed?

(2) What do you think of the government feed subsidy?

(3) Did you have problems as a result of the subsidy removal?

(4) What is your opinion about the feed prices?

(5) What sort of forages do you feed your animal? Why?

(6) What do you suggest in this regard?

7. Water

(1) What do you think of the water situation in the Badia?

(2) From where do you get water for your livestock and for your household needs?

(3) What do you think of the government wells in this regard?

(4) What do you think of the water cost?

8. Bedouin vehicles

(1) What problems do you have regarding your vehicle(s) licensing?

(2) How was the vehicle's situation before?

(3) How do you think that the government can help you in this regard?

9. Education.

(1) What do you think of the education situation in the Badia? Schools, students and teachers?

(2) Do you prefer to educate your children or to help you in the livestock rearing?

(3) Do you like for them to continue their higher education?

(4) What do you think of the government facilities in this regard?

(5) Do you need more from the government in this regard?

(6) Do you think that the education affect the livestock rearing?

10. Health.

(1) What do you think of the government health services in the Badia region?

(2) Do you have difficulties sometimes to receive treatment?

(3) Have you heard about a government extension programme in this regard?

(4) Do you think that the health policy affect the livestock breeding?