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An Assessment of Subsidy Removal Effects on and Future Sustainability for Livestock Sector of in the Northern Jordanian Badia

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An Assessment of Subsidy Removal Effects on and Future Sustainability for Livestock Sector of
in the Northern Jordanian Badia

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Abstract

An Assessment of Subsidy Removal Effects on and Future Sustainability for Livestock Sector in the Northern Jordanian Badia

Christopher Jetter

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This study investigates the rationale behind the 2007 removal of the fodder subsidy in Jordan and the effects this had on livestock owners in the Northern Badia. Furthermore, it examines possible solutions for improving the efficiency of the sector as well as its sustainability. The government's decision to lift the subsidy was due to the pressure of rising world cereal prices on the national budget deficit. Owners in the Northern Badia as a result had to sell off around half of their flock. Consequently, there has been a rise in disease among livestock as well as higher prices for consumers.

The intention of the Jordanian government is to phase out much of the livestock sector and absorb livestock owners into other, more profitable sectors. This intention however, disregards the importance of the sector as it provides employment to the entire family and the necessary household consumption of livestock products for a poor stratum of society. Livestock represent the livelihoods of the Bedouin in the Badia and the nation's cultural heritage. Moreover, livestock owners lack the skills to transition into other sectors. Therefore, this study examines possible solutions for sustaining the sector. Cooperatives, income diversification, rangeland management, domestic fodder production, human resource development and a reform of the sector's infrastructure are suggestions put forth with the acknowledgement that future research is still required to understand how this sector can be efficiently developed.

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Table of Contents

Title Page.....	1
Abstract.....	2
Copyright Release.....	3
Table of Contents.....	4
Introduction.....	5
Rationale.....	7
Methodology.....	9
History Leading Up to Subsidy Removal.....	11
Situation and Factors During Late 2007.....	16
Subsidy Removal.....	19
Livestock Sector and Subsidy Removal Effects.....	22
Challenges to the Sector.....	28
Importance of Sector.....	34
Suggestions for Sustaining the Sector.....	39
Conclusion.....	55
Bibliography.....	57
Appendices:	60

I. Introduction

Rationale for Topic Choice:

Late 2007, the Jordanian government lifted, in part, the subsidy on livestock fodder. Without the government assistance, the prices for feed soared, and many small livestock owners had to sell off their sheep, unable to afford the needed barley and wheat bran. For many of these owners in the Badia, livestock is their only source of income and the only livelihood they know. Without this sector, there are no other alternatives.

Living with a family in Al-Mnassai, a village in the Northern Badia near the Syrian border, I was privileged to spend time herding and feeding their goats. I also was able to eat the yogurt and milk the goats produced, which was delicious. Life there was something I had never experienced back home. It was simple and beautiful and provided me an amazing experience. I will never forget the Bedouin hospitality that I received there, and I hope life there will remain unadulterated for many years to come.

Therefore, hearing that the future of the livestock sector is in jeopardy, I wanted to research the issue to determine what the actual problem was and if there are any possible solutions to maintain that life I witnessed while in Al-Mnassai. The research also afforded me a great opportunity to explore community-based development. Understanding what challenges a community faces and exploring possible solutions is an area of strong interest for me.

Topic Relevance:

This topic is of great relevance to Jordan, the Bedouin culture and the semester's theme as it represents a conflict between the forces of modernization and social change and the

continued existence of an instrumental segment of Jordan's cultural heritage. As Jordan modernizes it wants to capitalize on sectors that can power economic growth and trade such as industry or service. Jordan will also be looking to become more efficient, which means improving fiscal policy, which includes the elimination of costly subsidies. Along with this process of modernization are the influences of social change. Cultural values and traditions are challenged and transformed according to the influences of modernity.

However, this creates a conflict. Although it may be necessary for Jordan to modernize, consideration must be given for providing protection for those citizens of the lower socioeconomic stratum and for preservation of the nation's cultural heritage. If livestock owners in the Badia lose all their flocks, many will lose their only source of income and the only livelihood they know. Most do not have any other alternatives. This will create a massive burden for the Jordanian government, hindering its modernization process, not to mention, marginalizing a significant segment of the population. It is therefore, necessary and relevant to explore this issue, searching for viable solutions.

Parameters of Study:

To explore this issue, my study will ascertain the viewpoints of those in the government, the livestock owners affected and those organizations in the field, connecting the two. Due to constraints on time, resources and communication, the scope of my research will concentrate on smaller livestock owners in the Northern Badia, where small ruminant production is more common. With cultural and language constraints, my ability to explore this issue with a large spectrum of owners is limited. Therefore, the area of research in the Northern Badia will be confined to the towns of Sabha, Safawi and al-Khanassri.

With only a month to explore the issue, the depth of the research is limited. It sets out to explain the government's rationale for removing the subsidy, the effects this had on owners, the livestock and the sector and what possible solutions there are to help sustain the sector in a more efficient way. Concerning the solutions that are offered in this paper, they are not to be taken as set, definite answers. This issue is far more complex than what a one-month research period allows for. The solutions offered are to be taken as suggestions about where to start. There is a need for in depth research, including economic cost-benefit analysis to determine what will work and what will not. Simply put, my research aims to provide a listing of what should be researched further.

From the research conducted, my hypothesis is that the government's rationale for lifting the subsidy was justified, but the social security net provided to help owners during the transition period is inadequate. My research also indicates that it would be beneficial for all to sustain the sector and that some possible solutions are the formation of cooperatives, diversification of income-generating activities, improved rangeland management, domestic fodder production and human resource development. Furthermore, there is substantial research and studies supporting these solutions, but there is a failure by all those involved to effectively implement them. Hence, there is a need to reform some aspects of the sector so as to improve the efficacy of policies and the connectedness of those actors involved from the government to the individual owner.

II. Rationale

Concerning preexisting literature on my topic, there is none that directly addresses it. One work that is relevant though¹ was produced in response to the effects the 1996 subsidy removal

¹ Karen Fiege. *Qualitative Impact Monitoring of Agricultural Structural Adjustment in Jordan*. Berlin: Margraf Verlag, 1996.

for fodder had in the Badia. This research provided useful insights into the current situation as the circumstances and effects surrounding both subsidy removals are relatively similar. Its assessment of the situation reflected much of what I was finding in my own research such as the typical reactions among livestock owners to the hike in feed prices as well as the lack of communication between owners and the government.

Additionally, there is a similar work entitled, *Bedouin Livestock Management and Socio-economics in the JBRDP Area* by Alan G. Rowe that examines the effects of the 1996 subsidy removal and what can be done to improve the sustainability of the sector. Again my research seemed to coincide with the previous literature's findings as it gave voice to the advantages that cooperatives could provide in the sector.

Some other literature pertaining to my research deals with policy reports and scientific findings that argue for sustaining the sector. There are plenty of published reports available about the feasibility of rangeland management and rehabilitation or the effectiveness of cooperatives. Although I lack the scientific background and policymaking experience, my research seemed to be supported by the findings in these reports.

It is important to note that there is no literature concerning my topic specifically as the issue is still unfolding right now. Hence, it is difficult to establish a foundation on which I can evaluate related research. There are only my basic research findings with which to compare and formulate my opinion on the issue and evaluate other authors' interpretations of it. All in all though, the literature and reports surrounding my topic seem to provide accurate information and suggestions for sustaining the sector.

III. Methodology:

The methodology used to conduct my research was mainly qualitative as I interviewed various individuals, gathering their professional opinions on various aspects of my topic. To begin with though, I first researched reports and journals related to the issue to gain a solid foundation on which to base further research. I wanted to have a basic understanding of the government's rationale for removing the subsidy, the historical and present-day context in which the decision to remove it was made and the existing research which deals with how the sector can be improved and sustained. I found that having this foundation enhanced the interviews, as we were able to move past the basic information surrounding the topic and investigate more relevant issues pertaining to the field of the interviewee.

I chose to conduct most of my research in Amman instead of the Badia as I felt this issue dealt significantly with policy. Gaining an understanding of the policymakers' perspectives provided a better understanding of the situation than the livestock owners were able to. Although it was very important to speak with the owners and understand how the price increases were affecting them and what their perspective on the situation was, I found that the answers were all relatively similar. Furthermore, considering that my research was about their livelihood, it was hard to get an accurate and dispassionate viewpoint on the matter. When asked what should be done in the future other than reinstate the subsidy, not many solutions were offered. This is not to say that all the policymakers were providing ready solutions either.

What the policymakers in Amman could do though was provide professional opinions on possible solutions presented by various reports or by other policymakers who did have viable suggestions. In the future after some workable solutions are collected, it would be beneficial to

spend more time in the Badia among the owners to get their perspective on how strategies or policies could be implemented.

As far as the people I interviewed, most came from contacts of those already involved in the sector. My academic advisor and my project advisor both were indispensable in this. I found it was necessary to have a specific name within a government ministry or organization to be able to speak with the right official. It was also beneficial to work through interviewees for further contacts, as they knew the right people with whom to speak on relevant aspects of my research.

Throughout my research the main obstacle was the language barrier. I am very grateful for all my interviewees' willingness to bridge the gap on my behalf. However, occasionally it seemed the gap was too wide, and so, I was unable to ascertain all the necessary information I needed. With patience on both sides and the occasional interpreter, this issue became only a minor hindrance though and did not significantly impede the research process.

