

TRANSFER AND TRANSFORMATION OF AGRI-ENVIRONMENTAL SCHEMES:
IMPLEMENTING INNOVATIVE EUROPEAN MODELS IN ISRAEL

Dissertation
to obtain the Ph. D. degree
in the International Ph. D. Program for Agricultural Sciences in Goettingen (IPAG)
at the Faculty of Agricultural Sciences,
Georg-August-University Göttingen, Germany

presented by

LIRON AMDUR

born in HADERA, ISRAEL

Göttingen, November 2009

D7

1. Name of supervisor: Prof. Dr. Rainer Marggraf

2. Name of co-supervisor: Prof. Dr. Heide Inhetveen

Date of dissertation: 19 November 2009

TABLE OF CONTENTS

LIST OF TABLES.....	5
LIST OF FIGURES.....	5
ACKNOWLEDGEMENT.....	6
INTRODUCTION	7
AGRI-ENVIRONMENTAL SCHEMES	7
MARKET ORIENTATION IN AGRI-ENVIRONMENTAL POLICY	8
THE AGRI-ENVIRONMENT IN ISRAEL.....	11
METHODOLOGY: A CASE STUDY AT THE MEGIDO REGIONAL COUNCIL	14
THE OUTLINE OF THE MONOGRAPH.....	17
CHAPTER 1: EUROPEAN MODELS AND PROTECTION OF THE AGRI-ENVIRONMENT	
IN ISRAEL	19
INTRODUCTION	19
THE NECESSITY OF INTRODUCING AGRI-ENVIRONMENTAL PAYMENT SCHEMES	
INTO ISRAEL	20
<i>Environmental services of Israeli agriculture.....</i>	<i>20</i>
<i>Threats to the supply of agri-environmental services in Israel.....</i>	<i>23</i>
<i>Current mechanisms of sustaining the agri-environment in Israel.....</i>	<i>23</i>
THE AGRI-ENVIRONMENTAL SCHEMES OF THE EU AND THEIR TRANSFERABILITY	
TO ISRAEL.....	26
MARKET - BASED INSTRUMENTS IN EUROPEAN AGRI-ENVIRONMENTAL SCHEMES..	29
<i>Result-oriented remuneration.....</i>	<i>29</i>
<i>Auction mechanism</i>	<i>30</i>
<i>Participatory approach.....</i>	<i>31</i>
<i>Regional organization.....</i>	<i>32</i>
TRANSFERRING MARKET-BASED INSTRUMENTS OF EUROPEAN AGRI-	
ENVIRONMENTAL SCHEMES TO ISRAEL	33
<i>Result-oriented approach.....</i>	<i>34</i>
<i>Auction mechanism</i>	<i>35</i>
<i>Participatory approach.....</i>	<i>36</i>
<i>Regional organization.....</i>	<i>37</i>
CONCLUSION.....	38
CHAPTER 2: BETWEEN MARKET ORIENTATION AND THE ETHICS OF AGRICULTURE	
AND ENVIRONMENTAL PROTECTION IN ISRAEL.....	40
INTRODUCTION	40
MARKET ORIENTATION AND THE ETHICS OF AGRICULTURE AND ENVIRONMENTAL	
PROTECTION IN ISRAEL	41
<i>Market orientation in Israel.....</i>	<i>41</i>

<i>The ethics of agriculture in Israel</i>	42
<i>The ethics of environmental protection in Israel</i>	44
RESULTS OF THE SURVEY AT THE MEGIDO REGIONAL COUNCIL: PERCEPTIONS OF MARKET ORIENTATION, AGRICULTURE AND ENVIRONMENTAL PROTECTION	47
<i>The perception of market-orientation in agriculture and the agri-environment</i>	47
<i>The Perception of Agriculture</i>	49
<i>The Perception of Environmental Protection</i>	52
DISCUSSION	54
 CHAPTER 3: AUCTIONS FOR CONSERVATION CONTRACTS: AN INSTRUMENT FOR ACHIEVING ECONOMIC EFFICIENCY, ADMINISTRATIVE FAIRNESS OR PUBLIC PARTICIPATION?	57
INTRODUCTION	57
THEORETICAL AND EMPIRICAL BACKGROUND.....	59
RESULTS OF THE SURVEY AT THE MEGIDO REGIONAL COUNCIL: ATTITUDES TOWARDS THE CONSERVATION AUCTION	64
DISCUSSION OF THE SURVEY'S RESULTS	69
POLICY ADAPTATION: WHAT CAN CONTRIBUTE TO INCREASED SUPPORT OF CONSERVATION AUCTIONS?	71
CONCLUSION.....	73
SUMMARY	75
REFERENCES	78
APPENDIX 1: GUIDELINE OF THE QUALITATIVE INTERVIEW WITH FARMERS.....	88
APPENDIX 2: QUESTIONNAIRE REGARDING THE DESIGN OF THE AGRI-ENVIRONMENTAL PAYMENT SCHEME.....	101

LIST OF TABLES

TABLE 1 NUMBER OF AGRICULTURAL SETTLEMENTS IN ISRAEL, ACCORDING TO TYPE	12
TABLE 2: THE DEMOGRAPHIC CHARACTERISTICS OF THE INTERVIEWED FARMERS IN THE SAMPLE	16
TABLE 3 ISRAELI PUBLIC WILLINGNESS-TO-PAY FOR AESTHETIC QUALITIES OF LANDSCAPE TYPES, FINDINGS OF PREVIOUS STUDIES.....	21
TABLE 4 ISRAELI AGRICULTURAL SUPPORT PROGRAMS WITH POSITIVE ENVIRONMENTAL IMPLICATIONS.....	26
TABLE 5 STAKEHOLDERS' ATTITUDES TOWARDS USING A CONSERVATION AUCTION IN THE PILOT PROJECT.....	65
TABLE 6 ADVANTAGES AND DISADVANTAGES OF USING A CONSERVATION AUCTION VERSUS FLAT-RATE PAYMENT, AS PERCEIVED BY THE PILOT PROJECT'S STAKEHOLDERS.....	67

LIST OF FIGURES

FIGURE 1 MAIN AGRICULTURAL BRANCHES OF ISRAEL, ACCORDING TO THEIR SHARE IN THE TOTAL AGRICULTURAL LAND	11
FIGURE 2 ORCHARD AT BIKAT HANADIV, ISRAEL – AN EXAMPLE OF THE AESTHETIC LANDSCAPE CREATED BY AGRICULTURE	13
FIGURE 3 FOOD SUPPLY AND IMPORTS IN ISRAEL.....	20
FIGURE 4 AGRICULTURE IN PROXIMITY TO ISRAELI URBAN AREAS	22
FIGURE 5 THE VEHICLES OF PUBLIC SUPPORT FOR AGRICULTURE IN ISRAEL	25

ACKNOWLEDGEMENT

The writing of this monograph and the study it is based on was assisted by a great number of people and institutions.

I am grateful to the Minerva Stiftung, Gesellschaft für die Forschung m.b.H. for financially supporting my studies and stay in Germany; to the Israeli Ministry of Agriculture, the Israeli Ministry for Environmental Protection, the Jewish National Fund and the Nekudat Chen Fund for supporting the pilot project on which this study is based; to the people of the Megido Regional Council for implementing the pilot project.

I would like to thank Prof. Dr. R. Marggraf, Dr. E. Bertke and Dr. J. Freese for their academic support and advice; to Prof. Dr. H. Inhetveen, Prof. Dr. S. Menzel and Dr. A. Fischer for their good remarks at crucial points of my research work; to Dr. C. Rueffer who helped me in finding a place in Goettingen; to B. Lunderstaedt who helped me in settling in Goettingen and constructing my studies; to Dr. Haim Zaban and Zvika Orr for their help in realizing the pilot project in Israel; to Dr. Guy Pe'er for his help in issues concerning agricultural ecology; to Prof. Michael Sofer and Dr. Ram Gal for their insights regarding the rural sector in Israel; to Oded Salomon for assisting in understanding the process of olive groves' cultivation; to Giora Schwartz for giving hints in legal issues concerning the project and the writing of the monograph; to 30 interviewees who agreed to share their time and knowledge with me; to the Holyshev family for their friendship and support; and to my mother and my daughter for their help and patience throughout the research and writing process.

INTRODUCTION

This monograph presents a study of the possibilities to develop agri-environmental schemes in Israel, based on European models. At the moment, programs that remunerate farmers for the beneficial influences of cultivation on the environment do not operate in Israel. An attempt to introduce such policies in Israel was conducted in a pilot project, and the study presented here is based on the results of this pilot project. The project was based on an innovative, market-oriented model for agri-environmental schemes, as developed by a group of researchers at the University of Goettingen, Germany.

The introduction to the monograph will give its general outline, briefly explaining what agri-environmental schemes are; what the conventional model according to which they operate in Europe is; what a market-oriented agri-environmental scheme is, and what its theoretical justifications are; what the current situation of agri-environmental remuneration programs in Israel is; the methodology of the study at hand; and the outline of the chapters to follow.

AGRI-ENVIRONMENTAL SCHEMES

As agriculture occupies close to 40% of the world's land area, its impact on environmental resources is considerable. This impact can be positive – i.e. preservation of farmland biodiversity, mitigation of greenhouse gas emissions; or negative – soil erosion, ground water pollution from fertilizers, impacts of pesticides on human and ecosystem health, etc.

In order to guide this influence, many countries have established diverse policy measures, including mandatory regulations, economic instruments and advisory measures. Within the European Union, economic instruments play a major role in the agri-environmental policy (Bräuer et al. 2006). It was argued that economic instruments are a better way to address agri-environmental problems, since the large number of landholders makes the feasibility of regulations' enforcement low (Pascual and Perrings 2007). The use of economic instruments is often cheaper than enforcing regulations, and generates profits to the authorities, which may be used to fund conservation management (Bräuer et al. 2006).

Although these economic instruments vary markedly between countries, they mostly share the same core concept: farmers are paid to modify their cultivation or livestock husbandry in order to protect, maintain or support environmental resources (Engel et al. 2008; OECD 2005; Smith 2006). Within the European Union, these instruments are expressed as

“agri-environmental schemes” (European Commission 2003), and are currently based on Council Regulation (EC) No. 1698/2005. These schemes address a wide variety of agri-environmental services, including erosion mitigation, biodiversity conservation, organic farming, etc.

Agri-environmental payment schemes are now being practiced in developed as well as developing countries, sometimes with the help of international organizations (Ferraro 2009; Wunder et al. 2008). As the awareness to the importance of agri-environmental services continues to grow worldwide, it is probable that agri-environmental payment schemes will be introduced into an ever growing number of countries.

The conventional agri-environmental scheme, as has been practiced in the EU for almost two decades, is a flat-rate action-oriented payment scheme. According to this model, farmers voluntarily take upon themselves environmental commitments in exchange for payment set by the authorities. The schemes are centrally planned; neither the public demand for the agri-environmental services, nor the individual supply conditions of the farmers are expressed in their operation. The payment within the schemes is fixed for all the farmers that participate in the scheme within a state or a region. The farmers are paid to practice certain cultivations that are considered environmentally beneficial, but their actual ecological results are seldom considered.

This conventional model was criticized for its low level of efficiency in achieving ecological aims, particularly with regard to the improvement of biodiversity (Kleijn et al. 2006; Kleijn and Sutherland 2003). It was also argued that the cost effectiveness of the schemes is unsatisfactory, as their use of uniform premiums leads to both over- and under-compensation of farmers, as it does not take into account different farm production costs and site conditions (Marggraf 2003; v Haaren and Bathke 2008; v Haaren and Bills 2007). In order to improve the schemes, the integration of market economy components into them has been recently advocated by academics and some policy makers, and was integrated in a number of projects (Gerowitt et al. 2003c; Hampicke 2006).

MARKET ORIENTATION IN AGRICULTURAL POLICY

The basic idea of a market-oriented agri-environmental scheme is creating a market for agri-environmental services. Within such a market, the environmental services of agriculture are being thought of as goods, independent from the conventional agricultural products (food and fibers). As such, they can be traded independently from the agricultural

commodities. Since many of the agri-environmental services are public goods (i.e., non-rivalled and non-excludable) – the creation of a market for them depends on the government deliberately creating mechanism that will make their trade possible. However, the creation of such markets is feasible, as is demonstrated in other markets for environmental services, such as the one created for greenhouse gas emissions, following the Kyoto protocol.

The justification for integrating market-orientation into agri-environmental policy, or public policy in general, can be traced to the theory of Social Market Economy, developed by German economists of the 1930's and the 1950's. According to this theory, the competitive market is superior to planned economy for reaching both economic prosperity and social justice (Peacock and Willgerodt 1989; Zweig 1980). The advantages of the competitive market over planned economy are: encouragement for enterprise and innovation, efficiency in the use of resources, and better decision making based on correct information from the price system (Lenel 1989; Peacock and Willgerodt 1989). The theorists of the Social Market Economy generally opposed the supply of goods (other than public goods) by the government, saying that goods that can be supplied through the market – should be supplied through it (Lenel 1989; v Hayek 1982).

The theory of Social Market Economy does not support non-involvement on the part of governments in the economic arena, but rather designate to the governments the role of making sure that the markets function properly, and that the competition is as perfect as possible and protected against the establishment of cartels and monopolies (Lenel 1989; Roepke 1982). Indeed, from the theory's point of view, only government interventions that help the functioning of the market can be justified (Barry 1989; Zweig 1980). Notwithstanding, it was also claimed that the government has a role in income re-distribution, in order to ensure a minimal level of livelihood to all members of society and make the risks involved in the market system bearable (Peacock and Willgerodt 1989).

The theory of Social Market Economy sees the market not only as an efficient economic instrument, but also as having ethical superiority – the market enables freedom of choice, maximization of individual satisfaction, encouragement for individuals to develop their innovative potential, and freedom from unjustified hierarchies and concentration of power (Barry 1989; Lenel 1989; Moeschel 1989; Zweig 1980).

In line with this theory, a number of academics and policy makers, in Europe and elsewhere are recently advocating the use of market-based instruments in agri-environmental policy, making it more competitive and decentralized (Gerowitt et al. 2003b; Hampicke 2006). The market-based instruments are supposed to induce the creation of a market for the

environmental services of agriculture, in which these services could be traded according to forces of supply and demand, much like agricultural commodities. However, since many of the agri-environmental services are public goods the market for their trade must be initiated and regulated by the authorities. And since expressing the public demand for agri-environmental services is a difficult task, the authorities would also often be asked to represent it, according to the principal of merit goods (Rueffer 2007). However, the authorities should strive to have as many decisions as possible taken by forces of supply and demand and not by administration officers. This is rendered possible by making the agri-environmental services into defined goods, encouraging competition in their supply, and valuating their public demand (Gerowitt et al. 2003b; Hampicke 2006).

Turning the agri-environmental service into a good that can be traded on the market is done by employing result-orientation (Briemle 2000; Matzdorf 2004; Wittig et al. 2006). The farmers are asked to prove the attainment of actual environmental results in order to be paid. These results are being thought of as an independent good that is produced on the farm, in separation from the conventional agricultural commodities; they are standardized (i.e. by defining indicators that prove their attainment) and are traded on the market for agri-environmental goods that is subsequently created. These environmental results may be, for example, weed biodiversity, and the indicator for their attainment can be defined by the number of weed species that the farmer can show on his/her farm (Bertke et al. 2005).

Encouraging competition in the supply of agri-environmental services can be done using conservation auctions (Groth 2007; Latacz-Lohmann and Van der Hamsvoort 1997; 1998). In a conservation auction, farmers submit bids in answer for a public tender, specifying the level of payment they request in order to supply an agri-environmental service. The economically or qualitatively better bids enter the scheme. Valuating the public demand for agri-environmental services is done by employing surveys (in which interviewees state their willingness-to-pay for an environmental service) or through managing the scheme by a public board, representing the local needs (Müller et al. 2002; Rueffer 2007).

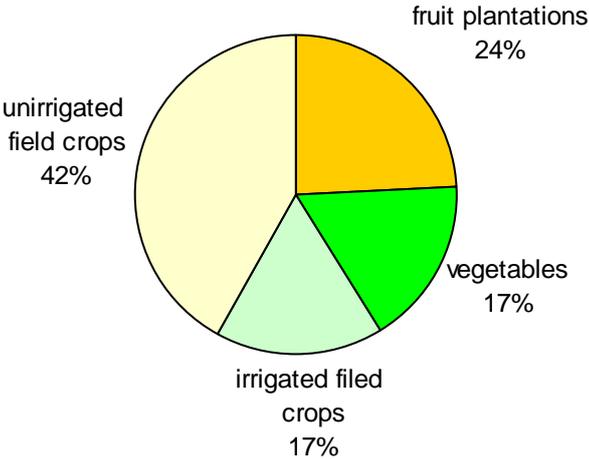
It can be seen that the above mentioned market-based instruments are grounded in the assertions of the theory of Social Market Economy: on one hand they introduce competition into agri-environmental policy, by treating agri-environmental services as products that are competitively sold by the farmers according to the demand of the public. At the same time, they retain an important role for the government as the initiator and regulator of the market for agri-environmental services, and the representative of the public demand.

The expected advantages of integrating market-based instruments into agri-environmental policy are: higher ecological impact, better economic efficiency and improved acceptance of the policy by the farmers. These considerations, together with some special conditions of farming, were the motivation for trying to integrate market-based instruments into the emerging agri-environmental policy in Israel.

THE AGRI-ENVIRONMENT IN ISRAEL

Arable land in Israel amounts to 562,600 hectares, which comprises around 25% of the total area of the country (ICBS 2006). 433,700 hectares are designated to crops, and 128,800 hectares are pastures. The rest of the arable land is used for fish ponds, water reservoirs and farm yards. 42% of the agricultural land of Israel is rain-fed, while the rest is artificially irrigated (ICBS 2004). The main irrigated field crops are vegetables and potatoes, while the main un-irrigated field crops are wheat, barley and fodder. The main agricultural branches of Israel, according to their share in the total agricultural land, are presented in figure 1.

Figure 1 Main agricultural branches of Israel, according to their share in the total agricultural land



Source: ICBS, 2006

Agriculture holds a unique place in Israeli culture. For many of the ethnical groups in Israel, agriculture plays an important role in building cultural identity, which is manifested in festivities and idioms (Gvion 2006; Kark 1992). For the Jewish majority, agricultural cultivation is connected to religious holidays that celebrate the harvest of various crops. Within Zionism, agriculture was perceived as having a higher moral value in comparison to other forms of livelihood earning (de-Shalit 1995; Egoz 1996; Tal 2007). Throughout the first decades following the state's founding, agriculture was thought of as serving public goals, such as populating peripheral areas and protecting the country's borders, and promoting ideas of social equality and public service (Kellerman 1993).

The Zionist development of the rural sector was embedded in socialistic ideology, brought by the Jewish immigrants of the first half of the 20th century from their countries of origin in Europe (Tal 2007). The ideas of cooperation and equality in rural Israel are manifested in the communal villages (*kibbutzim*) and cooperative family-farms villages (*moshavim*) that currently cultivate around 75% of the total agricultural land in the country (MOAG 2004). Even within the family-farms *moshavim*, the idea of cooperation is strongly practiced, as the land is held together by a farmers' association, and each household is allocated a parcel equal in size to those allocated to other households (Sofer 2005). For many years, farming in Israel was centrally planned according to production quotas, and until today, although many of the quotas have been cancelled, the main production means (land, water) are allocated by the state.

Table 1 Number of agricultural settlements in Israel, according to type

Communal villages	Cooperative villages	Non-cooperative villages (Jewish ethnicity)	Non-cooperative villages (Arab ethnicity)	Research farms and agricultural schools	Total
312	411	55	45	131	954

Source: MOAG, 2004

For decades the agricultural sector in Israel was protected by the government, and farmers enjoyed financial support, subsidized irrigation water, cheap access to public land and accompanying assistance in insurance, extension and research (Tal 2007). The agricultural extension and research services of the Israeli Ministry of Agriculture are well developed even today, and one instructor is employed for every 100 farmers (Goren 2008).

In the past decade, the place of agriculture within the Israeli society has changed; it is no longer hailed as serving public goals, but rather is criticized for financial failure, mishandling of state support and causing environmental hazards (Feitelson 1999; Tal 2007). This change is manifested in the diminished financial support for the agricultural sector, which is currently around 3% of the value of agricultural production (MOAG, 2006), in comparison with around 32% of the production value in the EU (OECD, 2006). However, agri-environmental services, especially in protecting open spaces against construction as well as the supply of aesthetic landscapes, are slowly being recognized by the Israeli public (Fleischer and Tsur 2000; Misgav 2000; Shemesh-Adani 2003; Shirizly 2001; Tal 2007).

Figure 2 Orchard at Bikat Hanadiv, Israel – an example of the aesthetic landscape created by agriculture



Photo taken by the author, 2003.

At the moment, policies that address the agri-environment are at the initial stages of development in Israel. Regulations on preventing agri-environmental hazards have been set. Although agri-environmental payment schemes, as practiced in the EU and elsewhere, do not exist in Israel, some existing agricultural support programs have positive environmental impacts, e.g., supporting investments in certain fruit plantations that consume less irrigation

water; or supporting investments in waste treatment facilities in dairy farms (MOAG 2005). However, these programs focus mainly on mitigating nuisances associated with agriculture, and not on supporting the positive influences of agriculture on the environment. They are also not practiced as payment schemes, but rather as partial coverage of investment in farms. The need for introducing agri-environmental payment schemes in Israel was the motivation for the pilot project that is studied here.

The current administrative atmosphere in Israel rejects subsidies to farmers; these subsidies were indeed cut back by 50% in the last decade (Natan 2007). This atmosphere renders the conventional agri-environmental payment schemes not acceptable. A market-based approach was considered to have better potential of acceptance by the financial policy makers in Israel. This approach was tested on a small scale in a pilot project at the Megido Regional Council.

METHODOLOGY: A CASE STUDY AT THE MEGIDO REGIONAL COUNCIL

The Megido Regional Council is a rural authority located in northern Israel. It consists of 13 villages, 9 of which are communal villages (kibbutzim) and 4 are family-farms villages (moshavim). Altogether, there are around 35 active farms in this regional authority, including the communal farms of the kibbutzim, cultivating around 3,600 hectares (ICBS 2008). Most of the area of the regional council is designated for nature reserves and national parks; recently, this council initiated the designation of its entire geographical area for a biosphere reserve. The undulating topography of the terrain, combined with intensive field-crops cultivation, leads to problems of soil erosion. Mitigation of this problem was the main motivation for initiating the pilot project, by encouraging the planting of olive groves.

The project commenced in January 2008 and was supported by the Ministry of Agriculture, the Ministry for Environmental Protection, the Forestry Authority and a private research fund. The project was aimed at promoting planting of olive groves, as suppliers of aesthetic landscape, preventing soil erosion and promoting biodiversity. A set of guidelines were developed for the planting and cultivation of the groves so they would support these environmental goals. The project was supposed to implement a number of market-based instruments, such as an auction for the conservation contracts and result-oriented remuneration.

I held a double position within this research project – as both a researcher and the project's manager, within a private consultancy firm. This double position could have led to

conflicts, as my aim was both to survey the attitudes of the stakeholders of the scheme and at the same time convince them to join the project and accept its principles. I tried to mitigate this possible conflict by strictly separating my work into two phases – that of interviewing and researching the attitudes of stakeholders, and that of managing the project and its various activities. During the interviews I conducted, I kept a distant position from my interviewees, presenting questions but in no way trying to influence their reactions. However, within the project's steering committee meetings, and other public forums, I took the position of the project's manager, and actively argued for its components. However, I tried to refrain from this position during the analysis phase of the meetings' records.

