PALESTINE ACADEMY for SCIENCE and TECHNOLOGY

NEWSLETTER

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EDITORIAL

Dr. Imad Khatib
Secretary General

Five years ago, the Palestine Academy for Science and Technology (PALAST) drafted its five-year strategy and action plan based on numerous meetings, workshops, and focus-group meetings with science and technology stakeholders in both Ramallah and Gaza. This process was preceded by a Knowledge-Assessment Study that identified the potential of science and technology in the sustainable development of the Palestinian society and defined the role of the stakeholders in a way that minimizes duplication. Science and technology stakeholders also identified priorities for basic and applied scientific research that need to be addressed by the R&D Centers and Units. Finally, recommendations regarding the role of the Palestine Academy were drawn up. These incorporated the Palestine Academy in the league of reputable science academies around the world. Three scenarios were determined as possible frameworks, in which the Academy would have to implement its five-year strategic and associated action plan. The first and most conducive was the scenario in which political stability prevailed and the Academy had access to government grants that would allow the recruitment of experienced professionals. The second framework envisioned political stability but without secure government grants available to ensure Academy actions. Time has learned that the third and most unfavorable

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ALLOCATING WATER IN THE JORDAN RIVER BASIN

THE ROLE OF INTERNATIONAL LAW

David J.H. Phillips
Adam Smith Institute, London, England.

The First International Conference on Water Values and Rights was held in Ramallah, Palestine on 02-04 May 2005. The meeting was co-sponsored by the Palestine Academy for Science and Technology, the Palestinian Water Authority, and the United Nations Development Programme. One of the areas in which participants showed particular interest was that of international water law, and its relevance to both the bilateral Permanent Status negotiations between Palestine and Israel, and the allocation of the water resources of the Jordan River. The authors of this note presented two papers at the conference, touching on both of these matters.

The Palestine Academy for Science and Technology intends to follow up on this interest in international water law by serving as a forum for the broader discussion of the subject. This note provides a brief introduction to international water law and its relevance in the region, as background for those activities.

In their practice over many years, States sharing freshwater resources have developed basic rules governing their relations. These rules form part of customary international law, a body of unwritten law that is binding on all States.

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Countries sharing freshwater may also wish to enter into treaties applying and adjusting rules of customary law to suit their specific situations, and the watercourses they share. Many States have done this; there are now over 400 such international agreements.

In 1997, the United Nations General Assembly adopted the Convention on the Law of the Non-Navigational Uses of International Watercourses (the "UN Convention" hereafter), a treaty open for ratification by all countries. The UN Convention was negotiated by a special working group of the General Assembly open to all UN member states. The negotiations were based on a draft prepared by the UN International Law Commission, an expert body charged with the codification and progressive development of international law.

Because of the process by which it was produced as well as its content, the UN Convention is widely regarded as reflecting in a number of respects rules of customary international law relating to the use by States of international watercourses. The most basic of these rules are those relating to equitable and reasonable utilization; the prevention of significant harm; and notification, consultation and accommodation of any differences regarding planned measures.

These rules apply to all forms of shared freshwater, including both surface water and groundwater. Perhaps the most fundamental rule of the law of international watercourses is that of equitable and reasonable utilization of shared freshwater resources. This rule requires that States use, protect and manage international freshwater in a manner that is equitable and reasonable vis-à-vis other States.

In the context of Israeli-Palestinian water relations, two sources of law are of particular importance: The Interim Agreement of September 1995; and customary international law.

The Interim Agreement was originally intended to apply only until permanent status negotiations had resulted in a final agreement, which was expected to occur in 1999-2000. Unfortunately, this has not occurred, and the two sides have continued to treat the Interim Agreement as being applicable. It may be assumed, therefore, that the provisions of that Agreement relating to water will continue to govern the parties until they decide otherwise, or until a permanent status agreement is concluded.

The Interim Agreement addresses "Water and Sewage" in Article 40 (contained in Annex III, Appendix 1, of the Agreement). Article 40 is itself a detailed agreement, consisting of 25 often lengthy paragraphs. It contains a number of interesting and important provisions, including the 'principle' that "Israel recognizes the Palestinian water rights in the West Bank." For the reasons indicated above, it may be assumed that the legal regime established by Article 40 will continue to apply until the parties decide otherwise, or a permanent status agreement is concluded.

The Interim Agreement specifically provides that it does not affect the outcome of negotiations on permanent status. Those negotiations will presumably be informed by the rules of customary international water law referred to above. These rules call for an equitable allocation of the water resources that are shared by Palestinians and Israelis, including both groundwater and surface water. Most of the freshwater available to the Palestinians is in fact shared with Israel or, in the case of the Jordan River, other States as well.

This latter fact underlines the importance of reaching an agreement between the five Jordan River riparian - Lebanon, Syria, Israel, Palestine and Jordan - on the use, protection and management of Jordan River waters that is compatible with an agreement on water between Palestine and Israel. As in the case of an agreement on water between Palestine and Israel, negotiation of a Jordan River agreement should occur against the background of rules of customary international water law.

Reaching agreements on the use of fresh waters that reflect principles of international water law between Palestinians and Israelis, and (separately) between the five Jordan River riparian, would help to give the agreements legitimacy in the eyes of the affected populations and the international community. This should in turn contribute towards mutual trust and confidence between the parties, making water a vehicle for cooperation and peace, rather than a cause of conflict.

PALESTINE ACADEMY COOPERATIVE INITIATIVES

The role of the Palestine Academy for Science and Technology in the national effort towards promoting Science and Technology

On 28 September 2005, the Palestine Academy for Science and Technology held a workshop, titled "The role of the Palestine Academy for Science and Technology in the national effort towards promoting Science and Technology", at the PRCS headquarters in Al-Bireh.

The Academy was much honored to have H.E. Dr. Abdel Salam Majali, President of the Islamic Academy of Science and former Prime Minister of Jordan, as the keynote speaker at the Workshop. In his speech, H.E. Dr. Majali, addressed the state of play of Science and Technology within the Islamic world and the importance of national academies of science in their role of advisors to their national authorities. He stressed that: "The role of the Palestine Academy should be to assist in defining the national priorities and tackling the problems that face Palestinian national development. Thus, the Academy should advise the PNA and other institutions on issues with Science and Technology dimensions. This requires relevant governmental support to the Academy and the commitment from the Academy and the other Science and Technology stakeholders to enhance the cooperation in building and conducting S&T activities, including conferences, seminars, studies, etc."

The workshop was attended by numerous distinguished academics and scientists from several Palestinian institutions and Universities, who came up with the following recommendations:

1. A national science academy should be independent without being dominated by any other body. There should be a national effort to support the national academy in its merit endeavor for it to be able to perform its distinguished roles.

