



## Annual Report 2002

### 1. Introduction

2002 was a very hard year for the Palestinian people and its institutions by and large and ARIJ was no exception. During this year, Bethlehem governorate was subjected to five consecutive re-occupations by the Israeli army. The governorate was under siege all throughout the year and was placed under curfew for 141 days during which the curfew was lifted 40 times for a number of hours. The next table summarizes these events:

**Table I. ARIJ in 2002**

Jan	Feb	Mar	April	May	June	July	Aug	Oct	Sep	Nov	Dec
1	1	1	1	1	1	1 P	1	1	1	1	1
2	2	2	2	2	2	2 P	2	2	2	2	2 P
3	3	3	3	3	3	3 P	3 P	3	3	3	3
4	4	4	4	4	4	4 P	4 P	4	4	4	4
5	5	5	5	5	5	5	5 P	5	5	5	5
6	6	6	6	6	6	6	6 P	6	6	6	6 P
7	7	7	7	7	7	7 P	7	7	7	7	7
8	8	8	8	8	8	8	8 P	8	8	8	8
9	9	9	9	9	9	9	9 P	9	9	9	9
10	10	10	10	10	10	10	10 P	10	10	10	10
11	11	11 P	11	11	11	11 P	11 P	11	11	11	11 P
12	12	12	12	12	12	12	12 P	12	12	12	12
13	13	13	13	13	13	13 P	13 P	13	13	13	13
14	14	14	14	14	14	14	14 P	14	14	14	14 P
15	15	15	15	15	15	15	15 P	15	15	15	15 P
16	16	16	16	16	16	16	16	16	16	16	16 P
17	17	17	17	17	17	17	17 P	17	17	17	17
18	18	18	18	18	18	18	18 P	18	18	18	18
19	19	19	19	19	19	19	19 P	19	19	19	19
20	20	20	20	20	20	20 P	20	20	20	20	20 P
21	21	21	21	21	21	21	21	21	21	21	21 P
22	22	22	22	22	22 P	22	22	22	22	22	22 P
23	23	23	23	23	23	23	23	23	23	23	23
24	24	24	24	24	24 P	24 P	24	24	24	24	24
25	25	25	25	25	25 P	25 P	25	25	25	25	25
26	26	26	26	26	26	26	26	26	26	26	26 P
27	27	27	27	27	27 P	27 P	27	27	27	27	27
28	28	28	28	28	28	28 P	28 P	28	28	28	28
29		29	29	29 P	29 P	29	29	29	29	29 P	29
30		30	30	30	30 P	30 P	30	30	30	30	30
31		31		31		31 P	31		31		31
		5	29	13	12	31	19			9	23

Shaded areas in red indicate curfew days while P means partial withdraw [lifting](#) of curfew for few hour

For many, the words siege and curfew need further clarification. During siege, the Israeli army withdraws from area "A" in Bethlehem to the outskirts but entering or leaving Bethlehem is prohibited or restricted. Area "A" here includes the cities of Bethlehem, Beir-Sahour, Beit Jala, Doha and al Khader as well as the refugee camps of Dheisheh, Aida and al Azzeh. Consequently, people living in the besieged area are somehow free to move within the besieged area. For ARIJ, this means that it can open its offices and employees from the besieged areas can come to work. Those living outside the besieged areas are restricted or prohibited from entering the besieged area.

Under curfew conditions, all the inhabitants are not allowed to leave their homes. The Israeli occupation army controls the whole area and its patrols are constantly roaming around arresting people and imposing house arrest on the total population. For ARIJ, this means that the institute is completely closed and inaccessible to any of its employees or visitors.

## **2. Facing the new challenges**

The staff of ARIJ decided to stand for the challenges and defy the constraints imposed by adopting a series of measures. The first measure was a decision to get to ARIJ every time the curfew is lifted even for few hours. For many this may appear easy but in reality, lifting the curfew is an opportunity for people to shop and do their essential business such as hair cutting, paying electricity bills, withdrawing money from the bank or going to a doctor or dentist. But ARIJ staffs were determined to seize every opportunity to meet and discuss their work. In research, teamwork is essential and thus the lifting of curfew for 3-4 hours provided a needed opportunity for the staff to exchange ideas and findings as well as planning for the next step besides reply for the biding messages and faxes reached ARIJ during the curfew times and concerning administrative issues, and following up on the projects with the donors.

The second measure was a staff decision to make up for the missed days by working on Fridays and Sundays as well as waiving part of their annual vacations. The third measure was to work at home for those who can or to work in an alternative site that was rented in the city center in Beit-Sahour where people can get there even under curfew. Another alternative site was established in Beit-Jala where a number of GIS staff was able to work. Of course, working in the alternative sites carried some risks for the staff as they had to sneak and avoid being caught by the occupation army patrols but it was a calculated risk that the staff was willing to take under the prevailing conditions. On average, the alternative sites in Beit-Sahour and Beit-Jala absorbed 17 people, which allowed ARIJ to function satisfactorily, even under such harsh conditions. The computer staff was very innovative and cooperative in maintaining the computer system, transferring data, securing network connections and email facilities in the alternative sites and in staff homes. It may be worth mentioning here that even presentations and lectures were made during the curfew for those visitors who were ready to defy the system and get to the alternative site through alternative roads.

The following table outlines ways by which ARIJ staff coped with the situation?

