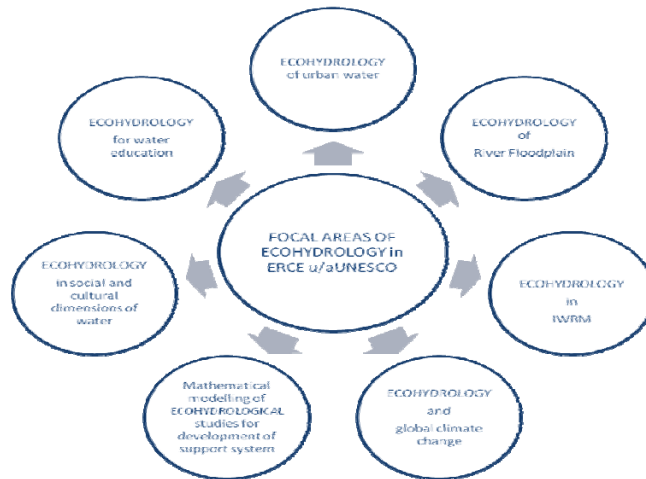


Draft Report

Five Years Assessment of the

**International Institute of Polish Academy of Sciences
European Regional Center
for Ecohydrology (ERCE)
under the auspices of UNESCO**



Jan 16-18, 2012

Lodz, Poland

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and

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Executive Summary

This report describes 5 year assessment of European Regional Center for Ecohydrology (ERCE) by Dr Giovanni Bidoglio and Dr Pierre Hubert. European Regional Centre for Ecohydrology (ERCE) is one of the UNESCO's Category-2 water centres in Europe. ERCE started operation in 2006. An agreement between UNESCO and the Government of Poland was signed on 8 March 2006. The main purpose of this evaluation, which was managed by ERCE in close consultation with the UNESCO National Commission for Poland and UNESCO, is to provide a valuable element for deciding whether the agreement between UNESCO and the host government should be renewed, and to ensure that the focus and coverage of the activities of the Centre are in line with the strategic objectives of UNESCO in accordance with the new Integrated Comprehensive Strategy for Category II Institutes and Centres (document 35C/22) approved by the 35th Session of the General Conference..

The evaluation team met at ERCE, Poland from 16 to the 18 of January 2012. The evaluation team's work was facilitated by Mr Shahbaz Khan, Chief, Water and Sustainable Development Section from UNESCO, Paris. The following methodology was used to assess progress of ERCE in relationship with existing agreement with UNESCO.

- 1) Meetings and interviews with the Director, Key Staff and Stakeholders of ERCE (Appendix-1)
- 2) Examination of materials provided by ERCE
- 3) Examination of cash flow and staffing data(Appendix-2)
- 4) Analysis of the key achievements in publications, communication, research projects education and training (Appendix-3 to 6)
- 5) Review of ERCE web site and relevant material quoted by stakeholders and other organizations
- 6) Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis to summarise key observations
- 7) Recommendations to ERCE, to the Government of Poland and to UNESCO

The detailed publications, communication, research projects education and training (Appendix-3 to 6) shows excellent achievements of ERCE within the framework of the International Hydrological Program especially IHP-VI and VII as well as the existing agreement of ERCE. Key findings are given below:

- ERCE has been working well within available funding resources (from 216,000 to over 470,000 Euros per year, as from reported data in Annex 2) to deliver its roles and responsibilities under existing agreement with UNESCO. However escalating demands for research and capacity building to deal with cost effective and environmentally sound technologies show the requirement to increase the funding base through core funds from the Polish Academy of Sciences, Government of Poland and extra-budgetary resources.
- ERCE has been able to secure significant percent of its budget from external funds but that also represents a risk if it does not continue in future. These extrabudgetary projects (listed in Appendix-5) are in full alignment with the strategic objectives of UNESCO IHP.
- The focused ERCE team has been successful in delivering useful research, education and training products within a short time
- Growing international importance of environmentally sound technologies for managing water quality and ecology of urban and rural areas in many parts of the world, the demand for ERCE skills in Africa e.g. Ethiopia and other regions is growing

Based on the detailed assessment of ERCE, the independent evaluators make the following recommendations to ERCE, to the Government of Poland and to UNESCO.

Recommendations to ERCE

ERCE ensures a mix of research, education and implementation of measures for the restoration of aquatic ecosystems. ERCE is a peculiar institute at the interface between science, policy and landscape management, thus carrying out a horizontal type of research relying upon different disciplines. This does not appear to be easy in an academic environment organized according to classical disciplinary activity. ERCE has been able, however, to establish very good links with the academia and get support from regional stakeholders. This is very important, as the implementation of eco-hydrological measures requires testing at sub-catchment level. To this end, a number of demonstration projects have been put in place. Lessons learnt has been injected into regional and city policy making, as shown for instance by the concept of a Blue – Green network, which is presently considered for implementation within the City of Lodz. The establishment of the Pilica catchment as UNESCO Global Reference site was successfully picked up also by the LTSER international network.

International initiatives to support developing countries by testing low cost solutions for management of aquatic ecosystems are highly praised. This fits well into the UNESCO mandate and shows the capacity of the Institute to mobilize decision makers in government agencies in order to put research into practice. Participation of ERCE in consortia bidding for European-funded research and demonstration projects provided an opportunity for cooperation with peers and as source of funding. Attempts in this direction should be intensified.

Taking into account the sharing of efforts among research, educational and demonstration projects, a remarkable amount of work has been carried out during the evaluation period within a relatively small group. Nevertheless, the number of publications in international journals does not reflect appropriately such efforts. ERCE researchers are encouraged to make more use of peer-reviewed publications in order to increase visibility of their work and find a larger audience in the eco-engineering society. The use of the Ecohydrology & Hydrobiology journal should also be reconsidered in light of the pending application to obtain the Impact Factor, which seems to be a major limiting factor in the appropriation of the journal as communication tool within the UNESCO Ecohydrology Demonstration Projects and the scientific community at large.

Research at ERCE has evolved considerably since the beginning of the mandate, with the introduction of socio-ecological components. ERCE has to push further in this evolution in order to fully implement ecohydrology as a tool. Rapid changes associated to the acceptance of the ecohydrology concept took place during the last few years, with ecohydrology becoming gradually an accepted tool embedded in the initiatives for the assessment of ecosystem services and green infrastructure. ERCE should take advantage of its achievements and develop further the horizontal character of its approach. This can be obtained by strengthening the socio-ecological components of its research as integrator of current activities. It would permit ERCE to take a more ambitious role as contact point for national and international initiatives in the field. ERCE should also consider expanding its competences by adding capacities both for spatial assessments (e.g. GIS multi-scale mapping) and economic analyses of ecosystem services. This would attract more attention of decision makers and trigger support for implementation projects.

The management of ERCE showed to be able to attract brilliant young researchers, the driving force behind the achievements, build up confidence of the people and develop them. ERCE has been active to form specialized professionals and strengthen the connection across Europe and with third countries in the area of ecohydrology, e.g. the UNESCO centres in Portugal and Indonesia. The

proximity of ERCE to the premises of the Lodz University has facilitated the identification of good students, which shows the importance of operational links with the Faculties. A formal cooperation agreement could enhance and secure long-term cooperation between ERCE and the University.

Looking at the governance of ERCE, it is felt that a more focused and smaller Governing Board would be more effective in providing high-level guidance on how to align the Center's activities with the UNESCO mid-term strategy and priorities taking into account the interest of UNESCO member states.

Recommendations to the Government of Poland

- Make a more extensive use of the trans-disciplinary expertise of ERCE, which represents an opportunity for the country in its achievement of Europe 2020 objectives for a more efficient use of natural resources and for the implementation of Polish aid programmes in developing countries
- Consider enhanced financial support for ERCE activities given the increasing demand for ERCE type of expertise in delivering eco-engineering solutions
- Take appropriate steps including formulation of career progression structures and incentives to attract and keep cutting edge international staff skills in a very competitive international market

Recommendations to UNESCO

- Considering the excellent achievements of ERCE, continue operation of this centre as a key category II centre under the auspices of UNESCO
- Provide necessary support to secure financial resources to deliver UNESCO agenda in developing countries to promote uptake of low cost ecological solutions for water management
- Where appropriate decentralise resources to ERCE to deliver project based mid term strategy outcomes in ERCE's areas of competence in consultation with the member states
- Ensure greater synergies between UNESCO mid term strategy and strategic plans of ERCE in ecohydrology
- Consider providing seed grants for Master and PhD students from UNESCO member states preferably those from the Least Developed Countries to study at ERCE
- Develop knowledge sharing platforms to provide ready access to ERCE products to member states
- Promote networking, collaboration and project based partnerships between UNESCO category-II centres by operationalising new integrated strategy as approved by the 35th session of the General Conference (document 35 C/22).

Programme Description

The European Regional Centre for Ecohydrology (ERCE) is one of the UNESCO's Category-2 water centres in Europe. ERCE started operation in 2006. An agreement between UNESCO and the Government of Poland was signed on 8 March 2006. The objectives of the Centre are to:

- advance ecohydrology through scientific research, publications, international cooperation;
- advance international cooperation and contacts and provide a platform for the exchange of scientific information about Ecohydrology and Integrated Watershed Management (IWM) between institutions worldwide within the framework of the International Hydrological Programme (IHP) of UNESCO;
- provide advisory activities, technical information and training as a basis to develop and implement new integrated methods of water restoration and management;
- develop a network of demonstration sites for the implementation of the ecohydrology concept to improve water resources quality, create positive socio-economic feedback and provide relevant ecosystem services;
- promote advanced scientific research on ecohydrology, monitoring and modeling systems, as well as transfer of knowledge and its implementation in order for water bodies to be ecologically sound, and implement the Water Framework Directive of the European Parliament and of the Council (2000/60/EC), and other EU environment-related legal regulations;
- promote social awareness-raising within the scope of ecohydrology application for integrated management of water resources including: society at large, NGOs and governmental institutions at central and regional levels;
- develop potential and facilities for training, education, dissemination and popularization of scientific achievements.

The key functions of ERCE are listed below:

- conduct experimental and theoretical scientific research;
- conduct education and training courses;
- participate in the UNESCO-IHP networks as a focal point for ecohydrology in the region and support IHP international activities;
- create and reinforce institutional and information networks for the exchange of scientific, technical and policy information at the international level;
- cooperate with government agencies, NGOs, institutions, stakeholders and decision-makers in order to put the results of scientific research into practice;
- spread ecohydrological knowledge through publications, scientific meetings, seminars and scientific conferences;
- promote ecological education and increase public awareness of the links between water systems, biodiversity and sustainable development.

A new Integrated Comprehensive Strategy for Category II Institutes and Centres (document 35C/22) was approved by the 35th Session of the General Conference. According to this strategy it is necessary to carry out a formal review and evaluation before the Director-General can renew the existing agreement. This new strategy applies to all new proposals for the establishment of category II institutes and centres, as well as any renewals of the existing agreements. The relevant articles of document 35C/22 are copied here for ready reference.

A.3 Periodic review and evaluation

A.3.1 The agreement for the establishment of an institute or centre as a category II institute shall be concluded for a definite time period, not exceeding six years. The agreement may be renewed by the Director-General in the light of the review in A.3.2 and the evaluation referred to in A.3.3.

A.3.2 At least six months prior to the expiration of the agreement, the Director-General will carry out a review of the activities of the institutes and of the contribution to the Strategic Programme Objectives of the Organization and the Strategy for category II institutes and centres approved by the General Conference. He will include the results of this review in his report to the Executive Board on the execution of the Programme.

A.3.3 To facilitate the review, the Internal Oversight Service will consider in its planned evaluations of the Strategic Programme Objectives (SPO), the contribution of the relevant category II institutes and centres to the SPO under review.