During the interviews, a constant obstacle that arose was that my interviewees liked to talk. Although they provided good information, I found it was often repetitive as they assumed my knowledge on the issue was minimal. This created an issue with time, as I was often unable to ask interviewee-specific questions within the set meeting time. Due to cultural issues, it was difficult to know how to work around this. However, this did not severely hinder my research as I still was able to ascertain an overview of the information I needed from each meeting.

One other obstacle encountered was the difficulty in getting interviews with the organizations with which my research was dependent on. Despite the earnest efforts of my advisor, we were unable to get an appointment with either the Ministry of Trade or the Anaqeed Al-Khair Cooperative, both of which were highly relevant to my research. This was not a big issue though, as I was able to gain a good understanding of the two from secondary sources.

Another obstacle was that I did not have access to all the necessary reports, which is understandable considering I am just a student researcher. However, this created some issues, as I did not have concrete facts to base my interviewees' answers upon. The interviewees all reported various figures for the subsidized and unsubsidized feed prices as well as whether the SSN program had already been implemented or not. This was solved though as my research began to see some consistency in the figures.

I final obstacle to my research was that as I researched, more and more relevant information came to the surface. Unfortunately, time constraints prevented me from exploring all the possible facets of the topic. Needless to say this is a very complex and complicated issue that cannot be fully understood in a month. This created the task of sifting through all the information to select what was most relevant. Consequently, my research lacks depth in the area of exploring the feasibility of the solutions. It simply provides a summary of the issue with suggestions on where to look for answers.

IV. Findings

1.1 History of Livestock in Jordan

Pastoralism has always been a part of Jordan's history and Bedouin culture. Before the country was even founded, Bedouin pastoralists herded their sheep and goats throughout Jordan. Moving from place to place, they would graze their flocks on the rangeland for a short period of time before moving on to another area for fresh vegetation. This nomadic way of life allowed time for the rangeland to rejuvenate each year, providing a sustainable source of feed for the Bedouin's flocks. These flocks in turn provided a sustainable livelihood for the Bedouin people.

Not only did the Bedouin participate in the trading of their sheep and goats, but they also

used them for much of their household consumption needs, including meat, milk, butter and yogurt. The goat hair provided them housing as it was used to construct the Beit Sha'ar or Goat Hair Tent. Needless to say, livestock was instrumental to the Bedouin way of life and still is today despite significant changes over the past few decades.

The nomadic practice kept the sector self-sustaining up through the 1940s as it prevented overgrazing of the rangelands and maintained flock sizes naturally due to the limited availability of feed resources. During this period there was also less of a demand on the consumer side as Jordan's population was much smaller. However, life in the Badia soon began to become much more sedentary as families settled into houses, forming communities that provided schools and healthcare facilities for their children. There was also the introduction of motorized transport, which could be used to carry the flocks faster and farther. These trucks could also transport water to the flocks, allowing them to stay in one place longer than before.²

The effect this had on the livestock sector was a loss of independence for the sheep and goats. No longer did the Bedouin shepherds roam the rangeland in a nomadic fashion. Instead they began to transport their flocks to areas of good grazing, bringing in water to allow the livestock enough time to glean every bit of vegetation from the land.

Not only did the livestock overgraze, they also would graze on rangeland plants before maturation, eating the seeds and preventing revegetation for the following year. There was also the breakdown of the *Hema* system, a tribal based system for sustainable grazing, which led individual owners to extensively overgraze the rangeland, further compounding the situation.³

With livestock management becoming more sedentary, there was an increasing reliance on fodder. According to Sulaiman Al-Rkaibat, the Head of Trade Agreements of the Ministry of

² K.E. Jones. *An Approach to Sustaining the Viability of Sheep Production*. 1998. p.10.

³ *National Rangeland Strategy for Jordan*. Ministry of Agriculture. Amman, Jordan.

Agriculture, the Jordanian government during the 1960s and 1970s wanted to increase the nation's self-sufficiency in livestock by increasing the flock size. To encourage this, fodder was subsidized, providing a cheap way to feed the livestock.

The number of livestock in Jordan soon began to increase.⁴ By the 1980s and 1990s, the livestock industry was experiencing its heyday as the fodder was heavily subsidized and could be used to feed the livestock year round. With so much support from the government, the livestock sector soon attracted many businessmen or retirees who wanted a lucrative way to augment their incomes.⁵ The increase in livestock adversely affected the rangeland's capacity to sustain the sector. There were simply too many for the land and when coupled with the overgrazing, motorized transport and cheap fodder, the livestock sector soon became dependent on fodder imports.⁶

During the 1980s, the economic situation in Jordan took a downturn. By 1989, the Jordan's budget deficit, GDP growth, foreign debt and inflation were all dismal.⁷ A major burden on the budget during this time was the subsidy on livestock fodder. The number of livestock and livestock owners had increased substantially the previous few decades while at the same time, the state of the rangeland had deteriorated significantly. No longer was it able to support the livestock sector like it had a half-century before. Jordan itself could only produce a quarter of its fodder needs and so had to import the rest at world market prices. This subsidy also

⁴ Table 1 of Appendices

⁵ A.G. Rowe. *Bedouin Livestock Management and Socio-Economics in the JBRDP Area*. 1998. p. 27.

⁶ *National Rangeland Strategy for Jordan*. Ministry of Agriculture. Amman, Jordan.

⁷ *Economic and Fiscal Reforms*. Ministry of Finance. Amman, Jordan. 2007.

led to increased cultivation of the rangeland for domestic fodder production, which only further worsened the rangeland condition.⁸

1.2 Economic Adjustment Program

With the economy in such a poor state, the government decided to undergo a structural economic adjustment program with the International Monetary Fund and the World Bank in 1989. The purpose of this program was to encourage modernization led by the market, more efficient use of the nation's resources and minimizing the role of the government.⁹ This involved limiting the government's spending on subsidies to improve the budget deficit and establishing a freer market to drive the livestock industry.

In 1991, the livestock sector in Jordan took a severe blow. Due to the Gulf Crisis, the export markets in Saudi Arabia and the Gulf States that Jordan had depended on before for a substantial amount of trade were closed. This led to the overproduction of sheep and goats that could not be absorbed by the domestic market. At the same time, Jordan was experiencing a series of droughts, which adversely affected the rangeland's productivity. Without sufficient grazing areas, the owners reliance on the imported fodder increased even more, while the fodder was becoming increasingly expensive on the global market.¹⁰ All these factors forced the Jordanian government to lift the subsidy on the fodder, namely barley and wheat bran, in 1996.

⁸ *Liberalizing Input and Output Prices: Agricultural Structural Adjustment in Jordan*. World Bank

⁹ Fiege, 92.

¹⁰ *Liberalizing Input and Output Prices: Agricultural Structural Adjustment in Jordan*. World Bank

1.3 1996 Removal

The Jordanian government lifted part of the subsidy for fodder on August 1, 1996. Overnight the price for barley jumped from JD60 per ton to around JD95 per ton while wheat bran doubled, increasing from JD52.5 per ton to JD100 per ton. The price of bread more than doubled during August too. This was done partly to serve as a deterrent for owners who would simply feed their livestock bread.¹¹ Therefore, the input prices for the sector had increased substantially and the prices for basic commodities also had risen. The state of the rangeland had deteriorated substantially due to overgrazing and droughts. All these factors placed the livestock owners in a very difficult position.

There were two basic reactions among the owners. The first was to limit the amount of feed that was given to each head, hoping that the subsidy removal was only temporary. This led to health issues among the livestock and reduced productivity in the long run. The other option was to sell off some of the flock in order to feed the rest. This meant that they were selling off their main production capital, decreasing the flock's size and productivity. On top of this, the price they could receive at the market was substantially lower than it should have been due to the oversupply of livestock, as the subsidy removal was affecting everyone and so everyone had to sell.¹²

The government's reaction to all of this was to provide a direct subsidy of six dinar per head for all flocks of one hundred or less. This assistance was not well received by owners, as they believed it did not necessarily provide assistance to those who needed it. There were many owners with less than one hundred who did not rely on livestock for their main source of income

¹¹ Fiege, 85.

¹² Ibid., 86.

while there were owners with over one hundred head who did. It was very difficult to determine who was truly in need.

Although the situation for owners became quite difficult with the partial removal of the subsidy in 1996, many were able to adjust over time, scaling down their production systems, weathering the good and bad times. However, the subsidy removal in 2007 created an even larger problem; one which many might not be able to deal with.

2.1 Rising Global Prices of Food

One of the largest factors surrounding the subsidy removal on fodder in late 2007 was the rise in global food prices. According to the World Bank, over the three years prior to early 2007, the price of wheat increased by 181% while the prices for food in general on the world market increased by 83%. For food crops in particular, these high prices are expected to remain high throughout 2008-2009, and remain well above the previous prices of 2004 until 2015. The reasons for this are due to an increase in the demand for bio-fuels. With the high price of oil, concerns over energy security and climate change, the raw materials for bio-fuels such as wheat and soy are in high demand. There has also been increased competition for land to meet this demand.¹³ Moreover, the ever-growing world population has placed pressure on food sources to meet the demand.

This situation places nations like Jordan, who have significant negative terms of trade, in a very precarious situation. Unable to meet its needs through domestic production, Jordan must rely on importing the barley and wheat bran from other nations subject to the international price

¹³ *Rising Food Prices: Policy Options and World Bank Response*. World Bank. 2008.

and the volatility of the global market. This has created a significant burden for Jordan's government, in particular its national budget, which it is set on remedying.

