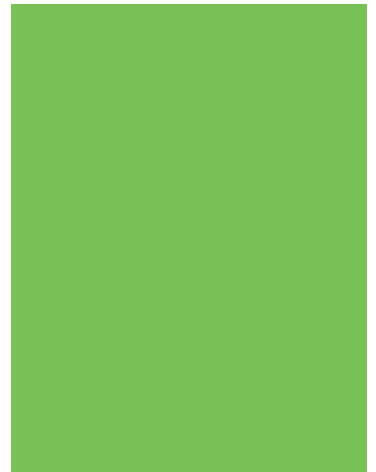
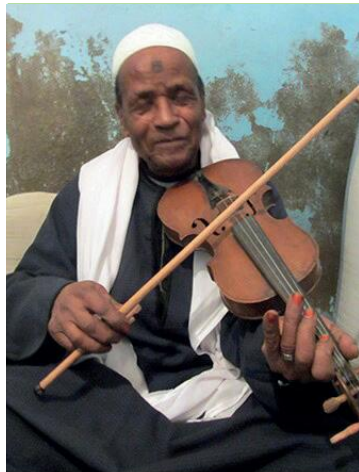




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Museums in the Middle East Journal



Museums and Social Responsibility

Mazin Qumsiyeh and Zuhair Amr

Brief about the author

Professor Mazin Qumsiyeh is an instructor and researcher at Bethlehem University and Birzeit University. He previously served on the faculties of the University of Tennessee, Duke University, and University of Yale. He and his wife returned to Palestine in 2008 and started up a number of institutions and projects such as a clinical genetics laboratory that serves cancer and other patients. They founded the Palestine Institute for Biodiversity and Sustainability (PIBS) at Bethlehem University (<http://palestinenature.org>) with an initial personal donation of \$250,000, and ran it as full time volunteers.

PROTECTION OF ENDANGERED ECOSYSTEMS VIA MUSEUM RESEARCH AND EDUCATION: EXPERIENCE FROM PALESTINE AND PROPOSAL FOR THE ARABIAN GULF BY MAZIN QUMSIYEH AND ZUHAIR AMR

Introduction

The Arabian Gulf shares with many other areas, including Palestine, many similarities as well as key differences in the kinds of environmental threats it faces. Chief among these threats is habitat and species destruction caused by climate change and other more direct human interference (pollution, overhunting, overgrazing, overfishing etc.). Yet there are some signs of increasing awareness/education, research, and conservation efforts around the world. Economic and social factors (Mills and Waite, 2009) are also important. But equally important is the international sharing of actual experience. It is also well established that museums and botanical gardens can be important tools for research, education, and conservation (Suarez and Tsutsui 2004; Qumsiyeh et al. 2017). Herein we describe a model of response that we established in Palestine which helps address the challenges of environmental conservation in developing countries.

Palestine: Case Study

The environmental threats facing us in Palestine are far too numerous to even list in a short article like this. They include: (i) Colonial apartheid infrastructure: Destruction of more than 500 Palestinian villages and towns (Pappe, 2006), clearing native trees and planting European pine trees (monoculture), implementation of megaprojects such as draining the Hula Wetlands (119 species disappeared), and the diversion of the Jordan valley waters; (ii) Pollution: Israelis dumps solid and liquid waste without restriction on Palestinian areas causing significant damage (Tal 2002; ARIJ 2015; Hammad and Qumsiyeh, 2013); (iii) Weapons: Israel's use of ordinance such as white phosphorous is harmful to human health and the environment; (iv) Demographics pressures: Population in historic Palestine increased 15 folds in the past 100 years (excluding the refugees now outside the country); and (v) Water: the uneven distribution of water between the natives and the Israeli occupiers, who now take 90% of West Bank water (Gasteyer et al., 2012) and have closed off the flow of water from most open springs, devastating habitats.

Palestine and the world struggle to face the global catastrophic climate change. The Palestine Museum of Natural History (PMNH) and the Palestine Institute of Biodiversity and Sustainability (PIBS) of Bethlehem University were established with the mission of research, education, and conservation of our natural world, culture and heritage. In the past four years, we have managed to (i) publish dozens applied research papers (on topics ranging from environmental health to biodiversity to sustainable livelihoods, education, and more), (ii) develop an agricultural research station and botanical garden (including aquaponics) and use them to empower marginalized local farmers (production, research, and knowledge transfer), (iii) develop educational programs that have benefited thousands, (iv) host hundreds of local and international visitors who have gained knowledge of local challenges and opportunities, (v) build partnerships with local and global governmental and nongovernmental entities, resulting in gains to the environment and sustainability, and (vi) develop databases and other resources including collections, a photo library, a digital library, a local biodiversity database, and a seed bank. This is an integrated system for research, education, and conservation to address areas in need in Palestine, a country suffering from the stresses of occupation. The museum grounds and its botanical garden (an integrated ecosystem) also form an oasis for wildlife in Bethlehem and for young people seeking alternatives and a new way of looking at themselves and their environment (empowerment and nature conservation).

