

**Proposal for the establishment of a
UNESCO Category 2 Centre**

**Regional Centre on
Water and Environment for South Asia
at
Roorkee, India**

Submitted by



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Hydrology, Roorkee**

and

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1. INTRODUCTION

1.1 UNESCO has an important role in safeguarding the planet's natural resources including water resources. Category 2 Centres (C2C) placed under the auspices of UNESCO are strongly assisting the implementation of UNESCO programmes and supporting the protection and promotion of the natural heritage in all its forms.

1.2 This proposal is in compliance with the guidelines and criteria for category 2 institutes and centres approved in 37 C/Resolution 93 with the subsequent integrated comprehensive strategy approved by the General Conference of UNESCO at its 37th session (November 2013).

1.3 The water-related Centres under the auspices of UNESCO (category2) work on relevant thematic and geographic priorities in their areas of expertise. Many such Category 2 Centres have been established, such as (1) International Research and Training Centre on Erosion and Sedimentation, China (IRTCES); (2) International Research and Training Centre on Urban Drainage, Serbia; (3) Regional Humid Tropics Hydrology and Water Resources Centre for South-East Asia and the Pacific, Malaysia (HTC Kuala Lumpur); (4) Regional Centre for Training and Water Studies of Arid and Semi-Arid Zones, Egypt (RCTWS); (5) Regional Centre on Urban Water Management, Iran (RCUWM); (6) International Centre on Qanats and Historic Hydraulic Structures, Iran (ICQHHS); (7) Centre for Water Law, Policy and Science, University of Dundee, United Kingdom (Dundee Centre); (8) International Centre for Water Hazard and Risk Management, Japan (ICHARM); (9) European Regional Centre for Ecohydrology, Poland (ERCE); (10) Water Centre for Arid and Semi-Arid Zones of Latin America and the Caribbean, Chile (CAZALAC); (11) Regional Centre on Urban Water Management for Latin America and the Caribbean, Colombia (RCUWM-LAC); (12) International Groundwater Resources Assessment Centre, The Netherlands (IGRAC); (13) Regional Centre for Shared Aquifer Resources Management, Libya (RCSARM); (14) International Center for Integrated Water Resources Management, USA (ICIWaRM); (15) International Centre for Education, Capacity Building and Applied Research in Water, Brazil (HidroEx); (16) International Centre for Coastal Ecohydrology, Portugal (ICCE); (17) Asia-Pacific Centre for Ecohydrology, Indonesia (APCE); (18) Centre for the Sustainable Management of Water Resources in the Caribbean Island States, Dominican Republic (CEHICA); (19) Regional Centre on Groundwater Resources Education, Training and Research in East Africa, Kenya (RCGRE); (20) Central Asian Regional Glaciological Centre, Kazakhstan (CARGC); (21) Regional Centre for Integrated River Basin Management, Nigeria (RC-IRBM); (22) Centre for Water for Sustainable Development and Adaptation to Climate Change, Serbia (WSDAC); (23) International Centre for Water Cooperation,

Sweden (ICWC); (24) Regional Centre on Capacity Development and Research in Water Harvesting, Sudan (RCWH); (25) Regional centre for groundwater management for Latin America and the Caribbean, Uruguay (GW-LAC); (26) International Centre for Water Resources and Global Change, Germany (ICWRGC).

2. PARTNERS

2.1 National Institute of Hydrology (NIH), an autonomous Institution of the Ministry of Water Resources, River Development & Ganga Rejuvenation (MoWR, RD&GR), Government of India, is actively engaged in research activities and capacity building of a wide range of professionals in all aspects of water resources development and management. The Institute has its headquarters at Roorkee (Uttarakhand, India). To carry out field related research covering different regions of the country, the Institute has established six Regional Centers, and state-of-art laboratory facilities in the area of Nuclear Applications in Hydrology, Water Quality, Soil Water, Remote Sensing & GIS Applications, Snow & Glacier, Hydrological Instrumentation and Numerical Groundwater Modelling.

NIH is registered as a Society under Indian Society Registration Act, 1860. The Minister of Water Resources, River Development & Ganga Rejuvenation is the President of the NIH Society which has wide representation from various government ministries, departments, and experts. The Governing Body of NIH is chaired by the Secretary, Ministry of Water Resources, River Development & Ganga Rejuvenation (Government of India). The Director of the Institute is appointed by the Government of India and is the Principal Executive Officer of the Society.