Although sometimes my double position created conflicts in my work, it also brought about advantages. Being the project's manager, I enjoyed access to material and information that otherwise would have been outside my reach. This included informal talks with stakeholders, participation in meetings that were outside the planned scope of the research, etc. These additional sources of information enriched my insights and contributed to the development of the study's conclusions.

My study focused on examining the cultural and institutional factors relating to the implementation of a market-based agri-environmental scheme, and the attitudes of the scheme's stakeholders towards this model. Specifically, it consisted of in-depth interviews with the stakeholders of the pilot project, using open-ended questions and follow-up probes (the outline of the interviews is given in appendix 1). The interviews focused on understanding the current institutional framework of the agri-environment in Israel, at the national and local levels; the interviewees' attitudes towards agriculture, environmental protection and market-orientation; and their opinions towards agri-environmental schemes and the market-based instruments suggested within the pilot project.

Altogether, 30 stakeholders were interviewed, including the members of the project's steering committee (9 interviewees), and eligible farmers (21 interviews). The interviewed steering committee members consisted of local (5 interviews) and national (4 interviews) level decision makers with agricultural (4 interviews), planning (2 interviews) or environmental (3 interviews) orientations.

The interviewed farmers consisted of farming managers in kibbutzim and moshavim (12 interviewees); and family farmers in one moshav (9 interviewees). It should be noted that although essentially in the moshavim every household is economically independent from the others, in 3 out of the 4 moshavim at the Megido Regional Council some or all of the fields

are cultivated collectively; so in respect to the agricultural activities – farming managers in these moshavim hold the same position as farming managers in kibbutzim.

In addition to farming managers, all active family farmers in the regional council were contacted, however only 9 were relevant for the project (i.e. cultivate crops) and willing to be interviewed. The characteristics of the interviewed farmers are detailed in Table 2.

Table 2: The demographic characteristics of the interviewed farmers in the sample

Category	Characteristic	Number of interviewees in sample
Professional position	Farming manager in kibbutz / moshav	12
	Family farmer	9
Sex	Male	19
	Female	2
Age	20-35	1
	36-50	5
	51-65	12
	66+	3
Education	High school	6
	Professional	3
	Academic	12
Ecological orientation	Organic	2
	Conventional	12
For farming managers: % of agriculture in village income	0-9%	4
	10-49%	7
	50%-100%	1
For family farmers: % of agriculture in household income	0-9%	1
	10-49%	1
	50%-100%	6
	No answer	1

The interviews lasted 45 minutes to 2 hours each. All interviews were recorded and analyzed using MAXQDA2007 software. In addition, the meetings of the project's steering committee, and a public hearing in which 20 farmers participated, were recorded and analyzed. A questionnaire was delivered to the farmers during the public hearing, and its findings are also detailed here (the questionnaire is given in appendix 2).

In addition to the findings of the study connected to the pilot project, the agri-environmental institutional framework in Israel and in Europe was studied based on an analysis of a multitude of sources, including government reports, statistical data, master plans and position papers issued by various organizations. The study also builds on the involvement of the author in a process led by academics and professionals in Israel aiming to establish agri-environmental payment schemes; this involvement enabled to gain insights and interpretations of stakeholders' opinions.

The analysis of the market-oriented European model is also based on a multitude of sources, including the experience gained in the implementation of an innovative agri-environmental scheme as a trans-disciplinary pilot project at the University of Goettingen; a project known as "the Northeim Model". The author participated in a number of this project's meetings, which enabled her to gain further understanding of the processes involved in it.

THE OUTLINE OF THE MONOGRAPH

This monograph is arranged in three main chapters. The first chapter deals with the institutional framework for developing agri-environmental schemes in Israel. It presents in detail the current situation of the agri-environment in Israel, discussing the necessity to implement agri-environmental payment schemes. It elaborates on the design of the conventional European agri-environmental programs, and the innovative market-oriented model, and examines the possibilities of introducing any of these models in Israel. It considers the local ecosystem, the institutional framework and trends in the attitudes of decision makers as parameters influencing the feasibility of implementing agri-environmental schemes in Israel, and examines the reasons why some of the market-based components that are advocated in Europe could be realized at the case study in Israel.

The second chapter focuses on the cultural background of developing agri-environmental policy in Israel. It looks at the special meaning attached to agricultural work within Zionism (a leading ideological framework in Israel) and the more controversial

position of environmental protection within this cultural framework. It also examines the place of market orientation in the agricultural sector in Israel, as a basis for implementing market-oriented agri-environmental schemes. The historical development of these three concepts is examined based on secondary sources, and their current manifestation is explored within the case study at the Megido Regional Council.

The third chapter deals specifically with implementing conservation auctions in Israel. A conservation auction was the only market-based instrument that was actualized in the pilot project at the Megido Regional Council, although it encountered objections from the scheme's stakeholders. The chapter details the results of a survey of attitudes towards conservation auctions that was conducted as part of the pilot project, exploring their perceived advantages and disadvantages. It concludes with some policy recommendations for increasing the acceptability of conservation auctions, as were practiced in the pilot project at the Megido Regional Council.

CHAPTER 1: EUROPEAN MODELS AND PROTECTION OF THE AGRI-ENVIRONMENT IN ISRAEL

INTRODUCTION

This chapter explores the need for developing agri-environmental payment schemes in Israel; the institutional framework for their implementation; and alternative models for their design. It is asserted that Israel's relatively strong economy makes agri-environmental payment schemes feasible, and as the awareness of the public and some policy makers to agri-environmental services is high – the implementation of agri-environmental schemes is also necessary. Nevertheless, agri-environmental payment schemes are not yet practiced in Israel. The reasons for this deficit will be examined and alternatives for the development of such measures will be suggested.

Two models of agri-environmental payment schemes are considered here as potentially suitable for introduction into Israel. The first is the conventional payment scheme, as has been practiced in the EU for almost two decades. According to this model, farmers voluntarily take upon themselves environmental commitments in exchange for payment set by the authorities. The second model is market-based, and emphasises competition between farmers for the delivery of environmental goods. This is an innovative model that is currently practiced in some countries and regions within mainstream policy as well as experimental settings (Bertke et al. 2005; Klimek et al. 2008; v Haaren and Bathke 2008; Wittig et al. 2006).

The main question asked here is which model – the conventional European model or the innovative market-oriented one – is better suited for agri-environmental payment schemes in Israel, and what are the factors that influence the choice between the models. I will consider three main factors here (1) The characteristics of the local ecosystem and its environmental needs; (2) The local institutional framework; and (3) Trends in public attitudes, as expressed by economic, agricultural and environmental policy makers. It seems reasonable to take these three factors into account when deciding on the design of agri-environmental payment schemes, since (1) Protecting and promoting the local ecosystem is the goal of agri-environmental measures; agri-environmental policy instruments that are not compatible with the needs of the local ecosystem are therefore unreasonable. (2) The local institutional framework is the platform on which policy instruments should be activated; new instruments that are not suitable to the existing institutional framework will face difficulties in

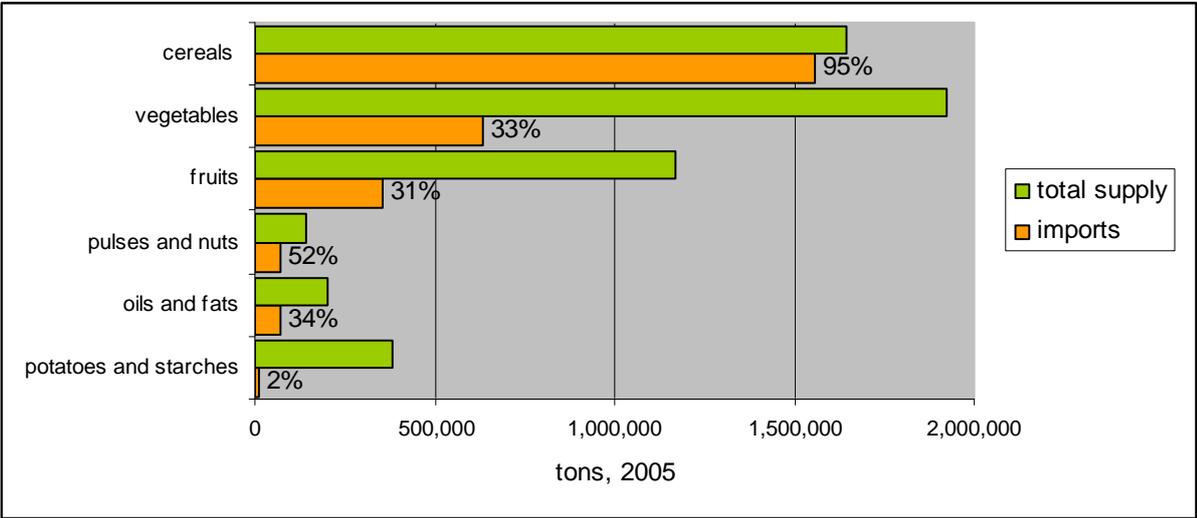
implementation. (3) A major condition for take-up of policies is their understanding and acceptance by policy makers; this is usually connected to the policy maker’s ability to explain and justify these policies to the public at large. Therefore major trends in the public attitude seem also to be an important factor in determining the design of agri-environmental payment schemes and the instruments implemented within them.

THE NECESSITY OF INTRODUCING AGRI-ENVIRONMENTAL PAYMENT SCHEMES INTO ISRAEL

Environmental services of Israeli agriculture

Agriculture currently plays a minor role in Israel both economically, and as a way of life. Only 1.8% of the country's total net domestic product derives from cultivation (although related industries account for a larger share of the economy), only 2% of the labor force is employed in agriculture, and less than 9% of the population lives in rural areas (ICBS 2006). Israel imports a large share of its food consumption needs, as presented in figure 3 (ICBS 2006); “food independence” is hardly achievable given the local semi-arid climate and the population size of over 7 million.

Figure 3 Food supply and imports in Israel



Source: ICBS, 2006

Israel is a highly urbanized country. More than 90% of the population resides in urban settlements (ICBS 2006), in comparison with 50% of the population in the EU (EU 2003). The population density in Israel is relatively high: around 305 people / km² (ICBS 2006). Due

to the high population growth rate (1.9% annually during 2001-2005), which mainly results from the high birth rate among the traditional and religious populations of the country, one may predict that urbanization will continue to rise in Israel in the near future.

A question may be raised as to the necessity of agri-environmental policies in such an urbanized country. However, the urban context of cultivation in Israel is often seen as the very reason for its importance. A gradual process, starting in the mid-1980s, in which the economic viability of local agriculture declined, while urbanization of the core area sharply increased, led to the perception of agricultural fields mainly as suppliers of open space amenities to urban dwellers (Feitelson 1999). Most of the open areas surrounding the urbanized core in Israel are designated for agriculture, whereas nature reserves, national parks or protected forests are located at a greater distance (see Figure 4). As the economic viability of agriculture in Israel continues to decline, it is argued that agri-environmental schemes are needed in order to sustain the multifunctionality of agricultural areas, as both fields of production and suppliers of environmental services.

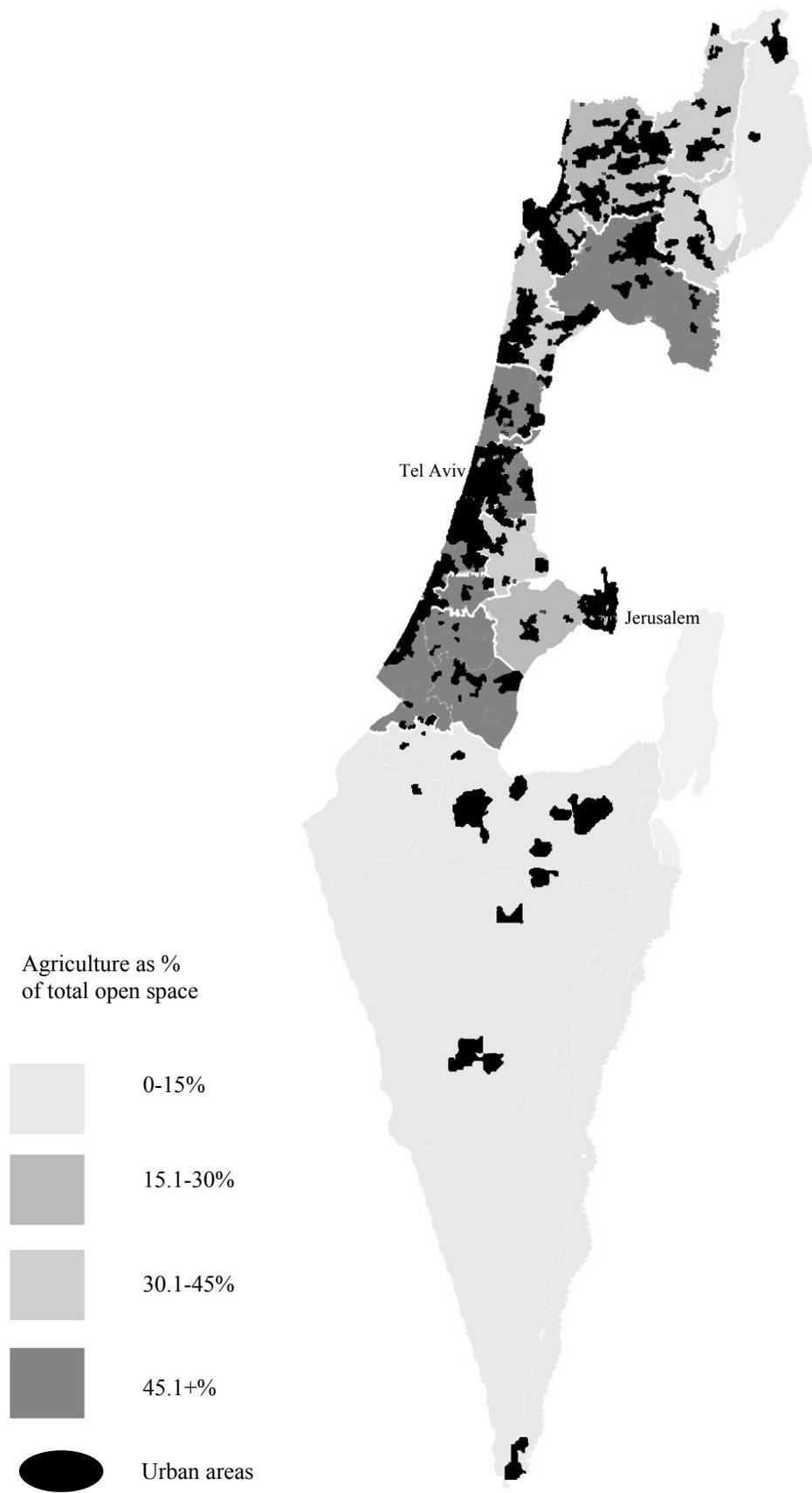
Creation of aesthetic landscapes and preservation of cultural heritage are considered as the major environmental services provided by Israeli agriculture (Zaban et al. 2004). Landscape preferences surveys show that the Israeli public values the aesthetic qualities of agricultural landscapes, sometimes over those of natural landscapes (Misgav 2000; Shirizly 2001). Willingness-to-pay surveys identify a steady demand for the aesthetic amenities of agricultural landscapes (Fleischer et al. 1997; Shechter et al. 1998; Shemesh-Adani 2003; Shirizly 2001). The values obtained within the framework of different studies are well in the same range, demonstrating that the Israeli public is consistent in its demand for agri-environmental amenities (see Table 3).

Table 3 Israeli public willingness-to-pay for aesthetic qualities of landscape types, findings of previous studies

Source	WTP (NIS)*
Shemesh-Adani, 2002	64.10 – 43.06
Shirizly, 2001	29.80
Shechter et al., 1998	46.07-41.79
Fleischer et al., 1997	54.76-27.99
Total range	29.8 – 64.10

*NIS is the Israeli currency. All the values relate to a one-time donation for preserving the landscape, and are inflation-adjusted for 2005.

Figure 4 Agriculture in proximity to Israeli urban areas



Source of map: Author, based on data of the Israeli Central Bureau of Statistics, 2002

Agriculture plays an important cultural role for all ethnical groups in Israel (de-Shalit 1995; Egoz 1996; Gvion 2006; Kark 1992). Therefore, sustaining agriculture is considered by many as a cultural goal, regardless of its direct production role.

Threats to the supply of agri-environmental services in Israel

As in many countries, agriculture and environmental conservation in Israel are increasingly practiced in the urban and peri-urban context. This context presents special challenges to sustaining the agri-environment – mainly the reduction of farmland in favour of urbanization, and the abandonment of cultivation in favour of urban employment (Bryld 2003; FAO 1999; Mougeot 2000). Around 65% of the development in Israel takes place at the expense of agricultural land (Frenkel 2001). In the labor market, only 12% of rural employment presently remains in agriculture, in comparison with 31% in 1984 (Sofer and Applebaum 2006).

These tendencies raise questions concerning the future existence of farming in Israel. The abandonment of agricultural cultivation is already widespread, as approximately 13% of the agricultural land has not been farmed for long periods of time, and without plans for its re-cultivation (Gal 2003; MOAG 2004). As the cultivated area diminishes, its environmental amenities decrease as well. The abandonment of agriculture may therefore be the major challenge that Israeli agri-environmental payment schemes would need to tackle.

Current mechanisms of sustaining the agri-environment in Israel

The mechanisms implemented in Israel in order to sustain the agri-environment include instruments that protect farmland against construction; and instruments that support cultivation activities.

The mechanisms that aim to protect Israeli farmland against construction include zoning, land tenure regulations and the activities of a special commission – the Commission for Protection of Agricultural Land (CPAL) (Feitelson 1999). Zoning is performed by master plans at the national, regional and local levels, which determine the land that can be designated for development. Construction on land that is designated as farmland is usually prohibited. The zoning mechanism is supported by the land tenure system, which does not allow a lessee of state-owned agricultural land (the majority of farmers in Israel) to financially gain from its development. Another mechanism is the CPAL, which from the mid-1960s to the beginning of the 1990s has held veto power over plans to change the designation of farmland into land for construction (Egoz 1996).

During the 1990s, many of these mechanisms were weakened. A massive wave of immigration to Israel in 1990-1992, mainly from ex-Soviet-Union countries, led to an urgent need for housing, and agriculture was confronted with massive pressure in favor of construction. The approval of development plans was accelerated, and the influence of the CPAL was drastically curbed (Egoz 1996). Lessees of agricultural land were granted the right to develop it and enjoy some of the associated financial profits (Feitelson 1999). This process alarmed the environmentalist and planning communities in Israel, and “protecting open spaces” soon became the principal slogan of a number of environmental groups. This stance was adopted by the formal planning institutions in the 1992 National Master Plan for Immigration Absorption (TAMA 31) and the Central District master plan, whose draft was submitted in 1993. In the early 2000s, court decisions reversed the regulations allowing farmers to gain from construction on agricultural land.

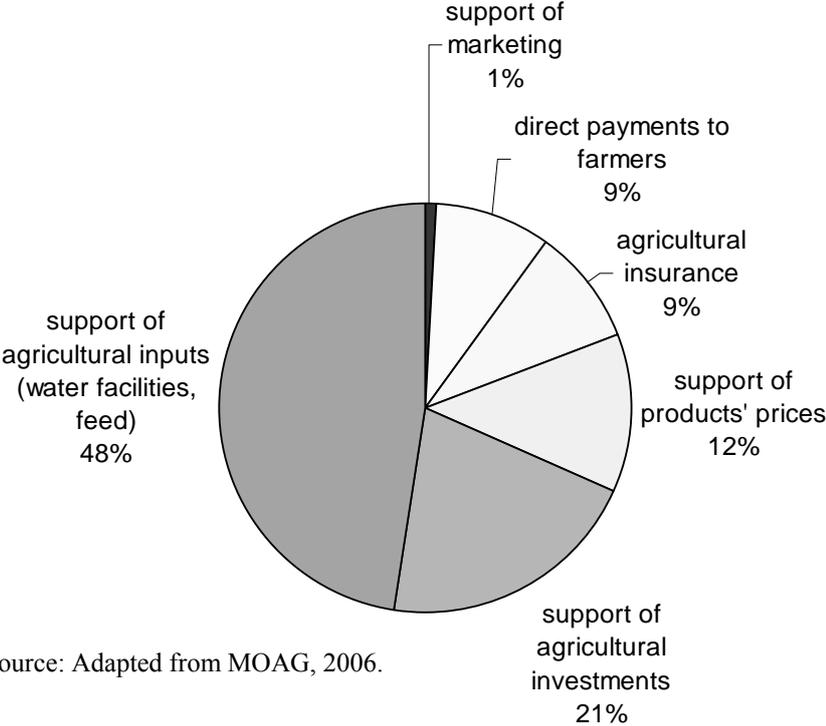
The question of what should be done in the protected open spaces was discussed to a lesser degree. Questions such as: Are agricultural uses still appropriate for the scarce open space of urbanized Israel, and if yes – which type of agriculture? – were seldom raised. It was argued that the desire to avoid alienating the few farmers who were willing to support farmland protection prevented environmentalists from proposing limitations on agricultural activities within the framework of master plans (Feitelson 1999). It could also be argued that the fact that environmental groups chose to mainly influence planning procedures has led to the limitation of their scope of action. Master plans can guarantee only that farmland will not be built upon. The desirable agricultural use of this land (e.g., extensive or intensive cultivation, prevention of abandonment) must be achieved through other instruments.

The current mechanisms for sustaining cultivation activities in Israel are based on command-and-control measures through the enforcement of the land tenure regulations, and on economic support for agriculture. The dominant land tenure type in Israel is lease of state-owned land, which comprises approximately 90% of the country's land (Egoz 1996). According to the terms of the lease, the farmer is obligated to cultivate all the land he / she leases. When the lessee stops cultivating the land for longer than 3 years – the state may terminate the contract and lease the land to another farmer. However, it is not known that this regulation was ever enforced, and it has failed to prevent the abandonment of around 13% of the arable land in Israel (Gal 2003).

The second instrument used to sustain agricultural cultivation in Israel, as in many other countries, is financial support for farmers. In Israel this is relatively modest. The vehicle of support also differs between Israel and the EU: whereas most of the agricultural support in

the EU is provided through income payments to farmers, in Israel it is mainly provided through partial coverage of investments in farms (Figure 5) and through charging lower prices for irrigation water, as compared with the price charged for water for domestic use. Both mechanisms can be seen as unsustainable, as they may encourage careless use of scarce water resources and production intensification.

Figure 5 The vehicles of public support for agriculture in Israel



Source: Adapted from MOAG, 2006.

At the moment, policies that explicitly address the agri-environment are at the initial stages of development in Israel. In July 2007, the Ministry of Agriculture announced that environmental considerations will be applied when making decisions on future support for agriculture (IFF 2007). However, the exact mechanism for implementing this consideration has not yet been specified. Some established agricultural policies have positive environmental impacts, e.g., supporting investments in planting olive and almond groves that consume less irrigation water; or supporting investments in waste treatment facilities in dairy farms (MOAG 2005). In fact, an analysis of the support budget of the Israeli Ministry of Agriculture revealed that over 20% of the budget is allocated to programs bearing positive environmental impact (Table 4); this surpasses the share of investment in agri-environmental schemes in the EU (around 10% of the total budget for agriculture, v Haaren and Bathke 2008), although it is

much smaller in absolute monetary terms. The existing programs focus mainly on mitigating nuisances associated with agriculture, and not on supporting the positive influences of agriculture on the environment. Furthermore, these programs are not implemented as payment schemes, but rather as schemes of partial coverage of investment in farms; this one-time vehicle of payment cannot support ongoing environment-friendly cultivation.