PMNH/PIBS has developed educational modules relating to waste reduction, recycling, upcycling, composting, permaculture, and aquaponics. These modules have been developed in partnership with university students and stakeholders in the community, and are tailored to suit specific target communities, focusing especially on marginalized villages, women, and youth. Partner organizations and institutions in these ongoing efforts include the Environmental Quality Authority, Ministry of Agriculture, Ministry of Health, Ministry of Education, local NGOs, and local community councils. PMNH and PIBS provide a model for integrating research, education, and conservation in ways that work to protect the environment, even under Israeli occupation. We argue that this is also a form of empowerment and resistance (see <http://palestinature.org>).



Play education

Nature and society at large are beneficiaries. Local natural ecosystems are protected or restored, while also benefiting the local communities through valuing ecosystem services and sustainable human communities. We focus on people in marginalized communities such as remote villages and refugee camps, and seek especially to involve more women and children. These communities learn to reduce, recycle, upcycle, compost, plant ecologically (permaculture), value traditional locally produced products, value ecotourism, benefit sustainably from protecting their environment, and much more. Thousands of school and university students benefit from this project every year (For more information about our work, refer to this short video: <https://youtu.be/AZOoOzXU7tQ>)

Gulf Conservation: Proposed ideas

The Arabian Gulf is undergoing environmental degradation at an accelerated pace (e.g. Salle et al., 2011, Jacob and Al-Muzaini 1995; Wilson et al. 2002; El Samra and El Deeb 1988). There are signs of interest in developing local environmental science (see, for example, the Jubail Marine

Wildlife Sanctuary Research launched in 1991 by the National Commission for Wildlife Conservation and Development (NCWCD) of Saudi Arabia). In the conservation arena, several Gulf States have initiated projects to better understand and conserve biodiversity at the regional level. For instance, in the UAE, the Breeding Centre for Endangered Arabian Wildlife (BCEAW) is a model to follow for in situ conservation for Arabian species. It breeds close to 200 species of threatened Arabian wildlife, such as the Arabian wolf, Arabian leopard, reptiles and birds (Budd and Leus, 2011, Midfa et al. 2011). Arabia's Wildlife Centre, attached to the BCEAW, is open to visitors. In Dubai, Ras Al Khor Wildlife Sanctuary has been established to protect and preserve the biodiversity of this wetland ecosystem, with the additional mission of educating the public about the importance of wetlands that are under severe threats due to construction and development projects in this emirate. There is also the Dubai Aquarium, which is one of the popular tourist places in Dubai with more than 450 marine animals from the Gulf. In Qatar, a natural history museum is under construction. In Kuwait, the Kuwait Institute for Scientific Research (KISR) is yrtnuoc eht fo ytisrevidoib eht ot detaler stcejorp ni degagneand the Arabian Gulf, with a team of experts in various disciplines, including the Biodiversity of Terrestrial Ecosystems Program. Kuwait Aquarium is the largest aquarium in the Middle East, with more than 100 different animal species. This facility is a wonderful place for educating the public on marine life in the Arabian Gulf. We believe more effort could be made to conserve the natural history of the fauna of the Arabian Gulf (terrestrial and marine) through a regional museum hosting examples of the fauna and flora. Such documentation is necessary for the sake of future generations, and to preserve the natural heritage of the area.



Aquaponic system



Cultural heritage section

There are seven Arab countries on the Arabian Gulf: Iraq, Kuwait, Saudi Arabia, Qatar, Bahrain, the United Arab Emirates and Oman. On the other hand, Iran, which is a non-Arab country, is located across from these countries on the other side of the Gulf. We propose an Arabian Gulf Biodiversity and Sustainability Centre (AGBSC) to be built from the bottom up, in a manner similar to PIBS/PMNH. Once established as a center for the whole Gulf region in one area, branches would be created in each of the nations: Iraq, Kuwait, Saudi Arabia, Qatar, the United Arab Emirates and Oman. Its vision would be sustainable human and nature (ecosystems) on both land and Gulf waters. Its mission is to act as a key center for biodiversity conservation in the Gulf region and become a model and a significant driving force for collaboration, research, education and conservation on a regional and even a global level.

A shortened SWOT (strengths, weaknesses, opportunities, threats) for AGBSC is hereby produced following discussion with key stakeholders at the Gulf3 conference:

STRENGTHS:

- The Arab Gulf states share the culture, language, religion and traditions.
- Physical infrastructure has been developed relating to the environment
- All countries in the area have universities with relevant key academic departments
- There are sound financial and other resources that can be leveraged.
- There is a noted community interest (e.g., visitors to Al-Ain zoo)
- A global expatriate community offering very good skilled labor in various areas.

WEAKNESSES:

- A weak volunteerism tradition
- Lack of cooperation by some stakeholders (NGOs, government officials, others)
- Space and funding are not in line with growth potential
- Human capacity is lacking in key areas such as ecosystem services

OPPORTUNITIES:

- Mobilizing available networks
- High potential for many research projects in a little explored area
- Better use and integration of available resources
- Development of permaculture and recycling/upcycling followed by knowledge transfer

THREATS:

- Accelerating climate change and other human induced habitat destruction.
- The potential for imbalance: too many projects with limited followup.
- Miscommunication internally and externally.
- Politics: disunity and conflicts, either within the Arab states or with Iran and others.
- Weaknesses in human resource (HR) management.