NIH has undertaken a number of internationally funded projects, including those from UNDP, USAID, UNESCO, The World Bank, The Netherlands, Sweden, and European Union. NIH is presently participating in two major World Bank funded projects - 'National Hydrology Project (NHP)' and 'Neeranchal National Watershed Project'. The Institute is hosting the Secretariat of Indian National Committee on Climate Change (INC-CC), which supports funding of R&D projects and review sessions on climate change and sponsorship of seminars, symposia, workshops, etc. Also, the Institute hosts the Secretariat of Indian National Committee for International Hydrological Program (INC-IHP) of UNESCO.

2.2 Indian Institute of Technology- Roorkee (IITR) is among the foremost of institutes of national importance in higher technological education and in engineering, basic and applied research. Since its establishment, the Institute has played a vital role in providing the technical manpower and know-how to the country and in pursuit of research. It has various departments such as

Hydrology, Earth Sciences, Hydraulics and Civil Engineering, Water Resources Development and Management, and Alternate Hydro Energy Centre, which are engaged in education and research in the field of water and environmental managements of rivers and lakes. Department of Hydrology started international master's programme in hydrology with the support of UNESCO and Government of India in 1972. Water Resources Development and Management was established in 1955 as an Asian African Centre as India's commitment at the Asian African Conference held in Bandung, Indonesia for imparting training and education to in-service engineers. IIT Roorkee has campuses in Roorkee (main), Saharanpur and Greater Noida Extension Centre.

After completing 155th year of its existence, on September 21, 2001, the then University of Roorkee was declared as the nation's seventh Indian Institute of Technology under Institutes of Technology Act, 1961 by the Indian Parliament to make IIT, Roorkee as an "Institution of National Importance". The institute is autonomous institution under Ministry of Human Resources, Government of India. The institute has the mandate among many others to co-operate with educational or other institutions in any part of the world having objects wholly or partly similar to those of the Institute. Authorities of an Institute are; Board of Governors, Senate, and such other authorities as declared by the Statutes to be the authorities of the Institute. The Director of the Institute is appointed by the Council with the prior approval of the Visitor and is the principal academic and executive officer of the Institute and responsible for the proper administration of the Institute and for the imparting of instruction and maintenance of discipline therein.

2.3 Both NIH and IITR have state-of-art infrastructure and competent multi-disciplinary faculty, and have been engaged in conducting a wide range of capacity building programmes for in-country professionals as well as for participants from the Asian and African regions. Based on these strengths, both UNESCO and Government of India consider that it would be logical to establish a Regional Centre on Water and Environment at Roorkee, to be jointly operated by NIH and IITR under the auspices of UNESCO Category 2 Centre.

3. BACKGROUND

3.1 India is endowed with a rich and vast diversity of natural resources, water being one of them. Its development and management plays a vital role in agriculture production. Integrated water management is vital for poverty reduction, environmental sustenance and sustainable economic development. National Water Policy of India envisages that the water resources of the country should be developed and managed in an integrated manner.

"Water, water, everywhere, nor any drop to drink" aptly describes the problem of water in South Asia – a problem of scarcity amid abundance. Transboundary rivers such as the Ganges, Indus, and Brahmaputra have defined the geography, history, and culture of South Asia for centuries and are critical to economic growth, food and energy security, and sustainable development within the region. But over the last few decades, these rivers have come under considerable pressure from industrial development, urbanization, population growth, and environmental pollution. This situation has been compounded by poor domestic management of water resources and increasing variability in rainfall and climate patterns that have made South Asia highly susceptible to floods, droughts, and natural disasters. These factors provide the most compelling reason to establish the proposed Category 2 Centre on Water and Environment in India for South Asia region.

The proposed C2C will help India to achieve a more focused execution of research and innovation, training, and outreach activities related to the conservation of water resources and protection of environment.

