



جامعة بيروت العربية  
BEIRUT ARAB UNIVERSITY

# Annual Report

Research Center for Environment and  
Development

Beirut Arab University

2014-2015

## 1. Introduction

During the academic year 2014-2015, the Research Center of Environment and Development (RCED) continued its efforts to advance its interdisciplinary research capacity in environmental and developmental studies. This annual report presents the major progress RCED has achieved during this year in terms of research, development projects and networking.

## 2. Research Projects

- Completion of the CNRS funded project “*Assessment of Macrophytic Community of the Litani River and Qaraoun Reservoir*”, and submission of its scientific final report. The main output of the project this year has been:
  - Publishing of an article entitled “*Preliminary Assessment of Macrophytic Community in Qaraoun Reservoir, Lebanon*”, International Journal of Science and Research (IJSR), 2014. 3(6), 1132-1141. Retrieved from <http://www.ijsr.net/>.
  - Submission of the article “*Distribution Pattern of Aquatic Macrophytic Community and Water Quality Indicators in Upper and Lower Litani Basins, Lebanon*”, Journal of Limnology.
- Completion of stage II of the project “*Hermon Mountain: Biodiversity Assessment towards Conservation Action Plan*”. The main output of the project this year has been:
  - Contributions to the scientific conferences:
    - “*Flora Biodiversity in Hermon Mountain: Substantial Endemism*”, Baydoun S. et al. (2015), The 21<sup>th</sup> International Conference for the Lebanese Association for the Advancement of Science, Beirut, Lebanon (2015).
    - “*Indigenous knowledge of medicinal plants used by the communities of Mount Hermon, Lebanon*”, Baydoun et al., 2015, the 15<sup>th</sup> International Congress of the International Society for Ethnopharmacology, Petra, Jordan, 2015.
    - “*Essential Oil and Bioactivity of the Ziziphora canescens Benth. Growing Wild in Lebanon*”, Abou Jaoudeh Chantalel al. 2015, the 15<sup>th</sup> International Congress of the International Society for Ethnopharmacology, Petra, Jordan, 2015.
  - Submission of two articles:
    - “*Ethnopharmacological Survey of Medicinal Plants Used in Traditional Medicine by the Communities of Mount Hermon, Lebanon*”- *Journal of Ethnopharmacology*.
    - “*Vascular Plants of Mount Hermon, Lebanon and their Ethnobotanical Traits. 1.*”

- Organizing the community awareness activity "*Fascination of Mount Hermon Plants*" on May 21<sup>th</sup>, 2015 as one of activities of the "*Fascination of Plants Day 2015*", Lebanon. RCED in collaboration with Lebanese University shared with the teachers and students of "*Mount Hermon Official School*" - Rachaiya some valuable findings of the project highlighting the importance of the Hermon flora biodiversity and the threats it is experiencing.



**Figure 1.**Community awareness activity of the "*Fascination of Plants Day 2015*" – Mount Hermon Official School, May 2015.

- Developing a community guide to some of the flora of the mountain that is planned to be published as a tool to improve public awareness of the importance of Mount flora biodiversity.
- Jointly with the Faculty of Pharmacy, launching the new UNESCO funded project "*Mapping Economically Important East Mediterranean Plant Species in Jabal Moussa Reserve*".  
The project aims at:
  - Identifying and mapping the economically important MEA plant species at JMB.
  - Gathering ethnobotanical knowledge and practices of the local communities regarding plant benefits in terms of fiber yielding plants, oil-producing plants, timber plants, edible plants and medicinal plants.
  - Contributing to the understanding of the economic value of biodiversity in protect areas.



**Figure 2.** Biodiversity Expert *Prof. Nelly Arnold* and *Mr. Roman Bruder* – Forestry Coordinator at Jabal Moussa Bioreserve and *Dr. Safaa Baydown*.



**Figure 3.** Interview with mukhtar Yahchouch *Mr. Carl Zwayn*.



**Figure 4.** *Lilium candidum*, very rare plant species of the Jabal Moussa Bioreserve



**Figure 5.** Study site, Jabal Moussa Bioreserve.

- In partnership with the Center of Remote Sensing at the National Council of Scientific Research (CNRS), launching the activity “*Assessment of the evapotranspiration, growth and yield of potato crop in Central Bekaa*” of the project “*Regional Coordination on Improved Water Resources Management and Capacity Building*”. The project is funded by WB, GEF, NASA, USAID and CNRS- Lebanon. The project tackles various aspects of water resources management in agriculture and adaptation to climate change. In parallel, a weather station with loggers and soil moisture sensors were installed and implemented. The project team from CNRS and RCED underwent the necessary training regarding the various measurements, plugging, running and data processing by the expert *Dr. Ghazi Abo Romana* – ICT International PTY LTD.



