



# ARCA Newsletter

Alexandria Research Center for Adaptation to Climate Change



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## Editorial: Climate Change Literature in Egypt: A Review

Literature on climate change provide quality knowledge essential for better understating of climate change risks and may support more informed policy and decision-making process in climate change terms of arena

A systematic review of literature on climate change undertaken by Egyptian researchers available in Google Scholar revealed that there are 189 research papers on climate change topics undertaken by Egyptian researchers during the period 2007-2017. Large proportion of the produced literature (67%) were published in peer reviewed international journals, while 27% were presented and/or published in conference proceedings. The remaining 6% were

published in national research journals.

Despite that this literature considered a wide range of themes, agriculture sector and food security and sea level rise represented about 51% of the produced literature.

Also, it was found that 45% and 47% of the total literature were carried out by researchers affiliated with universities and national research centers, respectively. Among national research centers, Agriculture Research Center and National Water Research Center contributed by 24% and 14% of the total Literature, re-

spectively.

In this context, Alexandria University and Zagazig University came in first and second places with contribution of 14% and 10.5%, respectively, of the total literature published by researchers affiliated to universities.

The contribution of ARCA, in its life time since 2011, accounted for about 5% of the total literature on climate change undertaken by Egyptian researchers and 10% of the literature undertaken by researchers affiliated with Egyptian universities since 2007.

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## ARCA in The Climate Change Scene

During 2017, ARCA has participated in a number of Climate change events at both international and national levels. For example, two of ARCA core-team members participated in "Development and

Climate Days" that was held during the period 11-12 November 2017 as a side event of COP23 in Bonn, Germany.

Also, ARCA core-team members were invited

to participate in consultative meeting organized by EEAA in Cairo during the period 18-19 December 2017 to establish a center of excellence of climate change.

### Special points of interest:

- Regional Network of Climate Change Economics.
- ARCA training workshops
- ARCA research activities .

*“Up till now, ARCA Small Research Grant Program provided **nine** small research grants in a variety of disciplines associated with climate change”*

### ARCA Small Research Grant Program

In August 2017, ARCA has announced the 6<sup>th</sup> round of its Small Research Grants Program. The call involved the following themes:

- Downscaling climate variables from Global Climate Models to national level
- Climate change implications on human health
- Vulnerability of tourism sector to climate change
- Climate change and groundwater

The call, which was posted on ARCA Website, was also disseminated through ARCA mailing group in addition to other mailing groups of researchers in Egypt. Accordingly, a total of 24

concept notes were received, which were carefully reviewed and 6 concept notes were shortlisted to develop full proposals.

For this purpose, the short-listed applicants were invited to participate in a one-day workshop on research proposal development, in which the main guidelines for proposal development were discussed along with the comments and feedback on their concept notes. The workshop was held on 26<sup>th</sup> of August 2017.

The submitted full proposals were reviewed and five research projects were considered for funding, of which the follow-

ing **3** are already approved:

- Climate Change and larger basidiomycetes of the Nile Delta: recording, monitoring, and evaluating selected species using IUCN Red List standards
- Downscaling atmospheric components over Egypt under different future climate change scenarios.
- Assessment of Climate Changes Impacts on Hydromorphodynamics of Nile Delta, Egypt: Case study El Burullus-Baltim

This brings the total number of research projects funded by ARCA Small Research Projects Program to **9**.

*“ARCA attempts to support networking activities at regional level”*

### Partnership and Networking

Integrating economics into climate change decision and policy-making processes is one of strategic priorities for Arab countries.

This can only be achieved through long term, sustained efforts provided in a rigor and systematic manner to support individual, institutional and academic capacities in this field.

In this context ARCA is initiating a network at the regional level, which can play a significant role in this direction by providing capacity building activities, technical support to researchers as well as other stakeholders working in the field of the climate change economics.

For this purpose, a consultative meeting was organized on 5<sup>th</sup> October

2017, Cairo, back-to-back to a regional training workshop on climate change economics also organized by ARCA.

The meeting involved participants from Egypt, Jordan, Morocco, Palestine, and Sudan and was intended to consult on the rationale, vision, objectives, and activities of such a network.

## Capacity Building Activities

Targeting researchers and/or policy and decision makers, capacity building activities play crucial role in attaining ARCA objectives.

ARCA Capacity building activities could be classified as technical workshops dealing with climate change impact, vulnerability and adaptation, or supplementary research skills workshops. ARCA organized eight workshops during 2017 covering the following topics:

- Basics of applied statistics
- Statistical inference
- Economics of climate change
- Downscaling sea level rise in the Mediterranean Sea.
- How to develop a project proposal
- Introduction to climate change

The total number of participants in these workshops was 135 out of 423 applicants.