- 3.2 Furthermore, it is the compelling affinity that binds the natural and cultural history within the South Asia Region that makes a strong case for establishing a C2C in India that would look into cross-border conservation and management of water resources and environment. Presently, no C2C is available in the South Asia Region in the field of water and environment.
- 3.3 There is, therefore, an urgent need to establish a regional centre of excellence to train professionals, conduct research and innovation, document, collate and disseminate information on all aspects of water resources conservation, development and management along with protection of environment. It will also add greater depth and order in evolving professional concerns and ensuring higher standards in the management of water resources within the context of the varied conservation agendas of the region.
- 3.4 While the primary focus of the proposed C2C will be the conservation and management of water resources and environment in the South Asia Region, it is envisaged that it will have a catalytic effect on improving the management of water resources at local scales in the region having varying hydrological problems. It would also stimulate the need for optimum utilization of water resources with due regards to protection from contamination and sustainability of the resource.
- 3.5 The C2C on "*Water and Environment*" proposed by India has been envisioned to be a centre of excellence for the conservation of water resources and environment management of water bodies in South Asia Region. Besides the considerations at local and national levels, its goal also includes increases in

trust and confidence in regional or basin water management as a result of dialogue processes; participatory processes that facilitate transboundary knowledge generation and sharing; strengthening of the capacity of water resources organizations.

- 3.6 The proposed C2C would work in tandem with other regional Category 2 Centres, and perform a catalytic role in building the capacity of water managers and environmental professionals within India and other countries in the South Asia Region. It will on the one hand promote best practices from around the world by making them context specific to meet local conditions and exigencies, and on the other, share the sub-regional experience and expertise to build capacities and assist in conserving and managing the water resources.

4. OBJECTIVES/ FUNCTIONS

UNESCO works to build the scientific knowledge base to help countries manage their water resources in a sustainable way through the International Hydrological Programme (IHP), through leading the UN-wide World Water Development Report and through numerous Centres and Chairs on Water around the world. The overall goal of the proposed C2C Centre at Roorkee in India will be to strengthen the implementation of UNESCO's programmes related to water security. The Centre will act on the following principles:

- i. NIH has been hosting the Indian National Committee on Hydrology (INCOH) for more than three decades, and provided the required support and inputs to the UNESCO in the field of hydrology and water resources. Presently, the Indian National Committee for International Hydrological Programme (INC-IHP) is located at NIH, Roorkee. This Centre will further support the implementation of the "International Hydrological Programme" (IHP) of UNESCO.
- ii. The C2C will promote regional research, innovation, education and capacity development for hydrological applications in solving problems related to water and environment. Emphasis will be given to relevant topics covering (but not limited to) the following:
 - Water resources planning and management, including urbanizing areas
 - Water conservation and management for rural areas
 - IWRM for water security at different scales
 - Climate resilient water management
 - Rejuvenation of rivers and small water bodies
 - Hydrological behaviour of ephemeral streams
 - Groundwater development and management in a changing environment

- Hydrology for ecosystem services
 - Environment flow assessment
 - Environmental management of rivers and lakes
 - Studies on snow and glaciers
 - Water quality modeling and management.
 - Awareness creation and capacity building of stakeholders
- iii. This C2C will serve as the Centre of Excellence for water resources management by, inter alia, observing and analyzing natural and social phenomena, developing methodologies and tools, building capacities, creating knowledge networks, and disseminating lessons and information in order to help governments and all stakeholders manage risks of water related hazards at national, regional and community levels.
- iv. Housing a group of water experts and a knowledge base which enables conducting innovative research, effective capacity building, and efficient information networking. Based on these three pillars, Centre will serve as a knowledge hub for best national/local practices and an advisor in policy making.
- v. By employing advanced tools such as modelling, the Centre will enable decision makers to gain understanding of risks, benefits and opportunities associated with different strategies in water resources management.
- vi. The Centre will work in close cooperation with partners from the scientific community, operational hydrological services, data centres and water-related UN-organizations. It will support scientific investigations, to improve operational skills, for policy advice and capacity development in the water sector.

5. ACTIVITIES OF THE CENTRE

The C2C based shall undertake a range of both short-term and long-term activities for various stakeholders; act as information repository; disseminate relevant knowledge and conduct collaborative research and innovation activities. A brief description of the activities is given below:

i. Research and Innovation Activities

The Centre would undertake innovative research activities on important water and environment issues, and investigations of particular water related issues and problems in collaboration with relevant research centres in the region.

ii. Training Programmes

The Centre will organize specialized training programmes to build capacity of the state engineers, local government officials, academicians, professionals,

researchers and other relevant stakeholders.