The evaluation referred to in A.3.3 needs to include an assessment of the activities of the centre and of its contribution to the Strategic Programme Objectives of the Organization and the Integrated Comprehensive Strategy for category II institutes and centres approved by the General Conference. The results of any evaluation conducted by UNESCO's Internal Oversight Service will be submitted to the Executive Board per standard reporting procedures.

Such review and evaluation is also required according to the IHP strategy for UNESCO's category I and category II water-related institutes and centres (177 EX/INF.9).

Evaluation Purpose

The main objectives of such review is to assess performance of the European Regional Centre for Ecohydrology (ERCE) with respect to its terms of reference and contributions to the UNESCO mandates and its Strategic Programme Objectives (SPOs), to provide a valuable element for deciding whether the agreement between UNESCO and the host government should be renewed, and to ensure that the focus and coverage of the activities of the Centre are in line with the strategic objectives of UNESCO. The review/evaluation will have the below main objectives:

- Relevance of ERCE activities to UNESCO's Medium-term Programme priorities (33 C/4 and 34 C/4) especially in the field of Ecohydrology (IHP-VI and VII);
- Results achieved by ERCE, and its contribution to UNESCO's efforts in achieving respective sustainable water and environmental management;
- Quality of coordination and interaction between UNESCO Headquarters, other Water Centres, Field Offices and ERCE's partner entities with regard to planning and implementation of programmes;
- Funding details, mechanisms for securing funds and their risks for sustained institutional capacity, and viability, and quality of organizational management and programme implementation systems adopted by ERCE;
- Identify and propose the needed improvements for the functioning of ERCE;
- Recommend actions necessary to be taken by the host country and UNESCO; and

- Based on the above points recommend whether the ERCE's designation as a UNESCO Category 2 centre should continue or lapse.

EVALUATION SCOPE

In order to meet the purpose of the evaluation described above, the following evaluation parameters shall be considered by two independent evaluators (to be appointed in agreement with ERCE) in the process of designing a detailed analytical framework and writing an appropriate report consistent with the UNESCO reporting mechanisms to the Executive Board.

(a) Relevance of its activities to UNESCO's programmes as mentioned in purpose section

(b) Results achieved

Assess to what extent ERCE has achieved its organizational objectives, which is to promote a conducive atmosphere for collaboration through technology and information exchange, education and science and to increase scientific and technological knowledge about ecohydrology for integrated water resources management.

(c) Quality of coordination and interaction with relevant entities

- Assess the effectiveness of coordination and interaction with UNESCO regional offices, Headquarters (notably with the Water Sciences Division) and Field Offices; and
- Assess the quality of partnerships with other relevant Category-2 Water Centres.

(d) Funding pattern and quality of organisational management

- Analyze the funding patterns, mechanisms and their risks for sustained institutional capacity, and viability;
- Assess the process by which extra-budgetary resources are sought and obtained and to what extent the extra-budgetary funding is aligned to the strategic objectives of UNESCO; and
- Examine the quality of organizational management and the impact of the extent of functional autonomy provided.

Evaluation Methodology

The evaluation team met at ERCE, Lodz, from 16th to the 18th of January 2012. The evaluation team's work was facilitated by Mr Shahbaz Khan Chief, Water and Sustainable Development Section, UNESCO, Paris. The following methodology was used to assess progress of ERCE in relationship with existing agreement with UNESCO.

- 1) Meetings and interviews with the Director, Key Staff and Stakeholders of ERCE (Appendix-1)
- 2) Examination of materials provided by ERCE
- 3) Examination of cash flow and staffing data provided by the Director of the Centre (Appendix-2)
- 4) Analysis of the key achievements in publications, communication, research projects education and training (Appendix-3 to 6)
- 5) Review of ERCE web site and relevant material quoted by stakeholders and other organizations
- 6) Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis to summarise key observations
- 7) Recommendations to ERCE, to the Government of Poland and to UNESCO

Key Findings

A detailed account of key achievements research projects, communications, publications and teaching and training is provided in Appendices 2 to 6 within the framework of the International Hydrological Program especially IHP-VI and VII as well as the existing agreement of ERCE. Key findings on financial and administrative matters are given below:

- ERCE has been working well within available funding resources (around 200,000 to over 400,000 Euros per year) to deliver its roles and responsibilities under existing agreement with UNESCO. However, escalating demands for research and capacity building to deal with environmental issues in Poland and international show the requirement for a secure funding base through core funds from the Government of Poland and extra-budgetary resources.
- ERCE has been able to secure more than significant part of its budget from external funds. These extrabudgetary projects are in full alignment with the strategic objectives of UNESCO IHP.
- ERCE is a highly valued scientific institution. According to the evaluation of research institutes and university faculties in Poland, performed by the Ministry of Science and Higher Education of the Republic of Poland, since its establishment ERCE has always been classified in the first category of the scientific institutes, in the field of biological sciences.

Summary of the key research, education and training and outreach achievements are given below:

Ecohydrology transfer into Policy Strategies

The grand challenge identified in the European Commission Joint Programming Initiative (JPI) “Water Challenger for a Changing World” is to achieve a sustainable water balance for a sustainable economy in Europe and abroad. Prof. Maciej Zalewski as a member of international consortium working on this JPI introduced Ecohydrology Concept to JPI consortium. Since Ecohydrology is based on scientific understanding of the hydrology/biota interplay a systemic approach for how to use ecosystem properties as a new tool for IWRM, JPI consortium included EH into JPI Vision Document which is the first step towards programme implementation.

Ecohydrology transfer to engineering society

On the request of the Institution of Civil Engineers Prof. Zalewski wrote a paper “Ecohydrology for implementation of the EU Water Framework Directive” focused on achieving goals of the WFD using Ecohydrology concept which provides a systemic approach, based on integrated trans-disciplinary science, which should help to accelerate the achievement of “Good Ecological Status” of water bodies as required by the WFD.

Implementation of science

Implementation of science for problem solving is one of the ERCE priorities. Activities on national and international level in this field include:

- Initiation and long-time co-ordination of international network of UNESCO demonstration projects in Ecohydrology (currently two out of three Global Reference Sites in the network of 31 demonstration projects are located in Poland and co-coordinated by ERCE)
- Implementation of technical innovations and system solutions in urban system (the city of Lodz), including policy development and new methods of inter-institutional collaboration
- Implementation of the results of long-term transdisciplinary research in the catchment scale (the Pilica catchment), including implementation of enhanced ecotone zones, co-operation with a multi-stakeholder platform, and elaboration and dissemination of know-how for managing nutrients hot-spots in river catchments (co-financing of Life + EKOROB project)

- Under the umbrella of the Aid Programme for Africa of the Ministry of Foreign Affairs in Poland, Polish Embassy and UNESCO IHP, ERCE developed collaboration with Ethiopian Ministry of Water for incorporating ecohydrological solutions into rural landscape management plan towards prevention of erosion, decline of water and terrestrial biodiversity and maintenance of water cycle in heavily impacted areas. Implementation comprises: establishing of the sequential biofiltering system in the areas of high and low level erosion (Asella, Debre Tabor), plans for transformation of sediments and organic matter into bioenergy and food production (Asella), installations of biodegradable geofibers in the process of soil erosion control (Biofarm Park, Yeha Institute);
- Coordination of networking of key infrastructure for environmental observation, research, and knowledge synthesis, which includes elaboration of the optimal network design for ecosystem studies and advanced monitoring, and establishing common methodologies and protocols for 400 sites of 24 countries of the LTER-Europe Network (co-financing of Life + EnvEurope Project)

International, National and Regional Cooperation

ERCE has been very successful in activating cooperation at international, national and regional level, which, during the reporting period, has translated in the participation in a number of networks. See Appendix 3 for the list of institutions, networks and programmes.

ERCE Publications and Communication

A list of publications published by ERCE from 2006 through 2011 divided as research contributions, magazines, newspapers, interviews and media appearance are reported in Appendices 4. ERCE researchers are encouraged to make more use of publications in international journals in order to increase visibility of their work and find a larger audience in the eco-engineering society.

ERCE is also publishing a journal focusing on the ecology and hydrology of rivers, reservoirs and lakes with special emphasis on the functional interrelations between hydrology and biota from a molecular to the catchment scale. ECOHYDROLOGY & HYDROBIOLOGY publishes original research papers, invited or submitted review papers, short communications, books reviews and special issues highlighting and integrating the new directions of research. ERCE has plans to apply for the evaluation of the Impact Factor, as this is a major limitation for a wider spreading of the journal. The need has also been identified to improve the operating fluency through more use of the web.

Educational and Training Activities

In addition to research activities, ERCE staff is involved in a number of educational and training activities (see Appendix 6 for a full list). Of particular relevance are:

- The ERASMUS MUNDUS Master Course (EMMC) in Ecohydrology (www.ecohyd.org). This is supported by a consortium involving highly experienced Higher Education Institutions (HEI) in this field, as the UNESCO Institute for Water Education (Delft, Netherlands), the University of Lodz (Poland), the University of Algarve (Portugal), the Christian Albrecht University of Kiel (Germany), the National University of La Plata (Argentina), European Regional Centre for Ecohydrology under the auspices of UNESCO (ERCE- UNESCO), (Poland), International Centre for Coastal Ecohydrology (Portugal), Coastal Research and Management (CRM), (Germany), Instituto Nacional dos Recursos Biológicos (Portugal), Institute of Oceanography and Fisheries (Croatia), HIDROEX Foundation International Centre for Education, Capacity Building and Applied Researches in Water (Brazil).

- Lecturing at the University of Lodz and responsibility for M. Sc. And Ph. D. thesis. Researchers from ERCE run lectures in Ecohydrology and related fields for the University of Lodz students on the basis of an agreement with the University. ERCE also participated in the research of a number of Master, Ph. D. and D. Sc. Theses since 2006.
- UNESCO/Poland Co-Sponsored 6-months Fellowships for Africa. Since 2006 ERCE participates in UNESCO/Poland Fellowships for Africa. This programme under the joint sponsorship of the UNESCO and the Polish authorities enables to undertake a postgraduate research study on "Ecohydrology - The New Approach and Methods for Integrating River Basin Management" for water professionals and decision makers from African countries. This also implies hosting of scientists at ERCE.
- Other exchange programmes are carried out within the framework of the project "Ecohydrology - a transdisciplinary science for integrated water resources and sustainable development in Ethiopia", financed by the Ministry for Foreign Affairs.

Key Lessons Learned through SWOT Analysis

The SWOT analysis was carried out by the evaluation team based on the presentations made by ERCE and interviews with the key stakeholders. This analysis focused on technical, human, financial and institutional aspects of ICHARM operations and summary findings are given below.

Strengths

- Small focused team delivering useful products within a short time
- Development and ownership of good tools for environmental management
- Competent staff willing to bring social and integration science areas
- Strong commitment from the Polish Academy of Sciences, University of Lodz and Local Government
- Growing international importance with need for cost and energy efficient solutions for managing water and environment in many parts of the world

Weaknesses

- Local institutional and salary constraints may hinder expansion of operations and appropriate development of human resources
- Lack of financial support and technical inputs from UNESCO leading to solo operation
- Inadequate communication of scientific and policy findings to national and international community – need for a dedicated knowledge broker role, e.g. in the WFD initiatives
- Need to expand disciplinary competences to fully implement the trans-disciplinary mandate that the implementation of the ecohydrology concept requires

Opportunities

- Delivery of integrated solutions in environmental management of aquatic ecosystems by building a greater scientific base in integrated watershed management, social ecology, economics, hydrology and ecology
- Greater use of ecohydrology tools with global and local development organisations, member states and at national level in support to the Polish initiatives for the achievements of Europe 2020 objectives aiming at a more resource efficient society
- Internationally accredited and externally peer reviewed Masters and Doctoral programs in collaboration with other UNESCO centres

Threats

- Likely loss of key staff due to competition from other universities and centres of excellence
- Inability to recruit and retain world class staff due to a lack of competitive incentives comparable to other national and international institutions in a relatively focused field of operations
- Taking over of the concept by other institutions with access to more funding and able to react more quickly
- Slow adoption and implementation of emerging disciplines, such as ecological economics.