2. The Palestine Academy for Science and Technology is distinguished in the different roles it plays on the national and international level. Nevertheless, it should attempt to integrate all science and technology efforts and involve all stakeholders and sectors for the sake of sustainable development. Further, the Academy should seek to network between sectors that will help defining national priorities and insure directive cooperation.

3. Providing relevant databases that can benefit researchers, experts, decision-makers and relevant institutions is one of the most important tasks of the Academy.

4. Relations between the Academy and higher academic institutions should be enhanced, especially in establishing databases on research achievements, postgraduate research theses and supporting innovative students. The Academy should encourage university professors to actively interact with the Academy as such interaction would greatly contribute to the development of S&T in general.

5. It is crucial for the Academy to play a role in the promotion and enhancement of education and innovation among children and youth through initiating relevant activities and through developing tools that can enhance science and technology education.

6. The speech delivered by H.E. Dr. Abdel Salam Majali, President of the Islamic Academy of Sciences and Palestine Academy Honorary Member should be taken into consideration when developing national Science and Technology policies.

The Academy welcomes the significant suggestions made by H.E. and the distinguished audience and hopes to aptly follow up with these.

The Academy also took the opportunity at the Workshop to hand over an award to H.E. Dr. Majali to celebrate his Honorary Membership to the Palestine Academy.

INTERNATIONAL WATER CONFERENCE

From 2-4 May 2005, the International and Scientific Conference on "Water: Values and Rights" took place at the Best Eastern Hotel in Ramallah. This Conference was organized by Palestine Academy for Science and Technology and the Palestinian Water Authority and co-sponsored by UNDP.

The event was the first initiative in the framework of the United Nations Water Decade 2005-2015: Water for Life. It aimed to provide scientists, researchers, experts, decision-makers and those interested from the private and public sectors with a platform to introduce the latest state of the art in the diverse fields of water resource management and rights. The conference was the first international and scientific conference in its kind to take place in Palestine and turned out to be a great success. Over two hundred local and international participants, scientists, researchers, water and legal experts and decision makers attended the conference and more than fifty papers were presented focusing on water resources management, wastewater management, water rights and international law, strategic planning, and regional cooperation. The participants praised the conference for the relevance and quality of the presentations, the expertise of both speakers and participants, and its excellent organization.

CONFERENCE ACTIVITIES

The first day started with the opening ceremony by the PNA representative Mr. Ahmad Abed El Rahman, Eng. Fadel Kawash -the head of PWA and conference Co-chair, Mr. Timothy Rothermel - special representative from UNDP, and Dr. Imad Khatib the academy secretary general and conference Co-chair. The first plenary session was led by four main speakers started with Prof. Manual Llamas who is the advisor of the Spanish Academy of Sciences and who is the water project advisor for UNESCO. Prof. Llamas talked about "Values and Rights in the

Silent Revolution of Intensive Groundwater Use" and he mentioned that some countries, in order to preserve water, uses what is called with presumed water plan that works on decreasing the level of water use in agriculture when knowing that agriculture isn't economically profitable. He also mentioned that such method needs a strong governmental policy that reduces the negative effects of using such method (not depending on agriculture as an income for the country).

Following Mr. Llamas' talk, Prof. David Phillips -from Adam Smith institution and an advisor to the Palestinian Negotiation Unit, talked about "The Water Rights of the Co-riparians to the Jordan River Basin" as Jordan river suffers from lack in water resources. He also mentioned several American and UN resolutions that decide the roles and duties of the parties sharing the water basins, and focused on telling the international community about Israel's complete control over these basins and invited them to find agreements that support water rights in the region.

Next it was Prof. Henry Vaux who spoke on "Managing International

River Basins" and about creating committee consisting of Israel, Palestine, Jordan and the US to discuss how technology could be used to find the necessary solutions for the existing water problem. Prof. Vaux is the Professor at the Graduate School of the University of California, Berkeley; he also chairs the Rosenberg International Forum on Water Policy and is President of the Board of Directors of the Sacramento, CA based Water Education Foundation. Due to his illness, Prof. Ferran Izquierdo from Barcelona University could not attend the conference; however, Dr. Karen Assaf presented his paper briefly. His paper focused on conflict and management of water resources in international law, specifically in the Palestinian situation.

After the end of the plenary session, two parallel sessions took place, the first one focused on Water Resources Management led by Alfred Abed Rabbo from Bethlehem University, and the second focused on Wastewater Management (widest focus in this conference) led by Prof. Luigi Campanella from Italy. At the first session, scientific papers were presented from each of Eng. Muath Abu Sadah, Dr. Said Assaf, Dr. Hafeth Shaheen, and Dr. Marwan Ghanem. However, all of the Chinese participants in the first session could not attend the conference because they couldn't get visas from the Israeli embassy.

In the second parallel session papers were presented by Dr. Omar Zimmo, Mr. Jawad Shqair, Eng. Hussein Hamed, finally and Dr. Alfred Yahya (representing Dr. Basem Shomer who could not reach from Gaza). All the papers were dealing with treating wastewater and its potential usage.

In the afternoon another two parallel sessions took place, one continued the discussion of Wastewater Management, and the other focused on Water Rights and International Water Law. The latter was led by Prof. David Phillips and

the speakers were: Dr. Simon Klawitter from Germany, Dr. Andres Jagerskog from the Swedish foreign Ministry, and Dr. Mark Zeitoun from England. Mr. Veerashekharappa from India could not attend, also because of entry visa issues. The session on wastewater management was led by Dr. Omar Zimmo from Birzeit University, the speakers were Eng. Wael Awadallah, Dr. Nidal Mahmoud and finally a paper presented by Dr. Mustafa Khamis on "Characterization and Optimization of the Advanced Membrane Wastewater Treatment Pilot Plant at Al Quds University".

The second day of the conference started with a plenary session led by Dr. Anan Jayyousi. In this session Prof. Danilo Zolo, a professor of international law at Florence University, presented a paper titled: The Right of Water as a Social and Collective Right. Followed by his paper, prof. Luigi Campanella, head of chemical and environmental studies at Roma University and receiver of several awards in this field, has talked about water treatment issues. His speech was on Water Treatment for Reuse in Agriculture by Photochemical and Electrochemical Ways and its possible implementation in countries like Palestine. The plenary session was ended with prof. Mac McKee's presentation on The Need for Strategic Planning in Palestinian Water Development. Professor McKee manages a lab for water research at Utah University and has supervised many graduate students in the related field.

After this session, two parallel sessions took place, the first focused on the issue of Water: Development, Strategic Planning and Regional Cooperation, led by Prof. Mac McKee, and the second session focused on Wastewater Management, led by Prof. Henry Vaux. at the first session, Mr. Holger Hoff started by talking about the German project (GLOWA Jordan River) and Global Change Research for Integrated Water Resource Management. Dr. Anan Jayyousi presented a paper that reflected to the Palestinian part in the GLOWA project. Then following him professor Mohammed Hamdan from Jordan focused on describing the Jordanian experience in setting price strategies in the Jordan river area and its socio-economic impact. On the other hand, Dr. Karen Assaf focused her presentation on the basic needs in developing the water sector and its management in Palestine. This session was planned to be ended with a presentation on equitable reallocation of the shared water resources between Israel and Palestine by Dr. Hillel Shuval, an Israeli Professor; however, the Israeli government did not give him a permission to enter Ramallah, so Prof. McKee had to present the paper.