To summarize, it seems that the current policies of sustaining the agri-environment in Israel are only partly successful, and agri-environmental payment schemes might be necessary and beneficial. Experience gained in the EU may serve as a reference when designing the appropriate agri-environmental instruments for Israel.

Table 4 Israeli agricultural support programs with positive environmental implications

Program	% of total agricultural support, 2005	Type of support	Environmental implication
The reform in the dairy branch	12.6%	Support for investment in waste treating facilities in dairy farms	Treatment of dairy farms' wastes
Investments improving the efficiency of water use	1.7%	Support for investment in water systems, and low-irrigated plantation (olives)	Reduction in consumption of water
Direct payments to wheat farmers in southern areas	9%	Direct payments to wheat cultivators	Cultivation of wheat fields as a means of protecting open spaces
Total	23.3%		

Source: Author's analysis based on data in MOAG, 2006

THE AGRI-ENVIRONMENTAL SCHEMES OF THE EU AND THEIR TRANSFERABILITY TO ISRAEL

The EU's agri-environmental policy was initiated by some member states as voluntary programs starting in the early 1980s. The policy was made compulsory in 1992, with the integration of agri-environmental measures as part of the "second pillar" of the Common

Agricultural Policy. It presently includes commands and prohibitions pertaining to cultivation, advisory and educational measures, as well as financial incentives (Bräuer et al. 2006). Currently, the agri-environmental schemes are based on Council Regulation (EC) No. 1698/2005, and are mutually financed by the EU and the individual member states, which are responsible for their design and implementation within rural development programs.

Within the agri-environmental schemes, the farmers are usually requested to perform certain actions that are considered environmentally desirable, or refrain from carrying out others. In return, they receive a payment that is usually uniform for all the participants in the program in an entire region or federal state, and is calculated on the basis of the estimated average opportunity costs. The farmers' participation is voluntary, and is organized by individual contracts between the farmers and the authorities. Participation in the programs is rendered attractive by remuneration that exceeds the calculated opportunity costs (Marggraf 2000). The schemes aim at ecological results that surpass “good farming practices”, as defined by member states according to EC Council Regulation No. 1698/2005.

In exploring the possibilities of transferring this conventional European model to Israel, I would like to point to a number of similarities and differences in farming conditions between Israel and the EU. One of them emerges from the urban context of Israeli agriculture. The agri-environment of the urban fringe has received little attention from policymakers in Europe thus far. A review of the inventory of European agri-environmental schemes reveals only a few programs that are explicitly directed at the urban milieu. Some of these, such as the Community Woodland scheme in the UK, promote the transformation of agriculture at the cities' fringe into woods (Bateman et al. 1996). Only a small number of programs, such as in the Provence Alpes-Cote-d'Azur, France (DRAF Provence Alpes Côte d'Azur 2005), aim to preserve agricultural cultivation around cities – the major task that Israeli agri-environmental schemes should focus on. However, as the EU's current rural development policy (Council regulation EC No. 1698/2005) aims to take into account the “diversity of situations ranging from remote rural areas... to peri-urban rural areas under increasing pressures from urban centres” (paragraph 11), one may assume that in the future more EU agri-environmental schemes will tackle the particular challenges of agriculture in the urban fringe. One of these is the definition of the “opportunity” that the farmer gives up due to environmental cultivation. When the farmers in the urban fringe define their “opportunity” as construction on the land (as some Israeli farmers do) the “opportunity costs” that the agri-environmental scheme needs to remunerate are very high.

Some institutional aspects support the implementation of the conventional European agri-environmental model in Israel. For example, a definition of “good agricultural practice” exists, within the framework of some 30 laws and regulations that relate to farming activities (MOEP 2007), covering issues such as the prevention of hazards (noise, foul smells, water and air pollution); use of dangerous materials (fertilizers and pesticides); mitigation of waste caused by crops and livestock cultivation; etc. The service promoted by agri-environmental schemes in Israel should extend beyond these regulations.

However, other institutional aspects restrict the use of the conventional agri-environmental model in Israel. For example, the special land tenure system in the country strongly limits the individual choices a farmer can make. The majority of Israeli farmers who lease state-owned land are not allowed to leave their land fallow for a long time. Some of the aims of agri-environmental schemes in the EU are therefore excluded in Israel; farmers cannot be asked to set aside land for regeneration of natural vegetation, as is requested in some European schemes. Additionally, the peri-urban nature of most of the farming in this country makes set-aside schemes undesirable – as the urban public prefers to have a productive landscape, and uncultivated plots are soon marked as “neglected” and attract unwanted uses, such as areas for garbage disposal.

Another limitation emerges from the prevailing vehicle of support for farmers. Payment-based agri-environmental schemes in Europe are grounded in a tradition of agricultural subsidy payments (Bräuer et al. 2006). In Israel, income payments to farmers are limited in scope, and are not anchored in laws, but rather are negotiated annually according to the available budget. It may be difficult to establish a system of income payments for agri-environmental services alone.

Another limitation to adopting the conventional European agri-environmental model in Israel is the prevailing attitude of policy makers (who reflect to large degree trends in the public’s attitude). At the moment, Israeli policy makers oppose agricultural subsidies and promote market orientation in the rural sector. This attitude is evident in the drastic cutbacks in public support for farmers in the last decade (Natan 2007), and has influenced the rejection thus far of implementing agri-environmental payment schemes in Israel (as was stated by the head of the Department for Open Spaces at the Israeli Ministry of Environmental Protection, during an interview in the framework of this research project).

To sum, although the conventional European model of agri-environmental payment schemes is compatible with some aspects of the Israeli institutional framework, and the local environmental needs stemming from the urban context of farming, its incompatibility with the

major trend in policy makers' attitude prevented its implementation thus far. In this issue, the trend in policy makers' attitudes seems to have more importance than the other factors that were considered here. As the market-based agri-environmental model emphasizes competition between farmers, it was considered by pilot project's team and myself to be more in line with the prevailing attitude of the Israeli policy makers, and therefore to have better chances of being successfully implemented and adopted in mainstream Israeli policy.

MARKET - BASED INSTRUMENTS IN EUROPEAN AGRY-ENVIRONMENTAL SCHEMES

The conventional model of European agri-environmental schemes was criticized for its low level of efficiency in achieving environmental aims (Kleijn et al. 2006; Kleijn and Sutherland 2003), and for sub-optimal cost effectiveness (Marggraf 2003; v Haaren and Bathke 2008; v Haaren and Bills 2007). In order to improve the schemes, the integration of market economy components into them has been recently discussed, and has partially been incorporated into the policy or implemented within the framework of pilot projects (Gerowitt et al. 2003c; Hampicke 2006).

With respect to the provision of private goods to society, the decentralized market system has often proved superior to a central planning system. Markets for agri-environmental services are not as easy to establish as markets for private goods, as most of the agri-environmental services are public goods. Notwithstanding, it is possible to introduce some market components into the design of agri-environmental schemes (Gerowitt et al. 2003c; Hampicke 2006), such as: (a) Result-oriented remuneration (Briemle 2000; Matzdorf 2004; Wittig et al. 2006); (b) The use of auctions for the determination of the payments to farmers (Groth 2007; Latacz-Lohmann and Van der Hamsvoort 1997); (c) Public participation in defining the demand for environmental services (Müller et al. 2002); and (d) Regional organization (Bauer 2006; Eggers 2005).

Result-oriented remuneration

The consumers of agri-environmental services are interested in the ecological results, and not only in the activities carried out by the farmers (Gerowitt et al. 2003c; Hampicke 2006). Therefore, remuneration should be given for the actual effects of agriculture on the environment, and not merely for activities considered appropriate, as in the conventional agri-environmental schemes. For example, in the case of livestock farmers, the conventional

programs may pay them to graze their herds in order to sustain grassland biodiversity. On the other hand, a result-oriented scheme would pay the farmers for the actual presence of flora and fauna in their field, regardless of how it came into existence.

In addition to improving the environmental effectiveness of the schemes, result-orientation also supports farmers' environmental innovation, as they do not receive guidelines for the production of the environmental service, and can develop the conservation protocols individually (Latacz-Lohmann and Schilizzi 2005). Result-orientation may also promote the farmers' interest in environmental problems, as well as cooperation between farmers in the quest for their solution (Matzdorf 2004). The absence of restrictions on farmers' actions is thought to promote their acceptance of the schemes (Klimek et al. 2008).

The feasibility of a result-orientation approach is conditional on a number of factors (Bertke et al. 2005; Gerowitt et al. 2003a; Matzdorf 2004; Wittig et al. 2006), mainly that the results are defined in a clearly measurable way, so that identification and monitoring may be easily performed; and that the results are associated with a particular field and producer, to enable the farmer to prove that he/she supplied it (Bertke et al. 2005; Briemle 2000; Wittig et al. 2006). Usually, a result-oriented project employs a set of indicators as proof of environmental result attainment. Weed species on arable land, or herb species in grassland, may be a good indicator for the attainment of agricultural biodiversity (Bertke et al. 2005; Briemle 1999; Matzdorf 2004; Wittig et al. 2006). Other indicators that have been used in result-oriented schemes include meadow bird clutches or carnivore offspring (Musters et al. 2000; Zabel and Holm-Mueller 2008).

Currently, result-oriented agri-environmental schemes for the promotion of plant diversity in grasslands are implemented within the framework of agri-environmental schemes in some federal states in Germany and in Switzerland, as well as within the Bush Tender program in Australia (DSE 2008).

Auction mechanism

Auctions, practiced as public tenders, can serve as an appropriate instrument for the efficient allocation of public money in exchange for the provision of environmental services, in the same way as they are used in the provision of other public goods by private firms (Stoneham et al. 2003). Policymakers lack information about the production conditions of the single farmer. Auctions provide a mechanism for flexible allocation of public money based on the farmers' individual production costs (Latacz-Lohmann and Van der Hamsvoort 1997; Mello et al. 1998). In an agri-environmental scheme that employs auctions, each farmer

calculates the production costs of the agri-environmental service by him/herself, and then submits a bid in response to a public tender. The farmers who offer the lowest bids will be accepted into the program, and the payments will be made according to their bids.

Conservation auctions have been implemented in some specific programs in the USA and Australia, as well as in some experimental projects in Europe and elsewhere (CJC Consultants 2004; Jack et al. 2008; Kirwan et al. 2005; Klimek et al. 2008; Stoneham et al. 2003; v Haaren and Bathke 2008). Article 39 of the Council Regulation (EC) No. 1698/2005 recommends the use of auctions for agri-environmental services, provided they increase the efficiency of the scheme.

Participatory approach

The price, as an indicator of value and scarcity, is an important principle of the market system. Principally, the price of specific agri-environmental goods should be determined by their value to the public and not by their production costs, as it is usually the case in the conventional agri-environmental schemes (Gerowitt et al. 2003c). Within the framework of a market-oriented agri-environmental scheme, the sum of the remuneration given to the farmers should be determined by the value of the agri-environmental service they provide to the public. In order to determine this value, it is necessary to implement a participatory approach in setting the economic parameters of the scheme. For example, the level of payment to the farmers can be set using sophisticated assessment methods to determine the population's willingness to pay for agri-environmental services. Another way of considering the public's preferences is engaging a commission of relevant local stakeholders to represent the public demand and to decide on the detailed design of the scheme (Bertke et al. 2005; Gerowitt et al. 2003c; Musgrave 1956/57; Rueffer 2007).

In addition to expressing the actual demand for agri-environmental services, a participatory approach in agri-environmental policies helps mediate interests between groups, thus ensuring that the aims of the policy are accepted by many. It also improves the amount and quality of information that the decisions are based upon by benefiting from the knowledge of local laypersons (Prager and Freese 2009). Public participation allows policy makers to gain insights into the social network that will be required to implement the policy, and thus understand the probability of their acceptance (Newig et al. 2005).

Public participation in the design of environmental policy has been promoted by Agenda 21 and by the Convention on Biological Diversity. In the EU, public participation constitutes the core concept of the Aarhus Convention and its resulting European legislation.

EU member states are now required to integrate citizens' participation into various policy areas; examples include "the leader concept" in EC Council Regulation No. 1698/2005, and the Water Framework Directive 2000/60/EC.

Regional organization

Natural conditions and land use types differ widely between regions. So do public preferences, and hence the willingness to pay for agri-environmental services (Marggraf 2000). This calls for the regional organization of agri-environmental schemes, in line with the European Union's principle of subsidiarity (Cross 1995; Groth 2008; Prager and Freese 2009). With the adjustment of the scheme to regional particularities – the regional ecosystem, consideration of the local demand, and the integration of local knowledge – a higher effectiveness can be attained. Some evaluations of agri-environmental measures demonstrate the good results of regional and site specific measures, in contrast to more global measures (v Haaren and Bathke 2008).

Although these market-based components have been argued for by European academics for almost a decade, they are actually integrated into policy in only a number of countries or regions. Indeed, these components are not without faults. Result-orientation faces the problems of unobservability of some environmental outcomes and unclear landholder responsibility and is therefore practicable for only a number of environmental benefits, such as plant biodiversity (Klimek et al. 2008; Latacz-Lohmann and Schilizzi 2005). It also exposes the farmer to risks, as the effects of management changes on the environment are not always clear, and the impact of unexpected climate events cannot be predicted. In fact, result-orientation shifts the risk of lower environmental effectiveness away from the government and onto the farmer, and may reduce the level of acceptance of the scheme by risk averse farmers (Latacz-Lohmann and Schilizzi 2005).

A conservation auction is a complex incentive mechanism with a higher risk of failure in comparison to a flat-rate scheme (Latacz-Lohmann and Schilizzi 2005). The use of auctions is expected to be more complex to administer, entail higher transaction costs to the farmer and the administration and require higher human capital to design and implement (Cason and Gangadharan 2004; Connor et al. 2008; Ferraro 2008; Latacz-Lohmann and Van der Hamsvoort 1998; Lowell et al. 2007). Auctions are probably worth their administrative costs only when there is a high degree of information asymmetry, heterogeneity of costs among farmers, and a large pool of bidders to induce competitive pressures (Ferraro 2008;

Latacz-Lohmann and Van der Hamsvoort 1998); this is often not the case in targeted sites, where high environmental assets are concentrated in a small area (Stoneham et al. 2003). The use of auctions does not prevent the farmers from getting payments that surpass their reservation rents (Kirwan et al. 2005). When conservation auctions are issued repeatedly, their contribution to economic efficiency diminishes, as the winning price level reaches that of the price the administration was willing to pay under a fixed-rate scheme (Lowell et al. 2007; Schilizzi and Latacz-Lohmann 2007). Auctions also run the risk of being perceived as unfair by farmers (Latacz-Lohmann and Schilizzi 2005).

As for public participation – a number of technical problems are involved in the implementation of this principle. Often, the authorities do not know who to involve, when and for which purpose. Established organizations often oppose participatory approaches, as they may bring about a reallocation of power, budgets or other limited resources (Prager and Freese 2009). Participation is associated with additional efforts and costs on the part of the authorities, and is exposed to misuse by decision makers with hidden agendas: some may choose to draw out a public participation process in order to delay the implementation of challenging policies; others may utilize public participation forums as arenas for displaying their political power, rather than focusing on the issue at hand. Consequently, a participatory process might hinder quick and effective implementation of a needed policy (Newig et al. 2005). In addition, relying on a public participation mechanism subjects the valuation of experts to that of the public; the ecological service in question must enjoy broad societal demand, otherwise its conservation would not be supported, even if conservation experts believe it is of high value (Klimek et al. 2008).

As for regional organization – some centralized administrative systems do not support the implementation of this principle, as will be demonstrated by the Israeli case study.

TRANSFERRING MARKET-BASED INSTRUMENTS OF EUROPEAN AGRICULTURAL ENVIRONMENTAL SCHEMES TO ISRAEL

Although they are not without faults, the advantages of the market-based components of European agri-environmental schemes call for their integration into the emerging agri-environmental policy in an international context. The prospects and challenges of their implementation in Israel are detailed here, based on the findings of the pilot project carried out at the Megido Regional Council and the attitude survey of the stakeholders involved in it, as described in the introduction to this monograph. I will focus my discussion on the

correspondence of the market-oriented components with the needs of the local ecosystem, the institutional framework and the attitudes of the policy makers involved in the project.

Result-oriented approach

In general, result-orientation is integrated into the agricultural administration framework in Israel. Remuneration for investments in farms (a main instrument of farmers' support in Israel) is not made before the farmer has proven that he/she has actually made the investments. However, public support is not conditioned on actual agricultural achievements (e.g., better yields). Similarly, in the environmental policy, polluters are sometimes encouraged to mitigate their nuisance by partial coverage of investments in a relevant technology; however, to the knowledge of the policy makers in this survey, payment is not conditional on actual environmental results (i.e., a lower level of pollution).

In line with the institutional framework, the prominent attitude towards result-orientation among the policy makers in the survey was supportive (supported by 6 out of 9 interviewees). In fact, many of them stated that it "goes without saying" or is a "must". It is worth noting, however, that 3 policy makers (and 6 interviewed farmers) understood result-orientation as a means of enforcement (ensuring that the farmers do what they have committed to do before getting paid) and not as an instrument for achieving environmental effectiveness. This raised objections to the approach, on the grounds that it appears as though the authorities do not trust the farmers to fulfill their commitments.

Although the institutional framework and the stakeholders' attitude largely supported result-orientation, the needs of the local ecosystem determined that this approach could only be partially implemented in the pilot project. The major agri-environmental problem at the Megido Regional Council is soil erosion, and therefore the project aimed to encourage the planting of olive groves, as means of erosion mitigation. Another service that the groves were meant to provide was creating aesthetic landscapes, and to this end a number of guidelines were established regarding the height of the trees and the density of the groves.

When looking at the required conditions for implementing a result-oriented approach, it seems that only some are present in the pilot project: the groves' association with a single farm and grower cannot be questionable; the design and composition of the desirable olive grove can be determined in a measurable way (e.g., specifying the interval between trees, their height etc.), which is easy for the farmer to prove and for the public to monitor. However, such a definition of the landscape qualities of the grove does not leave the farmer much room for innovation, which is one of the goals of result-orientation. In addition, the

mitigation of soil erosion cannot be associated with a specific producer or farm, and is difficult to measure. Therefore, the result-orientation in the pilot project was expressed only in conditioning the payment on the planting of the groves, but not on achieving environmental improvement (erosion mitigation), as advocated by the innovative European model.

Auction mechanism

Tenders have a long tradition in the Israeli governance system, due to many years of tendering obligation instituted within the framework of the Municipalities Ordinance, governmental regulations (Shalev 1989), and finally by the “Law of Obligatory Tendering” from 1992. Consequently, it is feasible to employ tenders for the supply of agri-environmental services as well. Tenders could be incorporated into the current system of support for agriculture in Israel, as the competing bids can relate to the share of the investment in farms that the government will be asked to reimburse. In the pilot project it was suggested that the farmers would compete on the share of public remuneration for their investment in planting olive groves.

The interviews revealed that although tenders are practiced in planning and public construction in Israel, they are seldom practiced in relation to agricultural policy. Farmers are allocated public support according to a “first-comes-first-served” principle. The only semi-agricultural organization that often employs tenders is the Forestry Authority, when it allocates cultivation and tree-clearing rights in forests. As some of these forests are actually fruit-tree groves, the cultivation tenders of the Forestry Authority resemble the auction that was proposed in the Megido Regional Council project.

The stakeholders in the project presented mixed feelings towards the auction mechanism. It was supported by only 5 out of the 9 policy makers in the project. Many more arguments were raised against it than in support of it (Table 6). The discussion over the design of the scheme – flat-rate versus auction – continued throughout all the meetings of the project's steering committee, and ended due to two arguments: first, that the administration “does not know” how to legally transfer money to private entities (e.g., farmers) without an auction (an argument raised by the regional council’s architect); and second, that a flat-rate scheme appears to be too similar to subsidies, which are considered unwanted (raised by the representative of the Ministry of Agriculture). Consequently, the institutional framework that obligates auctions, and the prevailing attitudes among national policy makers, who reject agricultural subsidies, were the determining factors influencing the choice to use an auction mechanism in the project. It should be noted that the main argument in support of

conservation auctions in the literature – that they promote economic efficiency and save public funds – was not raised by the policy makers in my survey, and when provoked with it – was rejected as unimportant or misleading.

Participatory approach

Public participation in decision making in Israel today is realized mainly within the framework of spatial planning. According to the “Law of Planning and Construction - 1965” spatial plans that receive preliminary approval by the planning authorities must be open to public scrutiny, and those who feel harmed by them may file an objection. In addition to this formal mechanism, a more informal approach has been implemented by the planning authorities in recent years, and many plans are accompanied by a process of public hearings, preference surveys, consultations with focus groups, etc. (Kaplan 2004).

Notwithstanding, public participation has thus far been limited to the regulatory system, and is seldom practiced by the initiatory system (Soen 1997). The latter includes the ministries in charge of development (Housing, Trade and Industry, Agriculture) and other governmental and semi-governmental bodies that initiate and implement development projects. The formal system in Israel therefore allows public participation in the process of decision making concerning land use, but not in decision making regarding projects that realize the land use. On the other hand, informal activity aimed at influencing policy through NGOs is widespread, especially in the case of agricultural policy, since farmers’ organizations are active in many decision making bodies.

The Megido Regional Council is familiar with public participation, as it implemented such an approach within the recent process of designating its area as a biosphere reserve. The local stakeholders said that the Regional Council tries to incorporate public participation in all its actions, including education, planning and environmental decisions.

The policy makers in the survey were generally supportive of the idea of public participation (7 out of 9 interviewees), as a way of expanding the level of acceptance of the policy, improving it and enhancing dialogue between farmers and non-farmers. Notwithstanding, six policy makers raised a number of reservations concerning this approach, such as who to include in the process, how to manage it, and in which questions to involve the public. Whether to involve the farmers or the public at large comprised a central question. Four policy makers said that the public at large does not have agricultural knowledge, and therefore should not be involved. Five policy makers claimed that the non-farming public is hostile to the farmers, and regards them as abusing public resources; therefore, they believe it

is of very little use to try to include this public in the decision making process concerning the allocation of public funds to farmers.

Public participation in the pilot project involved only the farmer population in the Megido Regional Council (through personal interviews and a public hearing that influenced the design of the scheme), but was not open to the public at large, due to the project's budgetary constraints. Therefore, setting the project's budget according to the public demand for agri-environmental services, as advocated by the innovative European model, was not included in the project. However, the project's stakeholders were consulted regarding the feasibility of implementing this approach. Although acknowledging the possibilities of translating public preferences into economic values, 7 out of the 9 interviewed policy makers rejected the idea of involving the public in setting the project's budget or the amount of payment to the farmers. It was argued that the public's stated willingness-to-pay is not based on real economic considerations, is unstable, and is sometimes biased by particular interests.

Regional organization

The governance system in Israel is rather centralized. For example, most of the Ministry of Agriculture's decisions are made on the national level, despite the fact that the country is divided into 5 agricultural districts. The districts do not have independent budgets, and they can only submit recommendation to the central administration on issues involving the allocation of financial support to farmers. Regional organization exists within the realm of open-space management, for example, in the form of watershed administrations. These are often voluntary organizations that unite a number of municipalities in order to manage a river basin and the open spaces associated with it. However, these are also mainly advisory boards, with no statutory power or budgetary authority.

As for local governance, in the urban sector, governance is administered either at the national level or at the municipal level. In the rural sector, an intermediate level of governance exists, as villages are grouped together and governed by one "regional council". In total, there are 54 regional councils in Israel, ranging broadly in size, from 3 to 4,000 sq km, and from 3 to 63 villages (ICBS 2005).