Recommendations

Based on the detailed assessment of ERCE, the independent evaluators make the following recommendations to ERCE, to the Government of Poland and to UNESCO.

Recommendations to ERCE

ERCE ensures a mix of research, education and implementation of measures for the restoration of aquatic ecosystems. ERCE is a peculiar institute at the interface between science, policy and landscape management, thus carrying out a horizontal type of research relying upon different disciplines. This does not appear to be easy in an academic environment organized according to classical disciplinary activity. ERCE has been able, however, to establish very good links with the academia and get support from regional stakeholders. This is very important, as the implementation of eco-hydrological measures requires testing at sub-catchment level. To this end, a number of demonstration projects have been put in place. Lessons learnt has been injected into regional and city policy making, as shown for instance by the concept of a Blue – Green network, which is presently considered for implementation within the City of Lodz. The establishment of the Pilica catchment as UNESCO Global Reference site was successfully picked up also by the LTSER international network.

International initiatives to support developing countries by testing low cost solutions for management of aquatic ecosystems are highly praised. This fits well into the UNESCO mandate and shows the capacity of the Institute to mobilize decision makers in government agencies in order to put research into practice. Participation of ERCE in consortia bidding for European-funded research and demonstration projects provided an opportunity for cooperation with peers and as source of funding. Attempts in this direction should be intensified.

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- Develop knowledge sharing platforms to provide ready access to ERCE products to member states
- Promote networking, collaboration and project based partnerships between UNESCO category-II centres by operationalising new integrated strategy as approved by the 35th session of the General Conference (document 35 C/22).

Appendix 1: List of People Interviewed

Day 1: 16 January 2012

Invited guests:

Sławomir Ratajski – Polish Committee of UNESCO
Prof. Czesław Cierniewski – Head of the Polish Academy of Sciences in Lodz
Prof. Stanisław Słomkowski – Director of the Centre of Molecular and Macromolecular Studies of the Polish Academy of Sciences
Prof. Luis Chicharo – International Centre for Coastal Ecohydrology
Dr hab. Paweł Parniewski – Institute for Medical Biology of the Polish Academy of Sciences

ERCE staff presentations:

Prof. Maciej Zalewski - Director
Dr hab. Małgorzata Godlewska
Dr hab. Joanna Mankiewicz-Boczek
Prof. Piotr Frankiewicz
Dr Katarzyna Izydorczyk – Deputy director
Dr Iwona Wagner
Dr Kinga Karuze
Dr Edyta Kiedrzyńska
Dr Magdalena Urbaniak
Dr Agnieszka Bednarek
M.Sc. Kamila Belka
M.Sc. Ilona Gągała, Ph.D. student
M.Sc. Marek Ubraniak, Ph.D. student
M.Sc. Maciek Skłodowski, Ph.D. student
M.Sc. Renata Włodarczyk, Ph.D. student

Day 2: 17 January 2012

Invited guests:

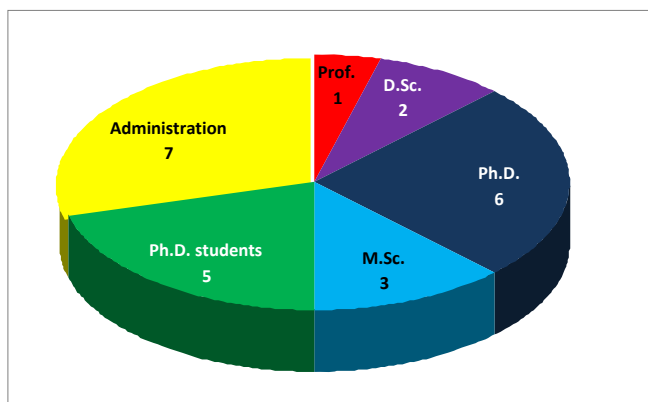
Mr Jacek Skwierczyński – Deputy director, Department of Enterprise, marshal Office of the Lodz Region
Ms Katarzyna Bartolik – Specialist, Department of Enterprise, marshal Office of the Lodz Region
Mr Dariusz Wrzós – Director, department of Environmental Protection, Lodz City Office
Prof. Zbigniew Kundzewicz – Chair of the ERCE Governing Board
Prof. Włodzimierz Nykiel – Rector of the University of Lodz

Appendix 2: Overview of the ERCE Governing Board, Staff and Budget

Governing Board

- Prof. Zbigniew Kundzewicz – Chairman, Research Centre for Agricultural and Forest Environment Polish Academy of Sciences
- Prof. Shahbaz Khan - UNESCO/Division of Water Sciences
- Prof. Marek Gromiec - Institute of Meteorology and Water Management (IMGW)
- Prof. Paweł Jokiel - Department of Hydrology and Water Management University of Lodz
- Prof. David Harper - Department of Biology University of Leicester
- Prof. Luis Chicharo - University of Algarve, Portugal
- Prof. Nicola Fohrer - Ecology Centre, Department of Hydrology and Water Resources Management, CAU Kiel
- Prof. Vladimir M. Timchenko - Institute of Hydrobiology Ukrainian Academy of Sciences
- Prof. Geza Jolankai - Department of Water Resources Research Centre (VITUKI)
- Prof. Olga Gorelits - State Oceanographic Institute of Hydrometeorological Committee of the Russian Federation
- Dr Pascal Breil – IRSTEA (former Cemagref), Hydrology-Hydraulics Research Unit
- Prof. Cedo Maksimovic - Imperial College London
- Prof. Dr Richard D. Robarts - UNEP GEMS/Water Programme Office Environment Canada
- Prof. Artur Magnuszewski - Faculty of Geography and Regional Studies, Warsaw University

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ERCE Staff ERCE staff structure

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14. Ubraniak Marek, Ph.D. student
15. Skłodowski Maciej, Ph.D. student
16. Włodarczyk Renata, Ph.D. student
17. Szklarek Sebastian, Ph.D. student

Administrative staff:

18. Prof. Frankiewicz Piotr
19. Włodarczyk Joanna – Director’s Assistant
20. Rynkiewicz Mariola – Account Manager
21. Małgorzata Niewiarowska – Accountant
22. Belka Kamila – E&H technical editor
23. Kozińska Dominika
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Finance

Financing	2006	2007	2008	2009	2010	2011	ongoing
MNiSzW	539 900 zł	1 204 840 zł	877 411 zł	675 558 zł	951 168 zł	791 812 zł	
PAS	17 000 zł		93 621 zł	178 982 zł	121 750 zł	179 000 zł	
Gov.&Loc.	10 000 zł		354 843 zł	433 056 zł	83 225 zł	189 915 zł	352 541 zł
Int.Pr.	277 636 zł	377 549 zł	349 960 zł	320 547 zł	11 248 zł	27 823 zł	568 804 zł
Nat.Pr.		372 840 zł		254 433 zł	287 425 zł		691 090 zł
C.&E.	107 304 zł	193 854 zł	405 791 zł		76 602 zł	52 390 zł	
in total	951 840 zł	2 149 083 zł	2 081 627 zł	1 862 576 zł	1 531 419 zł	1 240 940 zł	1 612 434 zł
in total (15.01.2012)	216 131 €	487 984 €	472 667 €	422 928 €	347 734 €	281 776 €	366 130 €

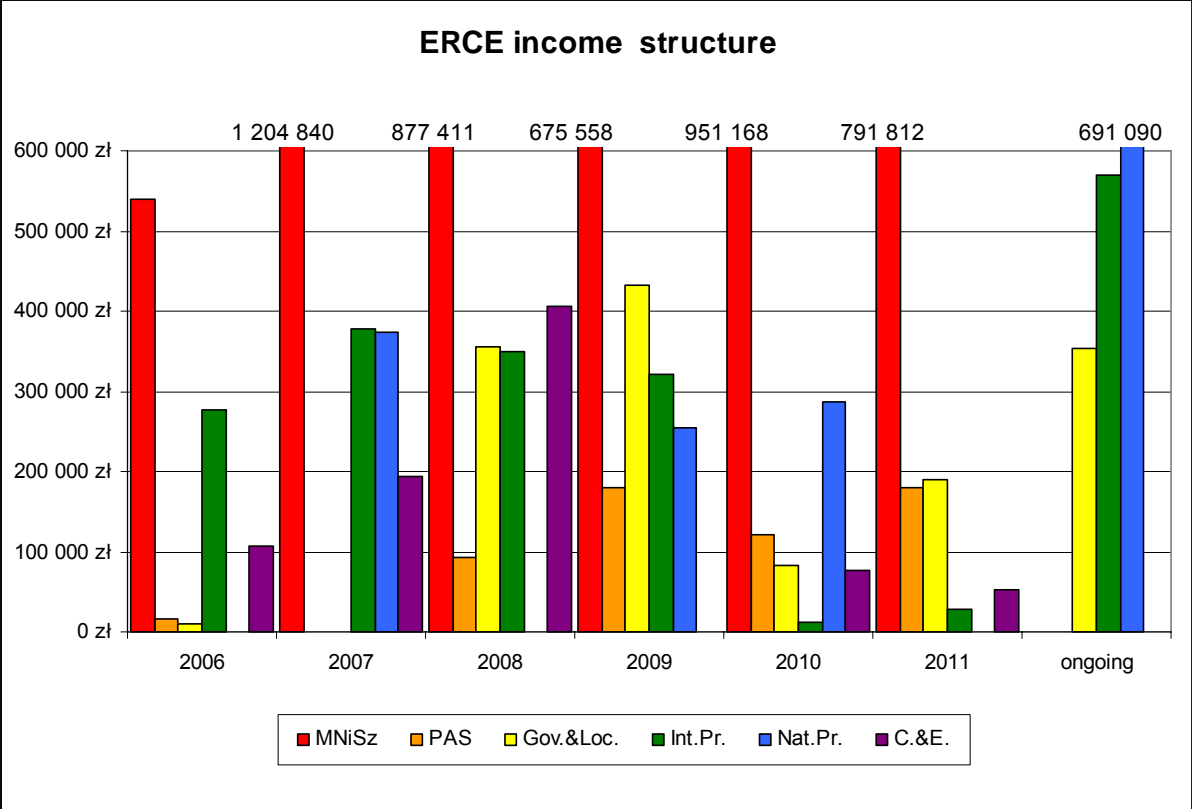
MNiSzW - Ministry of Sciences and Academic Education **Int.Pr.** - International Projects

PAS - Polish Academy of Sciences

Nat. Pr. - National Projects

Gov.&Loc. - Government and Local Administration

C.&E. - Contracts & Expertises



Appendix 3: ERCE Major Achievements

ERCE major achievements

Ecohydrology transfer into Policy Strategies

The grand challenge identified in European Commission Joint Programming Initiative Programme “Water Challenger for a Changing World” is to achieve a sustainable water balance for a sustainable economy in Europe and abroad. Partner countries are convinced that an active policy on common research in Europe can create a strong and coordinated, scientific and economic position in the global water sector. ERCE intend to use this position for the protection and value of water. Findings will be transferable to the rest of the world, including developing countries. Research and development challenges have been identified as pertaining to four categories: economic, ecological, societal and technological.

Prof. Maciej Zalewski as a member of international consortium working on this JPI introduced Ecohydrology Concept to JPI consortium. Since EH is based on scientific understanding of the hydrology/biota interplay a systemic approach for how to use ecosystem properties as a new tool for IWRM, JPI consortium decided to include EH into JPI Vision Document which is the first step towards programme implementation.

