

**Format for Biennial Reports by UNESCO's Water-related Centres on activities related to the IHP in the period (June 2012- May 2014)**

**1. Basic information on the centre**

Name of the Centre		Regional Centre for Training and Water Studies (RCTWS)
Name of Director		Prof. Dr. Hisham Mostafa
Name and title of contact person (for cooperation)		Eng. Gamal Shaker
E-mail		Info-@rctws.com
Address		6 October City , St. No.1 , Fourth Industrial Zone , Egypt . P.O. Box 58 , Zip Code 12566
Website		
Location of centre		city/town _____ country <u>Egypt</u>
Geographic orientation *		<input type="checkbox"/> global <input checked="" type="checkbox"/> regional
Region(s) (for regional centres)		Arid and Semi Arid Regions
Year of establishment		12 Years
Year of renewal assessment		2014
Signature date of most recent Agreement		2008
<b>Themes Of activities during reporting period</b>	Focal Areas ♦	<input checked="" type="checkbox"/> groundwater <input type="checkbox"/> urban water management <input checked="" type="checkbox"/> rural water management <input checked="" type="checkbox"/> arid / semi-arid zones <input type="checkbox"/> humid tropics <input type="checkbox"/> cryosphere (snow, ice, glaciers) <input checked="" type="checkbox"/> water related disasters (drought/floods) <input type="checkbox"/> Erosion/sedimentation, and landslides <input type="checkbox"/> ecohydrology/ecosystems <input checked="" type="checkbox"/> water law and policy <input type="checkbox"/> social/cultural/gender dimension of water <input type="checkbox"/> transboundary river basins/ aquifers <input checked="" type="checkbox"/> mathematical modelling <input type="checkbox"/> hydroinformatics <input checked="" type="checkbox"/> remote sensing/GIS <input checked="" type="checkbox"/> IWRM <input type="checkbox"/> Watershed processes/management <input type="checkbox"/> global and change and impact assessment <input checked="" type="checkbox"/> mathematical modelling <input type="checkbox"/> water education <input type="checkbox"/> water quality <input type="checkbox"/> nano-technology <input checked="" type="checkbox"/> waste water management/re-use <input checked="" type="checkbox"/> water/energy/food nexus <input type="checkbox"/> water systems and infrastructure <input type="checkbox"/> other: (please specify) _____
	Scope of Activities ♦	<input checked="" type="checkbox"/> vocational training <input type="checkbox"/> postgraduate education <input checked="" type="checkbox"/> continuing education <input type="checkbox"/> public outreach <input checked="" type="checkbox"/> research <input checked="" type="checkbox"/> institutional capacity-building <input type="checkbox"/> advising/ consulting <input type="checkbox"/> software development <input type="checkbox"/> data-sets/data-bases development

\* check on appropriate box

♦ check all that apply

	<input type="checkbox"/> other: (please specify) _____
Support bodies <sup>1</sup>	Ministry of Water Resources and Irrigation , Egypt
Hosting organization <sup>2</sup>	Ministry of Water Resources and Irrigation , Egypt
Sources of financial support <sup>3</sup>	<ul style="list-style-type: none"> <li>• ALECSO</li> <li>• JICA</li> <li>• GTZ</li> <li>• INWENT</li> <li>• IAM-Bari</li> <li>• NICHE</li> </ul>
Existing networks and cooperation <sup>4</sup>	<ul style="list-style-type: none"> <li>• G-WADI/UNESCO</li> <li>• ALECSO</li> <li>• JICA</li> <li>• GTZ</li> <li>• INWENT</li> <li>• IAM-Bari</li> <li>• NICHE</li> </ul>
Governance	<input checked="" type="checkbox"/> director and governing board <input type="checkbox"/> other: (please specify) _____ Link to election of board members to the IHP Intergovernmental Council (IGC) and hosting country IHP National Committee _____ Frequency of meetings: once every ___year(s) <input type="checkbox"/> Existence of UNESCO presence at meetings
Institutional affiliation of director	Ministry of Water Resources and Irrigation , Egypt
Number of staff and types of staff	total number of staff (full-time, or equivalent) : ___149___ number of staff who are water experts: ___10___ number of visiting scientists and postgraduate students: ___4___
Annual turnover budget in USD	1000000

