

Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.

ISBN 978-1-4020-9312-8



NATO Science for Peace and Security Series - C:
Environmental Security

Addressing Global Environmental Security Through Innovative Educational Curricula

Edited by
Susan Allen-Gil
Lia Steljes
Olena Borysova

 Springer



This chapter was published in the above Springer book. The attached copy is furnished to the author for non-commercial research and education use, including for instruction at the author's institution, sharing with colleagues and providing to institution administration.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the chapter (e.g. in Word or TEX form) to their personal website or institutional repository.

TEACHING THE ENVIRONMENT AS A BRIDGE TO PEACE AND SECURITY IN THE MIDDLE EAST: THE PEDAGOGIC APPROACH OF THE ARAVA INSTITUTE FOR ENVIRONMENTAL STUDIES

CLIVE LIPCHIN*

SHMUEL BRENNER

SHARON BENHAIM

The Arava Institute for Environmental Studies,

D.N. Hevel Eilat, 88840 Israel

Abstract: Many environmental problems in the Middle East are essentially transboundary and thus a regional and cooperative approach is required to address them. Environmental education is a key element in this approach. The Arava Institute for Environmental Studies has developed a unique pedagogical approach that combines the study of the environment with cooperation and peace-building. The intense and long-term immersion of Israelis, Palestinians, Jordanians and international students and researchers in the Institute's academic and research programs provides a sound and secure framework on which to build strong and confident environmental leaders and sustainable environmental programs.

Keywords: environment; education; Arava Institute; cooperation; transboundary; Middle East

1. Introduction

Since its establishment in 1948, the state of Israel has been facing an unending political, security, economical, religious and social struggle. Adequate education, including higher education, serves as a major tool in the ongoing efforts for attaining normal living conditions, enabling progress and development based on modern standards and criteria.

Consequently, one of Israel's, and the Middle East's, greatest challenges over the last few decades is ensuring environmental security. Most of the region's (Israel, the Palestinian Authority and Jordan) natural resources, particularly water,

* To whom correspondence should be addressed. Clive Lipchin, Kibbutz Ketura – AIES, D.N. Hevel Eilat, 88840, Israel. clivearava@gmail.com

are already heavily exploited (Jabbara and Jabbara 1997). An additional complication is that most of these resources are also transboundary requiring the implementation of joint management programs in a political fractious region. An essential component to the sustainable management of these scarce resources is education (Jabbara and Jabbara 1997; Lowi 2001). The study of the environment is now a cornerstone at most universities in North America and Europe, yet it has only been recently introduced in the Middle East. To date there is only one established environmental studies school at an Israeli university, the Porter School for Environmental Studies at Tel Aviv University. At most universities in Israel, the environment is studied as a series of courses normally falling under the department of Geography. There are no universities in Israel that offer a full undergraduate or graduate degree in environmental studies; Tel Aviv University will be the first to do so through the Porter School. In Jordan and the Palestinian Authority, the study of the environment is normally limited within the realm of the sciences and engineering. In all three countries there is little being offered in terms of a multi-disciplinary approach to the study of the environment. This approach is now *de facto* in most environmental studies programs in North America and Europe (Zoller 1990).

Even though environmental education in institutions of higher learning in the Middle East is a nascent phenomenon, environmental awareness among the public, within government and in educational institutions is growing, although much work still needs to be done in the field of environmental literacy and education. For example, Negev et al. indicated that the objective of achieving environmental literacy in terms of environmental education in Israel's public schools has not yet been achieved (2008). Moreover, it is the non-governmental sector that has been filling the gap in environmental education, especially in higher education. The number of environmental NGO's throughout the region has been growing ever since the mid 1990s. One such NGO, whose founding agenda is that environmental education is a key to peace-building and cooperation in the Middle East is the Arava Institute for Environmental Studies (AIES).

2. The Arava Institute for Environmental Studies

The Arava Institute for Environmental Studies (AIES), situated on Kibbutz Ketura (a communal agricultural settlement) at the Southern tip of Israel, is a unique higher education institution aiming at generating a new core of regional leaders working for the advancement of a robust peace via sustainable and cooperative management of the region's natural resources.

For over 10 years the institute has been teaching environmental studies to university students (both undergraduate and graduate) from all over the Middle East and the world. The unique approach of the Institute is to teach the environment, which we all share, as a bridge to cooperation and peace building in the Middle East. The pedagogic approach is multidisciplinary, and all courses are accredited via Ben-Gurion University of the Negev.