After discussions on ecohydrology the JPI document has been changed as follows:

- Chapter 5.2: “Given the increasing worldwide demand for and pressure on water resources, existing technologies are not, in the longer term, adequate to safeguard sustainable development and therefore eco-innovation has to be the key component of future economy. While many impacts environmental impacts can be reduced using existing technologies, new technologies and more cost-effective solutions are always needed.”
- Chapter 5.3: “The aims here are to develop methodological tools, indicators and complex models for monitoring of threats, risk assessment and early warning. It is also envisaged to develop cause-effect and feedback analyses and to enhance and strengthen ecosystem resilience to stress with regards to human pressures. Additional objectives will aim at integrating ecosystem regulation in the management process and at identifying systemic restoration solutions taking into account the good ecological status concept. The target is not to eliminate the threats to ecosystems, but to amplify the control and regulation capacity of nutrients and water cycling at the river basin scale.”
- Chapter 6.6: revision of 6.1 part – Four Research Questions:
 - From “Balancing water demand and supply; Ensuring appropriate water quality and security; Reducing negative environmental impacts; Novel approaches to the design, construction and operation of water infrastructure assets; and Establishment of an enabling framework.”
 - To “The bio-based economy; Sustainable ecosystems; Healthier water system for a healthier society; and Closing the water cycle.”
- Added subchapter 6.4: “Clean water is probably the world's best medicine. Water quality is currently threatened by emerging pollutants. Pollution by municipal and industrial sources, and diffuse pollution from urban and agricultural areas continue to build up pollution levels in the environment. Joint research is necessary to elucidate pollutant effects on human health and ecosystems, and to prevent the entrance of these contaminants in the water cycle. Achieving these goals (which directly derive from the WFD) requires a two-step strategy:
 1. Reduction of pollutants emission (water recirculation, clean technologies, new waste water treatment technologies)

2. Enhancement of the absorbing capacity and self-purification of the landscape and freshwater ecosystems.

The enhancement of resilience should be based on three elements:

1. Synthesis and progress of the research on modification of the water cycle in agricultural and urban areas;
2. Developing research on the implementation of ecohydrology (using ecosystem processes as management tools, complementing technologies); and
3. Developing trans-disciplinary science (ecology, hydrology, socio-economy) for systems approach in IWRM with particular emphasis on ecohydrological biotechnology.

Ecohydrology transfer to engineering society

On the request of the Institution of Civil Engineers Prof. Zalewski wrote a paper “Ecohydrology for implementation of the EU water framework directive” focused on achieving goals of the WFD using Ecohydrology concept which provides a systemic approach, based on integrated trans-disciplinary science, which should help to accelerate the achievement of ‘good’ ecological status of water bodies as required by the WFD.

Implementation of science

Implementation of science for problem solving is one of the ERCE priorities. Activities on national and international level in this field include:

- Initiation and long-time co-ordination of international network of UNESCO demonstration projects in Ecohydrology (currently two out of three Global Reference Sites in the network of 31 demonstration projects are located in Poland and co-coordinated by ERCE),
- Implementation of technical innovations and system solutions in urban system (the city of Lodz), including policy development and new methods of inter-institutional collaboration;
- Implementation of the results of long-term transdisciplinary research in the catchment scale (the Pilica catchment), including implementation of enhanced ecotone zones, co-operation with a multistakeholder platform, and elaboration and dissemination of know-how for managing nutrients hot-spots in river catchments (co-financing of Life + EKOROB project)
- Under the umbrella of the Aid Programme for Africa of the Ministry of Foreign Affairs in Poland, Polish Embassy and UNESCO IHP, ERCE developed collaboration with Ethiopian Ministry of Water for incorporating ecohydrological solutions into rural landscape management plan towards prevention of erosion, decline of water and terrestrial biodiversity and maintenance of water cycle in heavily impacted areas. Implementations comprise: establishing of the sequential biofiltering system in the areas of high and low level erosion (Asella, Debre Tabor), plans for transformation of sediments and organic matter into bioenergy and food production (Asella), installations of biodegradable geofibers in the process of soil erosion control (Biofarm Park, Yeha Institute);
- Coordination of networking of key infrastructure for environmental observation, research, and knowledge synthesis, this includes elaboration of the optimal network design for ecosystem studies and advanced monitoring, and establishing common methodologies and protocols for 400 sites of 24 countries of the LTER-Europe Network (co-financing of Life + EnvEurope Project)
- Designing and implementation of common data and information base system embedded in SEIS and INSPIRE initiatives for LTER-Europe and associated consortia (co-financed by EU EnvEurope and EXPEER projects).

- Elaboration of common system of environmental integrity indicators for tracing human pressures and impacts according to adopted by EEA DPSIR framework (LTER-Europe).

The first category of scientific institutions in Poland in biological sciences

ERCE is highly valued scientific institution. According to the evaluation of research institutes and university faculties in Poland, performed by the Ministry of Science and Higher Education of the Republic of Poland, since its establishment ERCE has always been classified in the first category of the scientific institutes, in the field of biological sciences.

International Cooperation

- BGU, Israel
- Estación Experimental de Aula Dei (EEAD) of the Ministry of Science and Innovation, Spain
- Faculty of Urban Construction and Environmental Engineering, Chongqing University, China - Agreement on Joint Research Centre on Ecohydrology
- International Centre for Coastal Ecohydrology u/a UNESCO
- Institute of Hydrobiology UAS, Ukraine
- Integrated Biofarm Enterprise, Ethiopia
- International Centre for Water Hazard and Risk Management u/a of UNESCO, Tsukuba, Japan
- IRSTEA (former CEMAGREF), Hydrology-Hydraulics Research Unit, France – scientific cooperation
- La Plata University, Argentina
- Laboratory of Aquatic Ecotoxicology, University of Eastern Finland
- Leibniz-Institut für Gewässerökologie und Binnenfischerei
- Leicester University, UK
- Ministry for Water Resources of Ethiopia
- UBA (EEA), Austria
- UFZ, Germany
- UNESCO-IHE Institute for Water Education in Delft, the Netherlands
- University of Algarve, Algarve, Portugal
- University Francois Rabelais, Tours, France
- US Corps of Engineers, USA
- Wien University, Austria
- YEHA Natural Resources Management Institute for Eastern Africa, Ethiopia

National Cooperation

- ARUP (dam construction)
- Council of the National Centre for Research and Development – Maciej Zalewski, member
- Hydroprojekt (dam construction)
- Institute Ecology of Industrial Areas
- Institute for Land Reclamation and Grasslands
- Research Centre for Agricultural and Forest Environment PAS
- Institute Meteorology and Water Management

- Lublin Technical University
- Mickiewicz University of Poznan
- Ministry of Environment, Poland
- Ministry of Foreign Affairs, Poland (Polish Aid Programme in Ethiopia)
- Ministry of Sciences and Higher Education, Poland
- National Council for Water Management – Maciej Zalewski, board member
- National Water Management Authority
- Regional Water Management Board in Warsaw, Poland

Regional Cooperation

- Lodz University
 - Department of Applied Ecology
 - Faculty of Law and Administration
 - Faculty of Geography
 - Faculty of Management
- Lodz Technical University
- Lodz Medical University
- Institute for Medical Biology of the Polish Academy of Sciences
- Centre of Molecular and Macromolecular Studies of the Polish Academy of Sciences
- Entrepreneurship and Economic Development Research Institute
- Institute of Biopolymers and Chemical Fibers in Lodz
- Department of Textile Technology, Institute for Exploitation Technologies
- AquaProjekt (stormwater purification system construction)
- Nofer Institute of Occupational Medicine in Lodz – M.Zalewski member of the Scientific Board
- The City of Lodz Office
 - The President’s Advisory Board - M.Zalewski
 - Department of Environmental Protection and Agriculture
 - Department of Public Utilities
- Office of the Lodz Province
 - The Strategic Planning Commission - M.Zalewski member
- Regional Agency for Environment Monitoring and Protection
- Research Institute of Horticulture in Skierniewice

Networks and Programmes

International Networks:

- ALTER Net (A Long Term Biodiversity, Ecosystem and Awareness Research Network) Network of Excellence, 6th FP EU
- AlterNet 2 Consortium

- LTER Europe (A Long Term Ecological Research Network); Vice-Chair Kinga Krauze
- ILTER (International Long Term Ecological Research)
- Ebone: European Biodiversity Observation Network - Member of advisory committee; Kinga Krauze

International Programmes:

- UNESCO IHP – member of the Special Task Force for IHP-VIII, Maciej Zalewski
- UNESCO IHP Ecohydrology Programme - member of the Scientific Steering Committee, Iwona Wagner
- UNESCO Ecohydrology Programme
- UNESCO-IHP Demosites, Iwona Wagner
- UNEP GEMS Water Programme, Maciej Zalewski, Iwona Wagner
- UNESCO HELP, Iwona Wagner
- UNESCO Man and Biosphere, Maciej Zalewski
- European Commission Joint Programming Initiative “Water Challenges for a Changing World” – Maciej Zalewski polish representative
- InterAcademy Water Programme (IAP) – coordination IAP in Europe, Maciej Zalewski

International Organizations:

- SIL - International Society of Limnology
- ESFRI – European Strategy Forum on Research Infrastructures - Maciej Zalewski

Polish Networks/Consortiums:

- BioTechMed - Advanced Technology Centre
- “Green Future” – concept and coordination of scientific cooperation between academic and research institutions from Lodz city and Lodz region

Appendix 4: ERCE Publications and Communication

The International Journal ECOHYDROLOGY & HYDROBIOLOGY

ECOHYDROLOGY & HYDROBIOLOGY publishes papers concerned with ecology and hydrology of rivers, reservoirs and lakes with special emphasis on the functional interrelations between hydrology and biota from a molecular to the catchment scale.

ECOHYDROLOGY & HYDROBIOLOGY publishes:

- Original research papers
- Invited or submitted review papers
- Short communications
- Books reviews
- Occasional special issues highlighting and integrating the new directions of research

Bibliographically the International Journal ECOHYDROLOGY & HYDROBIOLOGY originates from two journals of a similar scope: *Polskie Archiwum Hydrobiologii* and *Acta Hydrobiologica*. The editors will continue the scope of these journals by considering the high quality publications from the field of hydrobiology.

ECOHYDROLOGY & HYDROBIOLOGY is covered by:

- Master Journal List - ISI-Thomson Scientific
- Zoological Records - BIOSIS (USA; CAB Abstracts and Global Health - CAB International)
- Water resources - CSA
- Bibliographic Databases - Elsevier Science
- FishLit - NISC (South Africa)
- Life Sciences - NISC (USA)
- Polish Scientific Journals Contents

Articles, chapters, books

2011

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- Gągała I., Izydorczyk K., Jurczak T., Mankiewicz-Boczek J. The Key Parameters and Early Warning Methods to Identify Presence of Toxigenic Blooms dominated by *Microcystis aeruginosa* in the Jeziorsko Reservoir (Central Poland). FEB (Accepted for publication).
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Policy documents and advice:

- Assessment of ecosystems condition of the New Gdynia reservoir and formulation of the solution system to diminish eutrophication processes.
- The risks of flooding and environmental characteristics of the Zimna Woda valley in Lodz, at a distance from the spring of the stream to its mouth - environmental part.
- Recommendations for the City of Lodz Spatial Plan, developed jointly with the local authorities, approved and included into the “Study of Conditions and Recommendations for Directions of the City of Lodz Development”, related to:
 - sustainable stormwater management based on urban ecohydrology concept;
 - implementation of the Blue-Green Network concept.

