Zał. 2A

Appendix 2

SUMMARY OF PROFESSIONAL ACCOMPLISHMENTS

Dr inż. (M.Eng., PhD) Tomasz Walczykiewicz

Institute of Meteorology and Water Management – National Research Institute

Branch in Krakow

Krakow, 04.07.2014r.

1. Degrees, diplomas, professional qualifications

- **Master of Engineering**, diploma received in 1984 at the Faculty of Hydraulic and Sanitary Engineering (presently called Faculty of Environmental Engineering) of the Krakow University of Technology in Krakow. In the work "*The concept of reservoir construction in Przybyslawice"* a feasibility study, the concept of dam and hydraulic facilities construction on the river Prądnik was formulated.

- **Diploma** (1986) for accomplishing two-semester postgraduate studies of the "Computer methods in water management and engineering" at the Faculty of Hydraulic and Sanitary Engineering (presently called Faculty of Environmental Engineering) of the Cracow University of Technology in Krakow. The studies focused on the programming and use of applications in planning, balancing water resources, and modeling quantitative and qualitative processes in water management.

- **Planning license** (1992), receiving professional background allowing to perform a role of an independent planner in the specialty of construction and engineering of hydrotechnical structures.

- **Qualifications** and license of an expert in water licensing procedures; 2000.

- **Doctor of technical sciences** in environmental engineering, the diploma received in 2003 at the Institute of Meteorology and Water Management in Warsaw. Doctoral dissertation title: "Delimiting special zones for water management with the use of fuzzy taxonomic models", the work written under the supervision of prof. dr. hab. inż. (Prof., PhD, Eng.,) Maciej Maciejewski. The dissertation was honored by the Institute of Meteorology and Water Management Scientific Board.

- **PRINCE2 Certification – Foundation level** (2011). The certificate is an internationally recognized confirmation of substantial knowledge of the PRINCE2 method use in projects management which allow to supervise the project – number of certificate 02438888-01-8VV2.

- **PRINCE2 Certification – Registered Practitioner level** (2013). The certificate is an internationally recognized confirmation of practical knowledge of the PRINCE2 method use in projects management which allow to supervise the project – number of certificate 02737686-01-P8GR.

2. Information on positions held, including employment in

- Employment in the Central Office of Hydraulic Engineering Projects "Hydroprojekt" branch in Krakow from 01.10.1984 to 23.07.1990 in the following positions: trainee, assistant, full-time senior assistant.

- Employment in the Regional Water Management Directorate in Krakow form 23.07.1990 to 15.08.1991 in the following positions: water management senior expert, full-time head of water management unit.

- Employment in the Regional Water Management Board in Krakow from 16.08.1991 to 20.11.2000 r in the following positions: acting director, director, assistant director after the fusion of Regional Water Management Board and Regional Water Management Directorate.

- Employment in the Water Management Office in Warsaw in the position of a full-time chief expert from 21.11.2000 to 26.05.2001 and a part-time chief expert from 27.05.2001 to 31.01.2002, director from 01.02.2002 to 05.03.2002.

- Employment in the Ministry of the Environment from 06.03.2002 to 05.09.2002 in the position of acting director of the Department of Water Resources.

Scientific unit

- Employment in the Institute of Meteorology and Water Management in Warsaw from 01.07.2001 r. to 31.01.2002 in the position of a full-time research and technical matters senior expert.

Scientific unit

- Employment in the Institute of Meteorology and Water Management in Warsaw in the position of a full-time research and technical matters senior expert from 06.09.2002 to 31.10.2003; in the position of a full-time assistant professor from 01.11.2003 to 30.11.2003.

- Employment in the Institute of Meteorology and Water Management Department of Water-Management Systems presently called (Department of Water Management and Water-Management Systems)

3. Academic achievements pursuant to Art. 16 Paragraph 2 of the Act of March 14, 2003 on the Academic Degrees and the Academic Title as well as on the Degrees and the Title within the scope of Art (Dziennik Ustaw – Official Journal of Laws No. 65, item 595, as amended)

The achievement pursuant to the abovementioned act is habilitation dissertation entitled “Risk in the Integrated Water Resources Management”, IMGW Publishing Institute, IMGW Monograph Series, ISBN 978-83-61102-32-8, Warsaw, 2010.