The SWOT above shows that opportunities and strengths are better than the reported results were for Palestine (Qumsiyeh et al., 2017). AGBSC is envisioned to include these sections: (i) a natural history museum, (ii) an ethnology museum focusing on how people of the Gulf have coexisted with nature (land and sea) for millennia, (iii) a biodiversity and sustainability research center, (iv) a botanical area, including in green houses, and (v) an environmental conservation, education and awareness center (recycling, composting, etc). These centers would be linked and would operate through a cohesive administrative structure which would include an executive staff and an oversight board. The oversight board would include two key persons from each of the six Arab Gulf countries.

Discussion

Museums and institutes of education like that we propose are integral to both sustainable economic development and the promotion of science, culture, education, and biodiversity research and conservation. The success of the case study for Palestine, in spite of more threats and challenges such as the Israeli occupation, was attributed by Qumsiyeh et al. (2017) to several factors including (i) a grassroots bottom up approach, (ii) a focus on research, then education, and conservation, in that order, and (iii) societal support and a need for the services offered by the museum and botanical garden. The latter was also promoted as a matter of pride and a form of resistance (see Qumsiyeh, 2017). The same can be replicated in the Arab Gulf States, and with the addition that a unified center can also become a focus for Gulf pride. For example, a green building could be constructed as a hexagon, with six wings representing the six Arab states.

We in the Arab world aspire not only to teach an appreciation of the value of scientific collections, but to change individual behaviors in favor of environmental conservation and sustainable societies. This may be difficult, but our initial structure, rooted in grassroots action and volunteerism, has ensured a broad base of support for creating the change we seek. The affiliation of PMNH/PIBS with an institute of higher education is beneficial for the fostering of essential connections, and making a contribution to quality education. The same can be true with the affiliation of AGBSC with the universities in the Gulf.

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- Applied Research Institute–Jerusalem (ARIJ), 2015. Status of Environment in the OPT. 2015 (but actually published in 2016) [Http://Www.Arij.Org/Latest News/779-The-Status-Of-Env-2015-2016.Html](http://www.arj.org/latest-news/779-the-status-of-env-2015-2016.html)
- Budd, J. and Leus, K., 2011. The Arabian leopard *Panthera pardus nimr* conservation breeding programme. *Zoology in the Middle East*, 54(sup3), pp.141-150.
- El Samra, M.I. and El Deeb, K.Z., 1988. Horizontal and vertical distribution of oil pollution in the Arabian Gulf and the Gulf of Oman. *Marine Pollution Bulletin*, 19(1), pp.14-18.
- Gasteyer, S., Isaac, J., Hilla, J. & K Hodali. 2012. Water Grabbing In Colonial Perspective: Land And Water In Israel/Palestine. *Water Alternatives*, 5, 450.
- Hammad, KM, & MB Qumsiyeh.,2013. Genotoxic Effects Of Israeli Industrial Pollutants On Residents Of Bruqueen Village (Salfit District, Palestine). *International Journal Of Environmental Studies*, 70, 655-662.
- Jacob, P.G. and Al-Muzaini, S., 1995. Marine plants of the Arabian Gulf and effects of oil pollution. *Mahasagar*, 28(1-2), pp.83-101.
- Midfa, A.A., Mallon, D. and Budd, K., 2011. Ten Years of Conservation Workshops for the Fauna of Arabia 2000–2009. *Zoology in the Middle East*, 54(sup3), pp.7-12.
- Mills, J.H. And Waite, T.A., 2009. Economic Prosperity, Biodiversity Conservation, And The Environmental Kuznets Curve. *Ecological Economics*, 68(7), Pp.2087-2095.
- Pappé, I., 2006. *The Ethnic Cleansing in Palestine*, One World publication. Oxford.
- Qumsiyeh, MB. 2017. *Nature and Resistance in Palestine*. Active Arab Voices. <http://www.activearabvoices.org/uploads/8/0/8/4/80849840/qumsiyehpmnhresistance-rm.pdf>
- Handal, J Chang, K Abualia, M Najajreh, M Abusarhan., 2017. Role of museums and botanical gardens in ecosystem services in developing countries: Case study and outlook. *Intl J Env Studies*. 74(2): 340-350
- Suarez A.V., and N.D. Tsutsui., 2004. The value of museum collections for research and society. *BioScience*, 54, 66-74
- Sale, P.F., Feary, D.A., Burt, J.A., et al. 2011. The growing need for sustainable ecological management of marine communities of the Persian Gulf. *Ambio*, 40(1), pp.4-17.
- Tal, A. 2002. *Pollution In A Promised Land: An Environmental History Of Israel*. University Of California Press
- Wilson, S, Fatemi, S., Shokri, M.R. and Claereboudt, M. 2002. Status of coral reefs of the Persian/Arabian Gulf and Arabian Sea region. *Status of coral reefs of the world*, pp.53-62.