The division of authority between the villages and their respective regional councils has not been clearly defined in Israeli legislation (Applebaum 2002). In the past, the regional councils had very little effective governance capabilities, and each village managed its educational system, environmental services, etc. independently. However, since the 1990s, following an economic crisis in the rural sector that made it impossible for many villages to

continue providing municipal services independently, the regional councils assumed more and more municipal roles. At present, most of the regional councils provide educational and cultural services, some environmental services and some services to the farmers (Applebaum 2002). When exploring the possibilities of establishing an agri-environmental policy in Israel at the regional level, the regional councils seem to be the obvious policy agent.

The interviewees strongly supported a regional-organization approach in agri-environmental policy (8 out of 9 interviews), stating that it would improve implementation efficiency, adaptation to local conditions and the building of local partnerships. Notwithstanding, in practice, regional organization was only partially implemented in the pilot project. Indeed the project was practiced at the local scale; however, national policy makers accompanied the process throughout its stages, within the framework of the steering committee's activities. In some areas (e.g., the question of flat-rate versus auction design) the national policy makers' attitude was considered a veto attitude, which effectively determined the decisions made.

CONCLUSION

In exploring the possibilities of introducing agri-environmental payment schemes to Israel, I considered here two alternative models: the conventional European flat-rate, action-oriented model, and a market-oriented model. I argued that when considering the choice between the models, and the feasibility of implementing various market-oriented agri-environmental instruments, three factors should be taken into account: 1) The characteristics of the local ecosystem and its environmental needs; (2) The local institutional framework; and (3) Trends in public attitudes.

All these factors indeed had an important influence on the design of the agri-environmental scheme, as implemented in my pilot project. The trend in public attitude that reject agricultural subsidies influenced the decision to prefer the market-based model over the conventional flat-rate design. The environmental need to mitigate erosion influenced the ability to fully implement result-orientation, and the institutional framework influenced the choice to use of auctions, partially incorporate public participation and the inability to practice regional organization.

When looking at the feasibility of implementing various market-oriented instruments, my findings point to the importance of the characteristics of the local institutional framework. For example, despite the fact that the conservation auction considered controversial by policy makers (and was rejected by the majority of farmers, as will be detailed in chapter 3), it was

implemented in the pilot project, since the Israeli institutional framework obligates the use of auctions for allocating municipal budgets. On the other hand, the regional organization was not implemented in the pilot project, although it was supported by 8 out of 9 policy makers, due to the centralized administration framework existing in Israel. And as public participation is only partially integrated into the Israeli institutional framework – it was also only partially integrated in the project.

My conclusion is that when trying to implement market-orientated instruments in agri-environmental policy, the local institutional framework should be taken into account; those instruments that are in line with the existing governance institutions have a better chance for successful implementation.

CHAPTER 2: BETWEEN MARKET ORIENTATION AND THE ETHICS OF AGRICULTURE AND ENVIRONMENTAL PROTECTION IN ISRAEL

INTRODUCTION

Although having many environmental and economic merits, and advocated by the EU (within Council Regulation (EC) No. 1698/2005) and the OECD (OECD 2009), market-based instruments are only seldom used in agri-environmental policy, and are usually limited to small scale or experimental projects. The reasons given by scholars for this deficit relate to institutional factors, such as the complexity of operating conservation auctions (Cason and Gangadharan 2004; Connor et al. 2008; Ferraro 2008; Lowell et al. 2007), the limitations on finding indicators for the attainment of many agri-environmental results (Klimek et al. 2008; Latacz-Lohmann and Schilizzi 2005), unwillingness of policy-makers to share power with the public (Prager and Freese 2009), etc. I argue that local cultural values regarding the free market, and its relation to agriculture and the environment, are also factors influencing the feasibility of employing a market-based approach in agri-environmental policy. I explored the local views of the free market, agriculture and environmental protection in the Israeli pilot project.

Israel presents an interesting case in regard to market-orientation, agriculture and the environment. Market-orientation is a rather young concept in Israel, emerging as a leading economic approach only since the mid-1980s. On the contrary, the cultural valuation of agriculture has a long history within the Zionist paradigm; only in recent years the place of agriculture within Israeli society was weakened, partly due to the contemporary market-oriented approach. Environmental conservation has a controversial status in Israel, as the Zionist ethos cherished both the preservation of the natural landscapes of Israel and intensive, pollution-creating development. This makes the intertwinement between these three concepts conflicting and often contradictory.

I studied the perceptions of these three concepts by stakeholders of the pilot project in the Megido Regional Council. The project was meant to employ a number of market-based instruments; however, it was revealed that cultural values influence the feasibility of implementing these market-based mechanisms. The discussion of these cultural values is the heart of this chapter.

MARKET ORIENTATION AND THE ETHICS OF AGRICULTURE AND ENVIRONMENTAL PROTECTION IN ISRAEL

The following gives background to the historical development and contemporary manifestation of the Israeli views of market-orientation, agriculture and environmental protection. Each concept is examined on its own, and regarding its interactions with the other two ideas, e.g. agriculture versus market-orientation; agriculture versus the environment; etc. As this background is given in connection with the findings of the pilot project at the Megido Regional Council, it focuses on trends in the attitudes of the relevant Israeli group – Jewish farmers, mostly of European origins, influenced by Zionist ideology. Although for the convenience of the writing I relate to this system of values as “Israeli” it is important to note that they do not necessarily reflect the values of other segments of the Israeli society.

Market orientation in Israel

Until the mid-1980’s, Israeli society could have been described as a “recruited society”, in which social interests were prioritized over those of the individual. “Pioneering”, i.e. self sacrifice in the name of the public interest was considered idle, manifested in physical work, agricultural settlement and military protection as voluntary service to the collective (Peled and Shafir 2005). Although the Israeli economy was never centrally-planned in practice, and there was always an active private sector, the prominent socialist-collectivist ideology led to the control of many economic activities by political entities and interests (Ben Bassat 2002; Feitelson 1999; Peled and Shafir 2005).

However, until the end of the 1960’s the size of the public sector in Israel was compatible with those of western market economies. During the 1970s and the first half of the 1980s, due to security needs, the public sector was dramatically enlarged. In the mid 1980s, a deep economic crisis led to change in approach among Israeli policy makers, from promoting government intervention to strong belief in competitive market economy. The size of the public sector was reduced and Israel’s economic freedom index rose from 3.3 to 6.0 at the end of the 1990s (according to the Economic Freedom of the World index, produced by the Fraser Institute; the index ranges from 0 to 10; see (Gwartney and Lawson 2008). This change was achieved by drastic cut backs in public budgets, especially in subsidies to the business sector; privatization of government-owned firms; and increase in the purchase of services by the public sector from the private sector (Ben Bassat 2002).

Although the shift in the size of the public sector can be described as return to the situation of the 1950s and 1960s, the accompanying frame of mind presents a clear departure

from earlier trends. Since the mid 1980s pro-market opinions started to be openly held, and promoted as healthier economic views (Peled and Shafir 2005). The institutional and legal system worked to strengthen the market economy against non-competitive arrangements (Yustman 2002), to a point that free competition was interpreted as a constitutional right by some court decisions (Gross 2000). The change in the economic structure was accompanied by a social-perceptual change: from commitment to broad social goals to preference of personal interests (Peled and Shafir 2005; Yustman 2002).

In due time, it was revealed that the shift to market orientation led to enlargement of income gaps, poverty and the concentration of wealth at the hands of a few. Therefore, the further promotion of market orientation provokes skepticism by many in the current Israeli public, especially those who were the “losers” of the change of the economic approach, such as farmers (Yustman 2002).

The ethics of agriculture in Israel

For decades, farming was a critical part of the Zionist vision (Tal 2007). The leading approach of Zionism was ruralism – moral admiration of rural life, and rejection of urbanism (Orenstein and Hamburg 2009; Tal 2007). This was probably at the influence of ideologies that flourished in the home countries of the Eastern European Jewish immigrants to pre-state Israel in the first half of the 20th century (Tal 2006). Although the majority of Israelis are, and always were, city dwellers – the rural way of life was considered idle, and urbanism was not considered a Zionist objective (de-Shalit 1995; Kellerman 1993).

Agriculture was seen as morally good, more “productive” than other occupations. Manual work was cherished as of intrinsic value (Egoz 1996; Tal 2007). Farming was considered not only to set another environmental situation but also to change the psychology of those practicing it. Being a farmer was supposed to alter the person into a better man, and to restore the damaged Jewish spirit (de-Shalit 1995; Kark 1992; Kersel 1994; Tal 2007). Agricultural cultivation was supposed to intensify the connection of the Jewish people to the land of Israel, to help the immigrants “to grow roots in the soil”, to set a proof for their entitlement to this land, and to abolish the sense of alienation that characterized the Jewish life in the Diaspora (de-Shalit 1995; Feitelson 1999; Kersel 1994). Agricultural acts were therefore loaded with moral significance; for example, establishing a new farm or village was called “ascent to the soil” (de-Shalit 1995). Farming was thought of as “redemption of the earth”, leading to redemption of the Jewish people (Kark 1992; Kellerman 1993).

Market-orientation was strange to the spirit of the Israeli-Zionist village. The Zionist agrarian vision was romantic and ideological, often ignoring ecological and economic realities, and practiced outside market conditions (Feitelson 1999). Farmland was purchased by Zionist organizations and villages were established on it with generous public assistance. The farmers were given the land (which ownership remained public), financial support and professional assistance (Sofer and Applebaum 2006). They seldom faced economic competition, with other economic sectors, with non-Jewish farmers or among themselves, as most of the Zionist villages were organized as cooperative societies (*kibbutz* and *moshav*) (Sofer and Applebaum 2006).

Agriculture had a major role in the Zionist settlement project, as tracts of land were purchased from Arab-Palestinian landlords, and settled by Jewish farmers, thus holding the land against re-purchase by Arab farmers. Agriculture was assigned other public functions, such as protecting the borders of the country and feeding its people, and therefore was publicly supported both financially and morally (Yustman 2002). Peled and Shafir (2005) argue that since most of the pioneer farmers were poor laborers, they were ready to perform national tasks at the exchange of public subsidies. Indeed, until the 1980s Israeli agriculture was subsidized at around 30% of its produce value (Tal 2007), comparable to the level of support in the EU currently (OECD 2006). The prioritization of the agricultural sector manifested itself in legislation, master plans and allocation of decision power to the Ministry of Agriculture (Maruani and Amit-Cohen 2009). The farmers were considered the elite of the Israeli society, and enjoyed disproportionate political power (Feitelson 1999). The cooperation between the farmers and the authorities was based on the mutual understanding that the rural settlement was a private-public partnership aimed at achieving national goals of settlement. As long as the farmers did their share in cultivating the fields and maintaining the settlements, they could expect to receive broad public help (Sofer and Applebaum 2006).

All of these changed in the mid 1980s. The economic crises in Israel exposed the cooperative villages to large debts, that the government, unlike previously, was not willing to assist in paying (Feitelson 1999; Sofer and Applebaum 2006). Cut-backs in agricultural subsidies enlarged this economic distress; these were followed by social and political reduction in the image of agriculture and the political power of the sector (Yustman 2002). The cooperative settlements were now criticized as economic failures and exploiters of environmental resources (Feitelson 1999; Sofer and Applebaum 2006).

Today, the prominent economic approach in the agricultural sector is market orientation. The organization of the sector through production boards and quotas was

cancelled, and prices of agricultural products (apart from milk and eggs) are not anymore controlled (Yustman 2002). The government helps the farmers through advice and extension, but leaves the final decision on the farm's management to the farmer. Marketing in the local and export markets is done competitively. Farmers receive very little subsidies; these are mainly provided through partial coverage of investments in farms, whereas direct payments to farmers are rather small. The current policy of the Ministry of Agriculture, as expressed by its representatives in this study, is that less profitable farmers should go out of production. The Ministry gives support according to economic criteria – to intensive cultivation of high-value crops, and to farmers who prove the profitability of their farms.

Israeli agriculture suffered reductions in its public image in the last two decades. Agricultural work was always considered a hard sacrifice, that was worthwhile when hailed by society, but soon abandoned as the public attitude shifted to other directions (Kersel 1994). Notwithstanding, it seems that those who continue farming would have liked to hold to the ethical views of the past. Even when farming gains economic success, few farmers agree to see it in market-orientated lines, as simply a source for earning one's living; they would have preferred to re-connect it to national visions and public goals (Kersel 1994). Moreover, market-orientation in agriculture, unlike other sectors, is sometimes viewed negatively by the Israeli public. For example, trade in irrigation water permissions or agricultural land was recently described as “greedy speculation” in a leading Israeli economic journal (Lichtman 2009).

The ethics of environmental protection in Israel

Unlike agriculture, the Israeli-Zionist approach to the environment was always complex, to a point that it was described by Tal as “schizophrenic” (Tal 2006). It encompasses romantic ecology, manifested in the emphasis on nature education, hiking as a preferred pass-time, and broad statutory and voluntary action in protection of local biodiversity; together with prioritizing intensive development that brought about high levels of pollution and neglect in protection of natural resources such as water, land and air.

De-Shalit (1995) describes the relations between Zionism and the environment as made of three phases: romantic-ruralism, development and scientific-based environmentalism. In its first decades in the beginning of the 20th century, Zionism adopted a romantic approach and idealization of the nature in the land of Israel (de-Shalit 1995; Kark 1992). As part of advancing the connection of Jews to this land, Zionism advocated the acquaintance with its special landscapes, natural resources and biodiversity (Tal 2006). This romantic approach was

reinforced by religious belief, which see the physical entity of the land of Israel as sacred (Kellerman 1993).

On the other hand, the Zionist ethos included also an important element of development and exploitation of natural resources. De-Shalit claims that this trend emerged from anxiety of the unfamiliar environment, climate and diseases faced by the Zionist immigrants; the contrast between the perceived environment that the immigrants longed for in their countries of origin, and the real environment they were faced with upon immigration, led to portraying this real environment as desolated and in need of development. Development was defined as modernity and as ethically superior to preserving the environment as is (Gasteyer and Butler Flora 2000). “Conquest of the wilderness” was prioritized and those who opposed it in the name of environmental conservation were portrayed as standing outside the Zionist vision (de-Shalit 1995; Tal 2006).

It should be noted, however, that the Zionist development was somehow still “natural”; it was justified using metaphors such as “making the desert flourish”, as if the Zionists wanted the environment to turn into a “better nature” keeping it natural all the same. This is manifested by the developers’ emphasis on agriculture and forestation. It seems that turning Israel into an industrial, urbanized country (as indeed actually happened) was not part of the mainstream Zionist vision.

The current phase of environmentalism in Israel emphasizes a rational-scientific approach to the environment (de-Shalit 1995). In 1988 a ministry for environmental protection was established; this ministry initiates and enforces environmental regulations and policy, and is accompanied by the work of academia and NGOs for preserving the environment and correcting the damage done by the development in previous decades.

Although de-Shalit describes these three stages as a historical development, he admits that they exist sometimes simultaneously; this may explain the feeling of “schizophrenia” in the Israeli attitude towards the environment, when emphasis on conservation lives side-by-side with aggressive development that does not take ecological consideration into account.

The connection between agriculture and the environment in Zionist thought is also complex. The romantic view saw nature and agriculture as one; the land was hailed as both a natural resource and a means of agricultural production. Within the ethos of development, a contradiction soon emerged between nature and agriculture – as wetlands were drained and deserts irrigated in order to make place for farming (Gasteyer and Butler Flora 2000; Kark 1992). Nowadays it seems that the Israeli environmental discourse is influenced again by the earlier ideal of ruralism. For example, one of the major environmental priorities in Israel today

is the preservation of open space, justified by concerns of the country's high density and population growth rate. However, the value attached to open space probably stems from the cultural tradition of hailing rural life; Israelis simply cannot perceive their land as urban and celebrate it as such. Note, for example, that in the Palestinian Authority, where population density is almost twice as high as in Israel, conserving open space is not high on the environmental agenda (Chenoweth et al. 2007).

Moreover, environmental considerations are increasingly being used as justification for protection of the agricultural sector, replacing the settlement-ideological justifications of the past (Feitelson 1999; Zaban et al. 2004). Although maintaining ambivalent relationship with the farm sector, often regarding it as one of the largest polluters and exploiters of natural resources, the ecological community in Israel has recently "discovered" the contributions of agriculture to the environment (Sofer and Applebaum 2006; Tal 2007). Farmland is increasingly valued for its cultural-historical and aesthetic values and as "protector of open spaces" (Feitelson 1999; Orenstein and Hamburg 2009; Tal 2007).

Economic approaches are gaining importance in the environmental discourse in Israel, in line with the current emphasis on market-orientation in all aspects of the society. Justifications for environmental conservation are increasingly being made in economic rather than in ethical terms, by pointing to the consumption value of environmental assets, to market failures, externalities and ecosystem services (Feitelson 1999; Fleischer and Tsur 2000; Shechter et al. 1998). On the other hand, the prominent market-orientation makes it difficult to use economic instruments in the environmental arena. For example, for a few years the Ministry for Environmental Protection had a program for financially supporting environmental amenities in open spaces and agricultural areas, but its promotion was blocked by the Ministry of Finance due to the view of any payment to the private sector as unwanted subsidies (Zalutzky 2008). Indeed, agri-environmental payment schemes do not operate in Israel, although their need is felt by many policy makers (Amdur et al. 2005) and demonstrated in public surveys of willingness to pay for preservation of agricultural landscapes (Fleischer et al. 1997; Shemesh-Adani 2003; Shirizly 2001).

In summation, it seems that the concepts I explored here are all controversial within the current Israeli frame of mind, and their intersection is complex. Market-orientation is openly promoted, but is suspected by groups in the society (such as farmers) that were hurt by it. Agriculture was hailed in the past, but does not hold to its prestigious place nowadays; farmers do not wish to adopt market-orientation, although forced to it by the current economic system. The environment always held a complex position in Zionist thought, related to both in

romantic-preservation and development-exploitation lines. Today, conservationists hold an ambivalent attitude to farming, and promote economic approaches to the protection of the environment.

RESULTS OF THE SURVEY AT THE MEGIDO REGIONAL COUNCIL: PERCEPTIONS OF MARKET ORIENTATION, AGRICULTURE AND ENVIRONMENTAL PROTECTION

The perception of market-orientation in agriculture and the agri-environment

Market orientation in farming was well assimilated in the attitudes of both farmers and decision makers in the survey; as the representative of the Ministry of Agriculture in the project's steering committee said: "today everybody has to operate according to market forces". The view of market orientation as a better and healthier approach than central planning was shared by 7 out of the 9 policy makers in my sample, including all the agricultural policy makers and two environmental policy makers. The district manager of the Ministry of Agriculture said that the "freedom of quotas benefited many farmers"; the representative of the local farmers would have even liked to see more competition in the agricultural sector, making it as close as possible to perfect competition. The market was seen by four decision makers as encouraging effectiveness and innovation. The regional council's architect perceived the operation in market conditions as improving the farmer's self-image, as it gives the farmer:

"a feeling of value...and therefore the market forces has the correct power...*(it is as)* not to say: you *(the farmer)* are weak I *(the government)* will make you stronger, but rather: you are important".

Two policy makers said that if there should be government support to farming – it should be directed by market forces, strengthening products that have high demand in the market. The representative of the Ministry of Agriculture was skeptic that farmers should at all receive state support, and the representative of the Ministry for Environmental Protection said that subsidies always bias the economic activities to unwanted directions.

Market-orientation was also prominent among the farmers in the survey. They related intensively to concepts such as marketing, supply and demand, branding, bargaining, return to scale etc. All but two farmers said that the market is the main factor which should determine farmers' decisions on their farms. As was maintained by a conventional part-time family-

farmer¹ - letting factors other than profit influence the decisions on the farm is a misfortune, a characteristic of farmers “in distress” (51 years old, academic education).

About a third of the farmers expressed the opinion that agricultural subsidies are “charity we don’t need”. As said by farming manager in a moshav: “saying in advance that there should be a subsidy is wrong” (44 years old, academic education). Public support can only lead to mischief by the farmers; as a full-time organic olive grower said “I will never come and say ‘give me money’; I know it is an opening to the most dangerous things” (55 years old, professional education). Government activities in general were considered by 5 farmers as disturbing farming. Agri-environmental payment schemes were perceived by a farming manager in a moshav (71 years old, high school education) as “the lesser of two evils” – it would have been better if farmers could earn their livelihood in farming, and than they wouldn’t care to join agri-environmental programs; but since they can’t make a living in agriculture – they welcome the assistance of such schemes.

Despite the pronounced belief in market-orientation, many farmers admitted that it has a number of draw-backs. 16 out of 21 interviewed farmers mentioned that the market of agricultural commodities is insecure and that they have difficulties earning a living (this issue was raised also by 6 of the 9 policy makers in the sample). All but two farmers expressed the wish that the government would support farming more. Five of the interviewees expressed the wish for government support and rejected it at the same time. This ambivalence is manifested in the words of an olive grower:

”I am all for free economy, but I think that it is wrong to let agriculture reach the situation it is at, that it is not worth-while to cultivate; but to run today and subsidize agriculture – this is something else” (marginal family- farmer, 54 years old, academic education)

The wish for government support for farming was expressed also by five of the policy makers in the sample (here, too, some held simultaneously supporting and rejecting attitudes). It was argued that central planning can help in stabilizing the prices of agricultural commodities to the benefit of the public at large (3 policy makers); in preserving natural

¹ Farmers who derive 11-50% of their income from agriculture will be referred to here as “part time farmers” whereas farmers who derive more than 51% of their income from agriculture will be referred to as “full time farmers” and those who derive up to 10% of their income from agriculture will be referred to as “marginal farmers”. All cited farmers are males and practice conventional cultivation, unless indicated otherwise.

resources (2 policy makers); and in fulfilling social goals, such as keeping equality between farmers and settling peripheral areas (2 policy makers).

Very few policy makers and farmers understood the merits of market orientation in agri-environmental policy. 2 farmers together with the representative of the Ministry of Agriculture said that market-orientation introduces risks to government policy, whereas avoiding market insecurities is the main reason for farmers to join government-issued programs. The representative of the Ministry of Agriculture added that a market-oriented approach will lead to mistrust between the farmers and the government.

Some objections to the market-based model emerged precisely from the wide acceptance of market-orientation in the Israeli agricultural sector. For example, 10 of the farmers and 6 of the policy makers were not willing to see the scheme's payment as an integral part of the farm's income. They emphasized that "the project must be economical in itself", meaning that whatever cultivation the project promotes – it must be something profitable also when not supported by the government. These interviewees were unwilling to see government-originated payments as purchase of a (environmental) service, and as part of the farm's production economy. As was said by a farming manager in a kibbutz:

"the remuneration in itself is not a profit... it doesn't turn it (*the farm*) into an economically viable business" (64 years old, academic education).

The Perception of Agriculture

Many interviewees' held an ethical perception of agriculture, as is demonstrated, among others, by the wide use of words such as "values" (80 references in the interviewees' texts) "ideology" and "idles" (23 references) or "beliefs" (18 references). Practicing agriculture was described as a grand idle: "My dream was to practice the agricultural deed" (a part-time olive grower, 62 years old, academic education). The same farmer defined agriculture as "something that has an added value beyond the material matter". An elderly, marginal family-farmer described farming as a sacrifice of high merits: "we fulfill our spiritual duty to agriculture". Farmers were defined by an ecologically-devoted farming manager in a kibbutz (33 years old, academic education) as "special people"; a farming manager in a moshav (52 years old, high school education) defined a farmer as "someone who cares" as opposed to "someone who lives in the city and does not care". Two farmers, together with the regional council's architect, contrasted agriculture to industry, saying that the industry "is all about money" whereas farmers should have a feeling of "doing something beyond themselves".