Author's personal copy

Students come to the Arava Institute from Israel, Jordan, and the Palestinian Authority, as well as elsewhere in the world. The Institute's focus is on the immediate Middle East Region of these three countries. Some students participate in a 2-year master's program under the auspices of Ben Gurion University of the Negev while others take undergraduate courses. International students often come as part of their undergraduate studies for a semester or a year "abroad". All of the courses and programs are taught in English.

The basic aspect of the program is the high-level university coursework in environmental issues, using the local desert environment as an outdoor classroom. The program offers courses in an interdisciplinary framework that includes the sciences, social sciences and socio-cultural studies as it pertains to environmental studies. Some of the courses offered include: Water Management, Comparative Environmental Law, Environmental Economics, Chemistry and Physics for the Environment, Human Aspects of Environmental Science, Environmental Ethics, Sustainable Development, Environmental Policy, Ecology, Environmental Science, Sustainable Agriculture, Environmental Education, etc.

The Institute stays current with the leading environmental issues of the day by offering pertinent courses in energy, and renewable resources and climate change.

AIES students also pursue independent research in which they are guided and mentored by professionals in the field they choose. Very often this research can be incorporated into a future graduate research project or may link into an existing project in the research department at the Arava Institute. However, all students review research methodology, prepare research questions, and conduct and present their work at an Institute symposium.

Within the framework of the Arava Institute, all students participate in fieldtrips that take them out of the realm of theoretical studies and deepen their connections to regional environmental issues and the efforts to prevent and reduce these problems. These fieldtrips are adapted each semester to the current situation; students travel within Israel, in Jordan and, situation permitting, to areas in the Palestinian Authority. The content of the trips is designed to emphasize course topics.

The Arava Institute is, however, much more than just another institute of higher learning – it is a place of learning infused with values such that students get a loud, clear message that they are expected to be themselves and to learn about others, and that they will make the world a better place. Students participate in a required program, the Peace building and Environmental Leadership Seminar (PELS). PELS is a mandatory semester-long program that deals specifically with the Israeli-Arab conflict, albeit within an environmental context. The PELS Coordinator works closely with other Arab-Israeli coexistence organizations, such as the Israel Palestine Center for Research and Information (IPCRI), and projects in the region in order to ensure the content of the program is constantly updated and is sensitive to the diversity of the student body. This unique aspect of the education program at the Institute reflects the guiding vision of the Institute that "the environment knows no borders" and that solving the region's environmental problems requires regional cooperation.

PELS is an excellent forum for instituting this vision and for mitigating tension arising from differences in political or religious beliefs, as well as misunderstandings arising from cultural and social interactions. With each year since its implementation, evaluations from the program have highlighted the positive effect PELS has had on students' perceptions of each other. The PELS is a safe and facilitated forum for discussions that encourage self-expression while building mutual respect across the religious, political and social differences that are strong elements of each student's identity. Skills acquired by participants during the program are indispensable throughout their professional careers as they pursue solutions to environmental conflicts after they graduate from the Arava Institute. Throughout PELS, students also employ and build on their competency as leaders in order to face the challenges presented by the search for environmental justice in the Middle East. Students are trained to apply the principles of PELS to their future professions through exercises, discussions and lectures.

The Arava Institute invests in the social capital of its students, faculty and staff in building the necessary personal and academic relationships for long-term cooperation in the field of environment. Unlike many of the Israel/Palestinian coexistence groups, which meet only for a few days or at most a few weeks at a time, the Arava Institute brings students together for a minimum of a semester, while many stay for a year or 2 years. Because at the Institute, students spend *so* much time together, real long-term relationships and ongoing contact continue after they finish the program. The Arava Institute aims high – the target is that the future Environmental Ministers for Israel, the Palestinian Authority, and Jordan will all be graduates of the Arava Institute programs.

Most of the graduates of the Arava Institute go on to work or volunteer in the environmental field. The Institute's Alumni projects department works to nurture alumni as they move on to greater positions of influence and power. Together the alumni have formed the Arava Peace & Environmental Network (APEN) to consolidate and complement the efforts of alumni in the fields of regional cooperation and environmental sustainability.

One area in which those ambitions are realized is the Arava Institute's Research Program. Similar to the pedagogic vision of the Institute, the research program undertakes high level and cutting-edge research also based on cooperation in transboundary environmental issues. Graduating alumni from the academic program have taken up various positions with the different research teams in cooperative trans-boundary environmental research from Israel, the Palestinian Authority and Jordan. Projects tend to be interdisciplinary in nature involving social and natural sciences that converge on a range of environmental issues, including biodiversity, sustainable agriculture, environmental education, air pollution, stream restoration and the future of the Dead Sea basin.