## 2. Activities undertaken in the framework of IHP in the period June 2012 – May 2014

- 2.1 Educational activities (i.e., those with accreditation) that directly contributed to the IHP-VII/VIII (Appendix-1 and 2) and WWAP  
*Please include here those activities which led to accreditation of degrees, or those held in formal school settings.*

### Education activities undertaken through RCTWS and Funded by NICHE/EGY-115 Project

#### Strengthening Managerial Capacity

Exposure visit to the NL (Visit 2 teams of 2staff on the quality management and educational marketing) with partener MsM/UNESCO-IHE/Ecorys , 2013

<sup>1</sup> please specify bodies that cover the operational costs of the centre, and other essential costs such as salaries and utility bills, and that provide institutional support to ensure centre's sustainability

<sup>2</sup> if different from support bodies

<sup>3</sup> please specify sources of main budgetary and extrabudgetary funds to implement projects

<sup>4</sup> please write international networks, consortiums or projects that the centre is part of, or any other close links that the centre has with international organizations or programmes, which are not already mentioned above

## **Identification of the courses/delivery approach**

Follow-up training in Modern learning techniques through Workshop on teaching method selection/application in the curriculum by international consultant MSM , Ms. M. Frijns , 2013

### **Development of the curriculum in 6 technical & 3 management and elective courses**

Curriculum development and TOT in the NL through Visit of 18 selected trainers to the NL for support in the development and design of the selected curriculum with partner UNESCO-IHE/MSM by Team of international consultants from UNESCO-IHE: Dr. J. Leentvaar, Dr. J. Houweling; Dr. J. Gupta; Dr. W. Douven, Mr. J. Heun and Dr. I. Popescu & Team of international consultant from MSM: Dr. G. Heeling; Mr. L. Kerklaan , 2013-2014

Development & Piloting of leadership skills Course 1 Implementation and piloting of course 1 (leadership skills) in Egypt by MSM/trainer , 2013

#### 2.2 Research activities that directly contributed to the IHP-VII and/or IHP-VIII activities

Concerning IHP-VIII new strategic plan, and the strategy of the Regional Center for Training and Water Studies of Arid and Semi-Arid Zones (RCTWS) – (Category 2 Centre under the auspices of UNESCO.

RCTWS cooperate with National Water Research Center NWRC, Egypt by scientific studies and researches which was published in an international conferences and journals related to the following Topics to ensure the eighth phase of IHP:

- WATER-RELATED DISASTERS AND HYDROLOGICAL CHANGE
- GROUNDWATER IN A CHANGING ENVIRONMENT
- ADDRESSING WATER SCARCITY AND QUALITY
- WATER AND HUMAN SETTLEMENTS OF THE FUTURE
- ECO HYDROLOGY, ENGINEERING HARMONY FOR A SUSTAINABLE WORLD
- WATER EDUCATION, KEY FOR WATER SECURITY

Attached you will find the list containing the researches and scientific paper which is published through the period 2008 until now by NWRC, Egypt related to the above topics as we wish to exchange and share the ideas/ studies with the same sisters institutes CATII.

*Please include research/applied projects outputs such as publications that directly contributed to the IHP-VII/VIII and WWAP objectives*

#### 2.3 Training activities that directly contributed to the IHP-VII/VIII and WWAP objectives

## **Regional courses held in RCTWS**

Many regional courses have been successfully implemented in RCTWS for Arab and African countries . The titles of these courses are as following:

1. On-farm Water Management "irrigation-drainage"
2. Ground Water Management in the framework of Integrated Water Resources Management.
3. Untraditional Water Resources in Geographical Information Systems and Remote Sensing Arid and Semi-Arid Regions.
4. The Joint Development of Water Resources Management.
5. Role of the Artificial Feeding of Ground Water.
6. Woman Participation in Water Management.
7. Geographical Information Systems and Remote Sensing.
8. Soil salinity management training course

## Regional workshops and seminars held in RCTWS

Many regional workshops and seminars have been successfully implemented in RCTWS for Arab and African countries , they included the following subjects:

1. Participation of Private Sector
2. Assessment of Water and Cost Recovery.
3. Gender Related Issues.
4. Decentralization and Institutional Reform.
5. Water Ethics.
6. Crops Water Requirements and Water Strategy.
7. Water as a Right of Each Human.
8. Ground Water Protection and Modeling.
9. Knowledge Mapping or Human Resources.
10. Water in Urban Areas and Modeling in Different Climates.
11. Sustainable Development of Water and Waste Water Management.