The interviewees saw their agricultural work as a public service to broad social goals, rather than as means to earn their livelihood: “farming means on one hand making a living but on the other hand you do it for your country” (farming manger in a moshav, 44 years old, academic education). Another farming manager in a moshav (71 years old, high school education) said that farmers are “laborers who are ready to do the job (*for the public*)”. 17 farmers stated that they practice agriculture regardless of its economic profitability, and even when it is clearly not profitable (for example grazing their livestock in pastures), in order to serve what they see as public goals. However, some stated that the public in Israel is not anymore interested in the services of agriculture:

“the state has decided that it does not want people to do things for her... however, somebody still does it” (farming manager in a kibbutz, 33 years old, academic education).

The ideological view of agriculture seem to project also to the environmental view of it. 6 farmers and 3 policy makers considered every agricultural activity to have environmental merits. 14 interviewees considered only non-cultivation and abandonment of fields as environmentally wrong. Moreover, it seems that the farmers in the survey have transformed the old Zionist agricultural-colonial ideals into contemporary environmental functions. For example, according to all but two farmers agriculture serves the public goal of “safeguarding land”. The interviewees mentioned two “enemies” from which farming protect the land: one (mentioned by 18 interviewees) is Arab-Palestinian purchasers; this pre-statehood Zionist goal of buying land and holding to it by Jewish-Zionist farmers is still very much on the minds of the farmers, regardless of its relevancy in contemporary Israel. The other “enemy” from which 10 farmers felt they protect the land, is building constructors and real-estate tycoons. This type of “open space protection” is prominent on the Israeli environmental agenda today. The vocabulary used by these farmers to address this environmental issue was clearly borrowed from the earlier Zionist ideal of settlement; indeed when the farmers spoke of their role in protecting the land it was often difficult to understand to which concept they refer.

Doing business was considered by a number of the interviewees as the opposite of an ethical view of agriculture. When talking about integrating conservation auctions into the pilot project, a farming manager in a kibbutz claimed that it is like “the stock exchange” which is contradicted to “the spirit of farming” (women, 55 years old, academic education). A farming manager in a kibbutz said: “(*nowadays*) farmers just want to make a living; maybe in the

kibbutzim there is still ideology – but family-farmers just want to make a profit” (50 years old, academic education).

This rejection of market-orientation in the name of the ethical view of agriculture was expressed by the attitude towards agri-environmental payments that were suggested in the pilot project. This vehicle of support for farming, so rare in the current Israeli agricultural policy, was rejected by 6 farmers together with the district manager of the Ministry of Agriculture. Instead of payments, the farmers preferred indirect assistance, such as in extension, purchase of equipment or construction of infrastructure. As such public support may consume as much funds as direct payments, it is hypothesized that the rejection is connected to the fact that direct payments “put money into farmers’ hands”, which was considered ethically inappropriate.

However, it seems that some interviewees hold contradicting views regarding ethics or market-orientation in farming. Five farmers and four policy makers expressed both “pure” market support and ethical-ideological notions. For example, a 62 years old family-farmer who said that he is willing to do “anything you would ask for as long as you pay me” also described how he is cultivating an olive grove “for the glory of the state”, although it is not profitable. The 51 years old family-farmer who stated that only farmers in distress consider non-economic factors on the farm, later on in the interview said that:

“I love trees, which is not always economical.... On one hand agriculture seems like a very romantic thing, and on the other hand it is not different from any other business that you know from the city”.

The regional council’s architect, although saying that a ‘cold’ economic view is the only way to succeed in agriculture, stated also that

“Value is not only money; it is also a person’s feeling... the limitation of the market forces is that they talk only of money. We must insert into the market other values, and then we will reach a balance... money is a measurement, but it should not be the only measurement”.

Eleven farmers seemed to feel obligated to apologize for their business orientation - for example by saying that “farming is not an altruistic activity”, as if it is not obvious that the main focus of a farmer is making a living. 15 interviewees (of which – 4 policy makers) mentioned that in Israel today farmers are being thought of as “greedy”, as if the wish to make a profit in agriculture is in itself “wrong”. Four farmers expressed anger at this public notion, by saying, for example:

“Just because we are farmers it does not mean that we have to contribute (*to the public*) more (*than other economic branches*)” (a farming manager in a kibbutz, woman, 55 years old, academic education).

The Perception of Environmental Protection

Unlike agriculture, it seems that the environment played a more controversial ethical position for the farmers in the sample. On one hand, 15 of the 21 farmers in the sample said that they practice some form of environmental cultivation (according to their own definition) and 9 farmers defined themselves as “green” in their world views. On the other hand, many farmers did not consider their environmental actions as part of the public roles of farming. In contrary to the ideological-collectivist view of agriculture, 12 of the farmers in the sample justified their environmental actions in rational-individualistic terms (i.e. protecting their health, quality of life or means of production, saving on production costs by using fewer chemicals, reaction to consumers’ demand).

Seven farmers expressed disagreement with the idea of remunerating farmers for environmental services, as “there are many things that should be financed before” (such as intensifying the production). An elderly orchards’ grower said that he would have preferred to be better paid for his agricultural commodities, and not to be separately paid for his environmental services. Likewise, producing agri-environmental services intentionally was not considered legitimate. Three farmers expressed willingness to contribute to environmental goals, but not through actions in their fields. Four interviewees (two family-farmers and two policy makers) specifically described the agri-environmental services as “incidental” or “by products” of the “real” agricultural products (food and fibers). As the representative of the forestry authority in the project’s steering committee said: “it is not good that the farmer will feel that the product he provides is *merely* environmental” (the author’s emphasis); the farmer must feel that what he produces is “real”.

The connection of environmental action to market orientation was like-wise not clear-cut. On one hand, 12 farmers emphasized the market considerations behind their environmental dedication: mitigating erosion was justified as protecting the means of production; using less pesticide was justified as saving money; conservation of biodiversity was explained as contributing to rural tourism. It seems that it is important for some environmentally-aware farmers to be considered not as uncompromising advocates but rather as rational, market-oriented businessmen. One full-time organic farmer (55 years old, professional education) said that he “went to the market and saw what it needs, and from that

I got to organic farming”. And a part-time organic farmer (73 years old, high school education) said that:

“Market forces are leading to more environmental cultivation... but even when you do something environmental you should look for something with high economic value”.

It should be noted that market-orientation was used by three conventional farmers in order to lower the image of organic ones, saying that “they do it (*organic farming*) only in order to get a better price for their products”. A farming manager in a moshav (71 years old, high school education) asserted that the only believers in organic farming are the consumers – the farmers follow environmental ideas only at the demand of the market. Although many conventional farmers saw themselves as public servants, when asked about environmental farmers – they suspected them in egoism and pursue of self-satisfaction: “they (*organic farmers*) do it only for themselves” (farming manager in a moshav, 52 years old, high school education). Giving this background, one may project that using market-oriented instruments in agri-environmental schemes may be used by conventional farmers to further lower the image of environmental farmers, and as such - may reduce the farmers’ willingness to be associated with these schemes.

Only five farmers in my sample justified their environmental activities in ideological lines, defining themselves as “green proponents” or simply as “crazy”. This ethical perception of environmental conservation was sometimes accompanied by suspicion towards market-orientation. This was especially evident in the reactions towards the market-oriented instruments that were suggested within the pilot project. Four farmers and two environmentally-oriented policy makers stated that the suggested conservation auction may lead to “missing the point” of the project as (to their opinion) environmental and economic considerations cannot be simultaneously satisfied. As was stated by the regional council’s environmental administrator:

“Our aim is environmental cultivation; our aim is not to save money. So if somebody will do an environmental cultivation that we think is right... what do I care that his bid is more expensive?”

Integrating market instruments into the agri-environmental scheme was suspected to lead the “wrong farmers” to join the project: “If you are doing an auction you are picking up in advance the worst (*farmers*)” (environmentally-aware farming manager in a kibbutz, 33 years old, academic education). The same farming manager labeled the entire project “a meat market”, expressing his repulse of the way economic issues were emphasized. Instead of

economic instruments, the use of ideological selection was promoted, in order to recruit to the project “a mass of good farmers who would be devoted to the idea” (part-time olive grower, 62 years old, academic education). It seems that these environmental devotees would not have liked to join agri-environmental schemes that use market-oriented instruments, but rather prefer an ideology-based approach.

DISCUSSION

The survey’s findings show that the idea of market-orientation is prominent among farmers and policy makers in Israel, and considered the right way to do agriculture. On this background, market-oriented agri-environmental schemes seem to have potential to be accepted by Israeli farmers, policy makers and the public at large, in comparison to the more conventional centrally planned schemes. However, at the same time, farmers are worried of the insecurities embedded in the free market, and wish for government protection. The fact that five interviewees simultaneously wished for agricultural subsidies and rejected them, manifests the ambivalence towards market-orientation in the Israeli agricultural sector.

Moreover, farming was considered as a public service that the public should appreciate and protect; government-issued programs should not force farmers to bargain over the public budget, but “appropriately” allocate it to them. As farmers are “special people”, funds should be given to them due to their personal characteristics (such as ideological commitment) and not according to anonymous economic criteria.

In comparison to farming, environmental protection had a more controversial place in my interviewees’ minds. On the one hand, 15 of the farmers in my sample practice (what they see as) environmental cultivation. On the other hand, they seem reluctant to be viewed as environmental-believers, and 12 of them justify their actions in utilitarian arguments. In general, protecting the environment does not seem to be a part of my interviewees’ perception of the public services of agriculture. The only exception is agriculture’s service in “protecting open spaces”, which seems to be borrowing on the earlier Zionist idea of keeping land “in Jewish hands”. As “protecting open spaces” is an environmental service that is achieved by any form of agriculture, remunerating it practically means supporting agriculture in general.

Also within the agri-environmental milieu, market orientation seems to be a controversial concept. On one hand, 12 of the farmers justified their environmental actions in economic terms, such as the market demand for organic produce. This line of thought seems to support market-based approach in the agri-environmental policy. However, five

environmentally-aware farmers in the sample were ideology-driven, and they seemed to be repulsed by the economic emphasis in the pilot project. Moreover, market orientation was used by three conventional farmers to lower the image of environmental farmers. It seems that integrating market-based instruments into agri-environmental policy, and thus emphasizing economic considerations over ideological beliefs may discourage some environmentally-aware as well as some conventional farmers from joining the schemes.

On the other hand, the market-orientation of the project did not seem to convince all of the business-minded farmers; 10 farmers were not willing to see the scheme's payment as an integral part of the farm's income, even if it was gained in a competitive procedure such as a conservation auction.

The survey's findings are in line with the historical development of the perception of the free market, agriculture and environmental protection in the Israeli society. Many of the historical views of agriculture and environmental protection are still present in the attitudes of the interviewees. They see the role of agriculture as charged with Zionist ethics, as a moral occupation bearing public roles. In contrast, environmental protection holds an ambivalent place in their views, encompassing the willingness to practice environmental cultivation, together with rejecting its view as a public goal, or as a legitimate aim for public funds.

Market-orientation, as a new but forceful concept in the Israeli society, also holds roots in the perceptions of the interviewees. However, although accepting market orientation within farm business, the respondents largely rejected its integration into agri-environmental policy. The explanation of this apparent contradiction may relate to the current conflict over the value of agriculture in the Israeli society. As farmers are not willing to think of themselves as merely business people, and as the old Zionist roles of agriculture lost their relevancy, Israeli farmers are in search for new public functions for farming. One such function may be delivering environmental services. Although some farmers do not consider protecting the environment to be an important goal, others adopt this aim and adapt their Zionist vocabulary to it, as is apparent by the common reference to farming as "protecting the land". And as the earlier Zionist goals were remunerated by the Israeli public in a protectionist way, the farmers expect to be remunerated in this way also for the "new" environmental roles of farming. They do not wish to introduce into this framework a market approach that would portray them as business people, when they wish to be viewed as public servants.

All of the above makes the structuring of agri-environmental policy in Israel a complex task. The many contradictions found in the attitudes of my interviewees point that the current values held by Israeli farmers do not consist a unified ethical system, but rather

reflect a dynamic process of change. It could be that with time, as this value system matures, it will be easier to address it with an appropriate agri-environmental policy, either emphasizing market orientation or a more protectionist approach.

CHAPTER 3: AUCTIONS FOR CONSERVATION CONTRACTS: AN INSTRUMENT FOR ACHIEVING ECONOMIC EFFICIENCY, ADMINISTRATIVE FAIRNESS OR PUBLIC PARTICIPATION?

INTRODUCTION

Economic instruments currently play a major role in the agri-environmental policy of many developed countries. These instruments mostly share the same core concept, meaning that farmers are paid to modify their cultivation or livestock husbandry in order to support or maintain environmental resources. The regulations and conditions of payments are generally laid down in programs, schemes or catalogues. The payment level is usually fixed for all farmers taking part in a certain scheme, and is set by administrative officials according to calculations of the loss of income due to environmental cultivation, budgetary constraints, etc. Adaptation to heterogenic production cost structures is sometimes provided through staged payment levels corresponding to soil quality (as an indicator of foregone production yields) or slope angle (as an indicator of the cost of mowing or pasture on mountainous grasslands).

Despite these adaptations, it was argued that the conventional allocation procedure of agri-environmental funds is inefficient, since it fails to overcome information asymmetries between the farmers and the authorities (Latacz-Lohmann and Van der Hamsvoort 1998; Lowell et al. 2007; Schilizzi and Latacz-Lohmann 2007). Farmers have different cost structures, which are determined by natural, farm and personal conditions. They know their production costs better than the authorities, and may tailor the conservation contract so as to maximize the difference between the contract's premium and their true compliance costs; this makes the environmental gains smaller than they could have been (Cason and Gangadharan 2003, 2004; Said and Thoyer 2007).

It was suggested to use auctions in the allocation of conservation contracts in agricultural areas, as a way to improve their economic efficiency, environmental effectiveness and public acceptability (Stoneham et al. 2003; v Haaren and Bathke 2008). As auctions are the main institution used in many sectors of the economy to arrange the supply of public goods by private firms, it was argued that it should also be used in the agri-environmental sector (Latacz-Lohmann and Van der Hamsvoort 1998).

In a conservation auction the farmers submit bids to win contracts, in which they specify the level of payment that is required for them to supply the demanded environmental-friendly cultivation (Pascual and Perrings 2007). The authority selects the most suitable bids, according to the price level, and sometimes other parameters as well, such as the

environmental characteristics of the field or the level of environmental commitment the farmer is willing to undertake (DSE 2008). The selection ends when the budget is exhausted, or when a preset reserve price is reached (Connor et al. 2008). The authorities may auction off one or several types of conservation measures, and the farmers choose the combinations that best suit them (Said and Thoyer 2007).

The EU recommendation on the use of auctions for conservation contracts (Council Regulation No. 1698/2005, article 39) demonstrates the importance of this mechanism in worldwide agri-environmental policy. However, apart from specific programs implemented in the USA and Australia, auctions are not yet employed in mainstream agri-environmental policy, and are limited mainly to experimental projects. This chapter deals with some of the constraints on the use of conservation auctions, and with possible ways of expanding the scope of their implementation.

Acceptance by farmers seems to be such a constraint. Creating acceptance is one of the major goals in the design of agri-environmental schemes, as the farmers participate voluntarily (Prager and Freese 2009). It was asserted that the use of auctions may contribute to the farmers' acceptance, as they allow them to set the level of payment they will receive (v Haaren and Bathke 2008). However, empirical evidence shows that conservation auctions are sometimes rejected by farmers, due to perceptions of unfairness associated with them (CJC Consultants 2004; v Haaren and Bathke 2008).

The main argument in favor of using conservation auctions in the literature is the economic one, as presented above; but this argument does little to convince farmers, as it entails a risk that they might receive lower payments for their agri-environmental services. Likewise, policy makers may be suspicious towards conservation auctions, as they introduce uncertainties into public administration. Indeed, a survey of European policy makers revealed that the overall opinion towards conservation auctions is skepticism (Eggers et al. 2007). This chapter therefore focuses on the arguments that farmers and policy makers present in favor and against the use of conservation auctions.

The chapter is based on the findings of the pilot conservation auction in the Megido Regional Council. The questions I examined were: What is the main attitude towards conservation auctions (versus flat-rate payment), as held by the scheme's stakeholders (farmers, decision makers)? What are the perceived advantages and disadvantages of conservation auctions? What are the main arguments in support of the use of conservation auctions? What can be done to expand their acceptance? It should be noted that I focus on the socio-economic aspects of agri-environmental instruments; questions about the ecological

effectiveness of the measures are outside my scope of study (see e.g. Kleijn and Sutherland 2003).

THEORETICAL AND EMPIRICAL BACKGROUND

The main theoretical argument supporting the use of auctions in agri-environmental schemes is economic efficiency – auctions solve the problem of information asymmetry between the decision makers and the farmers, and reveal the actual market price of the environmental services sold by the farmers to the public (Cason and Gangadharan 2003, 2004; DSE 2008; Ferraro 2008; Glebe 2008; Groth 2008; Latacz-Lohmann and Van der Hamsvoort 1997; 1998; Lowell et al. 2007; Pascual and Perrings 2007; Schilizzi and Latacz-Lohmann 2007; Stoneham et al. 2003). An auction introduces a market element into agri-environmental policy, making it more similar to the agricultural commodity markets; within a conservation auction, the farmers bargain for the sale of environmental services in the same manner as they bargain for prices in the commodity market. By inducing competition between farmers, auctions may reach outcomes that are more economically efficient and environmentally effective than flat-rate payment schemes, as they permit the regulator to identify the management changes that have greater environmental benefits and lower costs (Cason and Gangadharan 2003; Ferraro 2008; Latacz-Lohmann and Van der Hamsvoort 1997; MBI 2005; Said and Thoyer 2007). Auctions set the payment at a level that equals farmers' requirements, thus avoiding under-compensation, which may lead to poor enrolment or a high non-compliance rate of participating farmers; and over-compensation, which will not maximize conservation benefits in the case of a limited budget (Connor et al. 2008; Jack et al. 2008; Klimek et al. 2008).

The economic argument for auctioning conservation contracts is grounded in the assertion that farmers have better information about the costs of supplying environmental services than the administration (Cason and Gangadharan 2003, 2004; Connor et al. 2008; Ferraro 2008; Groth 2008; Latacz-Lohmann and Van der Hamsvoort 1997; Pascual and Perrings 2007; Stoneham et al. 2003). It also rests on the assumption that the costs of compliance with the environmental scheme of individual farmers vary significantly (Groth 2008; Pascual and Perrings 2007). Auctions allow the government to pay different sums to landholders, reflecting the different environmental value of their farmland, or the different costs they incur when providing their service (Lowell et al. 2007).

The growing literature about auctions for conservation contracts deals with various design models for the auctions, aiming to find the one that maximizes environmental gains

from a predetermined budget (Cason and Gangadharan 2004; Said and Thoyer 2007; Stoneham et al. 2003). Issues that were studied include the strategies of the bidding farmers (Latacz-Lohmann and Van der Hamsvoort 1997; 1998; Said and Thoyer 2007; Stoneham et al. 2003; Vukina et al. 2008); influences of synergies between different measurements within the auction (Said and Thoyer 2007); whether or not to use a reserve price (a maximum price that the authority is willing to pay), and if so – whether to reveal it to the farmers (Latacz-Lohmann and Van der Hamsvoort 1997; Stoneham et al. 2003); etc.

A distinctive feature of conservation auctions is that there is more than one winner; consequently, the question that arises is how to set the level of payment for many successful bidders, who had submitted different bids. Basically there are two alternative designs: a discriminative-price auction or a uniform-price auction (Cason and Gangadharan 2003; Latacz-Lohmann and Van der Hamsvoort 1997; 1998; Stoneham et al. 2003). In a discriminative-price auction, the winning landholders each receive their offer price as payment. This means that the administration pays different farmers different sums of money for the same service. In contrast, in a uniform-price auction, all farmers receive the same price, which is typically determined by the lowest rejected offer (Ferraro 2008). Under standard assumptions, the two auction types yield the same gains to the authorities (Ferraro 2008); however, it was maintained that in a uniform-price auction the bids are expected to be closer to the farmers' production costs, since only acceptance into the program, and not the level of payment, is set by the auction (Jack et al. 2008); notwithstanding, Cason and Gangadharan (2003) found that the discriminative-price auction results in more efficient environmental protection, in terms of the environmental results per money spent.

There are also a number of economic drawbacks to conservation auctions. An auction is a complex and costly incentive mechanism with a higher risk of failure than a fixed-rate scheme (Latacz-Lohmann and Schilizzi 2005). It was argued that conservation auctions are worth their administrative costs only when there is a high degree of information asymmetry and heterogeneity of costs among farmers (Ferraro 2008; Stoneham et al. 2003). Indeed, Latacz-Lohmann and Schilizzi (2005) advise a cautious approach to the use of conservation auctions, claiming that in most of the current agri-environmental programs it is unlikely that there would be much variation among landholders in the costs of carrying the management options, and that most measurements are reasonably straightforward to cost (Latacz-Lohmann and Schilizzi 2005).

Although the economic argument is the most prominent one in the conservation auction literature, two other argumentations may be raised in support of the use of auctions for conservation contracts. These are:

1. Administrative fairness – auctions are a legitimate and fair way for the authorities to choose the private firms that will receive public money. Auctions ensure that the choice is not biased by favoritism, and that the level of payment is “fair” (i.e. market based, Lowell et al. 2007). Auctions fit the general desire for “value for money” in the provision of public services, making the transfer of money politically legitimate (Latacz-Lohmann and Van der Hamsvoort 1998).

2. Public participation – through auctions, the clients of the scheme (the farmers) are able to participate in determining a number of its critical features, such as the level of payment. Auctioning respects the knowledge and individual skills of the farmers and the special conditions of their farms.

The issue of administrative fairness has seldom been dealt with in the conservation auction literature; this is in contrast to the legal perspective on public tenders, which states that preservation of integrity and fairness, preventing favoritism and corruption, and providing an equal opportunity to all members of society to compete for contracting with the government are the main objectives of public tenders, exceeding the objective of economic efficiency (Dekel 2008). Auctions are transparent allocation procedures that reduce the scope of discretion and favoritism, inasmuch as the auctioneer cannot favor one bidder over the other (Ottaviani 2003). Therefore, the use of auctions is considered fairer by the public at large versus other bureaucratic procedures of allocating public funds (Klemperer 2002). Their use may clear the conservation agency from questions about the level of payments to the farmers (Latacz-Lohmann and Schilizzi 2005).

However, a question may be raised regarding the farmers' overall perception of conservation auctions as fair, versus flat-rate schemes. The auction theory literature indeed focuses on finding the design that maximizes the gains of the auctioneer, i.e., the government (Bulow and Roberts 1989; Das and Sundaram 1997; Klemperer 2002; McAfee and McMillan 1987); less attention is paid to the interests of the bidders – in this case, the farmers. Some scholars justify the use of conservation auctions in their ability to “reduce opportunistic behavior” of farmers (Cason and Gangadharan 2004; Latacz-Lohmann and Van der Hamsvoort 1998). It seems reasonable that farmers may feel that a conservation auction places them in an inferior position versus the authorities, where their requirements are suspected of being opportunistic.