iii. Organization of Conference and Symposia on Thematic Areas

The States Parties in South Asia Region have their own water resources problem as also distinct conservation concerns and planning processes. A common forum that would discuss, evaluate problems, explore scope for hand-on working in all member countries, exchange experiences of conservation planning and protection would help to better achieve the goals of the centre. The C2C would also conduct training workshops for community awareness and participation and explore options of sustainable development initiatives that would help better integration of local economy with conservation.

iv. Establishment of an Information Repository

Information relevant to water and environment issues and open access data will be collected and collated at the Centre to set up an accessible, secure and reliable information base in the region. The Centre would disseminate relevant knowledge and information, and the outcomes of research activities through the Internet, and the publication of books, articles and other media".

v. Collaboration with States Parties

The Centre would explore cooperation and synergies with international academic and research institutions, particularly in South Asia Region, to attain objectives of the IHP Phase-VIII.

vi. Outreach and Dissemination of Information

The Centre would develop a dissemination plan targeting the entire region to carry out and promote outreach activities, workshops, seminars, conferences, etc.

6. LEGAL STATUS AND GOVERNANCE

- (a) The Centre will be independent from UNESCO;
- (b) The C2C would be an integral part of the NIH and IITR;
- (c) The C2C shall be granted necessary functional autonomy to exercise its functions and to receive subventions, obtain payments for services rendered and carry out the acquisition of all means required;
- (d) NIH and IITR shall devise a collaborative agreement among them for the functioning and operation of the Centre and jointly undertake the projects and other activities of the Centre.

7. MANAGEMENT STRUCTURE

The Centre will be managed and supervised by a Governing Council (GC) and shall be composed of:

- i. Secretary to the Government of India, Ministry of Water Resources, River Development & Ganga Rejuvenation (Chairperson);
- ii. Director, Indian Institute of Technology, Roorkee (Co-Chairperson);
- iii. Director, National Institute of Hydrology, Roorkee
- iv. A representative of the Indian National Commission for Cooperation with UNESCO (INCCU), Ministry of Human Resource Development (Govt. of India);
- v. A representative of the Ministry of Environment, Forests and Climate Change (Govt. of India);
- vi. A representative of the Department of Science & Technology (Govt. of India);
- vii. A representative of the Director-General of UNESCO;
- viii. One representative from ICIMOD, Kathmandu;
- ix. A representative of any inter-governmental organization or international non-governmental organization making a substantial contribution to the annual budget or running of the Centre, to be decided by the GC;
- x. A representative of the industry associations in India (e.g. CII, FICCI, ASSOCHAM), to be decided by the GC;
- xi. Head of C2C (Member-Secretary).

The tenure of members other than ex-officio members will be three years.

The Governing Council shall:

- (a) Approve the constitution of the Centre;
- (b) Appoint and remove the Head of the Centre, and decide terms and conditions of appointment;
- (c) Approve the long and medium terms programmes of the Centre;
- (d) Approve the annual work plan and budget of the Centre, including staffing provisions, infrastructure requirements and operating costs;
- (e) Approve the annual reports, including the audit reports on the financial statements, of the Centre;
- (f) Approve the rules and regulations, and determine the financial, administrative and personnel management procedures of the Centre;
- (g) Appoint committees or sub-committees for conduct of any business of the

- centre or for tendering advice in any matter pertaining to the Centre;
- (h) Delegate any of its powers to the Head of the Centre as considered appropriate;
 - (i) Take action as may be necessary, incidental or conducive to the attainment of the objectives of the Centre.

The Governing Council shall hold regular meetings at least once every calendar year. It shall meet in extraordinary session if summoned by the Chairperson, either at his/her own initiative or at the request of the Director-General of UNESCO, or at the request of half of its members.

The Governing Council shall adopt its own rules and regulations. For its first meeting, the procedure shall be established by the Government of India.

The Governing Council shall establish the term and the indicators for the evaluation of the Centre and appoint the evaluators.

Scientific Advisory Committee

The Centre shall have a Scientific Advisory Committee (SAC) composed of experts whose functions shall be to guide the Centre in achieving the scientific objectives. SAC shall be composed of:

1. Eminent expert in the field of water,
2. Eminent expert in the field of environmental management
3. A representative of DST,
4. A representative of UNESCO New Delhi office,
5. A representative of NEERI, Nagpur
6. A representative of CWC, New Delhi
7. A representative of IITs/IISc (on rotational basis, for a term of 3 years),
8. A representative of IITs/NITs (on rotational basis, for a term of 3 years),
9. Nominee of Director, NIH,
10. Nominee of Director, IITR,
11. Head of C2C (Member Secretary).