	<b>Name</b>	<b>Position</b>	<b>Crisis Management</b>
<b>1</b>	Fadi Isaac	A/SS	Work at the alternative site
<b>2</b>	Faris Sa'd	SS	Work at the alternative site
<b>3</b>	Fuad Ishaq	RA	Work at the alternative site
<b>4</b>	Jad Isaac	A/SR	Work at the alternative site
<b>5</b>	Juliet Bannoura	RA	Work at the alternative site
<b>6</b>	Khaldoun Rishmawi	A/SR	Work at the alternative site
<b>7</b>	Manal Badra	RA	Work at the alternative site
<b>8</b>	Maysoun Bannoura	RA	Work at the alternative site
<b>9</b>	Miriam Salahat	SS	Work at the alternative site
<b>10</b>	Nader Hreimat	A/SR	Work at the alternative site
<b>11</b>	Nael Jubran	SS	Work at the alternative site
<b>12</b>	Saher Hilal	SS	Work at the alternative site
<b>13</b>	Shukri Hihi	RA	Work at the alternative site
<b>14</b>	Sophia Sa'd	SR	Work at the alternative site
<b>15</b>	Alice Nassar	SR	Work at home and in the alternative site
<b>16</b>	Majed Aby Kubi	A/SR	Work at home and in the alternative site
<b>17</b>	Nael Salman	A/SR	Work at home and in the alternative site
<b>18</b>	Abeer Safar	RA	Work at home
<b>19</b>	Ghassan Darwish	RA	Work at home
<b>20</b>	Helen Ghawali	SS	Work at home
<b>21</b>	Helen Murad	A/SR	Work at home
<b>22</b>	Isam Ishaq	SR	Work at home
<b>23</b>	Issa Zboun	RA	Work at home
<b>24</b>	Iyad Abu Rdeinah	RA	Work at home
<b>25</b>	Laila Saqqa	SS	Work at home
<b>26</b>	Lelsie Berkley	SS	Work at home
<b>27</b>	Michel Sleibi	RA	Work at home
<b>28</b>	Raed Abed Rabbo	A/RA	Work at home/and Bethlehem emergency committee.
<b>29</b>	Roubina Ghattas	SR	Work at home
<b>30</b>	Sbeih Sbeih	RA	Work at home
<b>31</b>	Suad Istanbuli	RA	Work at home
<b>32</b>	Suha Nazzal	SS	Work at home
<b>33</b>	Moh'd Abuamriya	RA	Work at home
<b>34</b>	Elia Khalilieh	SS	Work at home and in the alternative site
<b>35</b>	Ali Abu Rahmeh	RA	On study leave
<b>36</b>	Ihab Lolas	RA	On study leave
<b>37</b>	Jane Hilal	RA	On study leave
<b>38</b>	Nezar Farsakh	RA	On study leave
<b>39</b>	Moh'd Ghanayem	SR	On leave
<b>40</b>	Naser Shoukeh	SS	

**A = Administrator, RA= Research Assistant, SR = Senior Researcher SS = Support Staff.**

Fieldwork under such conditions is severely curtailed. Yet, it is extremely essential for ARIJ. Thus, innovative measures were taken to conduct fieldwork under conditions of restricted mobility. Instead of the traditional driving to destinations daily, ARIJ staff opted for spending a number of days in each destination site to conduct the necessary fieldwork. While this involved some inconveniences regarding where to stay and time management, yet it was perhaps the only viable option considering the circumstances. In addition, ARIJ contracted a number of field workers in various districts and trained them to conduct the necessary fieldwork. The use of Internet and fax ensured continuous and efficient communication. Needless to say, ARIJ staff enjoys the feeling of satisfaction at their ability to defy the system and continue their work even under such conditions.

### **3. Working under adverse conditions**

Considering the prevailing political conditions, ARIJ has adapted its program to meet the new needs of the Palestinian society but at the same time, ARIJ believes that relief and emergency should not replace its basic research program that is essential for promoting sustainable development in Palestine. Consequently, ARIJ's program involved a combination of both regular research programs as well as provision of services addressing both short term and medium term needs. ARIJ is embarking on launching a new set of projects that aim to create the linkage between scientific research and the well being of the society. ARIJ intends to introduce pilot projects that could be further expanded and implemented in other areas in Palestine. At the same time, ARIJ has not restricted its activities to the local Palestinian scene and is already involved in a number of regional and international activities.

As preparations were taking place for the WTO conference in Doha, ARIJ worked with the Arab development NGO network on developing a paper on the challenges facing Arab agriculture in a globalized world. The institute also participated in the international conference held in the Iraqi capital in July 2001 commemorating the 20 years since the destruction of the Iraqi nuclear reactor and submitted a paper addressing the environmental degradation in the Middle East. ARIJ also published two papers in the Arab journal for sciences, published by the Arab league for education, Sciences and culture. Moreover, ARIJ participated in the regional meetings for the dry land agro biodiversity project, which was held in Latakia, Syria where ARIJ made a presentation on the requirements for integrating and homogenizing the GIS data. ARIJ also participated in the regional workshop for priority setting of agricultural research in the region, which was held in Icarda headquarters at Aleppo. In addition, ARIJ embarked on launching joint research in cooperation with research institutes and universities in Austria, Belgium, Germany, and Italy, and published an article on the environmental conditions in Palestine in the Lebanese social and scientific research journal.

ARIJ promoted further cooperation and joint work with the Palestinian ministries and national institutions. Close cooperation developed between ARIJ and the Negotiations Affairs Department (NAD) during which the Director General participated as a technical advisor in "Taba" negotiations, which took place in January 2001. Later, ARIJ participated in the formulation of the Palestinian position paper on water and environment. In addition, ARIJ prepared a study on the infrastructure in Jerusalem, which later was integrated into a position paper concerning Jerusalem. ARIJ continues

to provide NAD (Negotiations Affaires Department) with the latest information concerning settlements expansions and other related aspects.

Moreover, ARIJ continued its work with the Palestinian Ministry of Agriculture (MOA) in preparing the agro biodiversity strategy and policy through the regional dry land agro biodiversity conservation project, which is funded by the Global Environmental Facility and implemented by ICARDA ad UNDP. In this project, three sites have been selected for in situ conservation and ARIJ is responsible for developing the spatial data and linking it to the socioeconomic database. In addition, the director general worked on evaluating the capacity building project in the Ministry of agriculture, which is supported by the Netherlands government through UNDP. MOA nominated the general director to participate in the food security conference held in Bonn. Moreover, ARIJ held a joint training course for nature reserves rangers in MOA with support from Heinrich Boll Foundation. A manual on irrigation management has been completed in corporation with the ministry and will be disseminated to the farmers through a couple of workshops. ARIJ also worked with the ministry on the regional project to develop dry land agriculture, which is supported by the Danish government, and ARIJ has outlined the requirements for building a computerized spatial regional database that could be used in the future to build a decision support system to develop this sector.

ARIJ is cooperating with the Palestinian Ministry of Planning and International Cooperation (MOPIC) in exchanging data concerning settlements, land use changes, transportation, poverty report and long term planning. ARIJ worked with the Palestinian team responsible of preparing the poverty report, by hosting the project team responsible for the field survey in Bethlehem district, and participating in formulating the work plan, and finalizing the questionnaire to ensure that it is comprehensive and addresses both the direct and indirect causes of poverty. Moreover ARIJ worked with the World Bank team responsible for preparing the economic report in Palestine, by linking the database with spatial data and a socioeconomic map for Palestine, which was valuable for determining the hot spots and interference priorities. ARIJ wrote a paper for UNDP on the relationship between poverty and environment.