- Instructions to the Study of Conditions and Directions for Spatial Planning in the City of Łódź for sustainable stormwater management and landscape planning
- Elaboration of recommendations on “Needs and possibilities for introduction of stormwater fees in Łódź”
- Elaboration of concept and plan for “The ecohydrological background for the restoration of the Sokołówka river” for the City of Lodz

ERCE in magazines and publications:

- THE PARLIAMENT, Politics, policy and People Magazine of European Commission ,“The Green Week Issue”, no 328, 16 May 2011.
Information about Life+ Projects EKOROB.
- THINKTANK DOSSIER, Ethiopia-Poland – A History of Bilateral Relations. Embassy of the Republic of Poland in Addis Ababa, Ethiopia 2011.
Information about Polish Aid Program on Ecohydrology in Ethiopia

Newspaper articles about ERCE activities:

- In issue of Gazeta Wyborcza (October 11, 2009) an Aleksandra Hac’s article appeared on the City water Forum” in Delft “We are helping the world to care about water”.
- In issue of Gazeta Wyborcza (September 25, 2009) an Aleksandra Hac’s article appeared on the improvement of Arturówek bathing site “ Arturówek will be clean again”.
- In issue of Gazeta Wyborcza (September 20, 2009) an Aleksandra Hac’s article appeared on the Advance Study Course on Ecohydrology in Lodz “ They showed how to do river in Lodz”.
- In issue of Gazeta Wyborcza (September 09, 2009) an Aleksandra Hac’s article appeared on the management of storm water in Lodz “We will pay for storm water runoff”
- In issue of Gazeta Wyborcza (September 08, 2009) an Aleksandra Hac’s article appeared on the management of storm water in Lodz “Don’t want to pay for storm water? Use it!”
- In issue of Gazeta Wyborcza (August 27, 2009) an Aleksandra Hac’s article appeared on the renaturalization of Lodka river. The article is available here: http://miasta.gazeta.pl/lodz/1,35136,6973584,Czy_Lodka_moze_byc_znowu_rzeka_.html
- In issue of “Dziennik Polonii w Kanadzie (August 26, 2009) an article about the Stockholm “water Week” conference – Łódź – city of the future.
- In issue of Ekspres Ilustrowany (August 9, 2009) and Monika Pawlak’s article appeared on the recreational potential of Lodz. The article is available here: <http://lodz.naszemiasto.pl/wydarzenia/1033694.html>
- In issue of Ekspres Ilustrowany (August 3, 2009) and Monika Pawlak’s article appeared on the recreational potential of Lodz.
- In issue of Gazeta Wyborcza (August 2, 2009) an Aleksandra Hac’s article appeared on the Żabieniec bathing site “The cleanest Lodz’s pond will occur in a year” .
- In issue of Gazeta Wyborcza (July 31, 2009) an Jakub Wojtczak’s article appeared on the improving of Arturówek bathing site. The article is available here:

http://miasta.gazeta.pl/lodz/1,35153,6882952,Nowe_oblicze_Arturowka_Za_1_5_ml_euro.html

- On Gazeta Wyborcza „Spacerownik” (July 18, 2009), two articles of Aleksandra Hac about Sokolowka river appeared. „Sokołówka can be a river again” and „The walk along the river”. Articles are available here: <http://bi.gazeta.pl/im/2/6744/m6744312.pdf>
- On Web portal „Project Lodz” (June 30, 2009) an article appeared on improving of Stawy Stefańskiego bathing site. The article is available here: <http://www.projektlodz.pl/aktualnosci/1/788>
- In Lodz’s edition of the “Ekspresu Ilustrowanego” Bohdana Dmochowski’s article appeared about the project of renaturalization of Sokolowka river. An article is available here: Odkopią Łódzkie Rzeki_19 czerwca 2009 <http://lodz.naszemiasto.pl/wydarzenia/1014128.html>
- An article on storm water management appeared on journal “Piotrkowska 104” in issue 5 (72) published by The city of Lodz Office. An article is available here: http://uml.lodz.pl/_plik.php?id=4901
- In issue of Gazeta Wyborcza (May 4, 2009) an article appeared on the revitalization of Sokolowka River. The article is available here: http://woda.org.pl/e107_plugins/content/content.php?content.1657
- In issue of Gazeta Wyborcza (May 3, 2009) an article of Aleksandra Hac appeared on the revitalization of Sokolowka River “ Bath in city reservoir will be possible in a year”.
- In issue of Gazeta Wyborcza (April 6, 2009) an Aleksandra Hac’s article appeared on the creation of new parks in Lodz. The article is available here: <http://szukaj.wyborcza.pl/archiwum/1,0,5291394.html?kdl=20090406LO-DLO&artTyp=zwykly&wyr=nowe%2Bparki%2B>
- An article on revitalization of Jasien River Valley appeared on journal “Piotrkowska 104” in issue 3 (70) published by The City of Lodz Office. An article is available here: http://uml.lodz.pl/_plik.php?id=4684
- In issue of Gateza Wyborcza (March 6, 2009) an Aleksandra Hac article appeared on the Blue Green Network : Beton Blocks in Blue Green Network.
- In issue of Gazeta Wyborcza (March 5, 2009) an Barbara Gortat’s article appeared on the Blue-Green Network. The article is available here: http://uml.lodz.pl/_plik.php?id=5042 .

Interviews and media appearance:

Prof. M. Zalewski participated in over 20 radio auditions and in 10 national TV programs and over 20 regional TV programs as a water expert.

Films realized by ERCE:

- “Engineering Harmony”, 2006
- “Water for Life” – a 30-minute film on Polish Aid Programme on "Ecohydrology - a transdisciplinary science for integrated water resources and sustainable development in Ethiopia" founded by Ministry for Foreign Affairs of Poland on request of Ministry of Water Resources in Ethiopia. 2008.

- “SWITCH for water and Sustainable Development”. 2008.
- “Ecohydrology in the City of the Future” - a 20-minute film, including information about the Water Management in the Lodz City’. 2009.
- “Grey to Green”. 2010.

Appendix 5: Research and Projects

ERCE research

Hydrobiomanipulation – regulation of trophic cascade by hydrological regime

Hydrobiomanipulation is the water level management in reservoir for regulation on fish recruitment and transfer of this effect down the trophic cascade. The test of efficiency of water level lowering directly after perch spawning period was investigated in two variants (40cm and 24cm reduction) during two years in large reservoir. Comparison obtained results with long-term relationship between total phosphorus concentration in reservoir and intensity of toxic cyanobacterial bloom in summer showed that regulation of water level to control YOY fish densities and reduction impact on filtering zooplankton led to decreased cyanobacterial biomass to level, which was characteristic for twice lower phosphorus concentration than was observed. Presented results showed that hydrobiomanipulation may be an important method of using ‘top-down effect’ in reservoir to reduce eutrophication symptoms, complementary to biomanipulation.

International & Bilateral Projects

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	IAP-LTER										
2	Hungary										
3	ENVEurope										
4	EKOROB										
5	EXPEER										
6	IAP										
7	TGR										
8	EH-REK										
9	GPPinfoNET										
10	Czech										
11	FORMAN										
12	SWITCH										
13	BMBF										
14	Polonium										
15	Alter Net										
16	NATO										
17	4 Water										

1. Water, Ecosystem Services and Society - establishing the Collaboration between European Academies of Science under the IAP Water Programme and European Long-Term Ecosystem Research Network. IAP Water Programme. [2011-2012, K.Krauze]
2. Hydroacoustic estimation of fish abundance in shallow lakes using horizontal beaming. Within Agreement between Polish Academy of Sciences and Hungarian Academy of Sciences. [2011-2013, M.Golewska].
3. ENVEUROPE: Environmental quality and pressures assessment across Europe: the LTER network as an integrated and shared system for ecosystem monitoring. [2010-2013, K.Krauze].
4. EKOROB: Ecotones for reducing diffusion pollution. [2010-2014, coordinator: Prof. Maciej Zalewski, principal investigator: Dr. Katarzyna Izydorczyk].

5. EXPEER: Distributed Infrastructure for EXPERimentation in Ecosystem Research. [2010-2014, K.Krauze]
6. Towards Engineering Harmony Between Water, Ecosystem and Society. Strengthening the Collaboration between European Academies of Sciences in the IAP Water Programme". IAP 3240226102/010/013. [2010-2011, coordinator: Prof. Maciej Zalewski, scientific secretary: Dr. Katarzyna Izydorczyk]
7. Mechanisms and Early Warning Techniques of Algal Blooms including Cyanobacteria in the Tributaries of the Three Gorges Reservoir in China. [2010-2011, J.Mankiewicz-Boczek]
8. EH-REK: Ecohydrologic rehabilitation of Arturowek recreational reservoirs (in Lodz) as a model approach to rehabilitation of urban reservoirs. [2010-2014, coordinator: Prof. Maciej Zalewski, principal investigator: Dr. Tomasz Jurczak].
9. GPPinfoNET: The Green Public Procurement Information Network. [2009-2012, I.Wagner].
10. Standardization of hydroacoustic methods for assessment of ecological quality of aquatic ecosystems. Within Agreement between Polish Academy of Sciences and Czech Academy of Sciences. [2009-2011, M.Godlewska].
11. FORMAN - Forest Management and the Water Cycle. [2007-2010, K.Krauze]
12. SWITCH: Sustainable Water Management Improves Tomorrow's Cities Health. [2006-2010, coordinator: Prof. Maciej Zalewski, principal investigator: Dr. I.Wagner].
13. Integrated catchment management and risk- based resource allocation in urban and peri-urban areas. [2006-2007, I.Wagner]
14. Sampling lake fish populations: intercalibration for the Water Framework Directive. [2006-2007, M.Godlewska]
15. ALTER-Net: A Long-Term Biodiversity, Ecosystem and Awareness Research Network. [2005-2009, K.Krauze]
16. Landscape Assessment and Environmental Security –the NATO/CCMS. Pilot Study on the Use of Landscape Sciences for Environmental Assessment. [2001-2007, K.Krauze].
17. Initiative 4 Facilitating Integration of Research Potential from the New Member States, Associated Candidate Countries and Old Member States in the Area of Water Cycle Including Soil Related Issues of the FP6 a relevant priority of FP7. [2005-2006, coordinator: Prof. Maciej Zalewski, principal investigator: Dr. I.Wagner].

National Projects

		2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	ARUP										
2	red points										
3	viruses and bacteria										
4	Western Poland										
5	BGN										
6	Ethiopia										
7	Jeziorsko										
8	Dioxins										
9	ecotoxicological										
10	Planktothrix										
11	LORIS Wizja										
12	monitoring of hepatotoxic										
13	Sulejow										
14	Mycorriza										

1. Vistula Study project. [2010-2015, M.Zalewski]
2. Analysis of point sources pollution of nutrients, dioxins and dioxin-like compounds in the Pilica River catchment and draw up of reclamation methods. [2010-2013, E. Kiedrzyńska].
3. Explanation of cause-effect relationships between the occurrence of toxinogenic cyanobacterial blooms, and abiotic and biotic factors with particular emphasis on the role of viruses and bacteria. [2010-2012, J. Mankiewicz-Boczek]
4. Ecology and toxicity of cyanobacteria *Cylindrospermopsis raciborskii* and *Aphanizomenon gracile*, potential producers of cylindrospermopsin, in selected lakes of Western Poland. [2009-2011, J. Mankiewicz-Boczek].
5. Blue – Green Network for management of environmental sites and improvement to water resources for functional and spatial management of city’s resources. [2009-2010, M.Stolarska]
6. Ecohydrology - a transdisciplinary science for integrated water resources and sustainable development in Ethiopia. Project financed by the Ministry for Foreign Affairs Republic of Poland. [2008-2011, coordinator: Prof. Maciej Zalewski, principal investigator: Dr. Magdalena Urbaniak]
7. Estimation of health risk from toxic cyanobacterial blooms in summer season, in Jeziorsko Reservoir [2007-2009, J. Mankiewicz-Boczek]
8. Accumulation of dioxins and dioxin-like pollutants in the food chain of Sulejowski and Wocawski Reservoirs: chemometric analysis and toxicological estimation. [2006-2009, M. Urbaniak]
9. The complex ecotoxicological analyses of rivers. [2006-2009, J. Mankiewicz-Boczek].
10. Phenotypic diversity and toxicity of invasive cyanobacteria occurred with *Planktothrix agardhii* (Gom.) Anagn. et Komarek blooms in hypertrophy lakes of Wielkopolska. [2006-2009, J. Mankiewicz-Boczek].