Two rounds of the workshop “Basics of Applied Statistics” were held the first round in Cairo during the period 8-11/7/2017 and second round in Alexandria during the period 18-20/7/2017. the two rounds involved 45 par-

ticipants.

This is followed by organizing two rounds of Statistical Inference workshop during August; the first was held on 8-10 August 2017 in Cairo and the second was held on 15-17 August 2017 in Alexandria. The two rounds of the workshop targeted 45 researchers who previously participated in the Introduction on Applied Statistics workshop.

During the period 2-5 October 2017, ARCA organized a regional workshop on “Economics of Climate Change” in Cairo. Fifteen candidates were selected from 139 applicants. The candidates from Egypt, Jordan, Morocco, Iraq and Palestine participated in lectures and demonstrations that offered a set of methods and techniques on how to value climate change impacts.

On 23<sup>rd</sup> of October, ARCA organized a workshop entitled: “Downscaling sea level rise in the Mediterranean Sea under different future climate change scenarios”. The workshop was intended to disseminate the results and findings of a research project funded by ARCA Small Research Grants

Program. For this purpose, 26 of relevant researchers and stakeholders were invited to participate in the workshop, in which the participants were introduced to conceptual framework of downscaling and different practices. Also, the results of downscaling sea level rise over the Mediterranean Sea and alongside Egyptian coasts were presented.

During the period of 11<sup>th</sup> –13<sup>th</sup> of December, ARCA organized the 8<sup>th</sup> round of “How to Develop a Project Proposal” workshop. The workshop involved 14 participants of the academic staff of the Faculty of Pharmacy, Alexandria University. The participants develop, through a hand on experience, full concept notes for some proposed projects.

Moreover, ARCA organized an awareness raising day on 21<sup>st</sup> of October 2017. During the event, which involved 35 primary schools’ students, climate change mechanism was explained through various scientific experiments that aimed to simplify the concepts of the atmosphere and its gases particularly carbon dioxide.

“During 2017, ARCA capacity building activities involved 8 workshops covering six different topics with participation of 135 of different stakeholders groups”



Raising awareness day “Introduction to Climate Change” organized on 21<sup>st</sup> of October 2017



Participants of regional workshop entitled “Economics of Climate Change” held in Cairo during the period 2-5/10/2017

“Up till now, there are **fifteen** research published papers that are developed by ARCA core team or supported by ARCA activities”



## Research Activities

During 2017, ARCA research plan was updated. The updated plan highlighted the main research themes that should be addressed and the mechanism for implementing ARCA research activities. Also, ARCA core team worked on preparing a working paper on “Developing a Reliable Digital Elevation Model for Climate Change Applications, Case study: The Nile Delta, Egypt”.

The working paper now is finalized and already posted on ARCA Website (<http://arca-eg.org/wp-content/uploads/2017/08/ARCA-working-Paper-5.pdf/>). This brings the

number of papers published within ARCA Working Papers Series to **five**.

Also, ARCA core team has developed two research papers. The first research paper was on “Responsible Fishmeal Consumption and Alternatives in the Face of Climate Change” published in International Journal of Marine Science (Vol. 7, No. 15 doi: [10.5376/ijms.2017.07.0015](https://doi.org/10.5376/ijms.2017.07.0015))

The second research paper was on “GIS based model for mapping malaria risk under climate change, case study: Burundi” published in the Journal of Geoscience and Environmental pro-

tection (Vol.5 No.11, Nov 2017 DOI: [10.4236/gep.2017.511008](https://doi.org/10.4236/gep.2017.511008) ).

Moreover, another research paper on “Electricity consumption in Urban environment under climate change” was developed by ARCA core-team. The paper was presented at Sustainable Integrated Cities Conference that was held at Curtin University, Australia.

This brings the total number of research papers published in international peer reviewed journals to **12** in addition to **3** research paper presented at international conferences.

## New Findings in Sea level Rise

The Mediterranean Sea has many low-lying coasts, which are exceptionally vulnerable to the impacts of sea level rise.

Global sea level rise models have a very low spatial resolution; thus, they do not depict regional and local variations. To produce fine-scale information from a relatively coarse-scale information, downscaling is usually employed. Downscaling refers simply to a proce-

cedure to take information known at large scale to make a prediction at local scales.

According to the preliminary findings of one of the small research projects on “Downscaling sea level rise in the Mediterranean Sea under different future climate change scenarios (2065-2100)” that was funded by 5<sup>th</sup> round of ARCA Small Research Projects Program, the rise in the Mediterra-

nean sea level would be expected to range between 17 cm and 20 cm up to 2100 on average under RCP 2.6 and RCP 8.5 scenarios, respectively.

These estimates are relatively low compared to global sea level rise that is expected to range between 40 cm and 63 cm up to 2100 on average under RCP 2.6 and RCP 8.5 scenarios, respectively.

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