**Figure 6.** Implementation of STWMO weather station and launching the “*Assessment of the evapotranspiration, growth and yield of potato crop in Central Bekaa*” activity.

- Continuation of the project “***Groundwater Governance in the Arab World: Taking Stock and Addressing the Challenges***” led by the “International Water Management Institute” (IWMI) and funded by USAID-Cairo. As the National Facilitator of the project in Lebanon RCED organized and held several activities during the research mission in Lebanon (19-23 February, 2015) conducted by IWMI investigators (*Dr. Francois Molle* and *Dr. Alvar Closas*); LISODE consultants (*Dr. Amar Imache* and *Ms. Azza Chalouf*); IWMI Consultants (*Eng. Marie Helene Nassif*, *Dr. Joelle Puig*); National consultants (*Eng. Bassam Jaber*, *Dr. Nabil Amacha*); and RCED team (*Dr. Safaa Baydoun* and *Mr. Ousama Halablab*). The activities of this mission included field interviews and focus groups with farming communities, municipality members, officials and decision makers at the Ministry of Energy and Water.



**Figure 7.** Focus group with farming community, IWMI and RCED teams.

### 3. Educational Activities

Parallel to its scientific research activities, RCED has hosted and organized several educational activities aiming at enhancing the role of BAU in the development of Bekaa region and providing educational services to the student body and community.

- ***“The Annual Academic Orientation Forum for the Association of Universities of Lebanon, for Bekaa Region, 2014 -2015”*** on November 11<sup>th</sup>, 2014 with participation of around 870 students from different secondary schools across Bekaa region. This annual forum was organized in collaboration with the Student Affairs Department. The representatives of several Lebanese universities provided students with all the necessary information about the educational programs admission requirements and tuitions.



**Figure 8.** The Annual Academic Orientation Forum for the Association of Universities of Lebanon, for Bekaa Region, 2014 -2015.

- Offering for the first time the ICDL course at Bekaa in collaboration with *Center for Continuing and Professional Education -CCPE at Beirut Arab University*.
- Starting the teaching activities of Beirut Arab University in Bekaa through offering 6 courses of “General University Requirement” by the faculties of Business and Arts during the Summer semester of 2014-2015. This promising step was greatly welcomed by students and parents and has been viewed by the local community of Bekaa as a immense contribution to the development of Bekaa region.

#### 4. Capacity Building & Community Outreach

- RCED has facilitated the workshop “*First Aid, Theoretical & Applied*” organized Faculty of Health Sciences held on March 25<sup>th</sup> 2015 at Azhar El Bekaa, The students of the secondary level were enlightened by *Dr. Nesrine Abdl Karim* and her students on the first aid practices and approaches necessary for basic health care in accidents and sudden medical conditions.
- Participation of Mr. Mahmoud Kamar, Research Assistant at RCED, in the regional training course on “*Nitrogen Management Using Isotopic Techniques*”, by the *International Atomic Energy Agency under the Technical Cooperation Regional Project RAS/5/068* on 4–15 May 2015, Vienna-Austria. This training workshop covered various aspects of crop nutrition, agricultural water management, water use efficiency, biological nitrogen fixation, and soil organic carbon dynamics.



**Figure 9.** The R.A. *Mahmoud Kamar* at the regional training course on “*Nitrogen Management Using Isotopic Techniques*”, Vienna-Austria, May 2015.

## 5. Development Projects

- Aiming at the conservation of heavily harvested important medicinal plants for Lebanese flora. RCED has attempted the cultivation of two wild plant species collected from the wild at BAU herbal Garden.



Figure 10. *Matricaria recuitita* - البابونج



Figure 11. *Gundelia tournefortii* - العكوب

- Establishment of the pilot project for “**Beekeeping & Honey Production**” at Beirut Arab University under the supervision of Mr. Abdallah Adham and Dr. Fouad Saad.

The project aims at:

- Studying the quality and quantity of honey produced by “Lebanese” Baladi bees (A.M-Syrca) fed on the different plants grown at BAU herbal garden.
- Contributing to the development of the “know-how” for the production of high quality honey.

The project was started with 10 beehives that were provided with nutritive solutions to allow a new generation of the offsprings to be generated. The number of hives have been duplicated to 20 during only one month of the launching date of this project.



Figure 12. Beekeeping & honey production at BAU Herbal Garden.