Given this background, it might be strange to consider auctions as means for promoting farmers' participation in the making of agri-environmental policy. However, auctions do delegate some decision making power from the government to the farmers, mainly involving the level of payment. Participating in decision making is a growing concern among citizens in many places (Illsley 2003). The advantages of public participation include easier fulfillment of administrative tasks, the chances of gaining access to additional resources or information, and increased acceptance of policies (Prager and Freese 2009). Public participation in decision making can reach different levels, from informing, via consultation to actual influence on decision making (Arnstein 1969; Prager and Freese 2009; Pretty et al. 1995). Conservation auctions reach the highest participation level, as the farmers are given the opportunity to set major attributes of the scheme, such as the level of payment and the location of implementation.

The empirical experience of using auctions in mainstream agri-environmental schemes includes the Conservation Reserve Program in the USA, which awards land retirement contracts (Kirwan et al. 2005); and various schemes in Australia – BushTender, EcoTender, the Auction for Landscape Recovery, the World Wildlife Fund auction, the Catchment Care auction – in areas such as salinity control, nutrient control, and conservation of native vegetation (Connor et al. 2008; Ferraro 2008; Groth 2008; MBI 2005; Schilizzi and Latacz-Lohmann 2007). Both in the USA and Australia, the conservation auctions do not take into account only the price level of the bid, but rather employ an Environmental Benefit Index (EBI), which ranks the bids according to environmental parameters, together with the payment level (Cason and Gangadharan 2004; DSE 2008; Kirwan et al. 2005; Stoneham et al. 2003; Vukina et al. 2008). In this way, farmers whose land has higher environmental value may receive higher payment. Auctions were also used in a number of experimental pilot projects, such as the Northeim model (Groth 2008; Klimek et al. 2008) and the Fuhrberg project (v Haaren and Bathke 2008) in Germany; the Challenge Fund Scheme in the UK (CJC Consultants 2004); and a project in Indonesia (Jack et al. 2008).

The economic lessons learned from empirical experience with conservation auctions are mixed. Although in Australia and in Indonesia it was found that the use of auctions strongly reduced the cost of achieving biodiversity improvement versus flat-rate payment (Jack et al. 2008; Stoneham et al. 2003), in other settings the economic gains were more modest, at a range of 10-35% (Groth 2008; MBI 2005; Schilizzi and Latacz-Lohmann 2007). Kirwan (2005) found that the farmers participating in the auction receive premiums above their reservation rents, and these increase over time. In the USA, and in experimental settings,

it was shown that repeating the auction (which is reasonable in a conservation setting) resulted in diminishing its economic advantages, with the winning price level reaching the level of the price the administration was willing to pay under a fixed-rate scheme (Lowell et al. 2007; Schilizzi and Latacz-Lohmann 2007).

Fairness was found to be an important concern among conservation auction participants, influencing their level of acceptance of the scheme. In a conservation auction in the UK, a large proportion of participating farmers found the procedure to be unfair in some way – because neighboring farmers ended up receiving more cash, because they realized they had underbid, or because “it was hard to know what to bid”; some felt that the auction created social tension between neighboring farmers, or that it suited mainly those who could take the risk, but not lower-income farmers (CJC Consultants 2004). This feeling of unfairness led to the agreement to replace the auction format with a flat-rate scheme. Indeed, although in a number of auction schemes the acceptance level of the farmers was good (Groth 2008; Klimek et al. 2008), in other conservation auctions the format was rejected by the majority of the farmers, due to fear that an auction will place the social balance in the farming community at risk (v Haaren and Bathke 2008).

In addition to the overall assessment of the auction as fair, questions concerning fairness were raised in relation to its specific design. For example, Latacz-Lohmann and Schilizzi (2005) claim that the use of discriminatory-price auctions may be perceived as fairer by the public at large, in contrast to a uniform-price auction, in which there is an impression of “overpayment” to farmers. In addition, they asserted that farmers who are more efficient in producing environmental services may regard the equal payment to all farmers as unfair. Indeed, in a conservation auction scheme in the USA, paying all participants a uniform price regardless of their opportunity costs was considered unfair (Ferraro 2008). On the contrary, in a scheme in Costa Rica, using discriminative-price auctions was considered “unfair”, as it “punishes” public-spirited landholders who are willing to supply environmental services for lower payments (Ferraro 2008). Allowing the farmers to revise their bids after they receive a tentative acceptance or rejection notice was found to increase the perception of fairness (Ferraro 2008). It was also argued that conservation agencies should reveal all the rules of the auction (for example the level of a reserve price when it is set, or the environmental benefits associated with each farm), though revealing some of these parameters was found to harm the economic efficiency (Cason and Gangadharan 2004; Latacz-Lohmann and Van der Hamsvoort 1997); hiding some rules may end in the auction being perceived as unfair (Ferraro 2008).

To the best of my knowledge, conservation auction as a public participation measure was considered only in the BushTender auction in Australia (DSE 2008). Within this scheme, the auction was thought of as a tool for sharing information between agencies and farmers and developing trust and a partnership “where power is shared equitably in reaching agreement on the specification of the management and the price to be paid for that management” (DSE 2008, p. 4). It was claimed that the BushTender program in Australia enjoys high rates of acceptance among farmers due to “landholders’ ability to determine the range and extent of the commitments they are willing to undertake and the pricing arrangement to complete these” (DSE 2008, p. 22).

In summation, it appears that the main argument supporting the use of auctions for conservation contracts in the literature is the economic argument, although empirical evidence shows that conservation auctions result in modest economic gains, while increasing administrative complexity. Other arguments in favor of conservation auctions – administrative fairness and public participation – received less attention, although there is evidence for their importance. The question of acceptance by farmers, as well as by policy makers, which seems to constitute a fundamental condition for the wider use of auctions in agri-environmental policy, was the focus of little discussion. Indeed, conservation auctions were rarely studied from the perspective of the policy’s stakeholders. The influence of cultural values on the perception of conservation auctions was also hardly studied. All these issues were studied in the pilot project in Israel.

RESULTS OF THE SURVEY AT THE MEGIDO REGIONAL COUNCIL: ATTITUDES TOWARDS THE CONSERVATION AUCTION

Israeli policy makers are well acquainted with the use of auctions, following many years of obligation to issue tenders, in order to comply with the Municipalities Ordinance, governmental regulations (Shalev 1989), and finally by the “Law of Obligatory Tendering” from 1992. Moreover, it was felt that a conservation auction may be more acceptable to Israeli policy makers than a flat-rate agri-environmental scheme, as it introduces an element of competition that differentiates it (at least apparently) from subsidies, which are considered unwanted. Therefore, it seemed both necessary and feasible to implement a conservation auctions in Israel.

The pilot conservation auction at the Megido Regional Council was a sealed-bid discriminative-price auction for the level of the government's share of the investment in

planting olive groves, as means to enhance aesthetic landscape, mitigate erosion and protect biodiversity. A survey of the attitudes of farmers and policy makers towards the conservation auction was conducted within this project (for details of the survey’s methodology see the introduction to this monograph). The results of this survey are detailed below.

In general, many farmers in the survey rejected the use of an auction, whereas the decision makers regarded it more positively (Table 5). 16 out of the 21 interviewed farmers objected to using an auction, some using harsh words such as: “I think it is offensive” (farming manager in a moshav, 44 years old, academic education) or “it is an opening for trouble” (an environmentally-aware farming manager in a kibbutz, 33 years old, academic education). Family farmers opposed the idea of an auction in particular, and none of them were willing to bid in such a scheme. It was very difficult to convey the advantages of auctions to the farmers; as one farmer put it: “I did not at all understand what the advantage of a competition here is” (farming manager in a moshav, 52 years old, high school education). Indeed, although a large majority of the farmers (15 of total 21 interviewees) expressed willingness to join the scheme when it was presented in general terms, only a quarter of the interviewees were willing to take part in an auction. It seems that the auction comprised a deterring factor that diminished farmers’ acceptance of the scheme.

Instead of setting bids, many farmers in the survey would have liked to delegate the decision over the payment level to decision makers or experts. They believed that policy makers or experts “can do the calculation” and determine the “right and honest” payment in the scheme. Some claimed that the “simple” farmer does not have enough knowledge on his/her costs of production to calculate a bid price, and therefore this task is best assigned to agricultural experts. The farmers did not acknowledge the differences in production costs or management skills between farmers, or any other form of information asymmetries between the farmers and the experts.

Table 5 Stakeholders’ attitudes towards using a conservation auction in the pilot project

Stakeholders	In favor of using an auction	Total answers
Farmers – interviews	5	21
Farmers – questionnaire during public hearing	8	12
Policy makers	5	9

Source: Results of survey and questionnaire

Although mostly accepting the auction, many policy makers in the survey exhibited mixed feelings toward it. The discussion about the design of the scheme (auction versus flat-rate payment) continued throughout all the meetings of the project's steering committee. Some decision makers held both supporting and rejecting attitudes, simultaneously, toward using an auction in the scheme (i.e., objecting to it in an interview but supporting it in a subsequent steering committee meeting). This demonstrates that auctions, although widely used in public administration in Israel, are controversial when proposed in agricultural or agri-environmental policy. Indeed, the interviews with agricultural policy makers revealed that, unlike in other sectors, auctions are rarely used within the Israeli agricultural realm. Furthermore, it was revealed that some policy makers are not pleased with their legal obligation to choose suppliers using auctions, which, in their opinion, often reduced the quality of the service provided.

In addition to the controversy over auctions versus flat-rate payments, the decision makers expressed concern over the format of a discriminative-price auction. They were worried that the participating farmers would be paid differently for the same environmental service, a situation that, they claimed, would be unacceptable to the farmers and considered unfair (although none of the farmers in the survey expressed such a concern). The notion that farmers often receive different prices for the same product in the commodities market as well, depending on their bargaining power, did not convince the decision makers. As stated by the Regional Council's architect:

“This is not our position as a public authority, we are not a player (*in the market*)...our place as a public authority obligates us to create fair competitions.”

The advantages and disadvantages of using an auction in the scheme, as perceived by its stakeholders, are detailed in Table 6. The most prominent argument in favor of using an auction was administrative fairness: the auction allows the policy makers to objectively choose who will participate in the project, and how much money they will be paid. Other supporting arguments were that the auction will enable to match the payment level to the needs of the farmers, or will act as a filter for uncommitted farmers, since it will obligate the farmers to make an effort in order to participate in the project. Only one policy maker (the local forestry manager, who had broad experience in conducting tenders) raised the issue of information asymmetries between the policy makers and the farmers; however, he related to asymmetries regarding environmental characteristics of the fields, and not regarding production costs.

It is interesting to note that none of the policy makers mentioned the ability to save public funds as an advantage of an auction. When provoked with this argument, some policy makers answered that auctions may also turn out to be economically inefficient, as some farmers might submit bids that are too low, wouldn't deliver the environmental goods, and "you end up wasting public funds".

More arguments were raised against the auction than for it. The main objecting argument was that the bids would not reflect the actual production costs of the farmers. Some farmers admitted that they didn't know their own production costs. Others claimed that many farmers "would do anything to win the auction", including setting the bids lower than their production costs; this was expected to produce a situation in which the winning bidders either fail to deliver their environmental commitments, or harm their livelihood. This concern was also raised by policy makers, who promoted setting both minimal and maximal reservation prices in order to protect the farmers from submitting bids that are too low, as well as to protect public funds from farmers who are too greedy.

Table 6 Advantages and disadvantages of using a conservation auction versus flat-rate payment, as perceived by the pilot project's stakeholders

Advantages of auctions in agri-environmental schemes*:	Farmers	Policy makers	Total
An auction is a necessary public administration tool that allows policy makers to objectively select who will participate in the project and how much money they will be paid.	-	4	4
An auction enables to match the level of payment to the needs of the farmers.	1	2	3
An auction will obligate the farmers to make an effort, so that the farmers who will ultimately take part in the project will be those who are willing to invest serious work.	1	1	2
An auction can produce a system of a perfect market and reveal the market price of the environmental service.	-	2	2
An auction can resolve the information asymmetry regarding the environmental characteristics of the fields.	-	1	1

Table 6 (continued)

Disadvantages of auctions in agri-environmental schemes:	Farmers	Policy makers	Total
Most of the farmers do not know how to calculate their production costs, and cannot submit reliable bids. Bids that are too low may be awarded in the auction; however, the farmers who submitted them will either not be able to deliver their commitments at the expense of the environment, or deliver them and harm their livelihood.	5	6	11
In an auction, large and successful farmers can compete because they can allow themselves to earn less; smaller farmers will have difficulties in competing.	3	4	7
An auction transmits a message that the authorities do not really want to support the farmers.	4	1	5
An auction can create social tensions between neighboring farmers, and hurt the equality between farmers.	2	2	4
Farmers don't like competitions or taking risks.	2	1	3
An auction creates bureaucratic complications versus a flat-rate payment.	-	3	3
It is too much work to prepare a bid for an auction.	1	2	3
In an auction, the farmers will bid too high, regardless of their actual production costs.	2	1	3
Agriculture suffers from uncertainty in incomes; an auction adds to this uncertainty.	2	-	2
An auction creates uncertainties for the public administrator regarding the number of farmers that will be awarded, the volume of land that will be included in the project and the level of payment.	-	1	1
An auction does not fit the way farmers usually do business. Farmers are not used to bargaining over prices.	1	-	1
There is enough information regarding the production costs of the environmental service, and an auction is not needed.	-	1	1

* The number indicates the number of interviewees who voiced the argument. Some interviewees voiced more than one argument.

The expected inability to set an accurate bid was evident in the farmers' answer to the question of how much they would bid if they decided to take part in the project's auction. None of the farmers were able to state a sum of money, and many preferred to determine the needed level of remuneration as a percentage of the projected investment in the plantings that the project promoted. The range of answers was broad: from 0 (the farmer is willing to participate in the project for learning purposes, and will not ask for financial support), to 80% of the investment. Although the differences in valuations may be related to differences in production costs or to subjective definitions of motivating support, it is worth noting that more than half of the farmers were unable to estimate the needed remuneration at all, claiming that they lacked the knowledge of production costs to answer this question. This was especially true in the case of family farmers, among whom only 2 interviewees were able to state the remuneration they would expect to receive within the framework of the scheme. This raises doubts whether these farmers are qualified and knowledgeable enough to take part in an auction; a flat-rate payment, set by experts, or a minimal reservation price in an auction, may be required to ensure that the farmers will be properly remunerated for their work.

Other arguments against the auction were that it will favor big farmers over small farmers; that it may create social tension between farmers; that an auction does not suit the way farmers usually do business as farmers are not used to bargain over prices; or that it builds mistrust between the farmers and the policy makers. Indeed, some farmers claimed that an auction "transmits a message as if the authorities don't really want to help", or that "it sounds like yet another manipulation".

DISCUSSION OF THE SURVEY'S RESULTS

The findings of the survey may be explained by examining the marketing structure, the public support framework and the cultural image of agriculture in Israel.

Auctions are promoted in the literature as a market-based instrument, which may turn the agri-environment realm into a market with similarities to the market of conventional agricultural products. It is assumed that the farmers arrive at the commodities market with the foods or fibers they produce, and there, bargain over their price. However, some of my interviewees claimed that auctions contradict the way farmers usually do business, and that they are not used to bargain over prices. Indeed, it seems that in Israel most of the farmers have very little room for free bargaining over prices. Although there is no governmental control over agricultural prices (with the exception of milk and eggs), prices are often set by

production organizations (often as a “recommended price”, which, in practice, sets an "anchor point" for the entire market), or by the marketing firms. In some branches, production is done in integrative corporations, in which the single farmer has no control over the price he/she is paid, and the farmer may increase profitability only by reducing costs. Many farmers in the survey, especially small family farmers, said that they felt they didn't have any effect on market conditions, or that they “didn't know how to market themselves”. This situation entails that Israeli farmers indeed have little experience with bargaining or bidding, and using such mechanisms in an agri-environmental scheme would, for most of them, be a new and somewhat intimidating experience.

In addition to the structure of agricultural marketing, one should take into account the tradition of public support for agriculture in Israel. In the past, the agricultural sector in the country was protected by the state – protection that diminished during the 1990s. It seems that the farmers (and some policy makers) in the survey understood the project mainly as re-establishing governmental support for farming. This could be a reason for objecting to the auction, expressing an objection to exposing the farmers to competition within the framework of a project that is supposed to protect them.

The little public support that remains in the Israeli agricultural sector manifests itself in the government extension service. Israeli farmers are used to relying on the extension instructors when choosing their crops and determining their field management practices, and on the Ministry of Agriculture's published farm calculations when doing their economic planning. This may explain why, in contrast to the prevailing argument in the literature, the interviewees did not believe that the farmers knew their costs of production better than the policy makers, or that these costs vary across farms. This might be the reason why some of them indeed do not know their own production costs. It is worth noting that the policy makers in the pilot project continued the tradition of farmers' instruction, by promoting the setting of both minimal and maximal reservation prices in the auction, to guide the farmers' choice in setting the bid, and effectively minimize their leeway.

Furthermore, it is possible that the tradition of cooperation, equality and planning in rural Israel prevents the farmers and policy makers from distinguishing differences in production costs between farmers, or asymmetries in the information available to the farmers and the policy makers. As these factors are the main arguments in support of the economic reasoning for conservation auctions, it is of little wonder that this argumentation is almost absent from the minds of the farmers and policy makers in my survey.

The association between rural life and socialism, prominent in the Zionist movement, probably also influenced the interviewees' general rejection of competition between farmers. This is probably also the reason for rejecting the discriminative-price format by the project's decision makers; rural administrators in Israel simply cannot give some farmers a different financial support than to others, for the same service.

Finally, it seems that the use of auctions is problematic given the change in the significance of agriculture in Israel and the conflict over its current cultural value. The claim that conservation auctions "look as if the government does not really want to encourage" farming, could be understood provided this background. In the past, farming was considered an occupation that serves public goals, and has a higher moral status than other professions. Although this perception is not as prominent among the public at large in Israel today, my interviews show that it is still held by many farmers. A scheme in which policy makers determine the level of payment is perceived as dignifying the sector, since the authorities define its value. However, an auction, where the farmers must determine the worth of their services to society, might make it appear as though they are bargaining for public charity – an image that the Israeli farmers would not like to be associated with.

POLICY ADAPTATION: WHAT CAN CONTRIBUTE TO INCREASED SUPPORT OF CONSERVATION AUCTIONS?

Since auctions in agri-environmental schemes have economic and administrative benefits, strategies should be devised in order to convince farmers and policy makers of their merits, and to use them without reducing the acceptance rate among farmers. At the pilot project in the Megido Regional Council the following was done:

A public hearing was organized with the local farmers, in which the competitive element of the auction was blurred. Instead, the auction was presented as a public participation instrument, allowing the farmers to determine the payments that they will receive within the framework of the scheme. The auction was presented as a way of ensuring that the level of payment in the scheme will match the farmers' needs and wishes. Problematic words such as "tender" or "bidding" were not used, and were transformed into more neutral words. For example, this is how the auction was presented in a questionnaire that was delivered during the public hearing:

"Since it is difficult to know what the sufficient and fair remuneration for the required environmental cultivation is, we would like you, the farmers, to present

suggestions to the Regional Council for the payment that is needed and considered appropriate.”

All through the public hearing, the project’s team referred to the participants’ role in designing the scheme, saying that: “we will try to follow what you (*the farmers*) will say”, “we will be at your service, according to your decision”. The questionnaire that was delivered in the meeting manifested the public participation role of the event, as the farmers were asked to choose the design of the project’s payment mechanism, out of 3 auction design options and 2 flat-rate payment options. The farmers were also asked to name the advantages and disadvantages of every design. The farmers were even named by one of the team’s members “the chief scientists” of the project.

At the end of the public hearing, the auction (including its 3 possible design options, as presented to the farmers) was selected as the better design for the scheme, preferred over flat-rate payment by two-thirds of the votes, and overturning the findings of the survey. It may well be that the emphasis placed on public participation was the factor that changed the farmers’ minds in favor of supporting the auction.

As for the policy makers, the convincing argument was administrative fairness; as stated by the regional council’s architect: “an auction is the only mechanism in which we (*the regional council*) know how to allocate public funds” (meaning that in the Israeli governance system, in which subsidies are not given to farmers, it would be illegal to transfer money from the municipality to farmers without an auction). Throughout all the steering committee meetings, and other meetings that were conducted within the regional council, the project’s team repeated that an auction is the only legal and legitimate way for the regional council to transfer money to the farmers. As the auction was highly controversial among the project’s stakeholders, it may be assumed that had there be a legal way to transfer funds to farmers without an auction – it would have probably been taken in the project, and the idea of a conservation auction would have been abandoned.

It was also maintained by the project’s team that flat-rate payments are too similar to subsidies, and would not be acceptable as fair by the public at large, especially if the design of the project would be adopted as a national policy. However, this line of argumentation was not accepted by the policy makers as much as the administration fairness argument. Indeed, only two policy makers (the regional council’s mayor and the representative of the Ministry of Agriculture) expressed this argument within the project’s meetings. Notwithstanding, as the Ministry of Agriculture was a main sponsor of the project, the opinion of its representative

was considered a veto argument, and the long discussion about the design of the scheme, which lasted throughout all the steering committee meetings, was ended.

In order to deal with the dilemma of paying different farmers different sums for the same service, it was decided to include an environmental benefit index for ranking the bids. By taking into account environmental parameters (the slope of the field, its visibility from highways, etc.) along with the payment requested, the environmental services were differentiated one from the other, and the different payment to participating farmers was justified.

CONCLUSION

Apart from a number of programs in the USA and Australia, auctions are not yet integrated into mainstream agri-environmental policy. This study points to some of the constraints on expanding the use of conservation auctions. It highlights the importance of local agricultural values, traditions, perceptions and interpretations as factors in determining the acceptance of conservation auctions. It demonstrates the need for cultural and regional adapted strategies for overcoming these constraints, mainly by changing the arguments to generate support for conservation auctions. The dominant scientific argument of economic efficiency is not conclusive for all stakeholders in any region; arguments of administrative fairness and public participation are proposed as alternatives.

Of the three possible arguments supporting the use of conservation auctions – economic efficiency, administrative fairness and public participation – the most acceptable in the study case were administrative fairness (by the policy makers); and public participation (by the farmers). As long as auctions are integrated into the general administrative operations and are legally obligated, it will be easier to integrate them also into agri-environmental policy. The strength of the public-participation argument may probably be attributed to the special cultural value attached to farming in Israel, as farmers view themselves as public servants who should not be forced to compete over scarce public funds, but rather be consulted with as partners in agri-environmental projects.

The importance of the acceptability of agri-environmental schemes is well manifested in my findings. For example, notwithstanding the economic benefits of a discriminative-price auction, since the decision makers in my study considered it as unfair and unacceptable, this design could not be used, and had to be blurred by the use of an environmental benefit index.

If it is desired to expand the use of auctions in agri-environmental policy, as indeed is currently recommended by the EU (Article 39 of the Council Regulation (EC) No 1698/2005 of 20 September 2005), it is worthwhile paying attention to the arguments that may convince the schemes' stakeholders, keeping with the prevailing institutional frameworks and cultural perceptions. It is possible that the economic argumentation, often used in the academic literature in favor of auctions, is not convincing to policy makers, and therefore does not motivate them to increase the implementation of conservation auctions. It could well be that using other argumentations, such as administrative fairness or public participation, which are considered as a higher priority by policy makers and are more acceptable to farmers, will better promote the use of auctions for conservation contracts. An adapted argumentation for conservation auctions is not a manipulation of authorities and farmers, but rather a political approach to satisfy all the relevant groups' needs. Using the right argumentation may lead to more economically efficient outcomes, while satisfying the needs of the administration to secure transparency in decision making, and the needs of the farmers to be seen as partners in developing and implementing conservation measures.