The parallel session about wastewater management was led by Prof. Henry Vaux. Papers on the experiences of Jordan, Tunisia, and Palestine on managing wastewater were presented by Dr. Omar Zimmo, Eng. Subhi Samhan and Dr. Mahmoud El-Sheikh-who covered Dr. Thaer Abushbak's paper, who couldn't attend the conference coming from Gaza because of his permit refusal from Israel.

At the end of both sessions a Poster session began. 13 papers were presented in the form of a poster that includes information about the projects and activities that was developed and the results of these activities. In the afternoon another two parallel sessions took place, one continuing the Wastewater Management topic, and the other's main theme was Water Resources Management. Eng. Taher Naser eddin, from Palestine Water Authority opened the water resources session, in which Dr. David Scarpa from Bethlehem University talked about "Sustainable Management of the southern part of the Eastern Basin of the Mountain Aquifer". Dr.

Scarpa emphasized in his speech on the limited options the Palestinian authority related to water and the Israeli control on digging new wells. In this session Mr. James Mwami from Oganda was absent as he could not get entry visa from the Israeli embassy. His paper was about Rainwater Harvesting for Progress, in which he stressed the useful outcomes of using rainwater for animals. The wastewater management session was led by Dr. Rashed Al- Saed from Birzeit University, in which several papers in the field of wastewater topic were introduced by Dr. Maher Abu Madi, Mr. Ahmad Adam, and Mr. Peter Laban (CARE).

The third and last day of the conference continued with plenary session led by Dr. Shaddad Attili. A DVD was shown about Prof. Stephen McCaffrey's presentation on Water Conflict and International Law as he could not attend the conference. McCaffrey works as a professor at Pacific University, a member at the international legal committee at the UN, and an advisor to the Palestinian Negotiation Unit. Following the DVD presentation, Dr. Jad Isaac -head of Applied Research Institute in Jerusalem, talked about Roots of Water Conflict in the Eastern Mediterranean. The session was ended with a valuable presentation from Prof. Burton who talked about Strategic Planning in the Water Supply Sector. Prof. Stephen McCaffrey and Dr. Miles Burton are two well known specialists who work with many international institutions, including the Palestinian Authority's institutions.

Following the Plenary session a Water Rights and International Water Law session took place; led by Prof. Danilo Zolo. The first speaker was Mr. Clemens Messerschmid who works as a consultant at the German Technical Cooperation in Palestine, and talked about the Palestinian water crisis: Hydrology of a Regional Conflict. The following speaker was Ms. Basema Bashir representing the Palestinian Hydrology Group who talked about the Status of Access to Drinking Water and Sanitation in Palestine in Relation to the Millennium Development Goals. Dr. Iyad Hussein from Jordan could attend because of entry visa issues.

The conference was ended with a final plenary session led by Dr. Karen Assaf who took advice, ideas, and suggestions for following up with the conference afterwards. The joint statement explains the results in details of the water conference.

CONFERENCE JOINT STATEMENT

The Joint Statement contains the recommendations and results of the conference in which participants stressed that Palestinians really do have sufficient water resources in the West Bank. However, access to those water resources are strictly controlled by the Israeli Authorities under Military orders.

To remedy the situation the conference came up with the following recommendations:

* Principles of International Law should apply to all current and future regional water management issues and regional projects. The Palestinian capacity in legal issues related to water, needs to be supported. The International Community, as well as the Palestinian community at all levels, needs to be better informed of the Palestinian water rights in the context of international water law.
* Strategies and plans in terms of water resources management need to be assessed, examined, modified and rectified to reach the objective of increasing the Palestinian per capita consumption in an equitable and reasonable way and improving water quality.
* Donor policies and strategies should not only support the technical aspect of providing water to the Palestinians but also acknowledge the political aspects of the water issue. Palestinians need the political support of donor countries more than any financial assistance.
- Long-term financial and political commitments from the International Community are required to enable and facilitate the development of the water sector.

- Coordination and cooperation among all stakeholders at all levels should be enhanced and more focused on the water sector in order to meet the challenges of this UN Water Decade.
- Integrated Water Resources Management (IWRM) in Palestine should be enhanced and capacity-building programs in this field should be developed and implemented.
- Know-how, technical support and strategic planning in the water and wastewater sector should be linked to water related health issues - locally, nationally and regionally.
- Without prejudice to Palestinian water rights, the agriculture sector of Palestine needs to review cropping patterns and support the farming community to adjust and/or initiate those in order to cope with water scarcity. Recycled treated wastewater should be encouraged to be the primary water source for future agriculture development in the region.
- In order to protect the environment and the scarce water resources, the reuse of wastewater should be adopted through proper selection of wastewater technologies and new concepts of wastewater management.
- The service gap in the water and wastewater sector needs to be reduced and sustainability of existing and new services ensured.

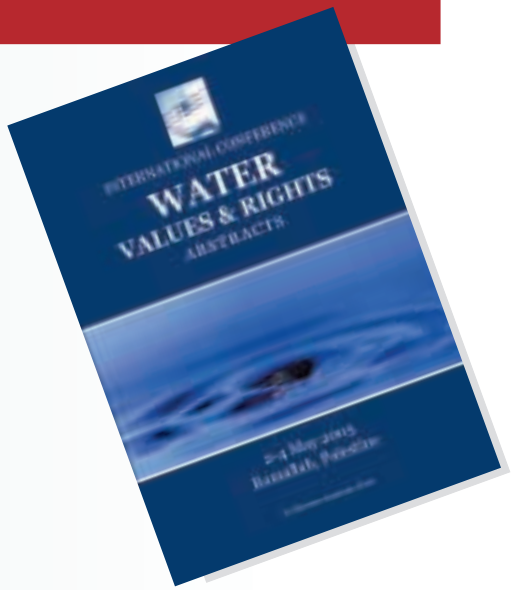
The Conference also highlighted that individual water rights fall under social rights in the realm of international law and that the collective water rights for the Palestinians as a people should be negotiated in this framework.

For more information that resulted from the Conference, please see the Conference at URL www. palestineacademy.org/wconf.

PALAST PUBLICATIONS

Abstracts of the International Conference, Water: Values and Rights (English, pp.139)

This publication contains all abstracts submitted to the International Conference, "Water: Values and Rights", which took place at the Best Eastern Hotel in Ramallah, from 2-4 May.