11. LORIS WIZJA – Regional Technological Foresight. The Sectoral Operational Programme ‘Improvement of the Competitiveness of Enterprises’. [2006-2008, M.Zalewski]
12. Application of molecular methods for monitoring of hepatotoxic strains of cyanobacteria in drinking and recreational water of Poland. [2004-2007, J. Mankiewicz-Boczek].
13. The analyse of spatial and temporal dynamics of hydrological and microbiological determining sediments quality in the Sulejow Reservoir in aspect of their agricultural usage. [2004-2007, dr K. Izydorczyk]
14. Role of mycorrhizal plants of Pilica river floodplain communities in reduce of nutrients transport on land/water ecotone. [2004-2006, B. Sumorok]

Appendix 6: Education and Training

Educational activities

M.Sc. in Ecohydrology

The ERASMUS MUNDUS Master Course (EMMC) in Ecohydrology (www.ecohyd.org) is a unique international master course focusing on a new vision for aquatic ecosystems restoration and long-term sustainability.

The Ecohydrology EMMSc is supported by a consortium build on highly experienced Higher Education Institution (HEI) in this field, as the UNESCO Institute for Water Education (Delft, Netherlands), the University of Lodz (Poland), the University of Algarve (Portugal), the Christian Albrecht University of Kiel (Germany), the National University of La Plata (Argentina), European Regional Centre for Ecohydrology under the auspices of UNESCO (ERCE- UNESCO), (Poland), International Centre for Coastal Ecohydrology (Portugal), Coastal Research and Management (CRM), (Germany), Instituto Nacional dos Recursos Biológicos (Portugal), Institute of Oceanography and Fisheries (Croatia), HIDROEX Foundation International Centre for Education, Capacity Building and Applied Researches in Water (Brazil).

The ECOHYD master wants to go beyond the level of monitoring and sensing only the state of the aquatic environment, a real transdisciplinarity is the goal. An approach that dissolves boundaries between disciplines such as ecology, hydrology, engineering and socio-economy with the purpose of achieving new insight to understanding the nature of the effects of the human and natural impacts in aquatic ecosystem. This is essential to developed and propose remediation and restoration scenarios to the society and to the stakeholders. This approach needs theories and methods which exist independently of several disciplines and applying them to understand different thematic areas. The role of ecosystem engineering, e.g. dams freshets to control eutrophication or the role of mangroves restoring fisheries and small vegetations barriers constructions, in people protection against natural calamities are examples of the need of a deep integration of major themes of Ecohydrology approach.

The EMMC in Ecohydrology considers Four MODULES (thematic areas):

(1) UNDERSTANDING FUNCTION, PROCESSES AND THREATS OF AQUATIC ECOSYSTEMS, FRESHWATER AND MARINE SYSTEMS (30 ECTS)

This module deals with the aspects of functioning and processes in aquatic ecosystems. Such knowledge is fundamental to understand changes in the ecosystems and the driving forces, both of impacts and for solutions. Thus, this module integrates aspects of ecosystem dynamics and also considers the human dimension, both as source and solution for aquatic degradation.

(2) TOOLBOX FOR APPLYING ECOHYDROLOGY: ENVIROMENTAL IMPACT, MODELLING, SOCIOLOGY, MANAGEMENT AND AQUATIC ENGINEERING (30 ECTS)

Module 2 aims to familiarize students with practical tools needed to implement the ecohydrologic approach, as modeling or remote sensing training, ecosystem restoration techniques, data and Information management or participatory process tools.

(3) DEVELOPMENT OF PERSONAL SKILLS AND RESEARCH PROJECT IMPLEMENTATION (15 ECTS)

This module aims to help students to improve their skills in particular areas or to develop some particular interests they may have. Within this module students may choose from basic training in native language of the country of the host university or get training in scientific communication, among other options.

(4) INTEGRATION AND SPECIALIZATION IN MANAGEMENT OR ENGINEERING OF AQUATIC ECOSYSTEMS (15 ECTS COURSES + 30 ECTS THESIS =45 ECTS)

Students should gain 15 ECTS in this module with courses in management or engineering. Within this module students will choose a research project valuing 30, as a final step for granting the Master Degree.

Lectures at the University of Lodz

Researchers from European Regional Center for Ecohydrology run lectures for the University of Lodz students on the basis of Cooperation Agreement between ERCE and University of Lodz in Ecohydrology and related fields. Lectures on:

- Ecohydrology
- Urban Ecohydrology
- Applied Ecology
- Ecology Fundamentals
- Environmental Monitoring
- Integrated Water Resources Management
- Ecological Biotechnologies

M.Sc. thesis

On the basis of cooperation with Department of Applied Ecology University of Lodz, ERCE participated in research of the following Master Thesis since 2006

- Analysis of the Bzura River and Arturowek reservoirs water quality threats for ecohydrological rehabilitation.
- Application of denitrification walls for preventing of ground water in rural area.
- Application of direct toxicity tests and soil activity studies for soil quality assessments from areas recultivated by willows.
- Application of geofibres for intensification of denitrification process in order to reduce nitrogen pollutions.
- Application of nucleic acids as the indicator in analysis of ecohydrological processes.
- Causes and consequences of eutrophication of Stawy Stefański Pond in Lodz.
- Comparison of the influence of planktonic and benthic filtrates on nutrient dynamics and phytoplankton succession.
- Determination of chemical composition, doses and usefulness of bottom sediments from Sulejow Reservoir used for fertilization.

- Determination of influence of land covers in sub catchments of Pilica river watershed on the quality of water, based on the GIS technique and CORINE data base.
- Drivers and pressures of city water resources. Developing a risk-based decision support system for implementation of ecohydrological approach in the City of Lodz
- Dynamic of cyanobacterial blooms in selected water bodies in Lodz.
- Dynamics of ground waters and soil metabolic processes in different types of plant communities on Pilica River flood plain.
- Dynamics of nutrients allocation – ground waters versus vegetation of the Pilica river floodplain.
- Elaboration of geotextile, biodegradable filters for removal of nitrogen and phosphorus pollution from water ecosystems.
- Eutrophication symptoms analysis in Sulejow reservoir.
- Evaluation of groundwater quality in Sulejow reservoir direct catchment and capabilities of its improvement by use of riparian ecotones.
- Exploiting the potential of the Sokołówka's valley vegetation for improving ecohydrological processes, environmental quality and creating friendly public space
- Green areas in the city space structure as a key factor for inhabitants' health.
- Hydrology as the parameter modeling plant communities on degraded peatlands in the Bzura river valley.
- Identification of critical points („red points”) in supply of Pilica and Sulejow Reservoir by nutrients from the indirect catchment for the elaboration of strategy for limitation of their eutrophication.
- Identification of point source contaminants in Sokołówka River valley based on the nitrates concentration and E. coli determination.
- Interpopulation genetic differences of perch, *Perca fluviatilis* L., in selected water bodies of the Central Poland.
- Lagoon exploitation as a chance for increasing the sledge utilization as fertilizer.
- Polychlorinated biphenyls (PCBs) in Ner River sediments and their accumulation in bottom layer organisms.
- Presence of toxigenic cyanobacterial strains in hypertrophic lakes of Wielkopolska Region.
- Recognition of nutrients transport dynamics along the Pilica river and identification of point source pollutions in its catchment for elaboration of a strategy against eutrophication and degradation of water resources.
- Seasonal changes of sedimentation rates and chosen physic-chemical parameters of sediments in Sulejow Reservoir.
- Spatial differentiation of organic matter deposition in sediments of Sulejow Reservoir.

- Sustainable Urban Stormwater Management based on the model analysis BMP'S - the case study of the Sokolowka river catchment.
- The application of ecosystem biotechnologies in protection and recultivation of water resources.
- The determination of nutrient accumulation (N, P) by mycorrhiza plants of Pilica flood plain complexes during vegetation seasons 2005-2006.
- The estimation of the influence of character of ecotone zone of the Pilica river tributaries on the water quality on the basis of teledetection methods and GIS technologies.
- The impact of small impoundments on ecological processes in small lowland rivers.
- The influence of chemical parameters on seasonal changes in microcystins concentration in hypertrophic lakes.
- The influence of diversity of plant communities in different stadium of ecosystem succession on nutrient dynamics in Pilica floodplain area.
- The influence of external and internal nitrogen supply on the phytoplankton biomass dynamics in Sulejow Reservoir.
- The influence of ground water level dynamics on differentiation and stability of plant communities in Sokołówka River Valley.
- The influence of hydrological processes on sedimentation in sediment ponds cascade on Sokołówka River.
- The influence of invasive species, Zebra Mussel, on the dynamics of eutrophication symptoms in water ecosystems.
- The influence of nanoparticles on conditions of aquatic and terrestrial organisms based on ecotoxicological studies.
- The Influence of socio-economic parameters on landscape structure and water quality of the Grabia River catchment.
- The influence of the Pilica river valley's management on water quality in the river.
- The role of bottom sediments in algae community succession.
- The usage of dam reservoir sediments for fertilizing of energetic willow.
- The usage of *Salix viminalis* variants for utilization of sewage sediments of selected complexes in the Area of Limited Use of GOŚ ŁAM.
- The water quality evaluation of the "Arturowek" reservoirs and the Bzura river for their ecohydrological recultivation.
- Role of allotments in the Lodz Blue-Green Network – influence of social and economic factors on the land use practices and their impact on environment quality.
- Variation in cyanobacteria toxicity in selected water bodies of Wielkopolska and Lodz
- Wermicompost of sewage sediments to obtain higher biomass of *Salix viminalis* on experimental plantation of energetic willow in the area of limited use of GOŚ ŁAM.

Ph.D. thesis

On the basis of cooperation with Department of Applied Ecology UL, there have been in ERCE the following PhD thesis completed and ongoing:

- Edyta Kiedrzyńska (2007) - Nutrients retention and flood sediments deposition in the Pilica River valley for the reduction of eutrophication of the Sulejów Reservoir.
- Drobniewska Agata (2008)- Optimization of the use of sewage sludge for bioenergy production based on a large scale experimental willow plantation and mathematical model. Completed
- Urbaniak Magdalena (2009) - Comparative analysis of dioxin and dioxin-like compounds in reservoirs of different types of anthropopressure. Completed.
- Gągała Ilona (ongoing) - Effect of abiotic and biotic factors, with particular emphasis on the role of bacteria in the dynamics of occurrence of freshwater cyanobacteria.
- Urbaniak Marek (ongoing) - Application of geofibers materials in field implementation ecohydrological methods.
- Renata Włodarczyk (ongoing) - Socio-cultural determinants of changes in landscape structure and their impact on the availability of ecosystem services in the Pilica River catchment
- Skłodowski Maciej (ongoing) - Water self-purification processes in streams under high human impact. The use of Ecological biotechnology in reduction biogenes from the lotic water system.
- Sebastian Szklarek (ongoing) - Green roof and green wall impact on the urban environment.

D.Sc. thesis

On the basis of cooperation with Department of Applied Ecology UL, there have been following D.Sc. completed in ERCE:

- Mankiewicz-Boczek Joanna - Diagnosis and prognosis of toxigenic cyanobacterial blooms occurrence to achieve a good ecological status for water.