2.2 Budget Deficit

In the 2008 National Budget speech presented by the Ministry of Finance, the challenges facing the economy were laid out. Currently Jordan is facing a rise in unemployment and poverty rates, a double-digit budget deficit, foreign debt, increasing international prices of commodities and a low level of productivity. In particular, the government is under great strain from the high global prices of oil and cereal. In September 2007, it had to issue a supplement to the budget of JD500 million to help cover the rising costs of these two commodities. Furthermore, Jordan received JD228 million less in foreign grants than it had approximated for in the 2007 National Budget.¹⁴

Concerning the budget deficit, the Jordan government sees a need to enact fiscal reform, which means cutting spending. Shaher Odeh, Director of the Cash Management Department at the Ministry of Finance, states that in 2007, the cost of subsidizing barley and wheat bran accounted for 4%-5% of the national budget. With rising international prices and problems with the actual subsidizing mechanism, the government is set on fully removing the subsidy on livestock feed. This course of action is to be carried out for additional subsidies such as the oil subsidy even if it means eliminating subsidies that help support the nation's poor. As stated in the 2008 National Budget, "the poor and limited-income citizens deserve priority in providing

¹⁴ *Budget Speech 2008*. Ministry of Finance. Amman, Jordan. 2007.

public support, but the current subsidizing mechanism... constitutes a clear distortion in the General Budget.”¹⁵

The government sees the subsidy as a threat to fiscal and monetary stability, as it is not being directed to those for which it was intended. Instead the wealthier businessmen received the majority of the benefits while the poor received only a small portion. There is thus a desire by the government to change the subsidy mechanism so that it reaches those it targets.¹⁶

2.3 Current Subsidy Mechanism

According to Omar al-Rafie, General Director of the Hashemite Fund for Badia Development, businessmen who just buy and sell sheep and do not depend on it for their livelihood are abusing the subsidized fodder. This is occurring because of a lack of regulation surrounding the *goushan* or certificate, which is granted by the Ministry of Agriculture specifying how much subsidized feed an owner is to be apportioned. The basic process involves applying at the Ministry of Agriculture for the *goushan*, whereupon an official will come to vaccinate the flock. After vaccination, the livestock owner receives the *goushan*, stating that he owns a set quantity of vaccinated, healthy sheep or goats. The owner can then take the *goushan* to a government distribution point run by the Ministry of Trade for the subsidized feed. There he will receive a set amount of subsidized fodder in proportion to his flock size. The issue with the *goushan* is that it can be abused so as to receive additional feed at the subsidized price.

According to Musabeh al-Oun, a livestock owner from the Northern Badia town of Sabha, the manipulation can occur various ways. Some farmers will use a *goushan* specified for 150 sheep even after they sold off 100. Therefore, they are able to buy fodder at the subsidized

¹⁵ Ibid.

¹⁶ Ibid.

price for 100 extra sheep that they do not even own. This extra fodder can be sold on the black market at higher prices to livestock owners who need more than they were allocated by the government distribution center. Another common way the *goushan* is exploited is for an owner to rent it out to other owners after he sold off all his sheep. Furthermore, corruption with the Ministry of Agriculture undermines the effectiveness of the *goushan* as an official may inflate the flock size for a bribe or due to *Wasta*.¹⁷

This current system favors the businessmen in the sector whose capital is more fluid. If they are not dependent on their livestock as their sole source of income and livelihood, they are able to buy and sell livestock without as much risk. This allows them to manipulate the system to their advantage. Therefore, the government's subsidy was directed to make wealthier people wealthier as it provided cheap feed that could be sold at a substantial markup on the black market. As the government desires a subsidy mechanism that effectively targets those in need, the current one seems ineffective and thus needs to be removed.

3.1 Changes in Prices

According to Hasan Su'ud Nabulsi¹⁸ the government announced in late August 2007, that due to the pressure of high global prices, they would remove the subsidy on barley and wheat bran. The price for fodder jumped to around JD256 per ton from JD90 per ton. The government also announced a plan to import live sheep from Syria for the holy month of Ramadan. These two actions led to rioting in Mufraq of the Northern Badia by livestock owners.¹⁹ The

¹⁷ *Wasta* is the use of kinship ties to acquire a disproportionate share of access to goods and services.

¹⁸ Former Head of the Jordan Cooperative Organization, Vice Chairman of Board of Trustees for the International Center for Agricultural Research in the Dry Areas 1984-1992, and First President of General Farmers' Union 1999

¹⁹ Hani Hazaimeh. "Government Committee to Review Controversial Fodder Policy." *The Jordan Times*, August 31 2007.

government decided to moderate the price to JD150 per ton as well as stop the imports of live sheep from Syria. It also placed a cap on the quantity to be allocated at the subsidized price to each owner, limiting it to 10kg per month per head.

On March 15, 2008, King Abdullah II decided to hold off on further price increases for basic commodities until the end of the year. He stated that he was aware of the financial challenges citizens were facing and wanted to work towards addressing them.²⁰ Tariq Al-Nawafila, a specialist in livestock production at Al-Khanassri Livestock Research Station, states that the current subsidized prices for barley and wheat bran, two essential components for fodder, are JD150 per ton and JD100 per ton, respectively. If the subsidy is fully removed by the end of 2008, the prices will jump to JD250 per ton and JD150 per ton, respectively.²¹ If this happens, he believes no owners will be able to cope with the higher prices.

3.3 Government's Rationale

The subsidy on fodder was removed due foremost to the mounting pressure on the national budget deficit. With respect to the cost-benefit ratio of the subsidy, the government saw the subsidy as more of a burden than benefit. The global prices for barley and wheat bran had risen to excessively high levels as well as the price for a barrel of oil. Furthermore, the current subsidy mechanism was not effectively reaching those livestock owners who needed it the most.

The government's decision to lift the subsidy was not completely oblivious to the negative effects this would have on the sector. As stated in its 2008 Budget Report, the Jordanian government wants to "adopt a comprehensive and equitable Social Safety Net (SSN)... to raise

²⁰ Mohammah Ghazal. "Hike in Gas Cylinders, Fodder Prices Postponed." *The Jordan Times*, March 16, 2008.

²¹ See Table 2 in Appendices

living standards of needy segments in a manner that exceeds and compensates for the negative impact on these segments resulting from subsidy removal for certain commodities.”²² Therefore, the government does not want to remove all support. It just wants to improve the efficiency of the current subsidy mechanism.

3.4 Social Security Net

As outlined by the government for implementation in 2008, the Social Security Net or SSN is designed to directly subsidize those within the population who demonstrate a significant need. Odeh of the Ministry of Finance indicates that this net is for everyone in Jordan who has a significant need, whether they are suffering from the subsidy removal on oil or fodder. However, there is a specific plan for livestock owners under the SSN.

Livestock owners who own three hundred head or less will receive JD10 per head as a direct cash subsidy to compensate for the hike in feed prices.²³ According to Khaled Al-Husban, a livestock specialist at the Mufraq Ministry of Agriculture Extension Office, the Ministry of Agriculture is currently in the middle of a campaign to number the amount of livestock in Jordan, creating a database to track the animals based on the serial numbers printed on each animal’s ear-tag. He believes this campaign will provide an accurate count of livestock and how many each owner owns. This can then provide the data on which to base the direct cash subsidy.

There is also a plan under the SSN to encourage the domestic production of fodder, mainly barley and wheat. The government proposed to buy this fodder at prices reflecting the global market value. Furthermore, government land will be provided for this purpose, and a fund will be created to support this effort with a one-time contribution of JD40 million for 2008 and

²² *Budget Speech 2008*. Ministry of Finance. Amman, Jordan. 2007.

²³ *Ibid.*

2009.²⁴ By improving the domestic production of these crops, the government hopes to reduce the amount that must be imported to sustain the sector.

4.1 Livestock Owners' Livelihood

Before one is able to understand what effect removing the subsidy had on the livestock sector, it is important to understand what the livestock sector actually is. Inherent in this is how livestock is tied to the livelihood of owners. In the Badia, 22% of households reported livestock as their main source of income while an additional 33% consider it to be their major activity.²⁵ Al-Rafie states that according to the latest poverty study conducted in Jordan, the majority of the poverty pockets are located in the Badia. All the people there draw their livelihoods from livestock, limited agricultural activities and sometimes trade. There is no getting around the fact that livestock is intrinsically tied to livelihoods in the Badia.

Livestock also are very useful to the poor as they provide a sound investment. Livestock are inflation-proof and are productive, supplying milk and wool. Livestock also provide a solid source of capital that can be amassed when the owner is doing well and sold when he needs liquidate his capital.²⁶ Al-Rafie also points out that livestock provides the families basic consumption needs. From a sheep or goat, a poorer family is able to get milk, yogurt, cheese and meat. Household consumption of livestock products accounts for a significant percentage of total production. According to Department of Statistics, in 2005, household consumption of sheep and goats milk accounted for 15% of total production. For dairy products, the total household

²⁴ Ibid.

²⁵ Jones, 2.

²⁶ Livestock in Development. *Livestock in Poverty-Focused Development*. Crewkerne: Livestock in Development, 1999. p.18.

consumption was 11% of total production. Newborn sheep and goats account for 2% and 3.5% respectively.²⁷

The availability of these livestock products for domestic consumption adds a lot to the diets of poorer families who otherwise would not be able to afford it. Thus livestock provides a source of protein for poorer families, which is not necessarily affordable on the market.²⁸

The livestock sector also provides jobs for the entire family in an area where employment opportunities are limited and not just the head of the household. The Department of Statistics reports in 2005 that 87% of workers employed in the livestock sector of sheep, goats and unorganized cattle holdings are household members. Of these household members, 47% are female.²⁹ Hence, livestock provides a significant level of employment for many in the Badia who might not otherwise have a source of employment.