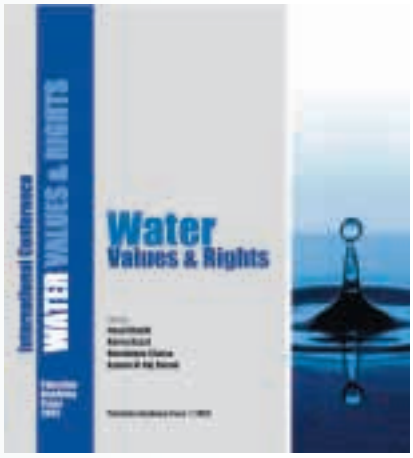


Proceedings of the International Conference, Water: Values and Rights. (English, pp.960) (ISBN 9950-340-00-4)

This publication contains all full reviewed papers submitted to the International Conference, "Water: Values and Rights", which took place at the Best Eastern Hotel in Ramallah, from 2-4 May.

Environmental Magazine

Palestine Academy has published the Environment Magazine as an introduction to the Environmental Field Center (EFC) project initiated by the Academy and established in Jericho. The magazine gives an initial introduction of the project, its goals, and importance; in addition it includes information about the area where the field center is located. The magazine contains pictures of the facilities and pictures of some of the activities conducted so far at the EFC.



Activity Report

This report is meant to introduce a summing of the academy activities during the last five years (2000-2005) which were identified in the Academy five years plan of actions 2000-2005. The report contains summaries of the activities organized by the Academy, or those where the Academy jointly participated in.

LEGAL AND TECHNICAL ADVISORY FORUM ON WATER RESOURCES

The Legal and Technical Advisory Forum has been established to assist the Palestine Academy for Science and Technology in its mandate and as a response to the national needs in the field of water as expressed in the joint statement of the First International Conference on Water Values and Rights, which took place in Ramallah, Palestine, in May 2005. The Conference revealed an interest among participants to form an academic/expert forum that could act as a base from which to perform outreach activities related to international water law and agreements, national water law (including regulatory policies), the management of shared watercourses, and the resolution of regional conflicts on water resources.

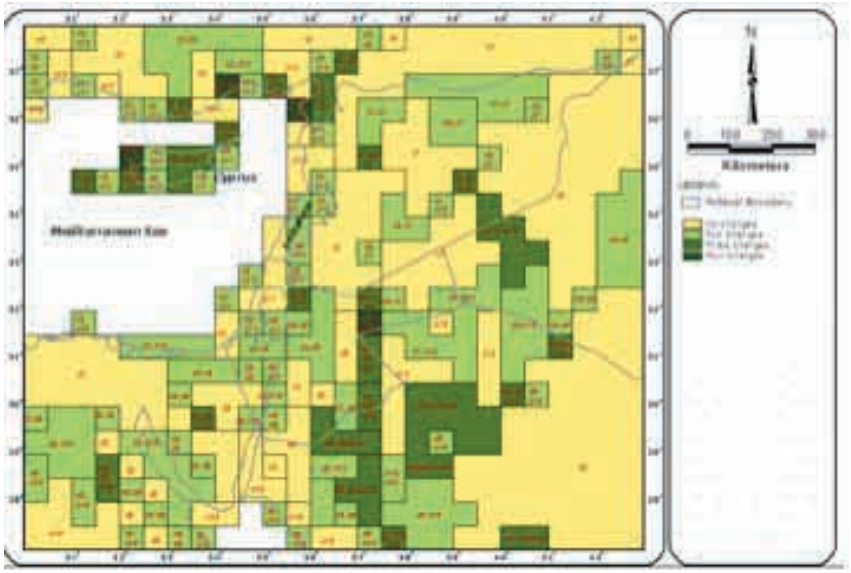
The main aim of the forum is to perform outreach activities through the production of relevant documents that assist in building national capacity in the fields covered, and through the completion of specific outreach events. This extends to advising institutions and decision-makers, and promoting relevant research in academic and other institutions.

Some of the activities of the forum include producing a range of documents and material to achieve the accomplishment of the Forums aim; advising national and international institutions on relevant issues; proposing capacity building programmes, courses and material; and finally conducting workshops and conferences that help in meeting this aim. Currently, the forum is working on creating a reference document for a follow up workshop on the water conference that took place in May 2005.

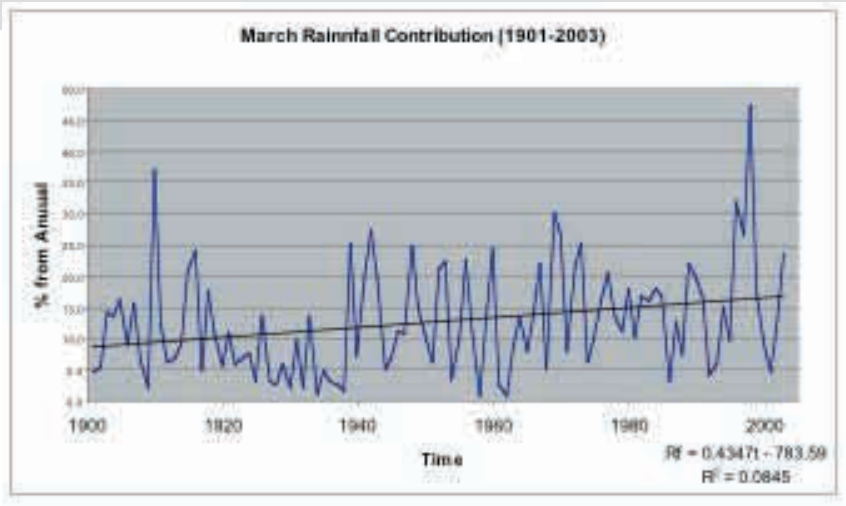
The group of members include experts in Hydrology and Hydrogeology, Water Resources Management, Environment, Socio-economic, Legal and Policy as well as Hydro-Politics Professor Stephen McCaffrey and Dr. David Phillips are the forum expatriates

GLOWA - JORDAN RIVER II: END OF PHASE I AND BEGIN OF PHASE II

The academy has finalized phase I of the cooperative research project GLOWA - Jordan River II. During implementing phase I, the academy worked closely with its German partners at Potsdam Institute of Climate Impact Research (PIK). The work was done using the statistical modeling approach. The models results were verified with the climate data for the period 1901 - 2003 that covers a domain bounding East Mediterranean region. The objective was to study the influence of global climate change on the regional climate and specifically the change in climate parameters of the area the bounds the Jordan River catchment's. Analysis were done to assess climate development over the last 20th century in order



Climate Types changes during the 103 years (1901-2003)



Rainfall change over the period 1901-2003 for the West Bank area

to direct us draw hypotheses for future exploration of possible climate change scenarios. On the basis of the research conducted and the interpretation of the results the following could be used to describe climate changes for the domain considered over the last century:

1. More climatic changes of the 20th occurred over zones of climate divide, e.g. northern parts of the Mediterranean and the southern arid land. Northern parts of the domain showed a decrease in air temperature by 1.2 oC associated with decrease in precipitations in northern parts and increase in East- and northwestern parts, whereas an increase of 1.4 oC for average air temperature over the southern parts of the domain.