ARIJ was contracted by the Palestinian Ministry of Local Government (MLG) to develop a climatic zoning map for Palestine to be used in the housing specification. At the same time, ARIJ is working with Bethlehem governorate to construct a computerized spatial database for land ownership and use. ARIJ provided the Palestinian Water Authority (PWA) with the ground water model for the Western aquifer, which ARIJ had developed in its study on the sources of water pollution in the West Bank. ARIJ also provided PWA with information on endangered plants and animals in Hebron and Bethlehem districts within its environmental impact assessment of water projects in these areas. In addition, ARIJ worked with PWA in specifying the crops types according to water quality.

The chamber of commerce in Bethlehem organized a conference to present its assessment of the damages in the governorate and ARIJ submitted a paper outlining the agricultural, environmental and infrastructural damages. Bethlehem govern orate was designated as a disaster area that needs an immediate emergency and rehabilitation program. ARIJ responded to the initiative of the new governor in

Bethlehem, which called for stronger cooperation between the governmental and non-governmental institutions. ARIJ is actively involved in the work of the emergency and the strategic planning committees besides being a member in the higher economical committee for the governorate in which worked for many hours to prepare a whole project profile for the district in different areas infrastructure, water, electricity, capacity building and the emergency needs in order to be submitted to the donors, and to the Italian government in specific, moreover one of ARIJ staff were deeply involved in the emergency room during the past period of incursions and curfews from January 2002 till now. On the other hand, the director general is working with the governor as a member of the consultancy committee on various issues for example participating in the important meetings like ministers and foreign consuls besides any activity concerning the governorate. ARIJ was asked to prepare the agricultural, environmental and infrastructural files in cooperation with the relevant departments and submit an action plan for future interventions in these domains. The director general made a presentation to the members of the Mitchell's Committee concerning the settlements expansions in the Palestinian territories and provided the committee with a comprehensive report on this issue which had impact on the committee's findings as evident in its final report which demanded total and immediate freeze on all settlement activities in the Palestinian territories.

As for cooperation with other civil society institutions, ARIJ is active in the work of the Palestinian NGO network. This year, ARIJ assumed a pioneering role in the establishment of the Palestinian environmental non-governmental organizations network (PENGON), which now enjoys the membership of more than [22](#) institutions. ARIJ was elected as the secretary of the network and worked towards a joint Palestinian paper to the World Summit on Sustainable Development (WSSD), which was held in Johannesburg in September 2002. ARIJ, the Palestinian Hydrology Group (PHG), the Palestinian Agricultural Relief Committee (PARC) and the Water and Environmental Research Center (WERC) are working together on submitting a joint research project on water management, which may be considered as a qualitative leap in institutional relations. In addition, ARIJ continues to work jointly with the land research center (LRC) of the Arab Studies Society (ASS) on monitoring settlements expansion in Palestine with support from the European Commission. In average, two case studies are published every week on the joint website in addition to monthly and quarterly reports. The website became a main source of information concerning settlements expansion as evident by the number of hits to this site. ARIJ and LRC are regularly briefing the EU consuls and representatives on the latest settlements expansions. ARIJ also worked with "Badil" in producing a number of maps that were presented in the International Conference against Racism that was held in Durban. ARIJ continues to host delegations from all over the world that come for presentations concerning the issues of settlements, the geopolitical situation, water and environment. A number of ARIJ staff became proficient in making such presentations, which are growing in demand. Many ARIJ staff members were invited on speaking tours in USA, Italy, Belgium, France and the UK.

## **2. Activities of the research units at ARIJ Biodiversity and Agriculture Research Unit (BARU)**

This year, BARU continued its work on improving Field Crops in the West Bank through funding from Food Security Cash Program of the Canadian Food Grains Bank and the Mennonite Central Committee. 300 dunums have been planted and the number of beneficiaries reached 63 farmer families. BARU conducted a workshop in September, 2002 for the Dry land farming in Bethlehem district. More than 60 farmers had attended the workshop, in addition to the related institutions such as Ministry of agriculture (MOA), PARC, and others.

In addition, Baru worked this year on documenting the Palestinian Oral Plant History with funding from GEF/UNDP Small Grant Projects respectively. The work resulted in publishing a book entitled “The Oral History of the Palestinian Plants, that complements a Calendar for five years entitled: “the Palestinian Plants wall Calendar “. Both the book and the Calendar were published in 2002, BARU also helped other units in implementing other projects such as Artas village profile and agro-biodiversity project, where an agricultural report and GIS botanical report were prepared respectively.

This year, BARU continued to offer its services to a number of Palestinian governmental, non-governmental and private institutions. BARU is working on formulating Palestinian agro biodiversity policy and legislation for UNDP/MOA. The unit worked with Care international to submit a joint proposal a proposal to the European Commission entitled:” Sustainable Access to Food and Economic Security in Jenin (SAFES Jenin)”. In addition, Baru prepared a village profile for A’bud, E’in A’rik, and Jifna for World Vision. BARU contributed a paper, entitled “Status of forests in Palestine” that will be published in the book:” Mediterranean Forests and People, Towards Total Economic Value” by Padua University, Italy. BARU has also submitted a number of new research proposals for potential funding.

BARU continued its work with MOA and UNDP in promoting the conservation and preservation of important wild relatives and landraces agricultural species through the regional project, which is funded by the Global Environmental Facility and implemented by ICARDA and UNDP. In this project, three sites have been selected for in situ conservation and ARIJ is responsible for developing the spatial data and linking it to the socioeconomic database.

### **Water and Environmental Research Unit (WERU):**

WERU continues to run and evaluate the performance of the small-scale wastewater treatment plant that has been installed at ARIJ using aerated sludge technology. The unit performance is promising but there are still problems related to the reduction of BOD and COD parameters. The treated wastewater is utilized for irrigation of ARIJ garden.

WERU worked very closely with the UNEP delegation in its preparation of a desk study on the status of environment in the Occupied Palestinian Territory. The report, which will be published in 2003, will reflect ARIJ input.

WERU worked with PWA to produce a report assessing the environmental impacts of Israeli colony solid waste and wastewater disposed directly into the environment. In addition, WERU is evaluating the impacts of closure, mobility restrictions and curfew on the agricultural land use patterns and environment.

Several research tools were introduced in WERU during this year. These tools aim at the quantitative assessment of the environment and environmental degradation. WERU has finalized a project entitled “Analysis of Waste management policies in Palestine” to quantitatively evaluate the impacts of the different solid, wastewater and hazardous waste management practices in Palestine.

Two meteorological and Air quality monitoring equipment will be installed in the West Bank. The first will be installed at ARIJ and the second will be installed at a location to be later determined. The equipment should improve the meteorological reading at ARIJ on one hand and provide measurement of the concentrations of the different gases emitted from anthropogenic sources.