Livestock is also a defining feature of the Bedouin culture. Nomadic grazing has been occurring in Jordan for centuries, and although it is more sedentary now, the importance of raising livestock has not diminished. This is the livelihood that has been passed down generation to generation and for many, it is the only livelihood they know. They need the livestock because they do not possess the skills to work in a different sector.

4.2 Effect of Subsidy Removal on Livestock Owners

The effect the subsidy removal has had on livestock owners in the Northern Badia is profound. With a substantial increase in production costs, many owners had to sell off all or part of their flock or reduce the amount of feed they could give their animals. Based on interviews

²⁷ See Table 3 in Appendices

²⁸ Livestock in Development, 14.

²⁹ See Table 4 in Appendices

with livestock owners in Sabha, Safawi and Al-Khanassri, the average loss was around 50% of the herd or more. One owner in the Al-Khanassri area had to decrease his herd size from 600 head to 400. Abu Souad of the Safawi area had 300 sheep before the subsidy was removed. Now he has none. A relative of Al-Oun had 12,000 sheep under the subsidy but now has 8,000. Therefore, it is affecting all levels of this sector, as both large and small owners are feeling the impact of this decision. Understanding the significance that livestock holds for the livelihoods of owners in the Badia, it is clear that the subsidy removal is a huge problem.

Considering that feed costs in animal production account for 70% of the overall expenses,³⁰ this significant price increase has had a substantial and adverse effect. If the typical response to the subsidy removal is to sell off some or all of the flock, this creates a situation where the input prices are increasing and the output productivity is decreasing. Owners are finding it difficult to maintain profits with the current price levels. Al-Nawafila projects that if the subsidy is removed entirely by the end of 2008 and the price rises to JD250 per ton, it will be economically infeasible for most owners to stay in the sector.

Furthermore, all owners are being affected by this and want to sell, leading to an oversupply in the market. With a high supply and no change in demand, the price earned per head drops. As Al-Oun notes, before the subsidy was removed the price for lamb meat was around JD7 per kilogram. Now it has fallen to JD5 per kilogram. Abu Souad confirms the price decrease, saying that before a decent sheep might be worth JD160 but has since fallen to JD100 due to oversupply. The owners are therefore not receiving just compensation for their animals, forced to sell by the market at prices well below the average.

³⁰ Jones, 7.

4.3 Effects of Subsidy Removal on Livestock Health

The health of the livestock has also suffered due to nutritional issues. Under the temporary subsidizing mechanism, the government has limited the allocation to ten kilograms per head per month. According to Al-Husban, the necessary amount for adequate nutrition is thirty kilograms per head per month. Therefore, owners must find a way to purchase twenty extra kilograms per head each month from the private, unsubsidized market. Many cannot do so as the costs are too high. Consequently, they limit the amount of feed given to each animal.

Some owners will also remove soy and corn additives, which are more costly. Al-Nawafila states that a typical mix of fodder consists of barley, wheat bran and soy or corn. Soy and corn both have essential amino acids necessary for maintaining proper nutrition amongst the flock. These additives are not subsidized by the government and must be purchased at world market prices. As the prices of barley and wheat bran have increased, owners have chosen to eliminate the additives, resulting in a rise in malnutrition.

Furthermore, many livestock owners are neglecting the provision of health care services for their animals. As Dr. Hussein, Head of the Al-Khanassri Livestock Research Station and licensed veterinarian, notes, owners are simply focusing on saving money to afford the feed and not spending it on health services. He also supports Al-Nawafila's estimation that owners are unable to afford the more nutritional feed and that this leads to health issues.

The timing of the subsidy removal also significantly affected the quality and amount of feed the livestock are given. As Dr. Muhammed Harb, a professor at Jordan University and ruminant nutritionist, states, the timing of the price increase was horrible. The consequences could have been less harmful if the subsidy was removed in the Spring, but instead it was removed in the Fall when the rangeland had the least amount of vegetation. Harb believes it

would have been easier for farmers to adjust to the new situation, using the rangeland to ease the dependence on the expensive feed and adjusting the flock size. Nabulsi also believes the timing was wrong as during the Fall there are increased nutritional needs among the pregnant ewes. Scaling back the quantity and quality of feed adversely affected the health of both the ewes and the lambs.

All these factors lead to a significant rise in health issues and diseases among the livestock. Hussein states that the poor quality and reduced quantity of the feed have led to a substantial rise in disease. This is echoed by owners in Sabha who are concerned about the spread of certain diseases such as smallpox, poisoned gasteral, plague and mange. Malnutrition also leads to low conception rates and poor milk production while if properly fed, livestock will have improved productive and reproductive potentials, less stillbirths and abortions, and improved twinning and lambing rates.³¹

Hussein also points out that when the subsidy was lifted many of the farmers sold off the higher quality stock of sheep and goats. With the flood of livestock on the market, there is competition to earn the best price, which means marketing a quality product. The problem with this is that in the future, the quality of the breeding stock decreases. Jordan's main breed of sheep, the Awassi, is known to be a high quality breed and usually fairs well in the Gulf markets.³² In the future, the high quality that is associated with the Awassi breed may be lost. Consequently these health issues are creating a serious problem both now and for the future.

The poor health quality is also affecting the milk productivity among sheep and goats. Al-Husban states that there has been a significant drop in the level of milk production due to the

³¹ S. L. Hailat. *Studies on Infertility of Sheep Flocks in Northern Jordanian Badia; Causes and Solutions*. p. 25.

³² *Ibid.*, 3.

subsidy removal. Al-Oun points out that the quality of milk has decreased also and is at times diseased, which is passed on to the lambs. The typical result is death. This drop in milk production has also affected the market. Considering that over a third of the milk produced to meet domestic consumption demands comes from the sheep and goats of Jordan,³³ this has had an adverse effect on consumers.

4.4 Effects of Subsidy Removal on Consumers

With the decline in milk production, the supply on the market has dropped significantly. Consequently the price for milk and its products has risen. According to Al-Oun, before the subsidy was lifted, the price for milk was 400 fils per kilogram. Now that the subsidy has been lifted, the price is around 700 to 800 fils per kilogram. Hussein cites a similar increase, and he indicates that the price per kilogram of meat has also gone up.³⁴ This is due to the middleman markup at the slaughterhouses. Al-Oun states that in the future, as the supply of sheep decreases, the price may rise to around JD200 per average sheep. Needless to say the livestock owners are not the only ones feeling the effects of the subsidy removal.

4.5 Effects of Subsidy Removal on Owners' Mentalities

However, it is important to note that the effects felt by the owners are not solely financial. When asked about what effect the subsidy removal has had on owners in Safawi, Abu Souad said there are feelings of hopelessness. As he puts it, all they have there is sheep. If they lose them, there is not much left. Hussein seconds this saying that livestock owners are in a bad state

³³ Ibid., 3.

³⁴ See Table 5 in Appendices

psychologically right now. Day and night they can only think, “How do I feed my animals? How do I buy forage?” With their livelihoods in jeopardy, the pressure on these owners is mounting. Yet, the subsidy issue is not the only challenge faced by the livestock sector.

5.1 Rangeland Deterioration

The rangelands account for over 90% of the total area in Jordan. This area, also known as the Badia, has an arid climate with annual rainfall of around 200mm or less.³⁵ The rangelands have the potential to significantly support the livestock sector through provision of natural vegetation for grazing and did for many years. Dr. Abdelnabi Fardous, Director of Environmental Claims Program with the Ministry of Environment, states that over forty years ago the rangelands of Jordan could provide feed for livestock over six months out of the year. However, during the 1970s, livestock owners began to rely more on feed as the rangeland could only supply vegetation two months throughout the year. The capacity of the Badia deteriorated for many reasons.

The biggest factor in the deterioration of the rangeland has been overgrazing due to mismanagement under the grazing system and large flock sizes, which exceed natural capacity levels. As mentioned before with the introduction of sedentary life in the Badia, the nomadic form of grazing declined. The *Hema* system declined as well due to forces of modernization and social change over the past half century. The introduction of the 1973 Agricultural Law No. 20 also played a significant role.

Agricultural Law No. 20 placed ownership of all land in Jordan with an annual rainfall of 200mm or less under the government; this excludes private land owned prior to the law's

³⁵ R. J. Al-Tabini et al. *Community Participation in Rangeland Rehabilitation in Jordan*.

introduction. These lands however are considered to be of the commons, and any livestock owner can graze his flock on them.³⁶ As neither the government nor the livestock owners have a sense of ownership over the land, this has caused rangeland degradation and unsustainable grazing practices; a lack of clear property rights leads to an ambiguous sense of responsibility.³⁷

A lack of proper management has led to: overgrazing; the early grazing on vegetation before seed production occurs; the uprooting of protective brush cover for fuel; the use of trucks to transport flocks, feed and water to areas so that livestock exceed the grazing capacity of that area; and the cultivation of land to assert ownership over the area (MoA National Rangeland Photocopy). Another issue is that many of the owners do not believe that they individually share a part of the blame. They believe that other owners are responsible for overgrazing and so do not see a need to take any responsibility (community Raed report). All this has led to a loss of vegetative cover for the Badia. As a result, not only do the livestock lose a source of fodder, but also there is a rise in desertification and erosion. These two forces have also been encouraged by poor water use in the Badia.