## National Training Courses by RCTWS

The training courses which organized by the training sector is tailored courses to serve all employees of MWRI in all its sectors to raise their technical and administrative efficiencies with the way which guarantees sustainability.

The training courses on national level are divided into:

- Technical courses for engineers which include: integrated water resources management, water quality and how to conserve, design–operation-maintenance of irrigation structures and channels, mechanics and electricity and methods of control, hydrology of surface and ground water, climate and environment change, administration and assessment of projects, and using of computer in fields of geographical information systems, designing of structures and engineering drawings and graphs.
- Technical courses for technicians and sailors.
- Courses for trainees to be qualified on International Computer Driving Licence (ICDL).
- English courses.
- Management and planning for intermediate and high leaders.
- Financial, administrative and contractual affairs courses.
- One-day seminars which discuss different issues upon current needs.

### 3. Collaboration and linkages

- 3.1 Participation in major international networks, programmes, partnerships with other UN or other International Agencies, media and professional bodies

## NUFFIC/NICHE-PROJECT AT RCTWS

RCTWS is facing a series of capacity development challenges in this respect. Discussions are ongoing whether the RCTWS will become the Human Resources Development-center of the Ministry or that a separate HRD-sector will be created within the same Ministry.

Therefore the overall objective of the **Nuffic/NICHE-project** is “to increase capacity of RCTWS to provide high quality training for the human resources in the water sector”.

### Overall strategy for the RCTWS 2050

Become a modern state-of-the –art learning provider, using advanced technologies and base learning process on most recent research findings in brain & cognitive science.

In specific for the Egyptian water sector, the RCTWS shall become the outstanding knowledge base and learning facilitator, capable to provide knowledge service in whatsoever technology to stakeholder of the Egyptian water sector.

The project offers the possibility to use the efforts made by UNESCO-IHE and the MSM to develop courses on water management and general management.

As far as the renewal of water management related courses is concerned, a first preliminary selection has been made based on the curriculum of short courses and online courses nowadays given by UNESCO-IHE, leading to the next preliminary list.

- Water quality and pollution abatement
- Water policy making
- Water and environmental law and institutions
- River basin management
- Water resource planning
- Hydro Informatics and Geographical Information Systems (GIS)

- 3.2 Participation in meetings related to the IHP and UNESCO (e.g., the UNESCO General Conference, the UNESCO Executive Board, the IHP Intergovernmental Council and/or other meetings organized by IHP)
  - ***"UNESCO Joint Strategic and High-level Meeting on Water Security and Cooperation"*** which held on 11-13 September, 2013 ,Kenya School of Monetary Studies, Nairobi, Kenya With the support of the Government of Kenya and other Partners.
  - ***"Closing Ceremony of the 2013 International Year of Water Cooperation"***, which held in Mexico City, United Mexican states, on 5 and 6 December 2013.
  - G Wadi Network , Arabic Networking Organization for Water Resources Management in Arab region " Masqat , Oman 28-29 January,2013.
  - Eighth meeting of the Board of Directors of the regional center for water management in urban areas held at Tehran - Iran, from 4-5 September, 2013, which was held at the Ministry of Energy , Iran.
  -
- 3.3 Collaboration and networking with other UNESCO category 1 or 2 institutes/ centres
  - 3.3.1 cross-appointment of directors of the category 1 or 2 institutes or centres on the governing board
  - 3.3.2 exchange of information on activities such as training/educational materials, and funding opportunities  
RCTWS always ready to exchange the training activities and materials with other institutes to spread the information especially Arab and African institutes.
  - 3.3.3 exchange of staff, most notably professionals and students  
RCTWS hosts a student's especially from African countries to finish their diplomas in Egyptian universities or finish their advanced courses.
  - 3.3.4 implementation of joint activities, such as workshops, conferences, training programmes, joint projects, field visits, software and data sharing, knowledge exchange and publications  
RCTWS shared the publication from NWRC with category 2 institute to exchange the knowledge and find a way to implement a joint research projects between RCTWS and category 2 institutes.
- 3.4 Relationships with the UNESCO field and regional office whose jurisdiction covers the country of location  
**Continuous communication and consultation with UNESCO Cairo exist. The center was involved and participated in the Arab G-Wadi Network activities**
- 3.5 Relationship with the UNESCO National Commission and the IHP National Committee in the country of location and with other organizations of other countries
- 3.6 Relationship with other UNESCO-related networks, such as UNESCO Clubs, ASPnet, and UNESCO chairs