## **Geographical Information System & Remote Sensing Unit**

The GIS unit at ARIJ is diligently applying the latest technology in the field of geography to promote natural resource sustainability in the Palestinian territories. The GIS unit has a very advance mapping system mainly developed to produce bespoke maps and to maintain a common reference system for geographic data. Also, the unit is involved in variety of applications, these applications as diverse as natural resource sciences, urban development and analysis, automated mapping and facility management (AM/FM) systems, land information systems (LIS), agriculture and geopolitics. The GIS unit acts as a service support unit in which it constantly supports the other units at ARIJ with maps and geographic records needed for their research and projects. Most recently, ARIJ introduced and used the GIS as a decision support system to enhance the performance of the municipalities and local government. The GIS unit has been involved in building human capacity programs by training senior officials on the use of GIS in urban planning.

The unit is monitoring the adverse implications of the Israeli colonizing activities in the Occupied Palestinian Territories OPT. 40 case studies were published on the Internet as well as monthly and quarterly reports. Consultancies are given and information is disseminated to the Palestinian policy makers in ministries, municipalities, etc., to the Palestinian general public, and to the diplomatic missions as well as Un and other international bodies about Israeli colonizing activities.

The unit also worked with MLG and UNDP to derive the climatic zones in the Palestinian territories and define the Palestinian built-up areas according to those

zones in an attempt to facilitate the process of determining the different building codes required in each area.

The GIS unit is cooperating with the Palestinian Ministry of Planning and International Cooperation (MOPIC) in exchanging data concerning settlements, land use changes, transportation, poverty report and long term planning.

The GIS unit cooperates with Ministry of Local government in collecting, digitizing and analyzing the master plans of the Palestinian localities in the West Bank. Also ARIJ support the local government of Bethlehem by providing service to the public to identify the political status (Area A, B and C) of land objects such as houses and parcels.

The GIS worked with the World Bank team responsible for preparing the economic report in Palestine, by linking the database with spatial data and a socioeconomic map for Palestine, which was valuable for determining the hot spots and interference priorities.

### **3. Description of ARIJ program in 2003**

| Follow-up existing research projects that are already funded:

#### **1. Urbanization and its impacts on natural resources (phase two):**

Through funding from the International Development Research Center in Canada, this project aims to assess the effects of urbanization on Palestinian natural resources. This project aims to continue phase one activities in southern parts of the West Bank and by studying the urbanization phenomenon in the central and northern parts of the West Bank in an integrated framework. This includes specifying the changes of land use in these areas through analysis of satellite images and fieldwork and estimating the social and economic effects of these changes. The final report will contain urban land use for West Bank as a whole.

#### **2. Improving field crops in the West Bank (Phase two):**

ARIJ will continue its demonstrations with farmers to improve field crops in the marginal areas in the West Bank through a grant from the Food Security Cash Program of the Canadian Food Grains Bank. This year, 300 dunums have been planted and the number of beneficiaries reached 63 farmer families. The purpose of these activities is to enhance the sustainability of the rain-fed farming system and improve food security.

#### **3. Creating compost: towards improving food security in the Bethlehem District:**

ARIJ has secured funding from the EU Food Security Program for launching the first pilot project to produce compost from domestic waste. In general, organic waste comprises 70 % of the domestic waste in Palestine and so far, has been dumped together with domestic waste in dumping sites. The project aims at

introducing a semi automatic but still labor-intensive waste separation system to be followed by an aerobic system of compost production. The local farmers to restore soil fertility and improve food security in the target areas will use the compost. The beneficiaries from this pilot project will be 25,000 inhabitants living in five communities in Bethlehem governorate. This project will be implemented in cooperation with the municipalities and village councils involved. One component of the project will also include a public awareness program and the possibility of introducing separation at source. It is hoped that this project will demonstrate the urgent need for integrated solid waste management in Palestine, which so far has been lacking. Of course, ARIJ will, through this project, collect accurate information about the composition of domestic waste in Palestine and assess the feasibility of the technology used.

#### **4. Ambient air quality assessment**

ARIJ will follow up the regional air quality project funded by MERC in partnership with Department of Meteorology- San Jose State University – USA and Graduate School of Applied Sciences – The Hebrew University - Israel. In cooperation with the Ministry of Environmental Affairs, ARIJ will establish three units for measuring air quality: in Gaza, Nablus and Bethlehem. An inventory of CO<sub>2</sub> emissions in Palestine and creating a model for movement of pollutants will be made.

#### **5. GIS capacity building for Municipalities, Local Government and village Councils in Bethlehem governorate and the establishment of a GIS Service Unit in Bethlehem District**

This project came about as a natural outcome of ARIJ's work with the governorate of Bethlehem in emergency preparedness. It has been developed in cooperation with the municipalities, local government and village councils in Bethlehem governorate and submitted to the Italian Government for potential funding. It aims at developing GIS Service Unit and to provide training in the fields of GIS data integration, analysis and modeling for the governorate of Bethlehem. More specifically the project will provide the institutes with the tools necessary to conduct the following activities:

- Establish an integrated digital map database for the municipal and rural areas;
- Utilize GIS as a tool to support urban and rural spatial planning policies;
- Use GIS as a tool in the decision-making process concerning land use and natural resource management; and
- Perform GIS computer analysis and modeling to select and rank potential sites for water and solid waste collection and treatment.

#### **6. Assessing waste management policy in Palestine**

This project, which is funded by Tamkeen aims to assess the status of waste management in Palestine covering domestic, hazardous and industrial waste. This will be followed by policy analysis and the provision of alternatives for better waste management.

## **7. Monitoring Israeli Settlements (phase two).**

This project is a continuation of phase “I” of the project, which was supported by the European commission and came to a successful completion by 18 February 2002. ARIJ implemented this project in cooperation with the Land Research Centre of the Arab Study Society. The project’s second phase aims to resume the activities of phase “I”, which included analysis of aerial photos, satellite images, field trips, and case studies that show the dimensions of settlement policies and their effects on the Palestinian environment.

## **8. A village profile for Artas Village**

This project which is supported by the Finnish government aims at producing a comprehensive database covering social, land use, natural resources and economic conditions that will be integrated spatially with GIS.

## **Potential Research Projects**

During the past two years, ARIJ worked on developing new research project proposals that have been submitted for potential funding. These include:

### **1. Assessing waste management policy in Palestine**

This project, which has been submitted to Tamkeen for potential funding aims to assess the status of waste management in Palestine covering domestic, hazardous and industrial waste. This will be followed by policy analysis and the provision of alternatives for better waste management. Negotiations are going on now to finalize the project. The proposed program aims at analyzing all the national policies relevant to waste management issues by synthesizing the available data and analyzing the complex interactions between waste generation and management on the one hand and their relevant impacts on natural resources and human activities on the other hand. The generated knowledge will be integrated into strategic and “*more sustainable than today*” waste management policies and plans. This will be followed by policy analysis and the provision of alternatives for better waste management.