According to Fardous, the over-pumping of wells without groundwater recharge has played a significant role in rangeland degradation as the water tables levels are falling and oases are disappearing. Controlling this is difficult, as many are private-owned wells. He also indicates that climatic change has been a factor too, leading to runoff. With high intensity of rainfall, the topsoil, rich with nutrients and organic matter, washes away because there is no vegetative cover to anchor it. There has also been a general abeyance of rainfall in the Badia over the past decade, leading to droughts. Dr. Rida Al-Adamat, lecturer in the Institute of Earth and Environmental

³⁶ *National Rangeland Strategy for Jordan*. Ministry of Agriculture. Amman, Jordan.

³⁷ Tidiane Ngaido. *Property Rights Studies in Low Rainfall Areas of the Mashreq and Maghreb Countries: Concepts and Issues*. ICARDA, 1997.

Sciences of Al-Bait University, states that there has been a significant reduction in the quantity and duration of rainfall. Before the rainy season would last from September to April, whereas now it is rare if there is rainfall before November or after March.

All this has resulted not only in a loss of vegetation but also a reduction in the soil quality. As Dr. Al-Adamat notes, the soil quality of the rangelands is rich with chemicals but poor in organic matter. One of the main causes for this is the overuse of inorganic fertilizer and irrigation water. With not enough rain to flush out the chemical buildup, nitrate seeps into the groundwater while other chemicals such as magnesium and calcium contaminate the soil. Furthermore, with the overuse of irrigation water, the salinity of the soil increases as the water evaporates and leaves behind the chemicals. This reduces the productivity potential for the rangeland, as cultivators must leave the soil for five to ten years for it to rejuvenate itself naturally.

The rangeland also faces pressure from encroaching sectors. According to Dr. Mahmoud Abusettah al-Jaloudi, Director of Rangelands and Badia Development at Ministry of Agriculture, the western areas, which are more suitable for grazing, are shrinking due to cultivation and urbanization. Using unsustainable irrigation practices, farmers are taking over viable land and further degrading it.

5.2 Lack of Policy Implementation by Government

With all of the problems the rangeland faces, one would think that policymakers would act to improve the situation. There is definitely no lack of information about how to solve it, and yet it seems that problems still persist. Harb states that it is partly due to a lack of sincerity among policymakers. He believes that “[Policymakers] never have the intention of making this

[livestock] sector very prosperous.” Talking about the lack of follow through in rehabilitation projects by the government he says, “You say you will initiate a program to protect that area. Do it!” Nabulsi affirms this stating that there are plenty of studies and strategies but no significant implementation. For instance, according to a report published by the Ministry of Agriculture, the productivity of the rangeland could increase four or five fold within a decade if existing management techniques were implemented.³⁸

Al-Jaloudi believes that the government needs to increase finance to the rangeland sector, modifying the subsidy policy so that the support is directed to managing the rangeland and increasing domestic production. Two obstacles to effective implementation though are the government’s view of livestock as a weak sector and a lack of communication between the government and livestock owners.

5.3 Government’s Estimation of Livestock Sector

The Agricultural Sector accounts for around 3%-4% of the GDP, which, as pointed out by Odeh, is not a significant contribution. He does not believe that it can provide much to the trade deficit either. Instead the government wants to focus on the industry and service sectors, which they believe have a much higher potential for boosting the nation’s GDP. As Al-Rkaibat points out, the government was in a difficult position. It could continue to inefficiently support a weak sector with a budget deficit that affected all of Jordan or it could remove the subsidy. He states, “I can understand the feeling of leaving your work that you spent thousands of years working in and then you just leave to another sector. But it is the nature of the development in

³⁸ *Ministry of Agriculture Policy Report for Hashemite Kingdom of Jordan*. Ministry of Agriculture. Amman, Jordan. p.20.

the sector.” Due to pressures of modernization and global prices, the maintenance of this sector in the government’s view is deemed to be inefficient.

5.4 Communication Between Livestock Owners and Government

When it comes to a lack of clear communication, this is acknowledged on both sides. Al-Rkaibat states that there is a gap when it comes to communicating the rationale behind government policies to the livestock owners these policies affect. This is echoed by Harb who states that owners cannot understand why a large sum of money is used to finance the construction of a new hotel or purchase of a new airliner when the support for basic necessities is removed. As an owner, Abu Souad also sees this as a problem, stating that there is no communication with the Ministry of Agriculture.

The lack of a clear communication of policy creates a certain level of ambiguity concerning the future for livestock owners. In particular, whether or not the subsidy is to be removed for good is unclear for many owners, some of whom think it will be reinstated. As Harb puts it, “With the subsidy the government removes and returns it, removes it and returns it. There is no clear-cut policy. I would like to see clear-cut policy because then [small livestock owners] could take into mind what to do, how to spare it.” After years of relying on a subsidy, many livestock owners are reluctant to look beyond government assistance.³⁹ Harb and Nabulsi both believe that if the policy was more clearly presented to the livestock owners with enough time, these owners could smoothly adjust to the new situation. As of now, many simply adhere to a policy of “wait and see” and will not adjust for the future.

³⁹ Jones, 10.

5.5 Veterinary Services

Another challenge to owners in the livestock sector is the lack of adequate veterinarian services, especially with the rise in health issues since the subsidy removal. Hussein states that the veterinary sector can be broken down into the government and private sectors. The government provides vaccinations and treatment for common or basic diseases. The services are free but simple. The private sector on the other hand provides better services available to anyone but are significantly more expensive.

Al-Oun states though that the medication on the private market is very expensive and that the government does not provide them with any. Moreover, Harb believes the government is only interested in diseases that could spread to the human population and so will not focus on other, still serious ones. Concern over the high price for veterinary service is shared by many owners in Sabha.

Al-Oun also notes that like with the *goushan* there are instances of corruption or *Wasta* when government officials administer the vaccinations. At times, the vaccinations will not even be administered. Furthermore, there is also a lack of education for owners on health risks. Many owners do not know about certain infectious diseases or why costly vaccinations are actually economically beneficial in the long run as they improve productivity, fertility and lower mortality rates. Furthermore, there is no available health history and without proper testing or quarantine, the spread of endemic diseases rises.⁴⁰

Harb notes that there is confusion among owners about whether they should contact private or governmental veterinary services, while Al-Husban states that veterinarian services are

⁴⁰ Hailat, 18.

limited. The sector only has so many resources, and it is difficult to reach all owners. Providing service to all owners is also a deterrent among the private sector as it is not as lucrative.⁴¹

5.6 Limitations on the Market

Furthermore, the typical owner does not have access to the more lucrative Gulf Market. Export procedures and licensing are fairly complicated and confusing and only few large exporters control market access for the Gulf States. Consequently, these traders can dictate the pricing to their advantage.⁴² Moreover, Basam, a Post Agricultural Production specialist for NCARE, states that the border with Saudi Arabia is being opened and closed periodically due to politics. This has led to a reduction in the available markets for the export of livestock products in Jordan. Concern over this reduction in exportation to the Gulf markets is also reflected by livestock owners in Sabha as it has decreased the price received for their animals.

6.1 Importance of the Sector

When the government talks about the importance of the agriculture sector, it is considered to be a sector that cannot contribute to the GDP or Trade Deficit without substantial support. Many say though that the government is only looking at this in terms of numbers, which is a problem. As Al-Adamat points out, by thinking only in numbers, they do not take into account that the livestock employs the whole family, not just the head of the household. They also fail to recognize that it provides a significant level of household consumption for families who otherwise would struggle to receive the same amount of nutrition from the market. Furthermore, they do not account for the extra costs associated with this on the consumer side.

⁴¹ Fiege, 88.

⁴² R. Oakely. *The Nature and Significance of Livestock Trading*. 1996. p.26.

Nabulsi states that the government fails to recognize the social issues. There are a lot of families who are dependent on this sector, many of whom fall into the poorer strata of society. Without their livestock, they have no livelihood. Al-Rafie agrees with this saying that according to the latest poverty study in Jordan, most of the poverty pockets are located in the Badia, where livestock is the central aspect for livelihoods.

Removing the subsidy may undermine the social structure of the Badia. Speaking on the importance of support for the sector, Al-Rafie states, “I am more concerned about small farmers, Bedouin, than the benefits that the businessman is making out of our subsidy because the subsidy has not only financial implications to the people. [There are] financial security, social, people migration, urban poverty, rural poverty, so many issues.”

Although the government believes that some livestock owners can transfer to other sectors, Hussein refutes this, stating that they lack occupational skills outside of raising livestock. This has been the only livelihood they have known, and it has been what their families have been doing for centuries. Therefore, this sector is essential as it provides employment for many who could not find it elsewhere.

The livestock sector not only employs people who could not find work as easily elsewhere, but it also employs the use of the rangelands efficiently when properly managed. Livestock, when grazing is correctly managed, provides the only economically and ecologically sustainable use for the rangelands.⁴³ Considering that over 90% of Jordan’s total area is rangeland, this seems an important factor when determining the significance of livestock to Jordan.

⁴³ Livestock in Development, 23.

A final significant contribution that the livestock sector provides to Jordan is that it preserves the nation's cultural heritage. As Al-Rafie states, livestock is central to the livelihoods of people in the Badia. Without this sector, the Bedouin way of life will be lost and in turn, the history of Jordan. Al-Oun also draws this connection stating that most inherited their livestock and livelihood. If they lose it or have to leave the sector, they will lose face and lose their cultural heritage.