SUMMARY

The study presented in this monograph aimed at exploring the possibilities to introduce models of European agri-environmental payment schemes into Israel. The main study was conducted within the framework of a pilot project that was carried out at the Megido Regional Council in northern Israel. The stakeholders of this project were interviewed, and the entire process of implementing the scheme was followed and analyzed. The main question of study was the ability to transfer European models of agri-environmental payment schemes to Israel, and the challenges associated with this transfer.

The main conclusion of this study is that many adaptations to local conditions are necessary when transferring policies to “new” places, making this process from transfer into a transformation. Specifically, there is a need to take into account the local institutional framework, particular cultural values, trends in the public attitudes, and the characteristics of the regional ecosystem. In concluding this monograph I would like to summarize the findings of its various chapters, and suggest some broader implications for other countries and regions outside Israel.

The first chapter explored the possibilities of transferring models of European agri-environmental policy to Israel. Two alternative models were examined: the conventional model of flat-rate, action-oriented payment scheme; and an innovative market-based model. The examination of both models took into account three factors that were expected to influence the feasibility of their adoption: the characteristics of the local ecosystem; the institutional framework; and the attitudes of policy makers.

Both models have advantages and disadvantages in the Israeli context. The conventional European model creates financial motivations for farmers to transition into more environmental-friendly cultivation, a goal that is necessary in Israel, but is not achieved by the current agri-environmental measures. However, since this model resembles agricultural subsidies in some of its features (i.e., giving flat-rate payments to farmers) it contradicts the prevailing attitude among Israeli policy makers, who reject agricultural subsidies. The market-based model has better potential here. However, my study revealed that the implementation of the various components of the market-based model is not equally feasible. They are conditioned by the particularities of the ecosystem, the institutional framework and the attitudes of policy makers and the public at large.

In order to realize the market-based model in Israel and elsewhere, a number of supporting institutional conditions are necessary, such as auction obligation defined in laws or regulations; organizational culture that conditions governmental payment on proof that results

have indeed been attained; a tradition of public participation in decision making, including budgetary decisions; and local organization in the general administrative system. In Israel, only some of these elements exist. Indeed, the component that is most in line with the Israeli institutional framework – the auction mechanism – is the only market-based component that was fully practiced in the pilot project, although it encountered objection from the scheme’s stakeholders.

The aim of the second chapter of this monograph was to understand trends in the attitudes towards the agricultural environment in Israel, as a framework for structuring policy to tackle it. Recent conservationist literature advocates the use of market-orientation in agri-environmental policy. I argue that local values regarding the market, agriculture and the environment influence the feasibility of implementing a market-based approach in the agri-environmental sector. Farmers and policy makers in Israel seem to have ambivalent attitudes in all these issues, which make the construction of agri-environmental policy a complex task.

As farmers only partially appreciate environmental protection, and regard it as unworthy of public funds, the initiation of agri-environmental payment schemes is not promoted by members of the Israeli agricultural sector. The market-orientation in farm business, advocated by many farmers and financial policy makers, could have been translated into promoting market-based instruments in the agri-environmental sector. However, the understanding of agri-environmental services as metamorphoses of the older Zionist roles of agriculture hinders their remuneration using competitive measures. Those who consider the environmental services as worthy of public support would have liked it to be done in a protectionist way, in line with the traditional Zionist support for agriculture.

The third chapter explored the possibilities for implementing conservation auctions in Israel, and the limitations to their operation. It concludes that patterns of agricultural marketing and the level of reliance on public extension services are important parameters influencing farmers’ reaction to conservation auctions. In places where farmers do not have much room for bargaining over prices due to tight marketing channels, or are used to relying on extension experts in planning their farm’s activities, conservation auctions may be rejected as an unfamiliar institution.

Furthermore, attention should be paid to the farmers’ understanding of the message a conservation auction transmits regarding the social value of agriculture. When there are cultural conflicts regarding the “value” of agriculture, as indeed are present in Israel today, the farmers may yearn for public recognition of their services to society. A flat-rate scheme, in which the government sets the value of agri-environmental services, may be more

beneficial to this end than a conservation auction, in which farmers have to bargain over scarce public resources.

In summation, it seems that local cultural conditions have major influences on the feasibility of implementing agri-environmental policies. It seems to be impossible, and undesirable, to try to transfer policies “as is” from one place to the next. In Israel, local values attached to agriculture and environmental protection, cultural understandings of what it means to operate in the free market, and the institutions that envelope the agricultural cultivation greatly influence the ability to initiate agri-environmental schemes, and condition the possibilities of their design. These factors probably have effects in other places as well, and should be taken into account when trying to introduce agri-environmental policy into “new” geographical contexts.

REFERENCES

- Amdur, L., Zaban, H., Avnimelech, Y., Aylon, O., 2005. Conservation of the rural landscape: Implementation model of sustainable agriculture in selected agricultural areas in Israel. The Samuel Neaman Institute for Advanced Studies in Science and Technology, The Technion, Haifa.(Hebrew with English abstract).
- Applebaum, L., 2002. The regional council and the local committee: adjustment in the changing environment. The Floersheimer Institute for Policy Studies, Jerusalem.(Hebrew).
- Barry, N.P., 1989. Political and economic thought of German neo-liberals, in: A. Peacock, H. Willgerodt (Eds), German neo-liberals and the social market economy. Macmillan, Basingstoke pp. 105-124.
- Bateman, I.J., Diamand, E., Langford, I.H., Jones, A., 1996. Household willingness to pay and farmers' willingness to accept compensation for establishing a recreational woodland. *Journal of Environmental Planning and Management* 39, 24-43
- Bauer, S., 2006. Back to principles: Dezentralisierung und Neuausrichtung der ländlichen Regionalpolitik. *Agrarwirtschaft* 55, 137-141.(German).
- Ben Bassat, A., 2002. The path to market economy in Israel, in: A. Ben Bassat (Eds), *The Israeli Economy 1985-1998: From Government Intervention to Market Economics*. Am Oved; The Maurice Falk Institute for Economic Research in Israel, Jerusalem (Hebrew) pp. 1-48.
- Bertke, E., Gerowitt, B., Hespelt, S.K., Iseelstein, J., Marggraf, R., Tute, C., 2005. An outcome-based payment scheme for the promotion of biodiversity in the cultural landscape, in: R. Lillak, R. Viiralt, A. Linke, V. Geherman (Eds), *Integrating efficient grassland farming and biodiversity - EGF 2005*. Tartu, Estonia pp. 36-39.
- Bräuer, I., Müssner, R., Marsden, K., Oosterhuis, F., Rayment, M., Miller, C., Dodoková, A., 2006. The Use of Market Incentives to Preserve Biodiversity. European Commission DG Environment Report. ENV.G.1/FRA/2004/0081. accessed on 1 December 2007. <http://ec.europa.eu/environment/enveco/others/mbi.pdf>
- Briemle, G., 2000. Ansprache und Foerderung von Extensive-Gruenland. Neue Wege zum Prinzip der Honorierung oekologischer Leistungen der Landwirtschaft in Baden-Wuerttember. *Naturschutz und Landschaftsplanung* 32, 171-175.(German).
- Bryld, E., 2003. Potentials, problems, and policy implications for urban agriculture in developing countries. *Agriculture and Human Values* 20, 79-86
- Cason, T.N., Gangadharan, L., 2003. A laboratory comparison of uniform and discriminative price auction for reducing non-point source pollution. The University of

Malbourne, Department of Economics, research paper number 882 accessed on 20 May 2009. <http://www.economics.unimelb.edu.au/SITE/research/workingpapers/wp03/882.pdf>.

Cason, T.N., Gangadharan, L., 2004. Auction design for voluntary conservation programs. *American Journal of Agricultural Economics* 86, 1211-1217

Chenoweth, J., Wehrmeyer, W., Lipchin, C., Smith, J., Gazit, T., 2007. A comparison of environmental visions of university students in Israel and Palestine. *Futures* 39, 685-703

CJC Consultants, 2004. Economic Evaluation of the Central Scotland Forest and Grampian Challenge Funds. Final report for Forestry Commission Scotland. accessed on 25 May 2009. [http://www.forestry.gov.uk/pdf/FCchallenge.pdf/\\$FILE/FCchallenge.pdf](http://www.forestry.gov.uk/pdf/FCchallenge.pdf/$FILE/FCchallenge.pdf).

Connor, J.D., Ward, J.R., Bryan, B., 2008. Exploring the cost effectiveness of land conservation auctions and payment policies. *Agricultural and Resource Economics* 51, 303-319

Cross, G., 1995. Subsidiarity and the Environment, in: A. Barav, G. De Búrca, D.A. Wyatt, J. Wyatt (Eds), *Yearbook of European Law* pp. 107-134.

de-Shalit, A., 1995. From the political to the objective: the dialectics of Zionism and the environment. *Environmental Politics* 4, 70-87

Dekel, O., 2008. The legal theory of competitive bidding for government contracts. *Public Contract Law Journal* 37, 237-267

DRAF Provence Alpes Côte d'Azur, 2005. Synthèse agroenvironnementale de la région Provence Alpes Côte d'Azur. accessed on 1 October 2007. http://agriculture.gouv.fr/IMG/pdf/paca_mae_050804complet.pdf.

DSE, 2008. BushTender: Rethinking investment for native vegetation outcomes. The application of auctions for securing private land management agreements. accessed on 18 August

2009. [http://www.dse.vic.gov.au/CA256F310024B628/0/E8653777854ADDC8CA25747100005E2C/\\$File/BushTender_rethinking+investment_web.pdf](http://www.dse.vic.gov.au/CA256F310024B628/0/E8653777854ADDC8CA25747100005E2C/$File/BushTender_rethinking+investment_web.pdf).

Eggers, J., 2005. Dezentralisierung der Agrarumweltmaßnahmen in der europäischen Agrarpolitik. Hemmnisse eines institutionellen Wandels. Shaker Verlag, Aachen.(German).

Eggers, J., Mettepenningen, E., Beckmann, V., 2007. Assessing the efficiency of local action groups and auctions for designing and implementing agri-environmental measures in the EU - Results from an expert survey. The 47th annual conference of the German Association of Agricultural Economists and the 17th annual conference of the Austrian Association of Agricultural Economists accessed on September 26-28, 2007. <http://purl.umn.edu/7584>.

Egoz, S., 1996. Israel's citrus grove landscape – an opportunity to balance urbanization with cultural values. *Landscape and Urban Planning* 36, 183-196

EU, 2003. The Common Agricultural Policy and the Lisbon Strategy. Agriculture - the heartbeat of rural areas. accessed on 10 March 2007. http://ec.europa.eu/agriculture/lisbon/index_en.htm.

European Commission, 2003. Fact sheet: Agriculture and the environment. accessed on 15 May 2007. http://ec.europa.eu/agriculture/publi/fact/envir/2003_en.pdf.

FAO, 1999. Urban and peri-urban agriculture. accessed on 15 August 2007. http://www.fao.org/unfao/bodies/coag/Coag15/X0076e.htm#P79_5235.

Feitelson, E., 1999. Social norms, rationales and policies: reframing farmland protection in Israel. *Journal of Rural Studies* 15, 431-446

Ferraro, P.J., 2008. Asymmetric information and contract design for payment for environmental services. *Ecological Economics* 65, 810-821

Ferraro, P.J., 2009. Global Conservation Payment Initiatives Internet Database accessed on 12 June 2009. <http://www2.gsu.edu/~wwwcec/special/ci/index.html>.

Fleischer, A., Tsur, Y., 2000. Measuring the recreational value of agricultural landscape. *European Review of Agricultural Economics* 27, 385-398

Fleischer, A., Tsur, Y., Sidi, A., 1997. Measurement of the economic value of agricultural areas a tourist resource. Israel Ministry of Agriculture, Rehovot.(Hebrew).

Frenkel, A., 2001. Open space vs. Development: the loss of agricultural lands in Israel. Israeli Ministry of Agriculture and Rural Development and the Center for Urban and Regional Studies, The Technion I.T.T.(Hebrew).

Gal, R., 2003. The Neglect of Agricultural Land in Moshavim in the 1990s, A dissertation submitted to the senate of the University of Tel Aviv, In partial fulfillment of the requirements for the degree of Doctor of Philosophy, Graduate Program in Geography

Gasteyer, S.P., Butler Flora, C., 2000. Modernizing the savage: Colonization and perceptions of landscape and lifescape. *Sociologia Ruralis* 40, 128-149

Gerowitt, B., Bertke, E., Hespelt, S.K., Tute, C., 2003a. Towards multifunctional agriculture - weeds as ecological goods? *Weed Research* 43, 227-235

Gerowitt, B., Iseelstein, J., Marggraf, R., 2003b. Rewards for ecological goods - requirements and perspectives for agricultural land use. *Agriculture, ecosystems and environment* 98, 541-547

Gerowitt, B., Isselstein, J., Marggraf, R., 2003c. Rewards for ecological goods - requirements and perspectives for agricultural land use. *Agriculture, Ecosystems and Environment* 98, 541-547

Glebe, T.W., 2008. Scoring two-dimensional bids: how cost-effective are agri-environmental auctions? *European Review of Agricultural Economics* 35, 143-165

Goren, M., 2008. Manager of the Israeli agricultural extension service. personal communication.

Gross, E., 2000. How did "free competition" turn into a constitutional right? The twists and turns of the right of freedom of occupation. *Iyune Mishpat* 23, 229-261.(Hebrew).

Groth, M., 2007. Ausschreibungen in der Agrarumweltpolitik: Konzeption und Ergebnisse der praktischen Umsetzung eines Modellvorhabens. *Perspektiven der Wirtschaftspolitik* 8, 279-292.(German).

Groth, M., 2008. An empirical examination of repeated auctions for biodiversity conservation contracts. University of Luenburg, working paper series in economics accessed on 20 May 2009.<http://www.leuphana.de/vwl/RePEc/78.pdf>.

Gvion, L., 2006. Cuisines of poverty as means of empowerment: Arab food in Israel. *Agriculture and Human Values* 23, 299-312

Gwartney, J., Lawson, R., 2008. Economic freedom of the world - 2008 annual report. Economic Freedom Network; Fraser Institute

Hampicke, U., 2006. Jeder Markt honoriert nicht den Aufwand, sondern das Ergebnis. *BfN-Skripten* 179, 161-172.(German).

ICBS, 2004. Statistical Abstract of Israel 2004

ICBS, 2005. Local authorities in Israel. accessed on 21 November 2007.http://www1.cbs.gov.il/www/publications/local_authorities2005/local_authorities_h.htm

ICBS, 2006. Statistical Abstract of Israel 2006

ICBS, 2008. Statistical Abstract of Israel 2008. accessed on 29 January 2009.http://www.cbs.gov.il/reader/shnaton/templ_shnaton.html?num_tab=st19_04&CYear=2008.

IFF, 2007. The ecological revolution of the Minister of Agriculture Simchon: promoting green agriculture. accessed on 8 July.http://www.iff.co.il/meida/yediot/070708_simhon.htm?nojump.

Illsley, B.M., 2003. Fair participation - a Canadian perspective. *Land Use Policy* 20, 265-273

Jack, B.K., Leimona, B., Ferraro, P.J., 2008. A revealed preference approach to estimating supply curves for ecosystem services: Use of auctions to set payment for soil erosion control in Indonesia. *Conservation Biology* 23, 359-367

Kaplan, M., 2004. Bikat HaNadiv Environs - master plan and partial district outline plan. The Ministry of the Interior - The Planning Administration.(Hebrew with English abstract).

Kark, R., 1992. Land-God-man: concepts of land ownership in traditional cultures in Eretz-Israel, in: A.R.H. Baker, G. Biger (Eds), *Ideology and Landscape in Historical Perspective*. Cambridge University Press, Cambridge pp. 63-82.

Kellerman, A., 1993. *Society and settlement, Jewish land of Israel in the twentieth century*. State University of New York Press, Albany.

Kersel, G.M., 1994. Those who stay in agriculture are not losers: The possibilities of the family farm on Moshav no longer conflict with achievement orientation. *Megamot* 35, 386-406.(Hebrew).

Kirwan, B., Lubowski, R.N., Roberts, M.J., 2005. How cost-effective are land retirement auctions? Estimating the difference between payments and willingness to accept in the conservation reserve program. *American Journal of Agricultural Economics* 87, 1239-1247

Kleijn, D., Baquero, R.A., Clough, Y., Diaz, M., De Estaban, J., Fernandez, F., Gabriel, D., Herzog, F., Holzschuh, A., Joehl, R., Knop, E., Kruess, A., Marshall, E.J.P., Steffan-Dewenter, I., Tscharntke, T., Verhulst, J., West, T.M., Yela, J.L., 2006. Mixed biodiversity benefits of agri-environment schemes in five European countries. *Ecology Letters* 9, 243-254

Kleijn, D., Sutherland, W.J., 2003. How effective are European agri-environment schemes in conserving and promoting biodiversity? *Journal of Applied Ecology* 40, 947-969

Klemperer, P., 2002. What really matters in auction design. *Journal of Economic Perspectives* 16, 169-189

Klimek, S., Richter gen. Kemmermann, A., Steinmann, H.-H., Freese, J., Isselstein, J., 2008. Rewarding farmers for delivering vascular plant diversity in managed grasslands: A transdisciplinary case-study approach. *Biological Conservation* 141, 2888-2897

Latacz-Lohmann, U., Schilizzi, S., 2005. Auctions for conservation contracts: A review of the theoretical and empirical literature. The Scottish executive environment and rural affairs department

Latacz-Lohmann, U., Van der Hamsvoort, C., 1997. Auctioning Conservation Contracts: A Theoretical Analysis and an Application. *American Journal of Agricultural Economics* 79, 407-418

Latacz-Lohmann, U., Van der Hamsvoort, C., 1998. Auctions as a Means of Creating a Market for Public Goods from Agriculture. *Journal of Agricultural Economics* 49, 334-345

Lenel, H.O., 1989. Evolution of the social market economy, in: A. Peacock, H. Willgerodt (Eds), *German Neo-Liberals and the Social Market Economy*. Macmillan, Basingstoke pp. 16-39.

Lichtman, M., 2009. Israel is ashamed: The speculators in land and water. *Globes* accessed on 3 July, 2009. <http://www.globes.co.il/news/article.aspx?did=1000476548&fid=607>.

Lowell, K., Drohan, J., Hajek, C., Beverly, C., Lee, M., 2007. A science-driven market-based instrument for determining the cost of environmental services: A comparison of two catchments in Australia. *Ecological Economics* 64, 61-69

Marggraf, R., 2000. Agriculture and the environment, in: S. Tangermann (Eds), *Agriculture in Germany*. DLG-Verlag Frankfurt pp. 231-254.

Marggraf, R., 2003. Comparative assessment of agri-environmental programmes in federal states of Germany. *Agriculture, Ecosystems and Environment* 98, 507-516

Maruani, T., Amit-Cohen, I., 2009. The effectiveness of the protection of riparian landscapes in Israel. *Land Use Policy* 26, 911-918

Matzdorf, B., 2004. Ergebnisorientierte Honorierung ökologischer Leistungen der Landwirtschaft. *UWSF- Z Umweltchem Ökotox*, 1-10.(German).

MBI, 2005. National Market-based instruments pilot program: Round One - An interim report by the National Market Based Instruments Working Group

Mello, I., Heissenhuber, A., Kantelhard, J., 1998. Das Conservation Reserve Program der USA – eine Möglichkeit zur effizienten Entlohnung von Umweltleistungen der Landwirtschaft? *Berichte über Landwirtschaft* 80, 85-93.(German).

Misgav, A., 2000. Visual preference of the public for vegetation groups in Israel. *Landscape and Urban Planning* 48, 143-159

MOAG, 2004. Concentration of data about agriculture and the countryside 2001-2002. Israeli Ministry of Agriculture and Rural Development, Rural Planning and Development Authority, Center for Information and Mapping (Hebrew).

MOAG, 2005. Development program for the year 2005. accessed on 10 November 2006. <http://www.moag.gov.il/>.

MOAG, 2006. Economic report on agriculture and the countryside 2005. Israeli Ministry of Agriculture and Rural Development, Rural Planning and Development Authority, Bet Dagan.(Hebrew).

MOEP, 2007. Web site of the Israeli Ministry of Environmental Protection. accessed on 10 February 2007. <http://www.sviva.gov.il>.

Mougeot, L.J.A., 2000. Urban agriculture: definition, presence, potentials and risks, in: N. Bakker, M. Dubbeling, S. Guender, U. Sabel-Koschrla, H. Zeeuw (Eds), Growing Cities, Growing Food: Urban Agriculture on the Policy Agenda; a reader on urban agriculture. ZEL, Feldafing pp. 1-42.

Müller, K., Toussaint, V., Bork, H.-R., Hagedorn, K., Kern, J., Nagel, U.J., Peters, J., Schmidt, R., Weith, T., Werner, A., Dosch, A., Piorr, A. eds., 2002. Nachhaltigkeit und Landschaftsnutzung. Neue Wege kooperativen Handelns. Margraf Verlag.(German).

Musters, C.J.M., Kruk, M., De Graaf, H.J., Ter Keurs, W.J., 2000. Breeding birds as a farm product. Conservation Biology 15, 363-369

Natan, G., 2007. Governmental support for agriculture - a comparing survey. The Knesset - center for research and information, Jerusalem.

Newig, J., Pahl-Wostl, C., Sigel, K., 2005. The role of public participation in managing uncertainty in the implementation of the Water Framework Directive. European Environment 15, 333-343

OECD, 2006. Agricultural policies in OECD countries: At a glance - 2006 edition. accessed on 16 November 2007. http://www.oecd.org/document/4/0,2340,en_2649_33727_36967364_1_1_1_1,00.html.

OECD, 2009. Enhancing cost-effectiveness of PES programs: Designing and implementing inverse auctions. Environmental Directorate, Environment Policy Committee, Paris.

Orenstein, D.E., Hamburg, S.P., 2009. To populate or preserve? Evolving political-demographic and environmental paradigms in Israeli land-use policy. Land Use Policy 26, 984-1000

Ottaviani, M., 2003. Discussion of Jehiel P and Moldovanu "An economic perspective on auctions". Economic Policy, 269-308

Pascual, U., Perrings, C., 2007. Developing incentives and economic mechanisms for in situ biodiversity conservation in agricultural landscapes. Agriculture, Ecosystems and Environment 121, 256-268

Pe'er, G., Kark, S., Benyamini, D., 2006. Butterfly diversity and conservation in agricultural landscapes across the climatic gradient in Israel: Incorporating behavioral mechanisms. Nekudat Chen Fund. accessed on 18 August 2009. <http://www.nekudat-hen.org.il>.

Peacock, A., Willgerodt, H., 1989. Overall view of the German liberal movement, in: A. Peacock, H. Willgerodt (Eds), German Neo-Liberals and the Social Market Economy. Macmillan, Basingstoke

pp. 1-16.

Peled, Y., Shafir, G., 2005. Being Israeli - the dynamics of multiple citizenship. Tel Aviv university press, Tel Aviv.(Hebrew).

Prager, K., Freese, J., 2009. Stakeholder involvement in agri-environmental policy making - Learning from a local- and a state-level approach in Germany. Journal of Environmental Management 90, 1154-1167

Roepke, W., 1982. The guiding principles of the liberal program (1944), in: H.F. Wuensche (Eds), Standard Texts on the Social Market Economy. Gustav Fischer, Stuttgart pp. 187-191.

Rueffer, C., 2007. Merit goods determined by society value judgments - political implications for public participation: support from an empirical analysis concerning environmental goods. PhD dissertation. Department of Agricultural Economics and Rural Development. Goettingen University, Goettingen.