### **2. Monitoring Israeli Settlements (phase two).**

This project is a continuation of phase “I” of the project, which was supported by the European commission and came to a successful completion by 18 February 2002. ARIJ implemented this project in cooperation with the Land Research Centre of the Arab Study Society. The project’s second phase aims to resume the activities of phase “I”, which included analysis of aerial photos, satellite images, field trips, and case studies that show the dimensions of settlement policies and their effects on the Palestinian environment.

### **3. Improving field crops in the West Bank (Phase three and phase four):**

ARIJ will continue its demonstrations with farmers to improve field crops in the marginal areas in the West Bank through submitting project proposals to get a grant from the Food Security Cash Program of the Canadian Food Grains Bank for another two years (2003 & 2004). The main purpose of these activities is to

enhance the sustainability of the rain-fed farming system and improve food security.

#### **4. Future of Dead Sea Basin: Options for More Sustainable Water Management**

The overall objective of the project, which has been submitted to the EU INCOMED program, is to establish the scientific basis for a "better sustainability than today" water management and water-related land management in the Dead Sea basin. ARIJ has submitted this regional project jointly with Environmental Planning Unit - ARC Seibersdorf Research – Austria, Water Resources System Research Laboratory - Department of Engineering - University of Newcastle Upon Tyne – USA, Center for Environmental Policy - Arava Institute for Environmental Studies – Israel and EnviroConsult Office – Jordan.

The project aims to:

- To establish a systemic view of the issue (i.e. to identify the underlying causes of interactions of the physical, economic and social subsystems)
  - To understand the current situation that has led to the unsustainable situation (and the driving forces behind this) in order to be able to identify options for change
  - To employ a jointly agreed scientific and rational view of the water resources and use Dead Sea Basin
  - To address the Dead Sea Basin as a whole (rather than to address it as parts of three countries)
  - To freely exchange all project relevant information between the project partners in order that partners from one country understand the situation in the other countries
- To present all scientific results in a format that is applicable for decision-making processes

#### **5. Water and Forest Scenarios: Institutional and Policy Tools around the Mediterranean Sea.**

The work will consist of environmental analysis, socio-economic analysis, and institutional analysis of the relationships of water-forests in order to finally deduce integrated policy scenarios for a better water management in these areas. The research will focus on selected case-study areas from Southern and Eastern Mediterranean countries. ARIJ has submitted this project proposal ENCO-MED under the European fifth RND framework jointly the following universities and research centers: Centro di Contabilita e Gestione Agraria Forestale e Ambientale, Universita degli Studi di Padova, Italy; European Forest Institute, Finland; Department of Ecology, University of Alicante, Spain; Institute National De Recherches EN Ginie Rural, Tunisia; Water and Environmental Engineering Dept, Hydraulics, and Irrigation engineering Research Unit; Forest Management and Forest Economics, Forest Research Institute, Jastebarsko, Coratia; Faculty of Agriculture and Food Science, American University of Beirut, Lebanon; International Union of Forest Research Organizations (IUFRO), Morocco; and Faculty of Forestry, Department of Forest Engineering, Division of Forest Economics, Turkey.

#### **6. Changing water perception: Water culture as a relevant demand management strategy.**

This project will focus on developing a culture of water based on social, political, economical and environmental sustainability for the use of water resources in Palestine, Morocco, Jordan in urban and peri-urban areas. This project has been submitted to the Euro-Mediterranean partnership program. A number of partner organizations are involved in the implementation of the project activities and proposed framework. ARIJ will contribute to the framework of the project with the following regional partners: Jordan Environment Society (Jordan); Ecole Hassania De Travaux Publics (Maroc); Academie de l'Eau (Francia); Palestinian Water Authority –PWA (Palestinian); Arab Hydrology Group- AHG (Palestinian); Jerusalem Water Undertaking- JWU (Palestinian); Applied Research Institute - Jerusalem –ARIJ (Palestinian); Genathlon -Centre for the interdisciplinary approach of human and natural system (Greece); IREM (Istituto di Ricerche sull'economia Mediterranea) (Italy); CELPE (Interdepartmental Centre for research in Labour economics and Economic Policy-Università degli Studi di Salerno) (Italy); Fondazione Angelo Celli (Italy); Carsa (Italy); and Istituto Universitario Orientale (Italy)

## **Research projects under preparation:**

### **1. Sustainable Development Indicators for Palestine**

Sustainable Development is defined as a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations. An organic relationship has been shown to exist between resource scarcity and political conflicts. Palestine is a clear example of natural resources being caught in the middle of political conflict. The political instability coupled with a fragile ecosystem with increasing population density has imposed a serious threat to the sustainability of Palestinian resources. Problems of accessibility and availability of natural resource in turn continue to be one of the leading causes of tension in the region. Despite the current crisis facing the Palestinians, it is still expected that a solution to the ongoing problems will be found in the near future. When this happens, the region can expect to undergo further major geo-political change. Such change is likely to exert extreme pressure on what is already a very delicate ecosystem. It is anticipated that any final agreement will be accompanied by changes to population dynamics with settlers leaving and the arrival of returnees. Security issues are also expected to impact on the environment. The Israelis are already talking about a perimeter fence for the West Bank similar to that around Gaza. Further, a stable political situation will open up Palestine to development. Major investment and development will add to the stress placed on scarce resources. It is argued that sound management of environmental resources is essential for a stable peace. Of course, the environment and politics are intricately interlinked. It is important to observe both resource stresses and a society's ability to handle such stresses. In this project we propose to monitor closely the environmental pressures in order to identify trends and make projections. It is essential to assess what impact the future separation will have on wastewater services, solid waste facilities, patterns of urbanization and the ability to develop in a sustainable manner. We will try to foresee hotspots of resource availability, accessibility and management ability that could impact on the possibility for a stable peace.

Mitigation procedures will also be considered and we will prioritize the needs for planning purposes.

ARIJ will start compiling data on sustainable development indicators focusing on agricultural, water and environmental indicators. It is obvious that there will be a number of gaps in these indicators and perhaps, there will be a selection of major indicators. At the end of the third year, ARIJ will publish the sustainable development indicators and invite Palestinian ministries and the civil society to reflect on these indicators.

