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		Centre for Sustainable Management of Water Resources in the Caribbean Island States. (CEHICA)
Name of Director		Juan Ramón Chalas
Name and title of contact person (for cooperation)		Juan Ramon Chalas. Director
E-mail		jrchalas@gmail.com ; cehica@indrhi.gob.do
Address		Ave, Enrique Jiménez Noya esq. Juan De Dios Ventura Simó, Centro de los Réroes, Sto. Dgo. , Rep Dom.
Website		indrhi.gob.do
Location of centre		city/town Sto. Dgo_____ country Dominican Republic._____
Geographic orientation *		☐ global x☐ regional
Region(s) (for regional centres)		Caribbean
Year of establishment		2010
Year of renewal assessment		2016
Signature date of most recent Agreement		March 2010
Themes Of activities during reporting period	Focal Areas ♦	x☐ groundwater ☐ urban water management x☐ rural water management x☐ arid / semi-arid zones ☐ humid tropics ☐ cryosphere (snow, ice, glaciers) x☐ water related disasters (drought/floods) x☐ Erosion/sedimentation, and landslides ☐ ecohydrology/ecosystems ☐ water law and policy x☐ social/cultural/gender dimension of water x☐ transboundary river basins/ aquifers ☐ mathematical modelling ☐ hydroinformatics ☐ remote sensing/GIS x☐ IWRM ☐ Watershed processes/management x☐ global and change and impact assessment ☐ mathematical modelling x☐ water education x☐ water quality ☐ nano-technology ☐ waste water management/re-use ☐ water/energy/food nexus ☐ water systems and infrastructure ☐ other: (please specify) _
	Scope of Activities ♦	☐ vocational training ☐ postgraduate education x☐ continuing education ☐ public outreach x☐ research ☐ institutional capacity-building

* check on appropriate box
♦ check all that apply

	☐ advising/ consulting ☐ software development ☐ data-sets/data-bases development ☐ other: (please specify) _____
Support bodies [1]	National Institute of Water Resources in the Dominican Republic. (INDRHI)
Hosting organization [2]	
Sources of financial support [3]	Government of the Dominican Republic (public funds)
Existing networks and cooperation [4]	
Governance	x☐ director and governing board ☐ other: (please specify) _____ Link to election of board members to the IHP Intergovernmental Council (IGC) and hosting country IHP National Committee Olgo Fernández. Director of INDRHI. direccion@indrhi.gob.do_____ Frequency of meetings: once every _year(s) x☐ Existence of UNESCO presence at meetings
Institutional affiliation of director	
Number of staff and types of staff	total number of staff (full-time, or equivalent) : 13_____ number of staff who are water experts: 6_____ number of visiting scientists and postgraduate students: _____
Annual turnover budget in USD	

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

a.- Attendance to the Event Fair Day Memorial Water to Water. October 2013. Governmental and private institutions in the water sector expressed their instrumentals and initiatives and projects underway for the management and conservation of water, both in quality and quantity.

b.- Involvement in the project "Water Resources Management in Arid and Semi Arid Regions of Latin America and the Caribbean (MWAR - LAC), which aims to develop risk maps from droughts in the Caribbean, using frequency analysis L – moments.

c.- Involvement Workshop IFI FRIEND on Hydrological Maximum in Panama from 28 to 30 April, 2014

Studies and research

a.- Simulation of the Effects of Climate Change on Water Resources and Adaptation Strategies in the basin of the Yaque del Norte River. concluded in January 2014.

b. Modeling hydrological regimes and processes erosion / sedimentation and simulation scenarios for watershed restoration. Concluded in January 2014.

c -. Financial, physical and environmental sustainability of irrigation service rate in the Dominican Republic. Concluded in March 2014

[1] 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
[2] if different from support bodies
[3] please specify sources of main budgetary and extrabudgetary funds to implement projects
[4] 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

d -. Sustainability Assessment Process of decentralization of Irrigation Service in the Dominican Republic. Concluded in June 2014.

e.- Assessment of the quality of surface and ground water in the main river basins (5) of the country. Permanent.

f -. Redesign monitoring system for water quality in the basin of the river Yaque del Sur, in the Dominican Republic. concluded

Formulated research projects

a -. Simulation of the Effects of Climate Change on Water Resources through Regionalization Technique to Lower Rank Statistics "Statistical Downscaling" Basin of Rio Yaque del Sur.

b -. Simulation of salt intrusion, evolution and development in the tourist area of San Pedro de Macoris and La Romana

c -. Analysis of extreme rainfall generated by tropical cyclones and hydrological and hydraulic modeling in Dominican watersheds.

Educational activities

Coordination to carry out a regional course - workshop on "Rainwater Harvesting in the Dominican Republic.

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.