#### 4. Communication

- 4.1 Communication and knowledge dissemination activities undertaken in the framework of IHP

Strengthening Managerial Capacity of RCTWS by Exposure visit to the NL by 2 teams trained on the quality management and educational marketing and Exposure on conceptualization of different techniques/processes and experiences in the field of quality management and educational marketing supported by MsM/UNESCO-IHE/Ecorys, 2013.

Establishment of technical infrastructure of RCTWS by Upgrade of existing E-learning infrastructure and existing labs and Needs assessment and support in design of IT infrastructure, development of equipment maintenance plan by Exposure visit on the Technology Enabled learning that take place in november 2012 supported by UNESCO-IHE.

Development of the curriculum in 6 technical/3 management and elective courses of RCTWS by Curriculum development and TOT in the NL and Visit of 18 selected trainers to the NL for support in the development and design of the selected curriculum supported by UNESCO-IHE/MSM 2013/2014.

- 4.2 Policy documents and advice

## **5. Update on Centre Operations**

- 5.1 Membership of the Board of Governors between designated period  
5.2 Key decisions made (attach minutes of meetings)

## **6. Evidence of the Centre's Impacts**

- 6.1 Science Impacts (Major contributions to the science, technology, education, and regional and/or international cooperation in the field of water)

Some technical training courses have been implemented through the cooperation with JICA. The titles of these activities are as following:

- Four training courses for Iraqi engineers in fields of (Operation and Maintenance of Pump Stations, ARC GIS, ERDAS and CAD application).
- A training course on Training-Of-Trainers (TOT) in the field of "Integrated Water Resources Management: Ground Water" which attended by 20 participants from Yemen.
- A training course for engineers in the field of "On Farm Water Management: Irrigation and Drainage" which attended by 20 participants from Nile Basin Countries. This course is holding each year started from 2004. Ministry of Foreign Affairs in Japan approved to continue implementing this course for other three years started from March, 2010.
- A training course for a group of researchers from African countries who have scholarships from (Tiger n) project which funded by European Space Agency (ESA) in the field of "Using of satellites in the field of water resources" which attended by 30 participants.
- A field trip was arranged by TSWRI for a Nigerian group who are members in one of the water associations. The head of the group was one of the ex-ministers of Water Resources Ministry. The group expressed their admiration of the steps which Egypt achieved in the fields of raising the efficiency of: water using, weeding control and preservation of water quality. As a result, a joint training and researching project between the two countries is discussed to be prepared.

- 6.2 Knowledge Transfer Impacts (Major achievements in the dissemination of knowledge and technology transfer)

The plan of the training sector depends on the different needs of all organizations, societies, sectors related to MWRI as well as the needs of other special units of the ministry such as: Water Quality Unit, Contractual Unit, Institutional Reform Unit, Water Awareness Unit and Information System Centre.

The information which the sector needs to put its plan can be collected through: questionnaire forms, meeting with heads of these sectors and units, meeting with the training officials in different places.

This policy results in very fruitful achievements in developing the assessment methods to coincide with the objective of the ministry in capacity building and in preparing cadres to measure the influence of the introduced training courses on the performance of organizations, societies, sectors related to MWRI through the experience and knowledge gained by their staff members who attended these courses.

The methods of training needs assessment were also developed to match with the objectives of the MWRI strategy and the needs of all organizations, societies, sectors related to MWRI which changed to coincide with the ministry strategy. That matching was done through accurate analyses of the training process items during the last 5 years and studying their technical, administrative, financial, institutional and organizational point of views.

The training courses which organized by the training sector is tailored courses to serve all employees of MWRI in all its sectors to raise their technical and administrative efficiencies with the way which guarantees sustainability.

## **Assessment of courses**

The assessment is done through evaluation sheets which indicate the following levels:

- The training program evaluation.
- The instructors evaluation and to what extent the trainees benefit from them.
- Evaluation of accommodation, entertainment facilities and training methods and facilities.