2. The development of average air temperature over the Jordan River catchment for the 20th Century was showed a decreased of 0.5 oC. Trends of average precipitations over the same period for the same area showed increases. There seems to be shift in rain fall over winter seasons. Analysis showed that average precipitations for January decreased significantly over the course of the 20th century. The decrease in January where recovered during March over the same period. Trends for March's average precipitations over 1950-2003 showed an obvious increase.

During Phase II, which began officially on August 2005, work will be conducted in cooperation with the German Institute for Meteorology and Climate Research (IMK-IFU), Forschungszentrum Karlsruhe and will be based on the products from IMK-IFU's spatial and temporal high resolution information climate scenarios and respective variables, and statistical analysis of results with special focus on change of precipitation patterns and intensity as well as extreme events like floods and droughts. The academy will investigate the potential feedback effects of land use and land cover changes on the regional climate and will be working closely with both Kassel University Freiburg University.

ENVIRONMENTAL

The EFC construction went as planned. The first story building of 250 m2, the terrace and the fence were among other infrastructure finalized works. The academy is now seeking to build another two stories that designed to host several activities, including an internet corner, a hostel, two activity halls and other services rooms. Three initiatives were developed targeting, the youth, women and the schoolchildren. These initiatives were submitted to relevant funding agencies.

The German Ministry of Education and Research has agreed to transfer some of GLOWA Jordan River II fund, allocated for Phase I, to build

FIELD CENTER (EFC)

relevant databases on EFC web page. Work is now underway to develop the database web site which will be open to al researchers in the field of water management. (Visit: http://www.pal-efc/).

ENVIRONMENTAL SUMMER CAMP

PALAST organized the second environmental summer camp in Jericho with a grant from the Global Environmental Facilities (GEF). The following organizations participated in the camp: Roads and Environment Safety Center - RESC, Palestinian Forum for Media and Youth Mobilization - PYALARA, a group of the Volunteer Committee of Palestinian Red Crescent Society in addition to a number of school students from Jericho and the Ramallah area. The camp took place from 24 to 26 June 2005 at the site of the Environmental Field Center. The beneficiaries were exposed to a broad range of activities in the field of geology, geography, biodiversity and environmental awareness. The pupils also assisted in setting up the tents at the center and helped planting plants, such as Christs' Thorn and Shrubby Saltbush in the garden of the center.

Besides team-building and ice-breaking, activities mainly aimed at raising the participating students' environmental awareness through:

- An introduction about the Environmental Field Center, its importance and objectives;
- A lecture about the geology, climate and biodiversity of the area;
- An environmental workshop about the aptitude of the different life forms to live in the area;
- Endeavors, such as setting up the camp, growing plants and herbs in the garden of the Center;
- Working in groups to choose a name for the site and to give suggestions and recommendations to further develop the webpage;
- A visit to the Jericho Water Company; and
- Developing and presenting environmental projects:

1. One group developed a theater play on several environment issues, community life and the economy and brought it the last day of the camp.
2. Another group designed a recycling bucket in order to contain the problem of pollution, by separating in a rotating bin the different types of waste, such as waste that can be recycled such as iron, paper and plastic, waste that can be re-used, and waste that cannot be recycled or re-used.
3. A group prepared a PowerPoint lecture on the pollution of seas and oceans;
4. The last group designed drawings and small projects that focused on several environmental topics in general and on the role of the Israeli occupation in polluting directly or indirectly.

THE FUTURE OF ACADEMIC EDUCATION IN PALESTINE

"ACTION AND DEVELOPMENT"

The Gaza Branch of the Palestine Academy held a workshop on the state of play of higher education in Palestine on 26 June 2005 at the Gaza Hotel International. In Palestine, higher education is relatively new and therefore needs great efforts and attention from the various stakeholders. Without higher education and research there can be no development. The objectives of the Workshop were to study the state of play of academic education in Palestine; to identify the obstacles and seek solutions; to exchange experience and to provide the decision-makers and related organizations with recommendations. Among the speakers were presidents of the universities (Islamic University, Al-Aqsa, Al-Azhar and Al-Quds), representatives of the ministry of Higher Education as well as other experts. The workshop was attended by academics, members of the Education Council at the House of Commerce, experts from various other organizations, as well as the Minister of Higher Education. This provides an excellent indicator of the importance these institutions attach to the future of Higher Education in Palestine. The most significant recommendations included:

- To establish a Palestinian National Committee for Higher Education, responsible for follow up and as a reference point.
- To hold regular annual meetings, workshops and conferences to create the appropriate atmosphere for higher education to thrive in Palestine.
- To produce national plans.
- To draft an annual report on the status of higher education and disseminate it among the universities, national and international organizations.
- To establish a Quality Control Committee.
- To highlight the problems of higher education in Palestine and seek solutions with researchers and other concerned professionals.
- To create, encourage and develop postgraduate studies.
- To established a High Committee for Research and Development.

Abel Prize

The Norwegian Academy of Science and Letters is awarding The Abel Prize for its second year. Abel Prize is an international prize for outstanding scientific work in the field of mathematics, including mathematical aspects of computer science, mathematical physics, numerical analysis, and also applications of math in science. The name of the Abel laureate will be announced 23 March 2006. Palestine Academy has nominated several scientist from Palestinian Universities in this field.

Strategies for the Prevention of Micronutrient Deficiencies in the Region

The US National Academies in cooperation with the Israeli Academy of Sciences and Humanities, the Higher Council for Science and Technology of Jordan and the Palestine Academy for Science and Technology held a workshop, "Strategies for the Prevention of Micronutrient Deficiencies in the Region" at the Olive Tree Hotel in Jerusalem, 23-24 May 2005. The two-day workshop was attended by several representatives from Palestinian ministry of health and academics. The purpose of the Workshop was to advise the Academies and suggest concrete initiatives to stimulate both local action on the part of individual governments but also inter-regional cooperation on policy, population monitoring, research and education, based on data, standards and recommendations from authoritative sources. A first workshop on MNDs was held in August 2000 by the Academies after a joint Israeli-Palestinian Conference on Micronutritient Deficiencies in January that year.

NASIC CONFERENCE
International Conference on Science & Technology for Socio-Economic Development of OIC Member Countries

The academy has participated, in its capacity as a NASIC member, in the International Conference on Science & Technology for Socio-Economic Development of OIC Member Countries - Developing a Strategy and Action Plan" held in Islamabad during 20-21 April, 2005. The conference was attended by all NASIC members and was opened by Professor Khaled Khan, NASIC secretary General. Professor Khan briefed the members about the activities of NASIC, which include setup up NASIC secretariat and equipped it with all relevant hardware, publishing NASIC Newsletter, and preparing NASIC web site. NASIC President, Prof. Dr. Atta-ur-Rahman, then briefed the members about eighteen new initiatives that were discussed one by one during the meeting and were ranked according to their priorities.