6.2 Problems if Sector is Phased Out

The importance of maintaining this sector can be further understood if one considers what would happen if it were phased out as current government policies indicate. If, as many people believe the livestock owners of the Badia cannot easily transition into other sectors such as industry, this will result in a large, unemployed, unskilled group of people. Hussein believes that this will create problems for both sides. The government will have to pay more, and there will be a rise in poverty, unemployment, crime, and migration to urban centers. With additional pressure on the city centers, both rural and urban population will be adversely affected.

Al-Jaloudi echoes this, stating that with unemployment in the city centers there will be an increase in crime, smuggling, poverty and people applying for the National Assistance Fund. He also sees the sector's maintenance as a strategic matter as other sectors still need food such as the tourism sector. Furthermore, it is important that the sector's rangeland resources are sustained because while the industry sector can be moved anywhere, if the rangeland deteriorates, the livestock and agricultural sector have no where else to go.

Al-Adamat believes that the social security cost will rise close to JD200 million, which is more than the JD160 million⁴⁴ Jordan was paying for the subsidy. He also believes that a phasing out of the sector will lead to instability and security issues. The Bedouin comprise the backbone of the nation, always providing firm support for the king. If their livelihoods are lost, the nation's foundation will be undermined. He considers the rioting that occurred in Jordan in late 2007 by the Bedouin to be an indicator that something is wrong, as it was the first time in history that this happened.

Al-Rafie considers the poverty that the Bedouin will face if they have to migrate to the cities will be something far more complex and consequently more difficult to alleviate. He also sees a need for people to remain in the Badia for future development and work there, as it requires people who know the area and how to live in the environment.

6.3 Future of the Sector

When asked about the future of their sector, most farmers replied that if nothing were done within five years there would not be any more livestock in the Badia and consequently no more livestock owners. Abu Souad states that twenty years ago there were many camels in the Badia. Now there are none due to the rangeland degradation. He believes that maybe small ruminants will go the way of the camel. Al-Husban agrees with this assessment stating that like the camel, the production system for sheep and goats will consist of large, commercialized farms only. Other livestock owners also believe that the sector will just consist of large owners who are able to monopolize the market, thus harming the consumer.

⁴⁴ Hani Hazaimh. "Government Committee to Review Controversial Fodder Policy." *The Jordan Times*, August 31 2007.

Dr. Hussein echoes these assumptions about the future as well. He believes small owners with five to ten head will survive as they maintain livestock just for household consumption needs. However, livestock owners with 100-1000 head will have to leave the sector if nothing is done, as it will be unfeasible economically to remain. Dr. Hussein also believes that there will be a massive importation of livestock products as domestic production will fall and many ex-owners will have to buy from the market. This will only increase the trade deficit.

From a government perspective, Al-Rkaibat believes the future of the sector does not depend on the government but on the power of the market. Speaking on this he says,

Things will not kept as they are because... the market is the changing power that is driving all these changes. So in the end, it is better maybe for people to leave the sector that will bring them little returns for a growing sector that can provide maybe a better life or better returns, a better education for their children. It is a natural development, and it is driven by a power that we as the government cannot control. So we are trying to adjust and help the people in the transition period, but we are not going to advise people to stay in a sector that will find them after fifty years in the same position.

He indicates that the Social Security Net is to be a temporary form of assistance to help in the process of transition. Owners are encouraged to operate according to market forces and use the SSN in doing so. Al-Husban believes that the government will provide assistance and training for some of the owners to transition to other sectors. Odeh also states that the government is concerned about the future of livestock owners and believes that the government will continue to support them, just not in the form of a direct subsidy.

Although the removal of the subsidy has created a significant obstacle for livestock owners in the Badia, it was a necessary choice that government had to make. The current subsidy mechanism with the *goushan* is deeply flawed, wasting money on those for whom it is not intended. Furthermore, the strain that the increase in world cereal prices is placing on the government's general budget is excessive and unsustainable, especially with an inefficient subsidy mechanism. Although the SSN assists owners with the rise in feed costs, it is only temporary. The desire for a transitioning of owners into other sectors, although in theory a viable solution, seems to have some serious, almost insurmountable, obstacles. Therefore, it is necessary that other solutions are explored. In doing so, one finds prospects for improving the efficiency and productivity of the sector and as a result the sustainability too.

7.1 Social Security Net

As mentioned above, the government's SSN helps transition livestock owners through the rise in feed prices. This measure is designed to help small owners in the sector with a direct subsidy of JD10 per head. Although it is helpful for the sector to have this assistance in the wake of mounting input costs, there are still issues surrounding its effectiveness.

As Fardous notes, the removal of the subsidy is a problem for the whole sector and not just small owners. If anything, the middle to large owners are facing greater losses. Therefore, supplying the direct subsidy to only those owners with three hundred or less is not a sufficient or efficient form of support. This form of subsidy also is still subject to the inefficiency of the *goushan* as the number of sheep per owner is required for the distribution of assistance. Consequently, traders who do not depend on livestock for their livelihoods can abuse the system and gain cash for animals they may or may not have.

Another issue with the SSN is that it is temporary. This may be only delaying the adverse effects, which will be felt by owners in the future. It may perpetuate the “wait and see” tendency among owners where they still believe they will continue to receive support in the future and so will not make necessary adjustments, such as operating according to market forces. There is also a question of whether JD10 per head is just compensation. According to Al-Nawafila, the cost of feeding a sheep without subsidized feed is JD175 more than with partially subsidized fodder. Hence, owners would still have to cover an additional JD160 in feed costs.

Therefore, although the SSN program provides needed alleviation from the effects of the subsidy removal, it cannot be considered a viable solution to the problem, even when coupled with the emphasis on transitioning owners to other sectors.

7.2 Transition of Owners to Other Sectors

The viewpoint of owners and officials in the sector is that transitioning to another sector is not possible due to a lack of skills. These owners just know how to raise livestock. People from the government however believe that it is possible to provide training and in turn, employment. Haula Al-Hassan, advisor to the Minister of Labor, states that the sector is not very large and so it would be easy to train owners and find space. She also believes that the government could bring employment opportunities to the Badia, citing previous projects in which girls were trained to work in a garment factory located in Irbid.

Al-Hassan notes that the transition process would be very difficult but feasible. It would require a change in mentality and a shift from dependence on government support. The process would also require improved awareness in the Badia. She notes that a realization that there is no subsidy and viewing success stories would encourage successful implementation. Although this

may be feasible, further research is required before the push for transitioning owners away from their livelihoods is made.

The government's well-intentioned solution of encouraging livestock owners to transition to other sectors such as industry or service provides a logical solution but in practice, seems to fall short for various reasons as presented by this paper. Namely, the lack of skills, the loss of employment for the entire family, the loss of affordable household consumption, the loss of cultural heritage and the possible monopolization of the livestock market are all significant obstacles to successful implementation of this strategy.

7.3 Cooperatives

Some of the major challenges to the livestock sector are the high price of feed, the degradation of the rangeland, a lack of clear communication between the government and owners, a lack of adequate veterinarian services and a lack of access to markets. One reason for these challenges is that livestock owners are dealing with it all on an individual basis.

As Harb states, a group is much stronger than an individual and has more advantages. For the livestock sector, this can be realized through a cooperative. The benefits that cooperatives can offer to livestock owners range from improved communication with the government and contracting with the traders to improved veterinary services and rangeland management.

Concerning the improvement in communication, there is a better dissemination of information to all owners as government officials need only talk to the leaders of the cooperative. This ensures that all owners will be better informed about government policies.⁴⁵ Al-Husban believes that organization and community participation improve under this system. As an

⁴⁵ Rowe, 60.

extension officer, cooperatives improve his ability to reach all owners. There is even a creation of pseudo-extension officers as he establishes contacts with each cooperative to work through.

Nabulsi states that communication with traders will also improve. Cooperatives are in a better position to contract traders to market their goods with agreed upon prices. Too often as individuals, livestock owners will not receive just compensation for their products. The cooperatives can also act as collection points for goods that are then sent on to the market. Collection points for milk products can be refrigerated to better insure preservation. Fattening services for lambs can also be offered before being sent to the market. These organizations are also better able to market their members' goods.⁴⁶

Nabulsi notes that cooperatives are better able to address the needs of those who are truly in need and help develop their capacity; the group strengthens and supports all members. Harb believes this feature allows cooperatives to better handle the feed distribution as the owners know each other and who is truly in need. Therefore, a cooperative could be allocated a set amount of subsidized feed, which is then distributed equitably among the members, removing the inefficiency of the *goushan* at targeting those who need assistance.

Cooperatives also use resources more efficiently. Time consuming tasks such as feed and water collection can be carried out in bulk, using a central point for distribution. This saves on time, labor and gas, and with the pooling of resources, the members are able to accomplish more at a lower individual cost. Labor is also allocated more efficiently during labor-intensive periods such as milking. With pooled resources, the cooperative has the economic security to explore different innovative techniques or alternative feeds. This economic security and resource

⁴⁶ Ibid., 67.

efficiency also allows members to explore other income-generating activities and diversify their livelihoods.⁴⁷

According to Hussein, veterinary services also improve under a cooperative system. Cooperatives are better able to contract the services and can maintain health records for their sheep. Al-Husban notes also the effectiveness of para-veterinarians who are trained in basic livestock health. A member of the cooperative can assume this role and act as the point for communication with veterinary services. This individual will provide specific knowledge about his cooperative's livestock so that health services can be administered more effectively.⁴⁸

Para-veterinary services help to decentralize the veterinarian sector but still have centralized control. Al-Husban states that this has helped him reach more people, especially ones who would normally not receive service. There is also an improvement in the delivery of medication through the cooperative as these organizations act as distribution points. With sales occurring within the cooperative this further strengthens it as the profits are retained by members.⁴⁹

Additionally, the cooperatives can provide an effective management system for rangeland grazing and rehabilitation. Cooperative rangeland policy can be considered the modern form of the *Hema* system. As Nabulsi states, the cooperative approach to rangeland management will insure the creation of a reserve with controlled grazing practices.