Said, S., Thoyer, S., 2007. Agri-environmental auctions with synergies. Documents de Recherche parus en 2007 : DR n°2007 - 07. LAMETA, Laboratoire Montpellierain d'Economie Theorique et Appliquée accessed on 2 December 2007. <http://www.lameta.univ-montp1.fr/Fr/Productions/Documents/DR2007-07.pdf>

Schilizzi, S., Latacz-Lohmann, U., 2007. Assessing the performance of conservation auctions: An experimental study. Land Economics 83, 497-515

Shalev, G., 1989. Government contracts in Israel. Public Contract Law Journal 18, 34-53

Shechter, M., Reiser, B., Yaitsev, N., 1998. Measuring passive use value. Environmental and Resource Economics 12, 457-478

Shemesh-Adani, O., 2003. The economic value of agricultural landscapes. MSc Thesis. The Department of Agriculture, Food and Environment. The Hebrew University, Rehovot.(Hebrew).

Shirizly, Y., 2001. Public attitude toward visual quality of open spaces in Israel. MSc Thesis. Department of Geography and Human Environment. Tel Aviv University, Tel Aviv.(Hebrew).

Soen, D., 1997. Planning and mediation - democratic theory and public participation in Israel. *Ekistics* 382, 60-63

Sofer, M., 2005. The future of family farming in Israel: the second generation in the Moshav. *Geographical Journal* 171, 357-368

Sofer, M., Applebaum, L., 2006. The rural space in Israel in search of renewed identity: the case of the Moshavim. *Journal of Rural Studies* 22, 323-336

Stoneham, G., Chaudhri, V., Ha, A., Strappazzon, L., 2003. Auctions for conservation contracts: an empirical examination of Victoria's Bush Tender trial. *The Australian Journal of Agricultural and Resource Economics* 47, 477-500

Tal, A., 2006. The environment in Israel - resources, crises, campaigns and policy from the birth of Zionism until the 21st century. Hakibbutz Hameuchad, Tel Aviv.

Tal, A., 2007. To make a desert bloom: The Israeli agricultural adventure and the quest for sustainability. *Agricultural History* 81, 228-257

v Haaren, C., Bathke, M., 2008. Integrated landscape planning and remuneration of agri-environmental services - Results of a case study in the Fuhrberg region of Germany. *Journal of Environmental Management* 89, 209-221

v Haaren, C., Bills, N., 2007. Agri-environmental programs in the US and the EU: Lessons from Germany and New York State. Working paper accessed on 20 May 2009. nercrd.psu.edu/TALUC/PowerPoints/BillsvHaaren.pdf.

v Hayek, F.A., 1982. Economic policy and the rule of law (1960), in: H.F. Wuensche (Eds), *Standard Texts on the Social Market Economy*. Gustav Fischer, Stuttgart pp. 153-158.

Vukina, T., Zheng, X., Marra, M., Levy, A., 2008. Do farmers value the environment? Evidence from a conservation reserve program auction. *International Journal of Industrial Organization* 26, 1323-1332

Wittig, B., Richter-Kemmermann, A., Zacharias, D., 2006. An indicator species approach for result-orientated subsidies of ecological services in grasslands - a study in Northwestern Germany. *Biological Conservation* 133, 186-197

Wunder, S., Engel, S., Pagiola, S., 2008. Taking stock: A comparative analysis of payment for environmental services programs in developed and developing countries. *Ecological Economics* 65, 834-852

Yustman, M., 2002. The changes in the structure of the market, in: A. Ben Bassat (Eds), *The Israeli Economy 1985-1998: From Government Intervention to Market Economics*. Am Oved; The Maurice Falk Institute for Economic Research in Israel, Jerusalem (Hebrew) pp. 558-609.

Zaban, H., Feller, N., Amdur, L., Avnimelech, Y., Aylon, O., 2004. Sustainable Agriculture – an approach for preserving Israel's open space values. *Forest – Journal of Forests, Woodlands and Environment* 5-6, 26-32.(Hebrew with English abstract).

Zabel, A., Holm-Mueller, K., 2008. Conservation performance payments for carnivore conservation in Sweden. *Conservation Biology* 22, 247-251

Zalutzky, M., 2008. Head of the department for open spaces and biodiversity, the Israeli Ministry of Environment. personal communication.

Zweig, K., 1980. *The Origins of the German Social Market Economy*. Adam Smith Institute, London.

APPENDIX 1: GUIDELINE OF THE QUALITATIVE INTERVIEW WITH FARMERS

This guideline was used for the interviews with family farmers. Similar guidelines, with due changes were developed for the interviews with farming managers and with policy makers.

Introduction

1. Request for cooperation

- a. Good day, my name is Liron Amdur, I am conducting a survey in the framework of the project “agriculture in the service of environment”, in which we try to develop programs to support the environmental contribution of agriculture in Israel. We try to study farmers’ attitude towards the environment in order to design the best program.
- b. The interview will take 1-1.5 hours, and will be divided to 2 parts: In the first part I will ask you some questions about the activities of your farm, so I can get to know your situation better. In the second part I will present to you some ideas about agriculture, environment and the project we would like to promote and would ask you your opinions about them.
- c. I would really be thankful if you could share with me your knowledge and experience. The questionnaire is anonymous, all the data I gather will be confidential and used for research purposes only. Please answer my question freely; it could be that from time to time I will stop you in order to ask clarifying questions, so that I could best understand your answer.

Part 1: Characteristics of the farm

1. How long is the farm owned by you (years)? _____
2. Did you inherit the farm from your parents?
 Yes (go to 3) No (go to 4)
3. How many years is the farm owned by your family (including parents / grandparents)? ___
4. How many years until your lease contract expire? _____ years
5. What is the size of your farm?
plot A _____ plot B _____ plot C _____
6. What crops are cultivated in your farm?

Type of crop	Size (dunam)	Type of crop	Size (dunam)

6. Do you keep livestock? Yes No

Type of livestock	Number (heads)	Type of livestock	Number (heads)

7. How would you estimate the production capacity of your farm (in terms of soil / climate condition, availability of water etc.)?

- Very good
- good
- moderate
- poor

8. On average, what is the net income per dunam of your farm? _____NIS

9. Do you lease land from other farmers? Yes No

If yes, size of leased land: _____ dunam

10. How many dunam of your farm are cultivated (by yourself or by others)? _____

11. Do you lease land to others? Yes No

If yes, size of leased out land _____

12. Did you make substantial investments in your farm in the past 5 years? Yes No

If yes, in what? _____

13. Did you ever receive financial support from the Ministry of Agriculture? Yes No

If yes, when _____ for what? _____

14. Does your household have non-agricultural income sources?

- Yes (go to 16) No (go to 18)

15. What are the major income sources of your household?

Income source	% of household income
1. Agriculture	
2. Salaried employment	
3. Own business (on the farm)	
4. Other, what are they?	

16. How many hours per week do you spend working on the farm? _____ hours

17. Is your spouse working on the farm? Yes No

If yes, how many hours per week does the spouse work on the farm? _____ hours

If not: spouse's vocation: _____

18. What are the future perspective for the agricultural work on the farm in terms of succession?

- Good chance of succession Unclear chance Little chance of succession

19. In general, would you say you define yourself as a farmer? Yes No

If no, how would you define yourself? _____

20. The Megido Regional Council promotes a plan of designating its area to a biosphere reserve. What do you think about this plan? _____

What activities were conducted in your village regarding this plan? _____

Part 2: Attitudes towards environmental cultivation and agri-environmental policy

I will present to you short statements and would like to ask your opinion about them.

A. Attitudes towards the agri-environment

Statement	Main question	Additional questions	Spheres
<p>Some people say that agriculture is not only producing food and fiber, but has also important benefits on our quality of life, such as creating aesthetic landscapes, environmental quality and heritage values.</p>	<p>What do you think about this statement?</p> <p>Have you ever thought about the additional benefits of agriculture beyond production of food and fibers?</p>	<p>1) Do you think agriculture in Israel contribute to the quality of life?</p> <p>2) If yes – what is the major contribution of agriculture to the public at large?</p> <p>3) In particular, do you think your farm has qualities that contribute to the public at large?</p> <p>4) Do you think the additional values of agriculture are generally appreciated by the Israeli public?</p>	<p>In Israel</p> <p>In your region</p> <p>Your own farm / to you</p>
	<p>Can you think of anything that might help preserving the benefits of agriculture to the quality of life in Israel?</p>		

B. Factors influencing farming decisions

Statement	Main question	Additional questions	Spheres
	<p>In general, what are the factors that influence farmers' decisions in operating their farm?</p> <p>What are the factors that influence your decisions?</p>	<p>Probe for:</p> <ul style="list-style-type: none"> - profit - environmental considerations - the public image of farmers / farming 	
<p>For some farmers, the decisions on the farm are influenced not only of economic factors, but also of other factors</p>	<p>What do you think of such farmers?</p> <p>What factors other than economic influence the decisions of Israeli farmers / your decisions?</p>	<p>Probe for:</p> <ul style="list-style-type: none"> - Personal interest in agriculture - Commitment to the village's community - Belief in the contribution of agriculture to society 	<p>You</p> <p>Israeli farmers</p>
<p>There are farmers who adopt certain types of cultivation when they believe they have environmental benefits</p>	<p>What do you think of such farmers?</p> <p>Do you practice an environmental cultivation on your farm? What kind of environmental cultivation? What made you practice this environmental cultivation?</p>	<p>What can the authorities do to encourage you to practice environmental cultivation?</p> <p>Probe for:</p> <ul style="list-style-type: none"> - payments - regulations - instruction 	<p>You</p> <p>Israeli farmers</p>

C. Attitudes towards agri-environmental schemes

Statement	Main question	Additional questions	Spheres
<p>There are people who say that since the farmers supply public benefits, they should be financially remunerated for them, just as they are remunerated for the food and fibre that they produce</p>	<p>What do you think of this statement</p>	<p>Probe for:</p> <ul style="list-style-type: none"> - objects, this is subsidy and farming should be market-oriented - objects, the public might think that farmers abuse public funds - supports, anything that might save agriculture is welcomed - supports, the environment should be protected 	
<p>In various countries there are schemes in which farmers are being paid for the supply of agri-environmental services. The question is whether it is possible or desirable to develop such programs also in Israel.</p>	<p>What do you think of such agri-environmental schemes?</p> <p>What do you think of the possibility to develop such schemes in Israel?</p>	<p>Why are such schemes necessary in Israel?</p> <p>What could be their advantages? Disadvantages?</p> <p>How do such schemes serve the interests of farmers?</p> <p>How do they contradict the interests of farmers?</p> <p>In general, do government activities support or interrupt the Israeli farmers? In what way?</p>	

Statement	Main question	Additional questions	Spheres
	If there were in Israel schemes in which farmers would have been paid for agri-environmental services, would you have liked to join these schemes?	<u>If yes:</u> Why? Probe for: -financial compensation -wish to serve society -wish to improve the environment -wish to improve the surrounding of own house	You Israeli farmers
		<u>If not:</u> 1) Why? Probe for: -Program's goals are not good -Level of payment too low -don't want government intervention on the farm 2) What would have persuaded you to join? Probe for: - change of personal characteristics -change in the farm's characteristics -change in the the scheme's characteristics -if other farmers in the village will join	You Israeli farmers

D. Attitudes toward attributes of conventional agri-environmental scheme

Statement	Main question	Additional questions	Spheres
<p>In general, an agri-environmental scheme has 5 components:</p> <ul style="list-style-type: none"> - the scheme's goal – what kind of cultivation it promotes? - the scheme's operator (the government, a public organization, farmers' organization) - the duration of farmers' commitment - the way the farmers are remunerated (payments, support of investments, tax benefits) - the sum of the payment 	<p>Which of these components is the most important in your decision to join the scheme?</p> <p>Why is this component critical?</p>	<p>Are there other components that I did not mention and are important in your decision to join the scheme?</p>	

E. Attitudes toward the pilot project

Statement	Main question	Additional questions	Spheres
<p>I would like to present to you the outline of the agri-environmental program that we would like to promote at the Megido Regional Council. The scheme will promote the planting of olive groves in agricultural fields. The scheme will supply financial support in planting the groves, but the farmers will have to commit to cultivate the groves according to environmental guidelines which will be set by the scheme's managers. Joining the scheme is voluntary, but the farmer will have to commit to cultivate the groves until they produce fruit.</p>	<p>What do you think of this scheme?</p>	<p>Would you like to join this scheme? Why? Probe for:</p> <ul style="list-style-type: none"> - Environmental interest - Would like to go back to cultivation after retiring from farming - The financial remuneration 	<p>You Israeli farmers</p>

Statement	Main question	Additional questions	Spheres
<p>Some farmers say that it is important for them to know what the environmental benefit that an agri-environmental scheme promotes is, and the financial remuneration comes in a second place. They are not willing to supply every environmental service that the authorities would like to promote.</p>	<p>What do you think of such farmers? Do you have preference regarding the environmental benefit that the scheme promotes?</p>	<p>Do you feel that also regarding agriculture commodities (food, fiber) your choice what to grow is influenced by personal preferences or depends only on market forces – the price that is paid for the product? If the choice depends on market forces only – what is the source of difference when it comes to agri-environmental services?</p>	
<p>The goal of the scheme that I presented to you is planting olive groves</p>	<p>What do you think about the choice to promote olive groves?</p>	<p>The economic profit of olive groves is modest. What do you think about growing crops that have low profitability but high environmental benefit? Do you think that growing olives can be easily done by farmers in your village / you? Do you have enough knowledge to grow olives? Do you think that another crop is more suitable for serving environmental goals? Which?</p>	<p>You Farmers in your village</p>

F. Attitudes towards market-oriented agri-environmental instruments

Statement	Main question	Additional questions	Spheres
The scheme we promote suggests remunerating farmers according to results. The farmer will have to prove that he / she satisfied the cultivation conditions before he / she will get paid.	What do you think about remunerating farmers according to results?		You Israeli farmers
The scheme we promote suggests remunerating the farmers by an annual payment, which sum will be set in an auction. The farmers will submit bids to the sum of payment they require for the environmental cultivation of olive groves. The lowest bids will be selected to the project.	What do you think about using an auction in the scheme?	What are the advantages and disadvantages of the auction versus flat rate payment to all the farmers that participate in the scheme? Would you have liked to participate in such an auction? How much experience do Israeli farmers / you have in participation in auctions within the everyday farm operation?	You Israeli farmers
Some farmers say that it is important for them not to be “welfare receivers” but be treated as an initiators who sale a product or a service.	Is this issue important to you?	Do you think that operating agri-environmental schemes using an auction may preserve the feeling of entrepreneurship among farmers?	

<p>One of the subjects that our scheme would like to promote is public participation in designing the scheme. We would like the farmers and the public at large to participate in designing the scheme's components, including its budget.</p>	<p>What do you think about public participation in the design of agri-environmental schemes?</p>	<p>Which public should participate? The farmers? The public at large? Would the farmers / you be willing to cooperate with the larger public in the design of the scheme? Probe for: - influences of the public's hostility to farmers on the possibilities of dialogue between the public and the farmers</p>	<p>You Israeli farmers</p>
--	--	---	---

G. Willingness-to-accept question

Statement	Main question	Additional questions	Spheres
	<p>Do you believe you can state the level of annual payment that would motivate you to join our scheme? If yes, I would like to ask you to state that level of payment; please consider this sum carefully, as it would guide us in the project we are developing now. Please consider that our budget is limited. The payment is: _____ NIS.</p>	<p><u>If not able to state sum:</u> why not? <u>If respondent states sum:</u> Why did you choose that sum of money? What factors did you consider when stating the amount of money? Do you feel that you have enough knowledge about production costs of olive groves?</p>	

Part 3: Demographic characteristics

Sex: Male Female Year of birth: _____

Education: up to 12 years professional education academic

Number of household members (including interviewee): _____

Level of religious commitment: secular traditional religious

Household gross income is:

Up to 5,000 NIS 5,000-7,000 NIS 7,000-9,000 NIS 9,000-11,000 NIS more than 12,000 NIS

APPENDIX 2: QUESTIONNAIRE REGARDING THE DESIGN OF THE AGRICULTURAL ENVIRONMENTAL PAYMENT SCHEME

This questionnaire was delivered to the farmers during a public hearing on July 20th 2008. Its findings could only partly be used within the analysis, due to large rate of partial responses.

Background

The project “agriculture at the service of the environment” promotes planting of olive groves and their environmental cultivation at the agricultural fields of the regional council Megido. The required environmental cultivation was presented at the beginning of the meeting. The farmers will receive from the regional council financial remuneration for the planting and cultivation of the olive groves.

Since it is difficult to know what the sufficient and fair remuneration for the required environmental cultivation is, we would like you, the farmers, to present suggestions to the Regional Council for the payment that is needed and considered appropriate.

The choice of the proposals that will take part in the project, out of whole the proposals that will be submitted, can be done in a few ways. Four such ways will be presented here. Next to each of the alternatives we would like to ask you to state whether it seems fair to you, and would you like to take part in the project if the choice mechanism will be done according to this alternative.

First alternative: choice according to the level of payment that the farmer asks, differential payment to farmers according to their bids

The farmers who will offer the lower bids will take part in the project, and every farmers that will take part in the project will be paid according to the bid he submitted (the payment will be different to each farmer in the project).

1.1 What in you opinion are the advantages of the suggested choice and payment mechanism? _____

1.2 What in your opinion are the disadvantages of the suggested choice and payment mechanism? _____

1.3 The choice and payment mechanism seems to me: fair not fair

Please explain why: _____

Second alternative: choice according to the level of payment that the farmer asks, uniform payment to farmers who will participate in the project

The farmers that will offer the lower bids will be chosen to take part in the project, but the payment to all farmers in the project will be uniform. The uniform payment will be set according to the highest bid that will still be accepted to the project, so that all participating farmers will be paid according to their bids or more than their bid. The maximal possible payment in the project will be set in advance, so that the farmers will know in advance that too high bids will not be accepted.

2.1 What in your opinion are the advantages of the suggested choice and payment mechanism? _____

2.2 What in your opinion are the disadvantages of the suggested choice and payment mechanism? _____

2.3 The choice and payment mechanism seems to me: fair not fair

Please explain why: _____

Third alternative: choice according to a mix between the level of payment that the farmer asks and environmental characteristics of the field which is proposed to join the project; differential payment to farmers according to their bids

A clear and transparent formula will be developed that will calculate both the level of payment that the farmer asks and environmental characteristics of the field he suggests (for example: slop; proximity to the core areas of the regional biosphere reserve; current cultivation). Through this formula a grade of the proposal will be calculated. The proposals with the highest grade will be chosen to take part in the project. The payment to farmers will be according to their bids, different payment to each farmer, but since the different characteristics of the field are taken under consideration, it means that the farmers get different payment for different service.

3.1 What in you opinion are the advantages of the suggested choice and payment mechanism? _____

3.2 What in you opinion are the disadvantages of the suggested choice and payment mechanism? _____

3.3 The choice and payment mechanism seems to me: fair not fair

Please explain why: _____

Forth alternative: uniform payment set by the regional council, the participating farmers will be chosen by lottery

The regional council will set the level of payment according to its consideration. The farmers will have the choice of joining or not joining the project. All the farmers that will join the project will be paid a uniform payment. In case there will be many interested farmers and the project's budget will not suffice everybody – the participating farmers will be chosen through lottery.

4.1 What in your opinion are the advantages of the suggested choice and payment mechanism? _____

4.2 What in your opinion are the disadvantages of the suggested choice and payment mechanism? _____

4.3 The choice and payment mechanism seems to me: fair not fair

Please explain why: _____

Fifth alternative: uniform payment set by the regional council, the participating farmers will be those who submitted proposals first

The regional council will set the level of payment according to its consideration. The farmers will have the choice of joining or not joining the project. All the farmers that will join the project will be paid a uniform payment. In case there will be many interested farmers and the project's budget will not suffice everybody – the participating farmers will be those who submitted proposals first.

5.1 What in your opinion are the advantages of the suggested choice and payment mechanism? _____

5.2 What in your opinion are the disadvantages of the suggested choice and payment mechanism? _____

5.3 The choice and payment mechanism seems to me: fair not fair

Please explain why: _____

6. From all the alternatives presented above, please choose the one that you would like to see in the project:

- First alternative: choice according to the level of payment that the farmer asks, differential payment to farmers according to their bids
- Second alternative: choice according to the level of payment that the farmer asks, uniform payment to farmers who will participate in the project
- Third alternative: choice according to a mix between the level of payment that the farmer asks and environmental characteristics of the field which is proposed to join the project; differential payment to farmers according to their bids
- Forth alternative: uniform payment set by the regional council, the participating farmers will be chosen by lottery
- Fifth alternative: uniform payment set by the regional council, the participating farmers will be those who submitted proposals first

7. Please mark your opinion regarding the following statements:

	Strongly agree	Agree	Don't know	Disagree	Strongly disagree
Farming is a business, only market forces should decide about farm decisions.					
In addition to economic considerations, farming should be guided by social and national goals					
In addition to economic considerations, farming should be guided by environmental considerations					
The state should finance investments to improve economic efficiency of farms					

	Strongly agree	Agree	Don't know	Disagree	Strongly disagree
The state should finance research & extension to improve economic success of farms					
The state should give payments to farmers who fulfill social and national goals					
The state should give payments to farmers who fulfill environmental goals					
it is the task of agriculture to consider also environmental issues in farm's management					
Nature protection is the task of nature reserves and not of agriculture					

7. Please mark if you agree or disagree with the following statements regarding the tender procedure as suggested in the project

(author's remark: the statements are taken from the answers of the farmers and policy makers to the qualitative interviews)

Statement	agree	disagree
Tender encourages a feeling that the farmers are entrepreneurs. Uniform payment encourages a feeling of "welfare receivers"		
Most of the farmers do not have enough knowledge about environmental olive growing, in order to submit serious bids		
A tender will oblige the farmers to make an effort, so that the farmers who will finally take part in the project will be those who are willing to invest serious work		
In a tender big farmers can compete, but smaller farmers will have difficulties in the competition		

Statement	agree	disagree
A tender is the most advanced system to set the level of payment to the farmer, to set a market price in real time		
A tender transmits a message that the authorities do not really want to support the farmer		
A tender for agri-environmental services transmits to the public at large that the farmers get payment for service and not merely subsidies. In the long run there will be more public support for payment to farmers through a tender		
Agriculture suffers from uncertainty in incomes; a tender adds to this uncertainty		
In a tender bids that are too low may win, and the farmers who submitted them will not be able to deliver their commitments, at the expense of the environment		
The payment mechanism does not matter – as long as the farmers are supported		
Tender does not fit the way farmers usually do business. Farmers are not used to bargain over prices.		
A professional and experienced farmer will not have a problem to take part in a tender		
Tender can create social tensions between neighboring farmers		

8. Demographic characteristics (for statistical analysis)

- family farm owner kibbutz representative

For family farmers: the % of agriculture of the household's income:

- 0-10% 11-60% 61-100%

For kibbutz representatives: the % of agriculture of the kibbutz's income:

- 0-10% 11-60% 61-100%

Sex: male female

Year of birth: _____

Education: high school professional academic

For family farmers: household's income (per month) up to 5,000 NIS

- 5,000-7,000 NIS 7,000-9,000 NIS 9,000-11,000 NIS
 more than 11,000 NIS

For kibbutz representatives: the kibbutz annual gross income:

- up to 60 million NIS 60-90 million NIS 90-120 million NIS
 120-150 million NIS more than 150 million NIS

Other comments: _____