In the habilitation dissertation, I studied water management administration. The management of water, including land and elements dependent on water, should be accomplished on the level of a river basin or subbasin and should employ the four primary principles of the Integrated Water Resources Management (IWRM):

- Promotion of a dynamic, iterative and multisectoral approach to water resources management, including the identification and protection of potential sources of freshwater supply, that integrates technological, socio-economic, environmental and human health considerations;

- planning for the sustainable and rational utilization, protection, conservation and management of water resources based on community needs and priorities within the framework of national economic development policy;

- Designing, implementing and evaluating projects and programmes that are both economically efficient and socially appropriate within clearly defined strategies, based on an approach of full public participation, including that of women, youth, indigenous people, local communities, in water management policy-making and decision-making;

- Identification and strengthening or developing, as required, in particular in developing countries, the appropriate institutional, legal and financial mechanisms to ensure that water policy and its implementation are a catalyst for sustainable social progress and economic growth.

Assumptions

Integrated Water Resources Management means that various ways of waters use are analyzed simultaneously with taking into consideration the relations between them and respecting the principles of sustainable development. It also indicates rejecting the sectoral approach present in water management until now. One of its basic characteristics is the decentralization of the decision making process, which, in consequence, allows to increase the role of local administrative bodies and society in water management. Successful implementation of the IWRM requires not only creating subbasin organizations equipped with adequate competences, but also simultaneous preparation of local administrative bodies in terms of technical issues and personnel as well as preparation of proper mechanisms allowing cooperation on every administrative level. Taking into account the elements that constitute the IWRM principles, in my habilitation dissertation I presumed that the assessment of the achievements or failures in the IWRM requires a multidimensional approach. To assess them, I proposed the formulation of risk definition as the measure of a failure in fulfilling the IWRM principles. I assumed that calculating risk in the IWRM can lead to its better management by a subbasin administration thanks to adequate planning of actions and their territorial diversity and optimization resulting from the magnitude of calculated risk.

In the habilitation dissertation I accepted that risk R^i quantified in the IWRM in a particularly defined area *i* is a function of two measures representing two areas that determine its size. The first is represented by the pressure measure – M^i_p, that is an aggregated measure representing the pressure index resulting from man's economic activity. The second is represented by the sensitivity measure - M^i_w, that is aggregated measure representing pressure sensitivity resulting from physical, environmental, economical, and societal indices.

In the case of pressure measure, I classified the indices into the following groups:

- index of the municipal services;
- index of industry;
- index of agriculture.

Accordingly, for sensitivity measure, I classified the indices into the following groups:

- water resources management indices relating to coordinated process of decision making – quantitatively characterizing the cooperation in terms of water management by local administrative bodies in area unit and catchment administration;
- water resources management indices relating to the flexibility of the decision making process and implementing new technologies – quantitatively characterizing the application of the best practices and technologies in water resource management in area unit;
- aims identification in water managing indices – quantitatively characterizing to what extent the aims in water managing are legible in on the local level and if they fulfill the local needs;
- indices of economical and financial aspects – quantitatively characterizing the legibility of water management financing on the local level, assessment of the implementation of the cost recovery of water services principle in area unit, financial capabilities of staff training;
- indices of organizational and legal frameworks – quantitatively characterizing the presence of local strategy for solving the problems of water management that consists in dealing with them in stages, existence of legal staff introducing the strategy;
- indices of instructions and trainings – quantitatively characterizing the presence of professional training in area unit as well as the functioning of an interdisciplinary staff for the IWRM;
- indices of information and research – quantitatively characterizing the presence of information systems within the range of water management in area unit as well as the contribution of the unit to research;
- indices of monitoring and the role of public sector – providing information on the access of the local authorities to monitoring information and the role of public sector in the process of integrated planning;
- indices of natural potential resulting from natural riches and conditions in area unit – quantitatively characterizing the presence of natural conditions required for the

implementation of the IWRM principles in respect of the population size in the area unit;

- indices of economic potential – indicating the financial potential in area units, initial state of the environment, financial capabilities for the investments of the environment protection range (sector), population wealth and living standards;

- indices of educational potential – indicating the possibilities of ecological attitude shaping through the presence of adequate infrastructure and the age structure of the population of a area unit;

- indices of spatial planning and protected areas – indicating the rationalization of actions in spatial management as well as allowing integrated planning in water management in area units;

- indices of local, social organization, activity and representation – reflecting the presence of local structures occupied with the environment protection that posses plans and programs and which act as potential partners for catchment administration in area units; reflecting their representation in front of catchment administration;

- indices of informatization and telecommunication – reflecting the use of electronic ways of communication in area units allowing the administration of water policy, and information policy associated with it, on a local level;

- indices of the structures of water management on a local level – indicating the state of organizational preparation for the implementation of the IWRM principles in area unit.