3. Indicators of Success

To date, over 500 students have attended the Arava Program, with over 50% female participation. A core indicator of success is the intimate nature of the program. Semesters normally consist of approximately 30–40 students with an equal number of Jewish, Arab and international students. Such a framework assists in establishing and maintaining the close personal ties that occur between the students and continue when they become alumni and professionals. Nonetheless, student enrollment is somewhat dependent on the capricious nature of the region's political environment. During the second intifada (Palestinian uprising) of 2000–2002 student enrollment decreased quite dramatically. In the current period of calm, student numbers have increased and predictions are that future semesters will enroll up to 60 students (Figure 1).

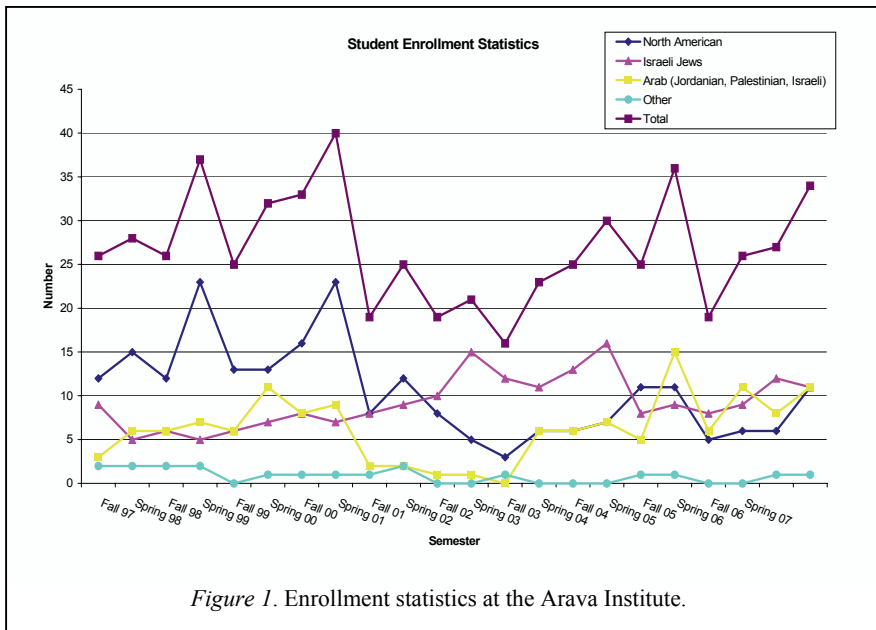


Figure 1. Enrollment statistics at the Arava Institute.

Figure 2 indicates the nationality (in percentages) of students who have attended the institute since its founding in 1996. Approximately two thirds of the students represent the Middle East.

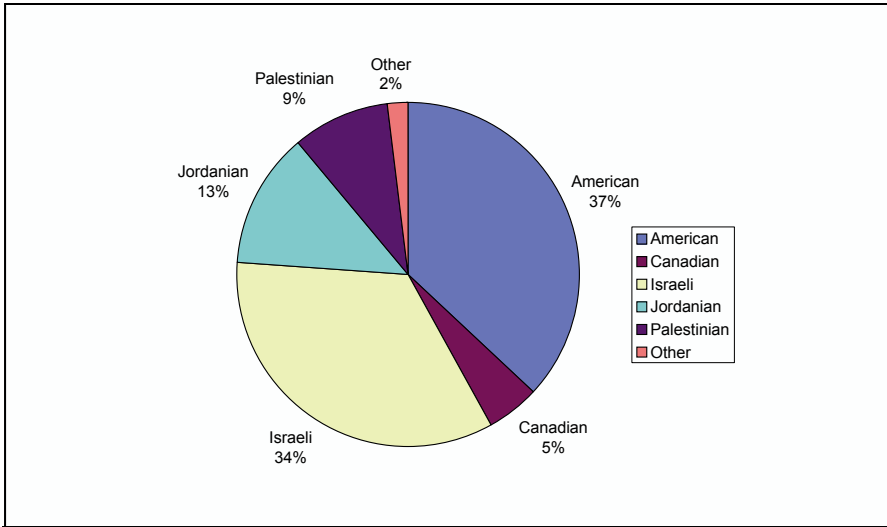


Figure 2. Nationality of Arava Institute students (in percentages). Total number of students = 432 from 1996–2007.

An important indicator of the Institute’s success is the number of alumni who continue in the field of environmental management and research (Figure 3). A significant proportion of alumni can be found working in the NGO community, primarily environmental NGOs (24%), while others continue with graduate studies, also mostly within the environmental field (26%).