Secretariat

1. The Centre's Secretariat shall consist of a Head and such staff as is necessary for proper functioning of the Centre.
2. The other members of the Secretariat may comprise:
 - (a) Members of UNESCO's staff who may be temporarily detached and made available to the Centre, as provided for in UNESCO's regulations and by decision of the GC;
 - (b) Staff seconded for a defined period of time from the principal institutions

- participating within the Centre, with the approval of the GC;
- (c) Any person appointed by the Head, in accordance with the procedures laid down by the GC;
 - (d) Government officials who would be made available to the Centre, as provided for within government regulations.

Head of the Centre

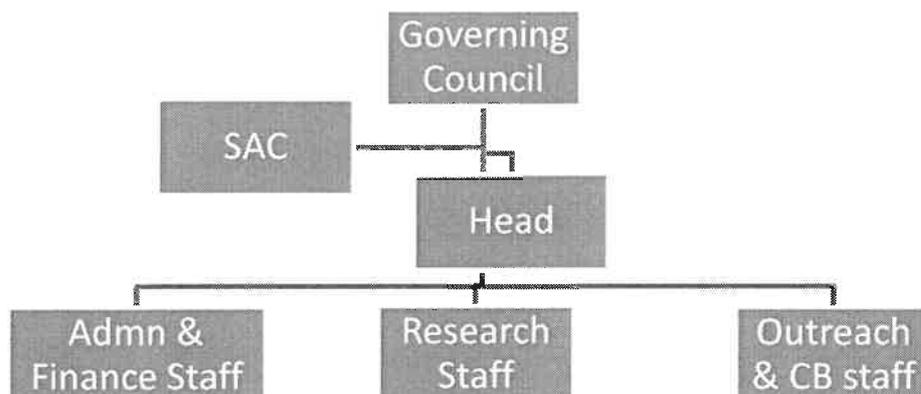
1. A Scientist 'G' of NIH (to be nominated by Director, NIH) or a Professor of IIT Roorkee (to be nominated by Director, IITR) shall be appointed Head of the Centre by the GC (on alternate basis, for a tenure of 2 years). The Head shall deem to be on deputation to the Centre, drawing his/her salary from the parent organization (NIH or IITR).

Head of the Centre shall discharge the following duties:

- i. Direct the work of the Centre in conformity with the programmes and directives established by the GC;
- ii. Propose the draft annual work plan and budget to the GC for approval;
- iii. Prepare the provisional agenda for meetings of the GC and submit to it any proposals that he/she may deem useful for the administration of the Centre;
- iv. Prepare annual reports on the Centre's activities to be submitted to the GC and UNESCO;
- v. Represent the Centre in law and in all civil acts.
- vi. Make decisions on technical, financial and/or administrative tools and systems to be used, and logos and standard formats to be utilized;
- vii. Present and disseminate any type of information related to the Centre;
- viii. Communicate with any partner relevant to the Centre;
- ix. Prepare internal regulations for the Centre, for approval by the GC.

The organogram and budget estimates of the C2C are given below:

Organogram



Budget

Item	No.	Estimated Cost (X 1000 INR)					Total
		Yr-1	Yr-2	Yr-3	Yr-4	Yr-5	
I. Manpower Costs							
Research Scientist	02	2400	2700	3000	3300	3600	15000
Research Associate	02	1800	2000	2200	2400	2600	11000
Admin/Fin. Person	01	1200	1300	1400	1500	1600	7000
Total (I)		5400	6000	6600	7200	7800	33000
II. Operational Costs							
Outsourcing of services	LS	600	700	800	900	1000	4000
Travel	LS	500	600	700	750	800	3350
Misc.		500	600	700	750	800	3350
Total (II)		1600	1900	2200	2400	2600	10700
III. Activities Budget							
Thematic research studies		5000	5300	5600	5900	6200	28000
Thematic workshops	02	1000	1060	1125	1200	1260	5645

Training courses	02	3000	3100	3200	3300	3400	16000
Outreach & dissemination activities	LS	500	500	600	600	600	2800
Meetings of GC, SAC, etc.	LS	500	540	575	600	640	2855
Total (III)		10000	10500	11100	11600	12100	55300
Grand Total (I+II+III)		17000	18400	19900	21200	22500	99000
In Million INR		17.0	18.4	19.9	21.2	22.5	99.0