## **2. Empowerment of dry land farming communities in marginalized areas of Bethlehem and Hebron districts.**

This project aims to assist the local marginalized farming communities in the Eastern part of Bethlehem and Hebron districts to sustain their dry land farming systems and thus their source of income by enabling them to take their own decisions in terms of cultivation management and facilitating their continuous accessibility to seed stock of suitable landraces and other seed crop varieties, particularly in drought seasons.

## **3. Eco-geographical Survey of the Wild Legumes in the Eastern Slopes of the West Bank project.**

This project aims to identify, evaluate, map and document the wealth of Palestinian wild legumes, mainly in the Eastern Slopes of the West Bank, in order to develop appropriate management plans and conservation strategies and to ensure an optimum balance for its utilization.

## **4. Conservation of Forage Legume Plants in Palestine.**

*In situ* and *ex-situ* conservation of legumes in Palestine to ensure that genetic diversity of plant forage legumes is secure, efficiently held and readily available for sustainable utilization. This project is intended to be an evolving one that motivates thinking and catalyzes action toward forage plant conservation.

## **5. Inventory of Palestinian Forest Trees.**

This pilot project aims to identify, locate those species, ecotypes and populations of plant trees that inhabit forests of the West Bank. A Herbarium and a database will be established for the surveyed and collected plants. Statistical analysis will be undertaken to analyze the collected data. The results will be documented and published in a booklet. This is one endeavor towards capacity building, taxonomy, training and sustainable development of forests' biological resources in the West Bank

### **Executing Consultancies or Research Contracts:**

- Finalizing the agreement to implement the consultancy part of land and water optimization project carried out by the Palestinian Ministry of Agriculture and Water Authority, and funded by the Austrian government.
- Implement the village of profile for Artas village with support from the Finnish government. The profile will include a comprehensive database covering social, land use, natural resources and economic conditions that will be integrated spatially with GIS.
- Climatic zoning in the West Bank for the ministry of local government with support from UNDP.
- Finalizing the formulation of a National Policy and Legislation for Promoting the Conservation of Agrobiodiversity, which is implemented by UNDP for the benefit of MOA through the regional dryland agrobiodiversity conservation that is funded by GEF.
- Continue building the database and connect it to GIS for the Palestinian component of the regional dryland Agrobiodiversity Project.
- Homogenizing and integrating the spatial databases of the regional dry land Agro biodiversity project for all the partners i.e. Syria, Lebanon, Jordan and Palestine.

### **Work with the Ministry of Agriculture on:**

- The regional Agro biodiversity project through attending steering committee meetings, participating in the agro biodiversity policy and legislation task force and technical committee activities
- Agricultural council meetings
- Agricultural sector working group meetings
- Agricultural emergency committee
- MOA and Palestinian NGO's committee
- Regional dry land farming project
- The national committee for Combating desertification
- Developing agricultural villages' profile
- Conducting the agronomist's tasks for land and water optimization project
- Producing an agricultural land use map for the West Bank.
- Cooperating with MOA to utilize the expected produced compost from the EU Food Security Project to improve soil fertility of the eastern slopes.
- Holding a number of workshops for the Ministry of Agricultural extension agents about irrigation water management program.

### **Work with the Negotiations Affairs department (NAD) in**

- Preparing and analyzing Position papers
- Meetings and consultations
- Data compilation
- Providing statistical and spatial data about land use and natural resource

### **Work with the Ministry of Higher Education in**

- Preparing the green paper for research Strategy and policy in Palestine
- Attend the meetings to discuss and modify the green paper
- Preparing the white paper and lobbying for its ratification
- Participating in TEAM meetings of the EU in the field of remote sensing and GIS

### **Work with Ministry of Environmental Affairs in**

- Monitoring environmental degradation in the West Bank through conducting field surveys and doing qualitative and quantitative analyses for different environment quality parameters.
- Environmental Awareness and learning campaigns.
- Waste policy analysis.

### **Work with the Ministry of local Government in**

- Producing land use and urban expansion maps including the urban master plans for different municipalities.
- Developing a climatic zones model in preparation for building standards.
- Providing GIS and remote sensing information for the Ministry's engineers and planners
- Conducting joint workshops to disseminate the results of the urbanization assessment
- Establishing joint committees to address urbanization issues.
- Using the GIS application to assist the Ministry in determining the location of the Palestinians land ownership whether located in Area A or B or C, before giving building permits.

### **Work with Bethlehem Governorate in**

- Promoting the work of the Governorate Technical Advisory Committee in charge of strategic planning.
- Assisting in the institutionalization of the Governorate Emergency Committee and its activities in assessing damages, provision of relief and medical supplies and communications
- Providing land use and urbanization maps for the Governorate.

**Work with the Ministry of Planning and International cooperation (MOPIC) in:**

- **Promoting the work of the National Technical Advisory Committee Meetings for Physical Planning.**
- **Exchanging data on land use and settlements expansion.**

**Provision of information, maps, land use data, policy advice and other services to local, regional and international agencies including:**

- The Arab NGO development network on agriculture and globalization
- The Arab League for Science and Culture on science and technology
- ICARDA on agricultural research priorities in the region
- ICRC, UNDP, UNRWA on land use in Palestine
- Delegations and representatives to the PNA on settlements and land use
- The Palestinian Environmental NGO network on sustainable development
- United Nation Environmental Program on environmental conditions in Palestine
- UN Human Rights Commission on land confiscation and settlements
- Work with UNDP and Beir Zeit University on the Palestinian Human Development Report

**Human Resources development at the Applied Research Institute- Jerusalem (ARIJ)**

ARIJ strongly believes that human resources are the corner stone for promoting R &D in Palestine. Thus, ARIJ has been working in a systematic manner to develop its human resources through the provision of opportunities of M.Sc. and Ph.D. scholarships for its staff as well as short-term training programs. The following table outlines the overall human resource development program at ARIJ.