NASIC Newsletter

In its issue number 8, NASIC shed light on the Palestine Academy for Science and Technology profile and its activities. A downloadable PDF format of the NASIC Newsletter could be retrieved from the academy URL (www.palestineacademy.org).

UNEP - West Asia Region Preparatory Meeting

UNEP West Asia Regional Office has organized a preparatory meeting for the 7th Global Civil Society Forum (GCSF) that will be held in Dubai during the period 5-6 February, 2006 prior to the 9th Special Session of the GC/GMEF (7-9 February, 2006). The Academy participated in the preparatory meeting, which was held in Manama/Bahrain, 19-20 November, 2005. The regional meeting considered three key policy issues for discussions and had issued statements concerning; Chemical Management and the Environment, Tourism and the Environment and Energy and the Environment and the participants has issued statement for each of the three issues presented.

Palestine Academy Initiatives towards establishing National Databases

Cooperation between Academic Institutions Questionnaire

The academy is working setting up a database about research and project cooperation among academic institutions. The questionnaire aimed to build the relevant data that could be used to asses development on academic and scientific levels. The questionnaire was distributed to all Palestinian universities in the West Bank and Gaza. The Questionnaire can be downloaded from Palestine Academy Website (www.palestineacademy.org)

Water and Environment Questionnaire

Due the important of the field of water and environment the academy has developed and distributed a survey that will be incorporated to a web-based national database of institutions in the fields of water and environment that the academy will make accessible to all stakeholders. The Questionnaire can be downloaded from Palestine Academy Website www.palestineacademy.org

Academy representatives at International Conferences

* **Dr. May Kaileh** represented the academy at the planning workshop for Women Health Education Program (WHEP) that was held in Paris, March 10 &11. The WHEP is an international program implemented for 2004-2006 by the Inter Academy Panel and is dedicated to health education of women in developing countries. "it aims at bringing health sciences-hygiene, nutrition-to women and the communities where they live, thus modifying their knowledge and behavior according to integrated processes involving committed authorities" -directly quoted from WHEP meeting minutes. The French Academy of Sciences has been identified as the lead academy for this program; accordingly the workshop place was set.

As an expert on women's health issues in Palestine, Dr. Kaileh was invited to represent the academy and Palestine in this workshop. She gave her insights on integrating educational programs and on education through culture. She also emphasized on the necessity of having a link between academies and universities in different communities. The WHEP scientific committee came up with several recommendations that include promoting "individuals and authorities commitment and suitable coordination between Education and Health policies" amongst many other.

* **Dr. Jad Isaac** will be representing the academy at the International Symposium on Groundwater Sustainability that will be held in Alicante, Spain, 24-27 Jan 2006. The symposium would discuss the importance of achieving a log-term sustainable use of groundwater and what it depends on, as well as discussing new development plans. Many experts from different disciplines and world regions will get together to discuss these issues and suggest solutions. On the third day of the symposium, under the theme of Information, Education, and Conflict Prevention, Dr. Isaac will be talking about "The Role of Groundwater in the Water Conflict and Resolution between Israelis and Palestinians".

* **Dr. Abdelaziz Al Labadi** will be representing the Academy at the Disease Control Priorities Project (DCPP) Launch, being held in conjunction with the 2nd Global Meeting of the InterAcademy Medical Panel (IAMP), April 2-6, 2006, in Beijing, China. This event is hosted by the Chinese Academy of Engineering (CAE) and the Chinese Academy of Science (CAS).

Over 300 policymakers, international health experts, and scientists have been invited to this landmark event. The program will illuminate to a global audience the importance of setting well-defined health priorities and implementing cost-effective, evidence-based interventions.

Dr Labadi has a medical degree and is lecturing at the school of medicine at Al-Quds University and so will be contributing effectively to this event.

HONORARY MEMBERS

In May of this year, 2005, Palestine Academy has launched the honorary membership program, which is meant for facilitating cooperation between the academy and foreign scientific institutions. Honorary membership is granted to persons who have made acknowledgeable eminent to the field of science and technology; who are members of a body similar to the academy, and who are of a nationality other than Palestinian, including Palestinians in Diaspora.

The honorary members are nominated by the academy fellows and an invitation letter is usually sent to them to encourage them to apply their experience and relations toward advancing the academy's role and efforts both nationally and internationally. Included with the invitation letter is a registration form than a nominee would fill out upon accepting the invitation. The honorary members shall be entitled to a free membership for life; all the academy mailings; the inclusion of their institution's website in Palestine Academy's website, and other benefits to be decided by the academy.

Not more than three honorary memberships can be granted in any year calendar.

The current honorary members are:

Mohammad Hassan (Prof.)

Mohamed H.A. Hassan is Executive Director of the Third World Academy of Sciences (TWAS), President of the African Academy of Sciences (AAS), Secretary General of the Third World Network of Scientific Organizations (TWNSO) and serves on a number of committees in other organizations world-wide. He was born in Sudan in 1947, and holds a Ph.D. in Plasma Physics from the University of Oxford, UK (1974). A former professor and dean of the School of Mathematical Sciences at the University of Khartoum, he received the order of scientific merit of Brazil. He is a fellow of TWAS, AAS, and the Islamic Academy of Sciences as well as honorary member of the Colombian Academy of Exact, Physical and Natural Sciences, corresponding member of the Belgian Royal Overseas Academy of Sciences, and foreign fellow of the Pakistan Academy of Sciences. His research areas include theoretical plasma physics, physics of wind erosion and sand transport. He is married and has two daughters and a son.

Yves Quere (Prof.)

Prof. Quéré was born in 1931 in Commercy (East of France) and studied in Paris at the Ecole nationale supérieure de smines. Then he undertook a PhD thesis under the supervision of Prof Jacques Friedel. His research was carried out first at the French Atomic Energy Agency (CEA) and then at the Ecole polytechnique (Paris) where he became Head of the Department of Physics, and President of the Senate of Professors. Elected at the Académie des sciences in 1981, he became the Foreign Secretary of the Académie(1993-2003) and was elected as co-Chair of the InterAcademy Panel (IAP) which is the Assembly of science academies worldwide (2000-2006). Since 1995, I am deeply involved in science education of children, having co-founded, with Nobel laureate Georges Charpak and astrophysicist Pierre

Léna, the movement called La main à la pâte, which rises to a high number of international connections.

Abdel Salam Majali (Prof.)