Useful to rangeland rehabilitation is the organic fertilizer of sheep manure, which according to Al-Adamat increases the soil's organic matter content and water-holding capacity.

⁴⁷ Ibid., 67.

⁴⁸ Jones, 8.

⁴⁹ Ibid., 8.

With a cooperative, the collection of this fertilizer is facilitated so that it can be used to improve the cooperatives rangeland or be sold for a profit to farmers.

For Al-Rafie, the best solution for improving the sector would be to have a private sector. It is more rewarding for people to have their own businesses in which they have invested their time, capital, and energy and will want to see it succeed more. They will be more creative and innovative and will put the effort into making sure they succeed, improving the Badia economy. The problem is that there is not a mature private sector, as people in the Badia rely on the government for ideas.

With regard to a cooperative, Al-Rafie indicates its role in helping privatize the Badia economy. He asks, "How can you create a private sector and give support whether financially or for capacity building with individuals? You can't." There is a need for some form of organizational structure that the government can support, and this is the cooperative. He notes, "Yes, [the cooperative] is not one hundred percent safe, it is not the best solution, but it is the best available right now." These cooperatives can then bring ideas, methods and innovations that will help people go and start their own businesses.

The cooperative approach to Badia development does have drawbacks though. One of the main problems according to Souliman Sharfat, Engineer in Animal Production at BRDC and Project Manager for the Dier al-Kahef cooperative, is that the management can be weak when the funding for the cooperative comes from a government grant. Investing their own money will make members work harder and be more committed to the cooperative and its success. However, many members are unable to provide a substantial amount of capital. Consequently, there needs to be a mix of the two.

Al-Jaloudi also states that the sustainability of cooperatives is hinged on the continual support of the government, especially when it comes to rangeland management. Nabulsi believes that cooperatives need proper legislation from the government that encourages their formation. He notes that initially the cooperatives will require a lot of inputs, but like a child, it will slowly mature and become self-sustaining.

7.4 Diversification

A great example of a viable cooperative in the Badia is that of Anaqeed Al-Khair. Funded by the Ministry of Planning and directed by the Badia Research and Development Center and the Jordan River Foundation, this cooperative is focused on the diversification and development of income sources. It is involved in sheep breeding, honey production, sun-dried tomato production, beit sha'ar production and forage production but concentrates on the first three, which have been deemed the most economically viable.⁵⁰

Although it is in need of an improved accounting system on which financial decisions can be made with more accuracy, this cooperative has seen a steady growth in its financial earnings.⁵¹ A key factor in this has been the cooperative's focus on the diversification of income sources. Instead of just relying on the livestock sector, it has expanded into other lucrative sectors. This emphasis on diversification was essential to its survival after the subsidy was removed.

Anaqeed Al-Khair's sheep were not unaffected by the price increase for feed. Like other livestock owners, the cooperative had to sell off a significant portion of its flock. The same held

⁵⁰ R. J. Al-Tabini et al. *Community Participation in Rangeland Rehabilitation in Jordan*.

⁵¹ William Gorman et al. *Profitability Assessment of the Enterprises of the Anaqeed Cooperative Community-Based Project, Badia Region, Jordan*. New Mexico State University and BRDC. 2007.

true for the Dier al-Kahef Sons New Cooperative Society, another cooperative under the under the direction of the BRDC and funded by the Ministry of Planning. This particular cooperative unlike Anaqeed Al-Khair, focused on just the sheep sector. When the subsidy was removed in 2007, the cooperative had to sell off the whole flock. It is currently exploring other investment opportunities while the capital sits in a bank.

As Sharfat notes, these two cooperatives illustrate the benefit of diversification on top of cooperative formation. When the sheep sector was lost, Anaqeed Al-Khair still had tomatoes and honey. Moreover, Sharfat points out that the profits from one sector of the cooperative could be used to boost another sector during difficult times. In good times income from other sectors can be used to build up the capacity of the livestock production system. For instance, additional income can be used to explore alternative feeds or concentrates for pregnant and lactating ewes.⁵²

When it comes to diversifying, Hussein believes that first a study must be conducted of the area to determine what will work there. There is also a need for training and capacity building. He considers this to be a role better suited for NGOs than the government. One viable source for diversified income could be the sale of organic fertilizer by a cooperative to farmers. With a cooperative, the sheep are in a more concentrated area, which allows for easy collection. Although this generates only a small source of income according to Sharfat, it is still an additional source of income.

7.5 Rangeland Management

⁵² Rowe, 41.

As mentioned before, the deteriorated state of the rangeland has forced many livestock owners to rely on the expensive fodder to feed their animals. It is known that the productivity yield of the rangelands could increase substantially if properly managed.⁵³ Therefore, rehabilitating this area could provide an additional source of feed, reducing the reliance on subsidized fodder and improving the self-sufficiency of the sector.

To combat desertification and erosion, there is a need for the rejuvenation of the vegetative cover. According to Fardous, this can be accomplished through cooperative rangeland management, water harvesting techniques, appropriate land use and the reduction of flock size.

Al-Jaloudi agrees with this stating that the practice of free grazing needs to be stopped and that livestock owners need to be provided a set area in which to graze. The cooperative rangeland approach encourages this as it develops an area that falls under the cooperative's responsibility to maintain but also grants right of access. An example of this is the Tal Rimah project where the community was directly involved in the protection, rehabilitation and management of the rangeland.⁵⁴ Al-Jaloudi also believes that livestock owners should pay for grazing as this will encourage better management of rangeland and hopefully decrease overgrazing.

Fardous states that implementing proper water harvesting techniques would greatly assist in rehabilitation as currently over 90% of water is lost in the rangeland due to evaporation and runoff. Use of water harvesting structures such as micro-catchments and contour furrows to collect water at specific points for plant growth as well as low rock walls to stem further runoff

⁵³ *Ministry of Agriculture Policy Report for Hashemite Kingdom of Jordan*. Ministry of Agriculture. Amman, Jordan. p.20.

⁵⁴ R. J. Al-Tabini et al. *Community Participation in Rangeland Rehabilitation in Jordan*.

and erosion are all useful and easy to implement in the Badia.⁵⁵ Al-Adamat notes the application of organic fertilizer can also help by improving the soil quality.

The rangeland rehabilitation also involves limiting the encroachment of other sectors. Policies need to be implemented to limit the cultivation of rangeland to simply lay claim to property. There has also been a loss of grazing lands due to urbanization. Al-Jaloudi believes that to address this, the rangeland should be placed under government protection so that it is used according to fullest potential, grazing.

A final way to enhance the productivity and sustainability of the rangelands according to Fardous and Al-Rafie is to reduce the number of livestock in Jordan to a level that reflects the rangeland's capacity. Inherent in this is that the productivity of the livestock must increase simultaneously why the quantity decreases.⁵⁶ With the subsidy removal this needed reduction make occur more naturally as the owners' input costs increase.⁵⁷

Current production levels are low due to a lack of knowledge among owners concerning issues such as flock management. These methods for increasing productivity have not been effectively communicated to owners. There is also the obstacle of tradition where owners have used the same management systems for centuries and are reluctant to change. The cooperative could help in this respect where it enhances the level of communication with extension services that can demonstrate the benefits of improved management techniques.

Al-Jaloudi correctly notes that the rangeland has been degraded over thousands of years, and it will take a lot time and commitment to rehabilitate it. However, in doing so the livestock

⁵⁵ Ibid.

⁵⁶ Jones, 7.

⁵⁷ *National Rangeland Strategy for Jordan*. Ministry of Agriculture. Amman, Jordan.

owners are able to supplement the expensive feed, relieving pressure on the government to import and utilizing the Badia for its most economically and ecologically sustainable purpose.

7.6 Domestic Production of Barely

With the rising cost of world cereal prices, the government is currently exploring the possibilities of domestic fodder production, mainly barley. According to Al-Rafie, around 1.7million tons per year are consumed by the sector. Of that amount only 21% is produced domestically. This production is aggravated by fluctuations in rainfall, occurrence of droughts and excessive use of the rangeland, which is shrinking. Moreover, many owners rely on imported fodder, placing further demand on the government to meet the need by importation.

As the world cereal market is becoming increasingly volatile, there is an increasing need to produce the fodder domestically so as to have better control over the prices and supply. Al-Adamat considers domestic fodder production to be an issue of national security. It better to be self-sustaining even if it costs more as it is dangerous to be totally reliant on imports for commodities of necessity. As international food prices rise, other countries that export a lot of food are beginning to pursue a more isolationist policy. These countries want to keep their necessary resources and not export them all. For instance, India does not want to export wheat. This will further increase the global food prices for basic commodities like bread.

Furthermore, Al-Adamat believes that if there is no emphasis placed on domestic production, the agricultural sector will decline. Farmers will not see it as economically viable to produce, as there is emphasis is on importing cheaper products from other countries. There is no incentive to maintain the sector. He notes that there is a need to produce domestically to maintain the knowledge, technology and skill base for this sector. If U.S. decides to stop exporting wheat

to Jordan, what will Jordan do if it is no longer efficient in wheat production? He believes it would lead to a situation similar to the bread riots in Egypt.