	<b>Name</b>	<b>Position</b>	<b>HRD program</b>
1	Abeer Safar	RA	Short training courses
2	Ali Abu Rahmeh	RA	On study leave for a Ph.D. degree in USA
3	Alice Nassar	SR	Short training courses
4	Elia Khalilieh	SS	Not applicable
5	Fadi Isaac	A/SS	Short training courses
6	Faris Sa'd	SS	Not applicable
7	Fuad Ishaq	RA	Short training courses
8	Ghassan Darwish	RA	An M.Sc scholarship
9	Helen Ghawali	SS	Not applicable
10	Helen Murad	A/SR	Short training courses
11	Ihab Lolas	RA	On study leave for a M.Sc degree in USA
12	Isam Ishaq	SR	Short training courses
13	Issa Zboun	RA	Short training courses

14	Iyad Abu Rdeinah	RA	An M.Sc scholarship
15	Jad Isaac	A/SR	Research fellow program
16	Jane Hilal	RA	On study leave for a M.Sc degree in USA
17	Juliet Bannoura	RA	Short training courses
18	Khaldoun Rishmawi	A/SR	Potential Ph.D. scholarship
19	Laila Saqqa	SS	Not applicable
20	Lelsie Berkley	SS	Not applicable
21	Majed Aby Kubi	A/SR	Potential Ph.D. scholarship
22	Manal Badra	RA	Short training courses
23	Maysoun Bannoura	RA	Short training courses
24	Michel Sleibi	RA	Short training courses
25	Miriam Salahat	SS	Not applicable
26	Moh'd Abuamriya	RA	Short training courses
27	Moh'd Ghanayem	SR	On leave
28	Nader Hreimat	A/SR	Short training courses
29	Nael Jubran	SS	Short training courses
30	Nael Salman	A/SR	Research fellow program
31	Naser Shoukeh	SS	Not applicable
32	Nezar Farsakh	RA	On study leave for a M.Sc degree in USA
33	Raed Abed Rabbo	A/RA	Short training courses
34	Roubina Ghattas	SR	Short training courses
35	Saher Hilal	SS	An M.Sc scholarship
36	Sbeih Sbeih	RA	An M.Sc scholarship
37	Shukri Hihi	RA	On study leave for a M.Sc degree in USA
38	Sophia Sa'd	SR	Potential Ph.D. scholarship
39	Suad Istanbuli	RA	On leave
40	Suha Nazzal	SS	Not applicable

A = Administrator, RA= Research Assistant, SR = Senior Researcher SS = Support Staff.

Considering the scope and nature of the current and potential research projects at ARIJ, the following short-term courses are deemed essential for ARIJ staff.

1. A one-month internship program for Nader Hreimat at the World Resources Institute to work on developing Sustainable Development Indicators for Palestine.
2. A two weeks training course for Majed Abu Kubi at the Environmental Systems Research Institute, Inc. (ESRI) in System Architecture Design for GIS, Geodatabase Design Concepts and ArcSDE.
3. A two weeks training program for Mohammad Abu Amriyyah in a research institute or university in socioeconomic analysis in the field of agriculture and natural resource management.
4. A two-week training program for Roubina Basous Ghattas in a nature reserve or protected to develop her skills in nature reserve management and biodiversity conservation.
5. A four weeks training program for Fadi Isaac on Red Hat Network Administration, Macromedia Flash MX, PHP and Mysql, Multimedia and web design (Graphic Design).

6. A two weeks training program for Michael Sleibi at any of ESRI training centers on ARCIMS and ArcXML.
7. A two weeks training program for Abeer Safar in the field of compost production from domestic solid waste and small scale wastewater treatment and reuse. Selection of appropriate training sites will have to be based on scale of operations and methodologies appropriate to Palestine.
8. A one-month training program for Sbeih Sbeih in a university or research institute the field of public cost benefit analysis.
9. A one-month internship program in a university for Khaldoun Rishmawi in the field of synergetic studies between crop models and Remote Sensing.
10. A one-week training course at ESRI for Issa Zboun on ArcGIS II (for ArcView 8, ArcEditor 8, and ArcInfo 8).
11. A one-month training program for Raed Abed Roabbo in the field of NGO management and operations.
12. A two weeks training course for Sophia Saad on Ecognition software to develop ARIJ's remote sensing capabilities.
13. A two weeks scientific exchange visit for Jad Isaac to research institutes and universities for potential cooperation and joint research.

## **Evaluation**

ARIJ intends to conduct a comprehensive evaluation its program and its relevance. The board of ARIJ discussed this issue extensively and decided that such an evaluation is essential for proper long term planning. However, the current political situation is not conducive for such an evaluation due to the closures, curfews and travel restrictions. The board also decided on the need to have two consultants involved in the evaluation, one local one and the other international. A TOR was agreed upon which entails the following:

1. Review all relevant documents related to the activities of ARIJ including annual reports, newsletters, publications etc.
2. Review personnel, administrative and financial policies in the institute.
3. Hold discussions and meetings with board members, administration and staff to identify their roles and outline areas of strength and weaknesses in the overall performance of ARIJ.
4. Hold discussions and meetings with donors, beneficiaries and other stakeholders associated with ARIJ to assess the type of relations that exist and identify ways of strengthening cooperation, collaboration and coordination.
5. Identify major obstacles and reasons that may have lead to failure in achieving some or any of ARIJ's objectives outlining general constraints and problems, threats, and lessons learned.
6. Analyse the modes of operation in ARIJ and the development of research project cycles to assess the relevance and significance of research priorities and identify potential new areas of research.
7. Assess the impact of the work of ARIJ on the Palestinian community.
8. Examine the sustainability measures that were introduced by ARIJ and their efficiency.
9. In light of above findings and lessons learned, suggest steps to be undertaken to promote the development of ARIJ and its sustainability and

recommend a frame and guidelines that support the institutional capacity at ARIJ.

10. Discuss preliminary findings with the board of ARIJ and its supporters prior to departure and submit a mission report within 10 days after departure.

## Lectures and Presentations

10/1/2002	Presentation for an American delegation
10/1/2002	Presentation for A Swiss parliamentary delegation
21/1/2002	Presentation for the E U consuls and representatives to the PNA
25/1/2002	Presentation for an American delegation
26/1/2002	Presentation for the E U director in Jerusalem
19/2/2002	Presentation for CPT
27/2/2002	Presentation in the Arab Orthodox Club in Beit-Sahour
5/3/2002	Presentation for Belgium delegation in the Governorate
6/3/2002	Presentation for an American delegation
21/3/2002	Presentation for American youth delegation
21/3/2002	Presentation for a delegation from the Church of Scotland
7/5/2002	Presentation for an Australian delegation
17/5/2002	Presentation for an Australian delegation
5/6/2002	Presentation for European and American delegation
5/6/2002	Presentation for a delegation from WCC
5/6/2002	Presentation for Lutheran World Federation (Peter Prove)
19/6/2002	Presentation for a Swiss delegation
28/6/2002	Presentation for a Canadian delegation
1/7/2002	Presentation for an American delegation
16/7/2002	Presentation for a British Trade Unions delegation
16/7/2002	Presentation for a British delegation
17/7/2002	Presentation for a Belgian delegation
22/7/2002	Interview with Swiss T V
25/7/2002	Presentation for an American delegation
30/7/2002	Presentation for Reverent Jessie Jackson and his delegation
6/8/2002	Presentation for an American delegation
13/8/2002	Presentation for World Council of Churches Delegation
22/8/2002	Presentation for an Austrian delegation
27/8/2002	Presentation for French delegation
29/8/2002	Presentation for the special envoy for human rights Dr. John Douggard
16/9/2002	Presentation for a delegation from Caritas International
26/9/2002	Presentation for a British youth delegation
16/10/2002	Presentation for an American delegation
19/10/2002	Presentation for a delegation from FAFO and HABITAT
21/10/2002	Presentation for a British delegation from the trade union
21/10/2002	Presentation for the Swiss Ambassador
25/10/2002	Presentation for an American delegation
26/10/2002	Presentation for American journalists
26/10/2002	Presentation for the Common Global Ministries
4/11/2002	Presentation for a British delegation
4/11/2002	Presentation for MCC delegation
5/11/2002	Presentation for a Swedish church delegation
6/11/2002	Presentation for a Swiss and Italian delegation
7/11/2002	Presentation for a Canadian delegation
14/11/2002	Presentation for a Swiss delegation
19/11/2002	Presentation for International Teachers delegation
31/11/2002	Presentation for a delegation from the Norwegian church