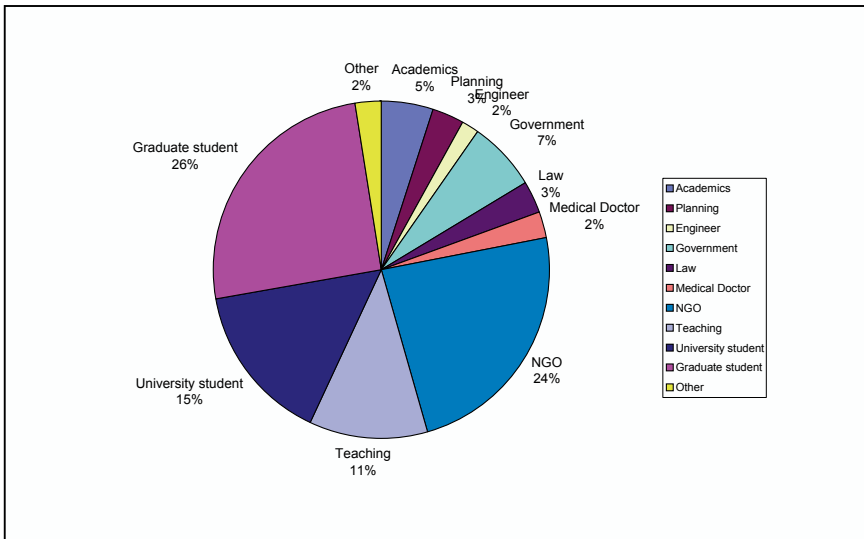


Figure 3. Alumni activities in field of environmental management and research (in percentages).

Recent academic studies have also highlighted aspects of success. According to Schoenfeld and Alleson, the Institute builds on and broadens the social capital of the students in two ways: bridging and bonding (2007). Bridging refers to the ability to transcend ethnic, class, gender, sexuality, religion, or other lines, whereas bonding refers to implying a homogenous composition of participants nested within particular social networks. In this case, students of diverse backgrounds all share a concern for the environment, and it is this concern that bonds the group within a particular social network. The diverse student body of the Institute is a microcosm of the Middle East itself. The intense and long-term immersion of such a diverse student body over a one or two semester program results in bridging social capital. In addition, the common goal of studying the environment in a transboundary context reflects bonding social capital. As such, according to Alleson and Schoenfeld, the Arava Institute is: "...self-consciously a place where a regional environmental narrative is approached as a process of construction rather than a product, where the discourses of environmental management and environmental justice are both acknowledged, and where regional ecological and social transformation is promoted by strengthening the nascent network of regional environmentalists" (2007).

Further research conducted by Chenoweth et al. included a series of workshops, held at three Israeli/Palestinian universities, examining the differing environmental attitudes and understandings of the future that young people hold in Israel and the Palestinian Authority (2007). The three institutions were the Arava Institute, the Arab American University, Jenin, Palestinian Authority and the Hebrew University Israel. According to Chenoweth et al.: "...these foresighting workshops showed that young people can (and do) think systematically and rationally about their future and the future of their environment. Even in a part of the world with a difficult past and present, and a future with many uncertainties, young people are not filled with pessimism but recognize the challenges they face and can identify realistic solutions to those problems which they see as being of the greatest importance" (2007). An additional benefit for the students attending the Arava Institute was a secure context in which to engage the Israeli-Palestinian conflict in as much as it affects the future of environmental security in the region.

4. Research: The PM2.5 'MERC' Project – Israel, Jordan, and the Palestinian Authority

In addition to the academic program, and the social capital that it builds (as described by Schoenfeld and Alleson 2007), the research activities at the Institute also contribute to this social capital in terms of the cooperative work undertaken by professionals in the region. A particularly successful research project is one on air pollution monitoring in urban centers in Israel, the Palestinian Authority and Jordan.

In 2005 The Arava Institute for Environmental Studies launched an air pollution project with two other research teams, one from Al Quds University in the Palestinian Authority and another from the Jordan Society for Sustainable Development

in Amman, Jordan (supported by the US-Middle East Regional Corporation program – MERC). The project has four goals:

- To conduct simultaneous monitoring of ambient PM_{2.5} (fine particulate matter of 2.5 µm diameter) in Israel, Jordan, and the Palestinian Authority
- To characterize the chemical composition of ambient PM_{2.5} and identify sources
- To compare results from localities within the same airsheds with different urban activities (e.g. West Jerusalem vs. East Jerusalem, Aqaba vs. Eilat) and
- To produce relevant recommendations for policy makers in order to reduce harmful impacts

and asks four key questions:

- What are the specific sources, components or PM attributes linked to adverse effects?
- How do we know what sources to control to reduce public health risks?
- What is the association between ambient PM and actual personal exposure? What is the association between specific PM components and actual personal exposure?
- Who is susceptible and why?