8. FINANCIAL ARRANGEMENTS

- i. The Centre's resources shall be derived from funds allotted by the MoWR, RD & GR through NIH, and MHRD or other sources through IIT Roorkee, and from such contributions as it may receive from UNESCO States Parties to the World Water Resources Convention, from inter-governmental organizations or international non-governmental organizations and from payments for services rendered.
- ii. The Centre may receive gifts and legacies, with the approval of the GC.
- iii. The Centre may receive for purposes of project and activity implementation funds allocated by other bodies which reinforce and support the Centre's objectives. Receipt of such funds shall be subject of agreements for use, management and financial reporting on expenditure among parties concerned.
- iv. The Centre may maintain accounts in any currency, hold funds and foreign exchange of any kind and transfer them in accordance with rules and regulation of land in vogue.

9. CONTRIBUTION OF UNESCO

- i. UNESCO shall provide assistance in the form of a technical contribution for the activities of the Centre in accordance with the strategic goals and objectives of UNESCO.
- ii. UNESCO shall agree to:
 - Provide the assistance of its experts in the specialized fields of the Centre;
 - Detach temporarily members of its staff. Such detachment may be decided by the

Director-General on an exceptional basis if justified by the implementation of a joint activity/project within a priority area as approved by UNESCO's governing bodies;

- Include the Centre in various programmes, which it implements and in which the participation of the latter seems necessary;
 - Identify opportunities for staff training and exchange with UNESCO's programme sectors in consultation with the directors of category 2 institutes and centres. This may include the mutual exchange of staff for limited periods of time to undertake research and to participate in the implementation of pilot projects or other high-priority or high-profile activities. All staff shall remain on the payroll of their respective parent organization for the duration of such exchanges.
- iii. In all the cases listed above, such contributions shall not be provided unless they have been specifically foreseen and approved in UNESCO's Programme and Budget.

10. CONTRIBUTION OF THE GOVERNMENT

- i. The Government shall take appropriate measures, in accordance with its laws and regulations, which may be required for the Centre to receive adequate funds.
- ii. The Government shall agree to provide or solicit all the resources, financial or in kind, needed for the administration and proper functioning of the Centre. In particular it shall:
 - make available to the Centre appropriate office space, equipment and facilities;
 - assume all communication, utilities and maintenance costs for the Centre, plus the expenses of holding the sessions of the GC;
 - contribute to Centre programme activities, such as capacity-building activities, research programmes, dissemination of information, publications and logistic support;
 - make available to the Centre the staff necessary for the performance of its functions;
 - facilitate cooperation and technical assistance of experts from the various agencies of the government and public administration.

11. LOGISTICS SUPPORT

- i. The Centre will be hosted by NIH in association with IITR and will be located within the facilities of NIH, Roorkee, with the infrastructure and technical support of NIH and IITR, with additional supplementation as required.
- ii. The Center would have its administrative offices. Regarding academic spaces for faculty, lecture rooms with audio-visual facilities, small auditorium, library-cum-

documentation centre, research laboratories, storage areas, common rooms for faculty and students, canteen, etc., the existing infrastructure of NIH and IITR would be used. Existing hostels and guest houses at NIH and IITR will be used to accommodate the faculty, resource persons, staff and students for the Centre to the extent possible.

- iii. The Centre will establish close collaboration agreements with other national and international institutions working in the fields of water and environment. The support of responsible national and international associations such as International Association of Hydrological Sciences (IAHS), International Association for Hydro-Environment Engineering and Research (IAHR), Global Water Partnership (GWP), WMO, the United Nations University (UNU), UNEP, GEF, India Water Portal, India Water Partnership (IWP), will be sought in furthering the objectives of the Centre.

12. IMPLEMENTATION STRATEGY

The following activities shall be organized as part of the implementation strategy during 5-year period from the date of approval from UNESCO:

- (a) Innovative research studies,
- (b) Regional thematic workshops on identified themes,
- (c) Regional short-term training programmes,
- (d) Outreach and dissemination activities,
- (e) Participation in international meetings, workshops, conferences etc. related to hydrology & water resources,
- (f) Hydrological information base development & maintenance,
- (g) Activities envisaged for furtherance of the goals and objectives of the C2C.