Training activities

UNESCO/Poland Co-Sponsored 6-months Fellowships for Africa

Since 2006 ERCE participates in UNESCO/Poland Fellowships for Africa. This programme under the joint sponsorship of the UNESCO and the Polish authorities enables to undertake a postgraduate research study on "Ecohydrology - The New Approach and Methods for Integrating River Basin Management" for water professionals and decision makers from African countries.

Goals:

- Ecohydrology - theory and methods for sustainable water resources, ecosystem and society;

- Application of ecohydrology and ecological biotechnologies for watershed management (IWRM);
- Training of trainees from water and environment sectors.

Course Programme:

- Ecohydrology: a sub-discipline of hydrology focused on ecological aspects of hydrological cycle and an integrative system approach for sustainable water resources management.
- Ecohydrology: Implementation of the Ecohydrology concept in Demonstration Projects on Ecohydrology in different regions of the World.
- River Floodplain: Quantification of nutrients retention efficiency on the river floodplain area and management strategy for an eutrophic reservoir restoration.
- Reservoir/Lake: Hydrology as key driver of phytoplankton dynamic in eutrophic reservoir.
- Reservoir/Lake: Application of HPLC technique for monitoring of cyanotoxins.
- Reservoir/Lake: Molecular biology methods in monitoring of threats and early warning in watershed management.
- Reservoir/Lake: The role of filtering zooplankton and benthic filtrators (*Dreissena polymorpha*) in controlling nutrients' pathways in lakes and reservoirs.
- Reservoir/Lake: Hydrological conditions as a driving force of fish community structure and dynamics.
- Catchment: Application of ecological biotechnologies (e.g. ecotones, buffering zones, denitrification wall) for reduction of nutrients and pollutants in agricultural catchment.
- Catchment: Integration of fisheries research and aquaculture into Ecohydrology Framework.
- Catchment: Sinks and sources of organic pollutants to aquatic biota.
- Catchment: Implementation of Urban Ecohydrology – “Blue-Green Network” for human health, quality of life and economic efficiency.
- Urban catchment: Sewage sludge conversion in to bioenergy by phytotechnology.

ERCE hosted:

- Mr Paulo Lohalo Rostha from Faculty of Sciences University of Kinshasa, Democratic Republic of Congo;
- Mr Addi Shuaib Olorunoje from Federal Ministry of Water Resources, Nigeria;
- Mr Issam Machmachi Department of Geography Med V University-Rabat, Morocco;
- Mr Ephrem Legesse Zewdie from Ministry of Water Resources, Ethiopia;
- Mr Yohannes Zerihun from Ministry of Water Resources, Ethiopia;
- Mr Lupakisyo George from the Mbeya Institute of Science and Technology, Tanzania;
- Mrs Genzebe Kebede from Ministry of Water Resources, Ethiopia;
- Mrs Madjiki Adjia Ghislaine, a student from Department of Plant Biology University of Yaounde, Cameroon;
- Mrs Susan Kumwenda, from Malawi.

Other exchange programmes

Within the framework of the project "Ecohydrology - a transdisciplinary science for integrated water resources and sustainable development in Ethiopia", financed by the Ministry for Foreign Affairs, ERCE hosted:

- Mr Tegenu Tsegaye Mekuria from Ministry of Water Resource in Addis Ababa, Ethiopia;
- Mr Mitiku Eshetu Gizaw from Ministry of Water Resource in Addis Ababa, Ethiopia;
- Mr Maru Alem Asegahegn from Amhara National Regional State Bureau Of Water Resource Development Bahir Dar in Ethiopia;
- Mr Abrham Asha Rolke from Water Resources Development Bureau in Awassa;
- Mr Wondwosane Abeje Fenta from Ministry of Water Resource in Addis Ababa, Ethiopia.

On the basis of cooperation with UNESCO-IHE and Department of Applied Ecology UL, ERCE hosted Mr Nicholas Okyere who completed his M.Sc. thesis

On the basis of Cooperation Agreement with University Duisburg-Essen in Germany ERCE hosted for 4th months for an internship Mrs Andrea Kraus.

Conferences

- 5th SWITCH Scientific Conference 2010 "Sustainable Water management Improves Tomorrow's Cities' Health: achievements and way forward", 13-16 October 2010, Lodz, Poland.
- 7th LTER Europe Conference, 21-22 April, Lodz, Poland
- International Symposium "Ecohydrology for water ecosystems and society in Ethiopia". Symposium is organized under the patronage of the Ministry of Water Resources in Ethiopia and financed by Polish Aid. Addis Ababa, Ethiopia 18-21 November 2009.
- International Conference - Ecohydrological Processes and Sustainable Floodplain Management Opportunities and Concepts for Water Hazard Mitigation, and Ecological and Socioeconomic Sustainability. 9-23 May 2008, Lodz, Poland. Under the auspices of International Hydrological Programme UNESCO.
- Opening Symposium of the European Regional Centre for ECOHYDROLOGY under the auspices of UNESCO" 31st May 2006 .

Workshops

- 4th European Regional Workshop of InterAcademy Panel Water Programme "Towards Engineering Harmony Between Water, Ecosystem and Society" 26-27 September 2011, Machern, Germany
- ALTER-Net Workshop: Long term socio-ecological research: What do we know from science and practice? 14-17 June 2011, Helsinki, Finland
- City Water Workshop, 11-12 October 2010, Łódź, Poland

- 3rd European Regional Workshop of the InterAcademy Panel (IAP) Water Programme, entitled 'Towards Engineering Harmony Between Water, Ecosystem and Society', 9-11 September 2010 in Zakopane, Poland.
- 2nd European Regional Workshop of IAP Water Programme on "Ecohydrology and ecosystem biotechnologies: framework and tool for IWRM" was organized as special session during International Conference "Ecohydrological Processes and Sustainable Floodplain Management Opportunities and Concepts for Water Hazard Mitigation, and Ecological and Socioeconomic Sustainability in the Face of Global Changes" under the auspices of International Hydrological Programme UNESCO and InterAcademy Panel Water Programme 19-23 May 2008, Lodz, Poland
- SWITCH training workshop on Learning Alliance Development and Facilitation, 13 May 2007, Łódź, Poland
- 1st European Regional Workshop of IAP Water Programme on "Coupling Surface and Groundwater Research: A New Step Forward Towards Water Management", 28-30 September 2006 in Lodz, Poland.
- Workshop on Modeling and Forecasting of Biodiversity Change in Europe (within ALTER Net framework)

International Advanced Study Course on Ecohydrology

- Advanced Study Course: "Ecohydrology & Biotechnology for Sustainable Integrated Water Resources Management in HELP and Ecohydrology Basins" – 13-20 September 2010 in Lodz, Poland.
- International Advanced Study Course: "Ecohydrology & Ecosystems Biotechnologies in Water Resources Management" on the basis of cooperation with UNESCO. This course was for young scientists, PhD students, practitioners and decision makers from whole world. 12-22 September 2009, Lodz, Poland.
- International Study Course in Ecohydrology for policy makers and stakeholders from Ethiopia. 26-28 October 2008, Addis Ababa, Ethiopia.

Demonstration Activities:

UNESCO EH Global Reference Project

Ecohydrology based urban water management and city planning for human health and sustainable development in City of Lodz, POLAND.

UNESCO IHP Demonstration Projects on Ecohydrology

Pilica River Catchment - "Application of Ecohydrology and Phytotechnology for Water Resources Management and Sustainable Development"

Ner River/WWTP Project:

Exploitation of the existing willow plantation at the Protection Zone of the WWTP in Lodz continued; The biomass was used for bioenergy production

Sokolowka River Project:

The construction of the Żabieniec reservoir, planned for 2009, had to be rescheduled in terms of receiving all of the necessary permits. The building permit obtaining has been apprehended by the objection of the owners of the land situated next to the Sokolowka River bed up the reservoir. None of this objections became accepted.

The accomplishment of formalities and construction of the reservoir is going to be continued after receiving the rejection of objections. The construction is foreseen in 2010.

Elaboration of the concept document for the Sokolowka river bed restoration – including the BMP's guidelines, gained through the SWITCH project duration

Elaboration of a concept and technical project and patenting of the Sequential Sedimentation/Biofiltration System on the Sokolowka river: Sequence method for water biofiltration, specially for seminatural watercourses, and sequence system form water biofiltration, specially for seminatural watercourses.

Planting activities in the protective zone of the Teresa Reservoir were not continued due to achieving an advanced stage of the succession of vegetation and change into a sustainable self-maintained stage;

Technology

Elaboration of a concept and technical project and patenting of the Sequential Sedimentation/Biofiltration System on the Sokolowka river: Zalewski M., Frątczak W. 2009: "Technical project for the concept of the detention pond modernization"; Patent application number P.390099 [WIOP ST 10/C PL 390099] – Sequence method for water biofiltration, specially for semi-natural watercourses.

Participation in meetings and conferences

- The 2nd Conference on Healthy Rivers and Sustainable Water Resource Management, 19-24 October 2011, Chongqing, China, Keynote Speaker, ERCE as a coorganizer
- POLEKO 2011 - Innovations in water and sewage management. 23 November 2011. "JPI on Water – opportunities and challenge for Poland", M.Zalewski, Invited Lecture
- ECOHCC11: International Conference on Ecohydrology and Climate Change, 15-17 September 2011, Tomar, Portugal, M.Zalewski, Plenary Lecture
- Istanbul International Water Forum. IWRM in the Face of Climate Change, 3-5 May 2011, Istanbul, Turkey, M. Zalewski, Invited Speaker
- International Conference on the Status and Future of the World's Large Rivers Vienna, 11-13 April 2011, M. Zalewski Invited Speaker,
- International Workshop on UNESCO new Ecohydrology Demonstration Site Projects, "Ecohydrology for managing sustainable water futures", Jakarta, Indonesia 21-23 March 2011, M. Zalewski, Invited Speaker
- International Symposium on Flood Pulsed Wetlands, 1-5 February 2010, Maun Botswana; I. Wagner, Co-chairman

- 6th Study Conference on BALTEX, 14-18 June 2010, Międzyzdroje, Island of Wolin, Poland; M. Zalewski, Invited Lecture
- 4th BALWOIS scientific conference on Water Observation and Information System for Decision Support, 25-29 May 2010, Ohrid, Macedonia; K. Izydorczyk, Co-chairman
- 19th Intergovernmental Council IHP, 5-8 July 2010, Paris, France. M.Zalewski presentation IHP Phase VIII (2014-2019) concept.
- Bio-Economy Africa-Forum 2010: a Knowledge Sharing Forum on a Novel Approach to Sustainable livelihood, Wealth Creation and Climate Change Adaptation, Zalewski M., Invited Speaker
- BioForum 2010: Międzynarodowe Targi Sektora Biotechnologii, Farmacji i Life Science. 05 maja 2010, Łódź
- World XXXVIII IAH Congress on "GROUNDWATER QUALITY SUSTAINABILITY", Joint IAH-UNESCO session "Interactions of Surface and Groundwater", 12-17 September 2010, Kraków. M.Zalewski Plenary Lecture At Opening Session
- Conference on Aquatic Ecosystems under Global Change (EcoChange) Sept. 8th – 13th 2010, Kiel, Germany
- Hydrocomplexity: New Tools for Solving Wicked Water Problems. Paris, UNESCO.
- NORDIC WATER 2010. The XXVI Nordic Hydrological Conference. Hydrology: From research to water management. 9-11 VIII 2010, Ryga
- 8th International Conference on Toxic Cyanobacteria (ICTC8). 29th August – 4th September 2010, Istanbul, Turkey
- The II International Meeting on Revitalization of Rivers; Belo Horizonte, Brazil
- Assessment of Freshwater Ecosystems under Climate Change (EcoChange), Kiel, Germany
- The Research Workshop: Managing Risks in Aquatic Systems: Effects of Climate Change and Anthropogenic Activity, Niagara Falls, Canada
- AlterNet Seminar Ecosystem services and biodiversity: What is the link between the two? Wien, Austria
- VII konferencja Naukowo-Techniczna „Ochrona i rekultywacja jezior” 7-9 października 2010, Toruń
- Międzynarodowa Konferencja „Rolnictwo – głównym źródłem eutrofizacji morza Bałtyckiego” 3-4 listopada 2010, Warszawa
- Underwater Acoustic Measurements: Technologies & Results. 3rd International Conference and Exhibition.; 2009 Greece; M. Godlewska;
- The ALTER Net Final Conference, 2009 Leipzig.; Germany; K. Krauze;
- International symposium "Ecohydrology for water ecosystems and society in Ethiopia". 18-20 November 2009. Addis Ababa.; Ethiopia; Convenor, M. Zalewski;
- Conference "Dioxins in industry and environment" 4-5 June 2009.; Poland ; M. Urbaniak;