The project has 11 sites: Tel Aviv, Haifa, West Jerusalem, and Eilat in Israel – Nablus, East Jerusalem and Hebron in the Palestinian Authority – Amman, Aqaba, Zarqa, and Rahma in Jordan. This study is unique because it is the first time that such detailed PM sampling and analysis has been conducted for such a long duration in this region.

There are to be two outcomes of this study: (1) the elucidation of PM_{2.5} composition, sources, and distribution and (2) capacity building for advanced air quality/health effects research and analysis in the Middle East. In addition, at the project's completion, one will be able to answer four main questions:

1. What is the relative impact of regional sources and local sources of particulate matter in these regions?
2. What are the seasonal variations in sources and composition of PM in these regions?
3. How does the composition and concentrations of PM_{2.5} compare across sites to monitor PM_{2.5} in Europe and North America?
4. What are the sources of high particulate matter episodes in this region of the world, and what is the association [correlation?] of these particulate matter episodes with other pollutants such as ozone and carbon monoxide?

There is no doubt that the political situation complicates joint research teams. Logistically, travel restrictions on Palestinians and Jordanians can make simple communication between partners difficult. The potential for travel restrictions and new political developments that can affect travel throughout the region are difficult to predict and can have impacts on a scientific study. Clearly, the complications involved in scientific projects in this region must be considered during all stages of project development. The students of the institute are currently informed about

the scientific progress in the research as well as the political and organizational implications. Nevertheless, during the 10 plus years of work at the Arava Institute, faculty and researchers have successfully, for the most part, overcome such barriers and are forging new ground in transboundary cooperative research that is critical to the long-term environmental security of the Middle East (see also Brenner et al. 2007).

5. Conclusion

The Middle East is a politically complex and volatile region. Regional stability is crucial not only for the area itself, but also for the world at large. Sound environmental policies are a necessary element to ensuring such stability. Issues such as water and energy availability and climate change are all pressing problems in the region and can only be solved through a regional approach based on cooperation. Environmental education is a core element for bringing about environmental and political security. In actuality, the realization is that one cannot achieve political security without environmental security. Institutions for environmental education are thus essential and should be based on studying the environment as a bridge to achieving political and social stability.

The Arava Institute's long-term and interdisciplinary approach provides a foundation of shared environmental concerns upon which to build greater understanding and cooperation and presents concrete options for solutions to the Israeli-Arab conflict and the region's environmental challenges.

References

- Brenner, S., Lipchin, C. and A. Amster. 2007. Decoupling Environmental Problems from the Overall Aspects of Political Disputes – Is It Possible? The Case of the PM 2.5 Project. In *Strategies to Enhance Environmental Security in Transition Countries*, eds. R. Hull and H. Barbu. Netherlands: Springer.
- Chenoweth, J., Wehrmeyer, W., Lipchin, C., Smith, J. and T. Gazit. 2007. A Comparison of Environmental Visions of University Students in Israel and Palestine. *Futures Journal* Volume 39, Issue 6: 685–703.
- Jabbara, J.G. and N.W. Jabbara. 1997. *Challenging Environmental Issues: Middle Eastern Perspectives*. Boston, MA: Brill Publishers.
- Lowi, M. 2001. *Political and Institutional Responses to Transboundary Water Disputes in the Middle East*. The Woodrow Wilson Centre for Scholars. Division of International Studies. <http://wwics.si.edu/PROGRAMS/DIS/ECS/report2/lowi.htm>. Accessed 21 November 2001.
- Negev, M., Sagy, G., Garb, Y., Salzberg, S. and A. Tal. 2008. Evaluating the Environmental Literacy of Israeli Elementary and High School Students. *Journal of Environmental Education* Volume 39, Issue 2: 3–20.
- Schoenfeld, S. and I. Alleson. 2007. Environmental Justice and Peace Building in the Middle East. *Peace Review* Volume 19, Issue 3: 371–379.
- Zoller, U. 1990. Environmental Education and the University: The “Problem Solving-Decision Making Act” Within a Critical System-Thinking Framework. *Higher Education in Europe* Volume 15, Issue 4: 5–14.