Abdel Salam Majali, President of the Islamic-World Academy of Sciences, started of as an ENT Consultant and Director General of the Royal Medical Services Jordan Armed Forces in 1960 to then consecutively become Minister of Health, President of the University of Jordan, Minister of Education, advisor to His Majesty, the late King of Jordan and Prime Minister (1993-1995 and 1997-1998). He has been a Professor of Medicine at the University of Jordan since 1973. From 1977-1982, he was Chairman of the University Council of the United Nations University in Tokyo and from 1985-1990, he was Member of the Executive Board of UNESCO. Dr. Majali established the Princess Muna College of Nursing for the Armed Forces, the Medical Training Center for medical and paramedical personnel and the Al-Hussein Medical City in Jordan. He launched a Health Insurance Project for the Civil Sector and set up numerous Colleges, such as Medicine, Nursing, Engineering, Education, Agriculture, Law, Pharmacy, Dentistry and Islamic Jurisprudence at the University of Jordan. He has also attended several UNESCO and WHO General Assemblies and was elected Vice-Chairman of both

Gerard Toulouse

The center of Prof. Toulouse's scientific life was the Ecole normale supérieure in Paris. Thematically, the focus of his work has been on theoretical physics, moving from studies of matter (condensed matter, phase transitions, disordered systems) to studies of life (neural networks, brain theories) and higher functions of the mind (cognition, ethics). Prof. Toulouse received international distinctions such as the British-French Holweck Prize (1983) and European Cecil Powell Memorial Medal (1999). A short selection of his books includes Introduction to the Renormalization Group and to Critical Phenomena, with Pierre Pfeuty (Wiley, 1977); Biology and Computation: a Physicist's Choice, with Hanoch Gutfreund (World Scientific Pub., 1994); Regards sur l'éthique des sciences (Hachette-Littératures, 1998); and Mirada sobre la ética de las ciencias (Ediciones del Laberinto, 2003). Currently, he is Chair of the Standing Committee on Science & Ethics of All European Academies (ALLEA) and Chair of the Committee for Exact and Natural Sciences of the French National Commission for UNESCO.

Ayse Erzan (Prof.)

Ayse Erzan was born in Ankara, Turkey, in 1949. She completed her secondary studies in Istanbul, earned her BA degree in Bryn Mawr College (USA) in 1970 and her Ph.D. in Physics from SUNY at Stony Brook in 1976. After a year at the Middle East Technical University in Ankara, in 1977 she joined the Istanbul Technical University, which, with some interruptions, has been her professional home ever since. Between 1981 and 1990, she was an assistant at the Department of Theoretical Physics, University of Geneva, a visiting assistant professor at the University of Porto, Humboldt fellow at the Department of Theoretical Physics, University of Marburg, FOM Research

Scientist at the University of Groningen and a research fellow at the ICTP in Trieste. Back in ITU since 1990, she became an associate (1995) and later a full member (1998) of the Turkish Academy of Sciences, received the TUBITAK (Scientific and Technological Research Council of Turkey) Science award in 1997, and the L'Oreal-UNESCO Women in Science award (for Europe) in 2003.

Dagfinn Follesdal (Prof.)

Dagfinn Føllesdal was born in 1932. He went to study science and mathematics in Oslo and Göttingen and philosophy with Quine at Harvard. He obtained his Ph.D. in 1961. First, he taught at Harvard, from 1967 at Oslo University and from 1968 up to today at Stanford University, where he became a C.I. Lewis Professor in 1976. He has written or edited 20 books, including Husserl und Frege (1958), Referential Opacity and Modal Logic (1961, 2004) and Philosophy of Quine (5 Volumes, edited in 2001); and about 100 articles on philosophy of language, continental philosophy, philosophy of humanities and social sciences, and ethics. He was the editor of the Journal of Symbolic Logic from 1970 to 1982. Prof. Føllesdal won various research prizes, including the German Humboldt Prize. He was President of the Norwegian Academy of Science from 1993 until 1997, and is a member of the American Academy of Arts and Sciences, the Academia Europaea and of the Swedish, Finnish, Danish and German Academies. He has also been awarded the degree Doctor Honoris Causa by Stockholm University.

Farouq Al Baz

Dr. Farouk El-Baz is Research Professor and Director of the Center for Remote Sensing at Boston University. He received a B.Sc. (1958) in chemistry and geology from Ain Shams University, Cairo, Egypt; and M.S. (1961) and Ph.D. (1964) in geology from the Missouri School of Mines and Metallurgy, Rolla, Missouri, U.S.A. He taught geology at Assiut University in Egypt (1958-1960), and Heidelberg University in Germany (1964-1966). During NASA's Apollo Program (1967-1972), Dr. El-Baz was secretary of lunar landing site selection and chairman of astronaut training in visual observations and photography. In 1973 he became Research Director at the National Air and Space Museum of the Smithsonian Institution, Washington DC, where he began studying the deserts of the Arab World using space images, particularly for groundwater exploration. In 1986 he joined Boston University to establish and direct the Center for Remote Sensing to apply satellite data to scientific investigations in the fields of archaeology, geography and geology. He is a member of the U.S. National Academy of Engineering and numerous academies of sciences worldwide.

Michael Greene (Dr.)

An engineer and physicist by training, Dr. Greene's technical field of research is theory of electronic effects in metals. After a year spent in Peru on a Fulbright grant, he left academic life in 1974 to work on problems related to international aspects of science and technology. In 1976, he was appointed deputy director of the science and technology

program of the Organization of American States, where he was active in technical information and science and technology policy issues and created a special program on oil spill protection. In 1981, he joined the National Research Council of the National Academy of Sciences to direct a new research grants program for developing countries. In the early 1990s, Michael Greene served as resident director of an Academy-World Bank project in Indonesia on science and technology for industrial development. That was followed by a series of studies, some in collaboration with the World Bank, on the impact and utilization of science and technology, specifically on land use, diplomacy, and the automobile industry. He is author of the Knowledge Assessment methodology, which is currently being applied in Africa. He is currently director of the Academies' Middle East program. He is married to Anne Greene and has two grown daughters and four grandkids