Further assessment has been conducted through contacting with officials from the different sectors, organizations and institutions of the ministry.

Moreover, there are other evaluation forms which have special elements filled by the direct manager to indicate the influence of the training course on the trainer performance in his work.

The training effectiveness is measured regularly within a period from 6 months to one year after holding the training course. This measuring is done by visiting the trainee in his work place to insure from him and from his manager that he can apply in the field of work what he has studied in the training course.

- 6.3 Policy Impacts (advice sought by government and other bodies and evidence of inputs into policy arena)

## **7. Future activities that will contribute directly to IHP and/or to WWAP**

- 7.1 Operational Plan (attach if available)  
7.2 Strategic Plan linked with IHP-VIII (Appendix 2)  
(attach strategic plan if available)

Attached RCTWS Strategic Plan Linked with IHP- VIII

## **8. Strategic Alignment with IHP-VIII**

- 8.1 Focal areas within IHP-VIII the centre plans to contribute to and specific actions the centre will undertake to align its activities with the strategic plan for IHP-VIII (Please see Appendix-2)

**RCTWS STRATEGY TOWARDS IHP TRANSITION FROM PHASE VII TO PHASE VIII: ASSURING CONTINUITY WHILE ADDRESSING NEW CHALLENGES**RCTWS aims to offer a courses related to the following Topics to ensure the eighth phase of IHP:

- *WATER-RELATED DISASTERS AND HYDROLOGICAL CHANGE*

- *GROUNDWATER IN A CHANGING ENVIRONMENT*
- *ADDRESSING WATER SCARCITY AND QUALITY*
- *WATER AND HUMAN SETTLEMENTS OF THE FUTURE*
- *ECO HYDROLOGY, ENGINEERING HARMONY FOR A SUSTAINABLE WORLD WATER*
- *EDUCATION, KEY FOR WATER SECURITY*

## **RCTWS TOWARDS PUTTING SCIENCE INTO ACTION**

The communication between scientists and stakeholders is an important step toward development of community understanding and ownership of risk. Scientists have a responsibility to educate the community they serve regarding the risks for that community, and possible actions the community can take to reduce those risks. Likewise, stakeholders and policy makers have a responsibility to work closely with scientists in the social learning process.

RCTWS cooperate with the National Water Research Centre, Egypt (NWRC) in the field of water researches and studies related to the IHP strategy.

### **9. Annexes**

9.1 List of publications released by the centre (there can be overlap with those listed in 2.3 above)

Attached you will find the list containing the researches and scientific paper which is published through the period 2008 until now by NWRC, Egypt related to the above topics as we wish to exchange and share the ideas/ studies with the same sisters institutes CATII.

9.2 List of training courses conducted (there can be overlap with those listed in 2.1 above)

Attached List of Training courses by RCTWS



## Appendix-1

### Overview of the Core Programme Themes of the Seventh Phase of the IHP (2008-2013) WATER DEPENDENCIES: SYSTEMS UNDER STRESS AND SOCIETAL RESPONSES

#### **Theme 1: ADAPTING TO THE IMPACTS OF GLOBAL CHANGES ON RIVER BASINS AND AQUIFER SYSTEMS**

Focal area 1.1 - Global changes and feedback mechanisms of hydrological processes in stressed systems

Focal area 1.2 - Climate change impacts on the hydrological cycle and consequent impact on water resources

Focal area 1.3 - Hydro-hazards, hydrological extremes and water-related disasters

Focal area 1.4 - Managing groundwater systems' response to global changes

Focal area 1.5 - Global change and climate variability in arid and semi-arid regions

#### **Theme 2: STRENGTHENING WATER GOVERNANCE FOR SUSTAINABILITY**

Focal area 2.1 - Cultural, societal and scientific responses to the crises in water governance

Focal area 2.2 - Capacity development for improved governance; enhanced legislation for wise stewardship of water resources

Focal area 2.3 - Governance strategies that enhance affordability and assure financing

Focal area 2.4 - Managing water as a shared responsibility across geographical & social boundaries

Focal area 2.5 - Addressing the water-energy nexus in basin-wide water resources

#### **Theme 3: ECOHYDROLOGY FOR SUSTAINABILITY**

Focal area 3.1 - Ecological measures to protect and remediate catchments process

Focal area 3.2 - Improving ecosystem quality and services by combining structural solutions with ecological biotechnologies