- International Water Association: Water Convention - Singapore International Water Week 2009, IWA Cities of the Future Visioning Workshop, 2009 Suntec Singapore.; Singapore;
- UNESCO IHP International Conference: Ecohydrology for the Sustainability in the context of Global Change, 2009 Asunción.; Paraguay;
- World Water Week 2009: Responding to Global Changes: Accessing Water for the Common Good, Stockholm, Sweden. IWA SIWI Workshop: Cities of the Future Public and Private Sector Perspectives on Sustainable Cities.; 2009 Sweden;
- Congress of Polish Hydrobiologists. XXI century - will we run out of water?. 9-12 September 2009; Lublin, Poland;
- 1st German-Polish Conference on Research for Sustainability. Warsaw, Poland, May 2008, M. Zalewski, Invited Speaker;
- International Asia-Pacific Regional Workshop of Inter Academy Panel on Water Security and Groundwater Sustainability, Beijing, China, March 2008, M. Zalewski, Invited Speaker;
- SWITCH IV Scientific Meeting 2009, Delft.; Holland;
- International Conference on International Perspective on Environmental and Water Resources, "Ecohydrology – an interdisciplinary challenge". Organized by UNESCO IHP, 2009 Bangkok.; Thailand;
- Future Lodz Conference, 2009 Dobieszków.; Poland; M. Zalewski, Invited Lecture;
- International Conference on Implementing Environmental Water Allocations, IEWA 2009, Port Elizabeth.; Republic of South Africa; M. Zalewski, Keynote Lecture;
- International Workshop of Geo-Information Techniques & Eco-hydrology for Adapting Global Change, 2009 Beijing.; China; M. Zalewski, Invited Speaker;
- Workshop The Scientific Scope to find Mutual Solutions in Large River Management and Restoration, 2009 Vienna.; Austria; M. Zalewski, Invited Lecture;
- 35th Session of UNESCO General Conference, Paris 12-16 October 2009;
- China-Europa Forum on Healthy Rivers and the Implementation of Sustainable Water Resources Management, 2009 Chongqing.; China; M. Zalewski, Invited Lecture;
- 49th European Congress of the Regional Science Association International ERSA: Territorial Cohesion of Europe and territorial planning, 2009 Lodz.; Poland;
- ILTER Annual Meeting. 18-22 August 2008, Stara Lesna.; Slovakia – K. Krauze
- EURECO - GFOE 2008, "Biodiversity in an Ecosystem Context". 15-19 September 2008, Leipzig.; Germany
- XXVII International Phycological Conference: "Renaturalisation of Aquatic Ecosystems and Algal Communities". 12-15 June 2008, Łódź – Spała.; Poland;
- SWITCH 3rd Scientific Meeting, 30 XI – 4 XII 2008, Belo Horizonte; Brazil;

- 12th Biennial Conference of Euromediterranean Network of Experimental and Representative Basins (ERB) Conference – Hydrological Extremes in Small Basins, September 2008, Kraków, Poland; M. Zalewski, Keynote speaker
- 4th ECRR International Conference on River Restoration. June 2008, Venice.; Italy; M. Zalewski, Keynote Speaker;
- 18th Session of the IHP Intergovernmental Council, Paris, 8-13 June 2008; Maciej Zalewski, Head of Polish Delegation
- Advisors for the Ecohydrology Programme of UNESCO IHP Meeting, Paris 16-18 February 2008;
- Ecopole 07, 16-18 November 2007, Poland, H. Dąbrowska, Presentation
- SEATAC Europe, 20-24 May 2007, Porto, Portugal, Dąbrowska H., Presentation
- International network of urban biospheres: Istanbul workshop. November 2007, Turkey, Drobniewska A., Oral Presentation
- Pierwsza Krajowa Konferencja i Warsztaty Naukowe: Ekotoksykologia w Ochronie Środowiska Glebowego i Wodnego. 14 – 16 X 2007. Puławy, Poland, Drobniewska A.
- Konferencja: Ochrona i Inżynieria Środowiska - Zrównoważony Rozwój, 21-23 czerwca 2007, Kraków, Poland, Drobniewska A.
- The 12th COST 856 meeting: Denitrification: its role in bioremediation. 20-23 May 2007, Zakopane, Poland
- XXIV Hydroacoustic Symposium, May 2007, Poland
- VI Konferencja Naukowo-Techniczna "Ochrona i rekultywacja jezior", czerwiec 2007, Poland
- Hydroacoustic estimates of fish abundance in lakes - what does matter?, Fish Stock Assessment Methods for Lakes and Reservoirs: Towards the true picture of fish stock, September 2007, Czech Rep.
- First Scientific Meeting of SWITCH Project, January 2007, UK
- VI Konferencja Naukowo-Techniczna: Ochrona i rekultywacja jezior. Czerwiec 2007, Poland
- Lahti Science Day, 27 November 2007, Finland
- ILTER Coordinating Committee Meeting. 20-28 August 2007, Beijing, China
- 2nd SWITCH Scientific Meeting, 25-29th November 2007, Tel Aviv, Israel
- ALTER-Net All Parties' Conference, 5-9 January 2007, Majorca, Spain
- Fifth Symposium for European Freshwater Sciences, 8-13 July 2007, Palermo, Italy
- GRRI-D: Grupa Regionalnego Rozwoju Innowacyjnego-Doktoranci, 1 XII 2007, Łódź, Poland
- SIL Congress: Redefining Theoretical and Applied Limnology for the 21st Century, Montreal, Canada, 12-18 August 2007, Canada

- International Symposium: New Directions in Urban Water Management, UNESCO Head Quarters, 11 - 14 September 2007, Paris., Franc2, Zalewski M. Session organizer
- Colloquium on Lakes and Reservoir Management, NAHRIM 2-3 August, Kuala Lumpur, Malaysia, Zalewski, Invited Lecture
- International Water Management Forum - River Restoration: Decision making process and success evaluation, Eawag 4-6 September, Swiss, Zalewski, Plenary Speaker
- 8th Kovacs Colloquium, 2006, France, M. Zalewski
- UNESCO Workshop Urban Aquatic Habitat, Verona 11-16 May 2006, Italy, M. Zalewski
- MAB PHI Seminar on Ecohydrology MAB PHI Seminar on Ecohydrology, Romania, 2006, M.Zalewski
- 4th World Water Forum , Mexico City 12- 22 March , Mexico, Mexico, 2006, M.Zalewsk & I. Wagner
- Zjazd Hydrobiologów Polskich, Poland, 2006, M.Godlewska
- XXIII Sympozjum z Hydroakustyki, Poland, 2006, M.Godlewska
- The Forth PCB Workshop. Recent Advances in the Environmental Toxicology and Health Effects of PCBs, Poland, 2006, H.Dąbrowska
- IV Ogólnopolska Konferencja Naukowa „Bliskie Naturze Kształowanie Dolin Rzecznych”, Poland, 2006, E.Kiedrzyńska
- Fifth FRIEND World Conference, Water Resource Variability: Processes, Analyses and Impacts, Cuba, 2006, E.Kiedrzyńska
- International Conference on Perspective Technologies and Methods in MEMS Design, Ukraine, 2006, E.Kiedrzyńska
- International Conference TCSET'2006 Modern Problems of Radio Engineering, Telecommunication and Computer Science, Ukraine, E.Kiedrzyńska
- 1st Int. Conference of Environmental Toxicology, Greece, 2006, J.Mankiewicz-Boczek
- Conference of International Society for Ecological Economics, Indie, 2006, K.Krauze
- Conference of CCMS NATO Pilot Study on "Biotic indicators of landscape change", Russian, 2006, K.Krauze

Lectures for international organizations and scientific institutes

- Zalewski Maciej; Ecohydrology for Global Change; during Joint Initiative Programme “Water Challenges for a Changing World”, Brussels, 6-7 April 2010;
- Zalewski Maciej; “Advancing towards the Eighth Phase of the International Hydrological Programme” during 19th Intergovernmental Council IHP, 5-8 July 2010, Paris, France;
- Zalewski Maciej; Ecohydrology – trans-disciplinary science for reversing the landscape degradation and „good ecological status” of freshwater and costal ecosystems; ESFRI, Academy of Finland, 15-16 December 2009, Helsinki.; Finland

- Stolarska M., Ecohydrology & GIS Models, IGB Leibniz Institute of Freshwater Ecology and Inland Fisheries, Germany
- Skłodowski M., Ecosystem, biotechnology and buffer zones, IGB Leibniz Institute of Freshwater Ecology and Inland Fisheries, Germany
- Krauze K., SWITCH in city water management for sustainable future. Universidade Federal de Minas Gerais, Brazil
- Zalewski Maciej; Ecohydrology – the system approach for implementing environmental water allocation; Engineer Research and Development Centre, Corps of Engineers, U.S. Army, 23-29 March 2009, Vicksburg. ; USA
- Wagner Iwona; SWITCH LA progress assessment project. Tel Aviv, Israel, 25-30 August, 2008 “LA process in the SWITCH Project and the mid-term assessment”; 25-30 August 2008, Tel Aviv. ; Israel
- Dzięgielewska-Geitz Monika; SWITCH LA progress assessment project. “LA process in Lodz within the SWITCH Project”; 25-30 August 2008, Tel Aviv. ; Israel
- Wagner Iwona; SWITCH Theme 2 meeting on stormwater management “Research Progress and Leeds in the context of stormwater management”; 7-9 July 2008, Essen. ; Germany
- Dzięgielewska-Geitz Monika; SWITCH Theme 2 meeting on stormwater management “Progress of the LA development in Lodz”; 7-9 July 2008, Essen. ; Germany
- Wagner Iwona; SWITCH Training workshop: “Advancing Learning Alliances to increase research impact”.; 26-29 November 2008, Belo Horizonte.; Brazil
- Wagner Iwona; Water Tribune @ EXPO ZARAGOZA 2008. Theme: Water and Cities: Local Governments and Governance, and Urban Development. Teleconference of Cities: Washington, Zaragoza, Lodz, Accra, Delft, Belo Horizonte.; 23 – 27 June 2008, Zaragoza; Spain
- Zalewski Maciej, “Course in Ecohydrology and Ecosystem Management for Decision Makers and Water Managers, Ministry of Environment, Institute of Hydrology, Malaysia, 2007
- Zalewski Maciej “InterAcademy Panel Meeting, 27-31 May 2007, Trieste, Italy
- Izydorczyk Katarzyna “Biotic and abiotic regulations of toxic cyanobacterial bloom intensity”, University of Helsinki Finland, 2007.
- Kiedrzyńska Edyta, “PILICA RIVER DEMONSTRATION PROJECT - Application of Ecohydrology and Phytotechnologies for Water Resources Management and Sustainable Development”, University of Leicester & Allerton Project Center, UK, 2007.