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scenario, in which the harsh political situation intensified and government grants became scarce, turned out to be the framework for the Academy to conduct its activities. Where well-known academies have frozen their activities in such circumstances until the situation on the ground improved, the Palestine Academy continued, even after the physical destruction of its offices, and managed to build, during the past four tough years, a trustworthy reputation on both the national and international scene. This would not have been possible without the devotion of the Academy staff in Jerusalem, Ramallah and Gaza, and the different institutions, governmental, non-governmental, donors, private, and public and many individuals who did not spare any effort to support the Academy and keep it functioning. Today, we could say that the academy managed to implement several activities identified in the five years actions. The academy has managed to tackle different issues that are considered highly important nationally and internationally. The year 2005 witnessed two important events organized by the academy. In May 2005, the international conference **"Water Values and Rights"** was jointly organized by the Academy and the Palestinian Water Authority (PWA) and co-sponsored by the United Nations Development Program. This Conference, taking place in Palestine, is the first initiative in the framework of the United Nations Water Decade 2005-2015: Water for Life. It has offered a very good opportunity to scientists, researchers, experts, decision-makers and those interested from the private and public sectors to interact over three days in diverse fields of water resource management and rights, recognizing that water is becoming globally and regionally a daily source of conflict that necessitates international communities to jointly develop ways and means that will insure sustainable supply and distribution of water to everyone. A statement put forward by the participants stressed that access to water, and water rights are both fall under social rights in the realm of international law and that the collective water rights for the Palestinians as a people should be negotiated in this framework. The Conference considered itself as the first step to create an organized public debate in Palestine on the principles and priorities of addressing the severe water crisis. Another important event was held on 28 September, 2005. It was a workshop, titled **"The role of the Palestine Academy for Science and Technology in the national effort towards promoting Science and Technology"**. The Academy was much honored to have H.E. Dr. Abdel Salam Majali, President of the Islamic Academy of Science, the Palestine Academy honorary member and former Prime Minister of Jordan, as the keynote speaker at the Workshop. Dr. Majali, addressed the state of play of Science and Technology within the Islamic world and the importance of national academies of science in their role of advisors to their national authorities. He stressed that: "The role of the Palestine Academy should be to assist in defining the

national priorities and tackling the problems that face Palestinian national development. Thus, the Academy should advise the PNA and other institutions on issues with Science and Technology dimensions. This requires relevant governmental support to the Academy and the commitment from the Academy and the other Science and Technology stakeholders to enhance the cooperation in building and conducting S&T activities, including conferences, seminars, studies, etc." The workshop was attended by numerous distinguished academics and scientists from several Palestinian institutions and Universities, who came up with several recommendations that stressed the dependency of PALAST without being dominated by any other body and that there should be a national effort to support it in its merit endeavor for it to be able to perform its distinguished roles. By the end of 2005, the PALAST Activity Report covering the period 1999-2005 will be published and distributed. It will be also uploaded at our web site as a PDF document. While we are preparing major elements of the next action plan that should cover the period 2006-2010, we reiterate our willingness to cooperate with all colleagues and relevant institutions on both national and international level for the sake of advancing the role of S&T in the sustainable development and in meeting human being needs.

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example, gold, silver, lead, copper, iron; and thirdly, the category of compounds which can be converted into powders. He thus paved the way for such later classification as metals, non-metals and volatile substance.

Although known as an alchemist, he did not seem to have seriously pursued the preparation of noble metals. He instead devoted his effort to the development of basic chemical methods and study of mechanism of chemical reactions, definite quantities of various substances are involved and thus can be said to have paved the way for the law of constant proportions.

A large number of books are included in his corpus. Apart from chemistry, he also contributed to other sciences such as medicine and astronomy. His also contributed to other sciences such as medicine and astronomy. His books on chemistry, including his Kitab-al-Kimay, and languages. These translations were popular in Europe for several centuries and have influenced the evolution of modern chemistry. Several technical terms devised by Jabir, such as alkali, are today found in various European languages and have become part of scientific vocabulary. Only a few of his books have been edited and published, while several others are preserved in Arabic and have yet to be annotated and published.

Doubts have been expressed as to whether all the voluminous work included in the corpus is his own contribution or it contains later commentaries/addition by his followers. According to Sarton, the true worth of his work would only be known when all his books have been edited and published. His religious views and philosophical concepts embodied in the corpus have been criticized but, apart from the question of their authenticity, it is to be emphasized that the major contribution of Jabir lies in the field of chemistry and not in religion. His various breakthroughs e.g., preparation of acids for the first time, notable nitric, hydrochloric, citric and tartaric acids, and emphasis on systematic experimentation are outstanding. It is on the basis of such work that he can justly be regarded as the father of modern chemistry. In the words of Mas Mayerhoff, the development of chemistry in Europe can be traced directly to Jabir Ibn Haiyan.

Taken from

(Personalities Noble, National Science Council of Pakistan, edited by Hakim Mohammad Said).

Second Revised Edition (English and Arabic). Published by the Islamic Academy of Sciences (2000).

JABIR IBN HAIYAN

(Died 803 AD)

Jabir Ibn Haiyan, the alchemist Geber of the Middile ages, is generally known as the father of chemistry. Abu Musa Jabir Ibn Haiyan, sometimes called al-Harrani and al-Sufi, was the son of a druggist (Attar). The precise date of his birth is the subject of some discussion, but it is established that he practiced medicine and alchemy in Kufa around 776 AD. He is reported to have studied under Imam Ja'afar Sadiq and the Ummayed prince Khalid Ibn Yazid. In his early days, he practiced medicine and was under the patronage of the Barmaki Vizier during the Abbasid Caliphate of Hroon al-Rashid. He shared some of the effects of the downfall of the Barmakis and was placed under house arrest in Kufa, where he died in 803 AD.

Jabir's major contribution was in the field of chemistry. He introduced experimental investigation into alchemy, which rapidly changed its character into modern chemistry. Although the ruing of his well-known laboratory remained centuries after him, but his fame rests on over 100 monumental treatises, of which 22 relate to chemistry and alchemy. His contribution of fundamental importance to chemistry includes perfection of scientific techniques such as crystallization, distillation, calcination, sublimation and evaporation and development of several instruments for the same. The fact of the early development of chemistry as a distinct branch of science by the Arabs, instead of the earlier vague ideas, became well-established and the very name chemistry was derived from the Arabic word al-Kimya, which was studied and developed extensively by the Muslim scientists.

Perhaps Jabir's major practical achievement was the discovery of mineral and others acids, which he prepared for the first time in his alembic (Anbique). Apart from several contributions of basic nature to alchemy, involving largely the preparation of new compounds and development of chemical methods, he also developed a number of applied chemical processes, thus becoming a pioneer in the field of applied science. His achievements in this field include preparation of leather, varnishing of water-proof cloth, use of manganese dioxide in glass-making, prevention of rusting, lettering in gold, identification of paints, greases, etc. During the course of these practical endeavors, he also developed aqua regia to dissolve gold. The alembic was his great invention, which made easy and systematic the process of distillation. Jubir liad great stress on experimentation and accuracy in his work.

Based on their properties, he has described three distinct types of substances. First and ammonium chloride; secondly, metals, for

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DIRECT ALL CONTACT TO:
PALESTINE ACADEMY FOR SCIENCE AND TECHNOLOGY
P.O.BOX 66839 JERUSALEM, 95908 P.O.Box 4577 Al-Bireh, PNA.
RAMALLAH OFFICE:
JERUSALEM-RAMALLAH ROAD
TEL: +972 (0)2-2960524/6
FAX: +972(0)2-2960525
GAZA OFFICE
TAL-ALHAWA, PRCS BUILDINGS
TEL: +972(0)8-2835598
FAX: +972(0)8-2835598
E-MAIL: INFO@PALESTINEACADEMY.ORG WEB: HTTP://WWW.PALESTINEACADEMY.ORG