Focal area 3.3 - Risk-based environmental management and accounting

Focal area 3.4 - Groundwater-dependent ecosystems identification, inventory and assessment

#### **Theme 4: WATER AND LIFE SUPPORT SYSTEMS**

Focal area 4.1 - Protecting water quality for sustainable livelihoods and poverty alleviation

Focal area 4.2 - Augmenting scarce water resources especially in SIDS

Focal area 4.3 - Achieving sustainable urban water management

Focal area 4.4 - Achieving sustainable rural water management

#### **Theme 5: WATER EDUCATION FOR SUSTAINABLE DEVELOPMENT**

Focal area 5.1: Tertiary water education and professional development

Focal area 5.2: Vocational education and training of water technicians

Focal area 5.3: Water education in schools

Focal area 5.4: Water education for communities, stakeholders and mass-media professionals

## Appendix-2

### Overview of the Core Programme Themes of the Eighth Phase of the IHP (2014-2021) WATER SECURITY: ADDRESSING LOCAL, REGIONAL, AND GLOBAL CHALLENGES

#### **THEME 1: WATER-RELATED DISASTERS AND HYDROLOGICAL CHANGE**

- Focal area 1.1 - Risk management as adaptation to global changes
- Focal area 1.2 - Understanding coupled human and natural processes
- Focal area 1.3 - Benefiting from global and local Earth observation systems
- Focal area 1.4 - Addressing uncertainty and improving its communication
- Focal area 1.5 - Improve scientific basis for hydrology and water sciences for preparation and response to extreme hydrological events

#### **THEME 2: GROUNDWATER IN A CHANGING ENVIRONMENT**

- Focal area 2.1 - Enhancing sustainable groundwater resources management
- Focal area 2.2 - Addressing strategies for management of aquifers recharge
- Focal area 2.3 - Adapting to the impacts of climate change on aquifer systems
- Focal area 2.4 - Promoting groundwater quality protection
- Focal area 2.5 - Promoting management of transboundary aquifers

#### **THEME 3: ADDRESSING WATER SCARCITY AND QUALITY**

- Focal area 3.1 - Improving governance, planning, management, allocation, and efficient use of water resources
- Focal area 3.2 - Dealing with present water scarcity and developing foresight to prevent undesirable trends
- Focal area 3.3 - Promoting tools for stakeholders involvement and awareness and conflict resolution
- Focal area 3.4 - Addressing water quality and pollution issues within an IWRM framework - improving legal, policy, institutional, and human capacity
- Focal area 3.5 - Promoting innovative tools for safety of water supplies and controlling pollution

#### **THEME 4: WATER AND HUMAN SETTLEMENTS OF THE FUTURE**

- Focal area 4.1 - Game changing approaches and technologies
- Focal area 4.2 - System wide changes for integrated management approaches
- Focal area 4.3 - Institution and leadership for beneficitation and integration
- Focal area 4.4 - Opportunities in emerging cities in developing countries
- Focal area 4.5 - Integrated development in rural human settlement

#### **THEME 5: ECOHYDROLOGY, ENGINEERING HARMONY FOR A SUSTAINABLE WORLD**

- Focal area 5.1 - Hydrological dimension of a catchment– identification of potential threats and opportunities for a sustainable development
- Focal area 5.2 - Shaping of the catchment ecological structure for ecosystem potential enhancement – biological productivity and biodiversity
- Focal area 5.3 - Ecohydrology system solution and ecological engineering for the enhancement of water and ecosystem resilience and ecosystem services
- Focal area 5.4 - Urban Ecohydrology – storm water purification and retention in the city landscape, potential for improvement of health and quality of life
- Focal area 5.5 - Ecohydrological regulation for sustaining and restoring continental to coastal connectivity and ecosystem functioning

#### **THEME 6: WATER EDUCATION, KEY FOR WATER SECURITY**

- Focal area 6.1 - Enhancing tertiary water education and professional capabilities in the water sector
- Focal area 6.2 - Addressing vocational education and training of water technicians
- Focal area 6.3 - Water education for children and youth
- Focal area 6.4 - Promoting awareness of water issues through informal water education
- Focal area 6.5 - Education for transboundary water cooperation