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

3. Collaboration and linkages

a.- Involvement in the creation in April 2013, the UNESCO Chair "Water, Gender and Governance

.b - CEHICA coordinated the participation of an expert from the Department of Hydrology at the International Workshop "Developing National Drought Atlas for the Caribbean" which was held in Kingston, Jamaica, November 2013 Under the. project "Water Resources Management in Arid and Semi Arid Regions of Latin America and the Caribbean (MWAR - LAC), which aims to develop risk maps of drought Caribbean countries, applying frequency analysis L – moments

c.- Under the coordination of International Center for Integrated Water Resources Management (ICIWaRM), category 2 center associated with the IHP UNESCO, was organized and conducted a course on hydrological modeling in June 2013, in which about 25 technical of INDRHI received training on HMS management software for hydrological analysis

d.- Attendance to the Strategic High Level Meeting on Water Security and Cooperation (Strategic and High Level Meeting on Water Security and Cooperation), which was held in Nairobi, Kenya, West Africa, from 11 to 13 September 2013

e -. With the International Institute for Sustainable Development (IISD) and coordinated by the CEHICA and INDRHI a draft climate risk management was implemented in the basin of the Rio Yaque del Sur, in which various participative techniques were employed with hydrological models analysis and effects of climate change on agriculture

f-. Attendance and coordination regional course-workshop on hydrologic simulation of reservoirs, from 12 to 16 May 2014. Instructors were provided by ICIWaRM, UNESCO category 2 center

3.1 Participation in major international networks, programmes, partnerships with other UN or other International Agencies, media and professional bodies
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)
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
  3.3.3 exchange of staff, most notably professionals and students
  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
3.4 Relationships with the UNESCO field and regional office whose jurisdiction covers the country of location
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
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

The CEHICA using national funds provided by the INDRHI has made several regional activities for capacity building, strengthening partnerships between members of the Centre, identifying research needs for the region, disseminate works of IHP-LAC, among other

6.1 Science Impacts (Major contributions to the science, technology, education, and regional and/or international cooperation in the field of water)
6.2 Knowledge Transfer Impacts (Major achievements in the dissemination of knowledge and technology transfer)
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

Future Activities
Activities planned for 2014-2015.

The activities programmed presented below for this period are preliminary, pending the approval of the board of CEHICA. These actions are grouped into three areas:

a.- Generation of scientific and technological knowledge of research projects to be transferred to the Caribbean

b.- Initiatives of direct impact for the region

c.- Tasks for institutional strengthening of CEHICA

Generation of scientific and technological research projects to be transferred to the Caribbean knowledge.

Total investment: U.S. $ 683,923.00
External Resources : U.S. $ 638,923.00
Internal resources : U.S. $ 45,000.00

a.1 - . Simulation of the Effects of Climate Change on Water Resources and Adaptation Strategies in the basin of Rio Yaque del Norte. (U.S. $ 71,375.00) .

a.2 - . Modeling hydrological regimes and processes of erosion / sedimentation and simulation scenarios for watershed restoration . (U.S. $ 185,700.00) .

a.3 - . Financial , physical and environmental sustainability of irrigation service rate in the Dominican Republic . (U.S. $ 15,476.00) .

a.4 - . Sustainability Assessment Process Decentralization of Irrigation Service in the Dominican Republic . (U.S. $ 22,619.00) .

a.5 - . evaluation of the quality of surface and ground water in the main river basins (5) of the country. (U.S. $ 35,000.00) .

a.6 - . Simulation of the Effects of Climate Change on Water Resources through Regionalization Technique to Lower Rank Statistics "Statistical Downscaling " Basin in Rio Yaque del Sur. (U.S. $ 141,986.00)

a.7 - . Simulation of salt intrusion , evolution and development in the tourist area of San Pedro de Macoris and La Romana. (U.S. $ 137,469.00) .

a.8 - . analysis of extreme rainfall generated by tropical cyclones and hydrological and hydraulic modeling Dominican watersheds. (U.S. $ 64,298.00)

a.9.- Characterization of hydro properties of agricultural soils irrigated the Dominican Republic . (U.S. $ 10,000.00

Initiatives for direct impact for the region

Total investment: U.S. $ 101,200.00
External Resources: U.S. $ 60,000.00
Internal resources: U.S. $ 41,200.00

b.1 -. study "Assessment and structuring tariff regime in the different uses of water in the Caribbean region." U.S. $ 15,000.00.

b.2 -. Developing National Drought Atlas for the Caribbean region.

b.3 -. competitive fund (FONDOCEHICA) for presentation of research projects. U.S. $ 60,000.00.

b.4. - Two Courses - regional workshops "Hydrological Simulation" in coordination with ICIWaRM

Tasks for institutional strengthening of CEHICA.

c.1 -. Meeting of the Administration Board.

c.2 -. Creation / establishment of the Scientific Council.

c.3 -. Elaboration strategic plan of CEHICA. U.S. $ 20,000

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

8. Strategic Alignment with IHP-VIII

THEME 1: WATER-RELATED DISASTERS AND HYDROLOGICAL CHANGE

Focal area 1.1 - Risk management as adaptation to global changes

THEME 2: GROUNDWATER IN A CHANGING ENVIRONMENT

Focal area 2.1 - Enhancing sustainable groundwater resources management

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

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

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)

9. Annexes

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

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

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 beneficiation 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