## Visits

22/8/2002	Visit of UNEP delegation
22/8/2002	Visit of USIS delegation
27/8/2002	Visit of the general manager of SHAMEL institute
29/8/2002	Visit by human rights commissioner Mr. Joan Dougard
4/9/2002	The governor of Bethlehem Visit to ARIJ
11/9/2002	Visit of Finnish Rep. to the PNA
16/9/2002	Visit by Egyptian rep.
18/9/2002	Visit of a delegation from CARE
18/9/2002	Visit and an interview with Holland TV (Conny Mass)
9/10/2002	Visit of UNEP delegation
10/10/2002	Visit of the Palestinian Minister of agriculture
15/10/2002	Visit of American delegation
16/10/2002	Visit of a delegation from the European Union
3/11/2002	Visit from TAMKEEN institute
4/11/2002	Visit of MCC
6/11/2002	Visit of the Christian council of churches from Sweden with Ramzi Zananery
7/11/2002	Visit of the Canadian representative delegation
14/11/2002	Visit of SDC delegation
14/11/2002	Visit of the Belgium foreign ministry
14/11/2002	Visit of Rose Marry Shelling from SDC
21/11/2002	Visit of the Austrian cooperation institute
23/12/2002	Visit of SDC delegation

## Conferences and workshops

Date	Name of the workshop	Participants
31/1/2002	Workshop concerning Johannesburg conference	Dr.Jad / Dr. Muhamad /Violeet
6/2/2002	Agro biodiversity Strategy workshop	Dr. Jad / Robeena / Nader
2/3/2002	Solid Waste workshop	Dr. Jad / Abeer
24/3-28/3/2002	Conference on Science and Technology in the Arab world, Al – Shariqa	Dr. Jad
24/3/2002	A work shop with the civil forum concerning education	Raed
10/5-13/5/2002	Regional workshop concerning agro biodiversity in Syria	Dr. Jad
7/6/2002	Cleaning Campaign workshop in Bethlehem	Dr. Jad
5/9/2002	Agro biodiversity Strategy workshop	Dr. Jad / Robeena / Nader
12/9/2002	Regional meeting for agro biodiversity in Jordan	Dr. Jad
17/10/2002	Participating in HCEF conference in Washington	Dr. Jad
		Dr. Jad
24/10-26/10/2002	World Food Prize conference, IOWA	Dr. Jad
7/11/2002	Poor people talks workshop	Dr. Jad / Sbeeh
7/11/2002	Road Map workshop at ARIJ	Dr. Jad / Raed
17/12/2002	Participating in a workshop in Ramallah with the ministry of local government to discuss the building code.....	Raed / Sophy
17/12/2002	Participating in a workshop in Ram Allah with the hydrology group (Pricing policy- willingness to pay and affordability in the west bank)	Alice

## Publications

Despite the critical situation in the Palestinian areas, ARIJ managed this year to publish scientific papers, articles and books in many local and international fora.

1. Jad Issac and Majed Abu Kubi (2002), *Israel's land colonization policy and the viability of the Palestinian State*. Palestine-Israel Journal of Politics, Economics and Culture (In press).
2. Majed Abu Kubi (2003), *Mapping the land use / land cover (LULC) patterns of the "Jordan Valley"* Agro Ecological Zone using Landsat Thematic Mapper scenes. Chania, Greece (In press).
3. Jad Isaac (2002), Towards a sustainable peace between Israelis and Palestinians, In the name of security, A sociology of peace and war in Israel in an era of change, Majid Al-Haj and Uri Ben-Eliezer editors, Haifa University Press.

4. Jad Isaac and Nadine Hassassian (2002), Arab agriculture in a globalized world; constraints and potentials, presented to the World Forum on the WTO, organized by the Arab NGO Network for Development. Beirut 5-8 November 2001.
5. Jad Isaac and Mohammad Ghanayem (2002), The scientific and technological gap in the Arab world from a regional and global perspective, The Arab Journal for Sciences, Arab Organization for Education, Culture and Sciences (In print).
6. Mohammad Ghanayem and Jad Isaac (2002), Scientific **Research projects**
7. Jad Isaac, and Mohammed Ghanayem (2002), Environmental degradation and the Israeli Palestinian Conflict, in *Voci dal conflitto: Israeliani e Palestinesi a confronto*, Ediesse, Roma.
8. Jad Isaac et al (2002), Impact of Urbanization on land use and Local Palestinian Communities in Bethlehem and Hebron Governorates, Applied Research Institute – Jerusalem.
9. Applied Research Institute – Jerusalem (2002), The Palestinian agricultural and wild plants wall Calendar (year 2002 – 2005).
10. Nader Hrimat, Jad Isaac et al (2002), The Agricultural Plant History in Palestine, Applied Research Institute – Jerusalem.
11. Roubina Ghattas, Nader Hrimat and Jad Isaac (2002): Status of Forestry in Palestine (County Report). MEDFOREX project, Italy.
12. Jad Isaac and Abeer Safar (2002), Environment and human development in Palestine, Palestinian Human Development Report, Beir Zeit University, UNDP/PAPP
13. Jad Isaac and Sbeih Sbeih (2002), Poverty and the environment in Palestine, Palestinian poverty report, UNDP/PAPP.
14. Jad Isaac and Majed Abu Kubi (2002), Israel's land colonization policy and the viability of the Palestinian State Palestine-Israel Journal of Politics, Economics and Culture (In press).