Al-Adamat also believe it would be beneficial if Jordan did not urbanize the best quality farmland. With a seat on the 2006 National Committee for Land Use Policy, he noted the absurdity that it was not until 2006 that the government realized it lacked an effective policy for land use. This is illustrated in Fardous' estimation that over the past forty years, Jordan has lost 40% of its most fertile soil due to urbanization.

Nabulsi notes a further limitation to domestic production is that taking into account the costs and benefits, no one is interested in producing wheat. He states that the government's plan to purchase domestic production at global prices does not reflect the quality of the wheat. While farmers may be producing high quality durum wheat, they receive the price of cheaper crack wheat.

Al-Jaloudi believes domestic barley production is possible but on a limited scale. He notes that a barley-medic rotation could be viable but believes problems arise, as the medics are time consuming to harvest. Crop rotation though is a necessary factor to address. Barley is planted year after year by many in the Badia, and this decreases its yield, as the plants require the same nutrients each year, which are not replenished during the off-season. A lack of rotation also leads to a rise in the *Abou Aloweï* disease, which is a nematode infestation that causes sterility. This is only fixed by breaking up the cycle with a different crop (ICARDA Feed for the Future).

Two options for barley rotation are medics and vetch. Medics are legumes that add nitrogen and organic matter back into the soil, and although it may be difficult to harvest, it still can provide substantial grazing for livestock. Vetch also replenishes the soil with nitrogen and organic matter and can be more easily harvested. Consequently, farmers can store vetch in the

off-season to supplement other fodder resources. Both are viable options for improving the yield of barley production in the Badia as well as providing additional fodder sources.⁵⁸

When it comes to actual cultivation of fodder, Fardous believes a cropping pattern policy and law need to be implemented, requiring farmers to grow fodder on at least 20% to 30% of their land in the Jordan Valley and irrigated areas in the highlands. The government will then buy the fodder at international prices.

Al-Rafie notes that one cannot just say he wants to increase domestic fodder production without looking at the rangeland or the water situation. The HFBD is trying to increase the number of pilot areas where there is an integrated approach to the problem. He believes there is a need for water management and harvesting, the development of rangelands that are protected and managed, and a control on fodder production to ease pressure on rangelands. Without this comprehensive approach, he says it will not succeed.

7.7 Human Development and Capacity Building

According to Fardous, another component to effective development in the Badia and the livestock sector is capacity building. There is a need for training programs and workshops to inform owners of new techniques as well as the transfer of skills. He states that this is done through the work of cooperatives or NGOs. With workshops, there can be two-way dialogue concerning problems faced by individual communities and feedback can be provided on possible solutions.⁵⁹

⁵⁸ Scott Christiansen and Guy Matters. "Feed for the Future?" ICARDA Caravan. Issue No. 1, 1995.

⁵⁹ Jones, 12.

Al-Rafie views the purpose of projects as a way to develop people. The government is spending money, creating activities, involving people so as to actually build the capacity of people to know how to manage, how to buy, how to do accounting, how to work together, etc. As human resources are developed, the ability for the owners to innovate and improve their levels of productivity increases. This in turn will allow them to sustain the sector in the future so that it is a viable contributor to the nation's economy.

7.8 Infrastructure and Sector Reform

When it comes to sustaining the livestock sector and developing the Badia, Nabulsi believes there is a need for sincere revision of the economic and social development program in Jordan. He states that the participation of all sectors concerned should be assured. He also indicates that Jordan has the studies and strategies to exact effective improvements but there is a lack of significant implementation.

Fardous believes that the major challenge to implementation is getting communities to cooperate. Communities will resist if an organization intervenes on their land such as through the creation of a reserve. Therefore, it is important to involve the community from step one all the way to completion. An organization will go into the community, explain their proposal and then listen to the community's perspective. The two will work together to formulate a plan and then carry out this plan side by side.

Another issue that Fardous believes should be fixed is the development of true research and development through organizations like NCARE. There is a need to build stronger ties with livestock owners via improved extension services so that the research is actually applicable in the field and will not just sit on a shelf in some lab. He states that annual workshops, in which the

research is presented and explained to owners is a positive step as it allows for feedback. This feedback can be used to refine future research programs

When evaluating the extension services, Al-Husban points out various issues that limit the offices effectiveness in the field. He notes that the office is understaffed with just one extension officer assigned to cover the livestock sector around the Mufraq area. The fact that the office has one vehicle further limits the officer's effectiveness, as he is restricted to the office when another officer is using it. Al-Husban also indicates that he would benefit from more training as it will only improve his effectiveness and keep him up to date on technological innovations.

Fardous states that there is a need for reform of the agricultural sector. He believes the private sector needs to be involved in the policymaking and that decision making at all levels of policymakers is institutionalized on sound knowledge and information. Right now too many policies are based on individual understandings that do not have all the information. There is also a lack of connection between the organizations involved and a lack of a database with information that reflects the current system. Furthermore, there needs to be a link connecting the ministerial positions to the field. After all, one cannot make good policy while sitting in an office in Amman everyday.

A final issue that Fardous believes must be reformed is that in the public sector there is no actual job description for individuals or institutions. This allows for ambiguous responsibilities as well as people who do not know their mandate or capacity within which to work. There are no work plans and the continuity in policymaking is jeopardized as new ministers are rotated in and out. He sees a need to develop a structure specifying job descriptions and their accompanying mandates in the public sector.

Al-Rafie believes the sector can benefit from Royal NGOs in Jordan as these are well developed and connected internationally. NGOs have the flexibility that government organizations lack. Therefore, these entities can work alongside local communities and through cooperatives. Al-Rafie considers the support that should be offered is similar to that offered a child. He states, “I deal with it as life dealt with me. I needed direct support at one point. I needed someone to hold my hand and guide me, and then slowly I can do it on my own, slowly I can take responsibility... and this applies to communities as well.”

As each community differs, there cannot be one set of rules for development that applies to all. The NGO must go in and assess the situation, finding an activity that can be developed. Policies, techniques and people are all developed and then the NGO slowly moves out.

When determining whether livestock can be developed in the Badia, Al-Rafie believes it will always be there because it is part of the culture. He states that developing the sector with more technologies and techniques will help ease the pressure on the government. Owners will not need to apply for assistance and will be effectively developing the Jordanian economy.

Al-Rafie states that it is not so much that the Badia lacks resources but that it lacks the system and infrastructure connecting the government, NGOs and communities. Perhaps cooperatives can help enhance the infrastructure. He also believes that development of the sector needs top-level management commitment with flexibility, transparency and international support. Furthermore, the mechanism for development will require support in the way of capacity, knowledge, technology, exchange of ideas and not just financial. Like Fardous, Al-Rafie sees a need for research centers that do applied research, which can help the owners. Then training can be provided for people to learn techniques, which can be used for income-generating

projects. Lastly, there is a need for follow-up and commitment to ensure that the results are sustainable.

V. Conclusion

The removal of the subsidy on fodder in late 2007 was a move the government justifiably made. Although there is an intention to provide assistance for the increased input costs via a SSN and domestic barley production, these measures are only temporary as the long-term intention is to phase out many of the owners in the Badia.

The impact of the subsidy removal on livestock owners in the Badia has been difficult, as many have sold off half or more of the livestock. Without adequate feed due to high prices and rangeland degradation, there has been a rise in health issues and adverse effects on the consumer market. If nothing is done many owners will have to move out of the sector. Although the government intends for owners to transition to other sectors, there are some seemingly insurmountable obstacles in the way.

Many owners do not possess any skills to work elsewhere, and there is fear that if they lose their livelihoods, there will be an increase in poverty, unemployment and migration to city centers. The government seems intentionally ignorant of what will happen if the sector is phased out as it is more focused on numbers, not taking into account the level of family employment or level of household consumption of livestock goods.

Although the sector faces a lot of obstacles, this paper tries to outline some possible solutions to improve the efficiency of the sector and in turn, its sustainability. Cooperatives, diversification, rangeland management, domestic barley production, human resource development and a reform of the sector's infrastructure are some suggestions for further

research. It would be recommended that cost-benefit research be done on the viability of these possible solutions so that the practicability and projected level of assistance will be known.

Concerning the implications of my study, it can be said that this is an issue in need of attention now. If nothing is done to keep the livestock sector from being phased out, many owners will be placed into a very difficult situation and Jordan will be at risk of losing its national heritage, as represented by life in the Badia. This research aims to simply introduce readers to the facts surrounding the problem and offer suggestions on where to begin looking for solutions.

Nothing in this report is new or groundbreaking in the sense that the research and strategic plans for sustaining the sector are all already available. Perhaps though this research has helped to bring them together and show that for the continued existence of this sector it is necessary that this existing information is put into action now. The pressures of modernization will not wait and unless the livestock sector is prepared to take them on, a significant portion will be lost. This is something I hope will not happen as I hope to someday return to Al-Mnassai and enjoy that Bedouin hospitality once again.

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Appendices

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TIFF (Uncompressed) decompressor
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Table 2:

Feed	Subsidized	Unsubsidized
Barley	JD150/t	JD250/t
Wheat Bran	JD100/t	JD150/t
Soy	--	JD420/t
Corn	--	JD400/t

Table 3:

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TIFF (Uncompressed) decompressor
are needed to see this picture.

Table 4:

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TIFF (Uncompressed) decompressor
are needed to see this picture.

Table 5:
Consumer Side Prices

Product	Before Subsidy Removal	After Subsidy Removal
Meat	JD5/kg	JD7-JD8/kg
Milk	JD0.25/kg	JD0.75/kg