I based my reasoning on the assumptions derived from the analyses and researches on the Integrated Water Resources Management as well as my research and experiences from the work in water management administration. They indicate that the assumed aims of the IWRM can be achieved only with a significant involvement of local authorities and communities. Consequently, to determine the risk, the assessment of the degree of this participation and its form as well as technical and methodological preparation is of great importance. It is also crucial to consider local natural environment, socio-economical conditions, and the issues of spatial management. I also assumed that for the pressure and sensitivity calculations the indices may be developed and supplemented with additional information, should new data be available. Suggesting the risk quantification formula $R^i = M_p^i \cdot M_w^i$ at the beginning of the dissertation, I carried out the analysis of the research on risk and uncertainty in water management. Primary assumptions and definitions associated with risk theory, characterization of the problem of Integrated Water Resources Management with examples, conclusions on the research on uncertainty and risks as well as sources of problems were presented in chapter 3, 4 and 5 of the dissertation, giving also justification for research on the proposed method.

Method

In the method of determination of the pressure and sensitivity measures I proposed using the Multidimensional Comparative Analysis (MCA). The problem of assessing the risk and its distribution over a certain analyzed area can be regarded as the problem of spatial information. The origin of the MCA comes from term multidimensional object, used in taxonomic methods and factor analysis. The object is a statistical unit called spatial unit, defined by the value of set of variables. Association of the units is carried out on the basis of aggregate variable, which is resultant from particular indices. The initial and key element of the method is to determine spatial units and create the matrix of spatial observations (information). Two matrixes of spatial observation were defined that they described spatial units: pressure $Q_P = \{P_{11}, P_{12}, \ldots, P_{mk}\}$ and sensitivity $Q_W = \{W_{11}, W_{12}, \ldots, W_{mn}\}$. Then I defined two model spatial units Y_{p0} and Y_{0w} and, consequently, two matrixes of distances that allowed to associate the units corresponding with pressure $E = \{e_{10}, e_{20}, \ldots, e_{m0}\}$ and sensitivity $D = \{d_{10}, d_{20}, \ldots, d_{m0}\}$. In the analysis, the model units are hypothetical (not really existing) spatial units defined by the values of the indices representing the smallest pressure and sensitivity respectively. The distances between given spatial units and model are the Euclidean distances.

Consequently, I defined the size of pressure M^i_p in the *i* spatial unit as a standard distance between the image of the *i* spatial unit and the model of pressure, and the size of the pressure M^i_w in the *i* spatial unit as a standard distance between image of the *i* spatial unit and model of sensitivity. The method that I proposed will allow in the future to quantify the risk on the basis of forecasted indices of pressure and sensitivity (chapter 6).

Application

I applied the method for the Upper Vistula water region using its divisions into aggregated surface water body (SCWP) as implied spatial units (chapter 7.2). While determining exemplary values, possible to use pressure and sensitivity indices for the current and forecasted state, I used supplementary materials and studies, characterized in the dissertation (chapter 7.3).

For sensitivity indices, I also carried out supplementary research based on authorial survey that contained questions characterizing the indices. The survey was addressed to chosen, representative for the SCWP local governments (Chapter 7.4.2.1. and Appxs: 1, 2, and.3).

I carried out the forecast of the indices on the basis of authorial development hypothetical scenarios that referred to the perspective of the year 2030. I proposed three scenarios, in which scenario B (harmonization) is the finest from the IWRM perspective; scenario A (stagnation) exhibits the worst parameters; and scenario C (polarization) is in-between, where local development is slower than in the case of administration on the water region level. The scenarios refer to the relationship of Poland with the European Union and take into consideration its influence on the socio-economical situation in the country. The quantification of the scenarios was achieved through combining proper indices forecast for the calculation of the pressure and sensitivity measure (chapter 7.5.3.3).

Results analysis

Having calculated the sizes of pressure and sensitivity for every SCPW and for the forecast in every scenario, I calculated the risk on the IWRM failure (chapter 7.6). In every scenario the risk is diminished. The only exception is the SCWP in mountainous areas. Through the analysis of current state and the analysis of each scenario, certain change in the size of pressure can be observed. High, close to a unit, value of pressure size characterize SCWP in which there are large cities or heat and power plant industry. Significantly lower values o of pressure are characteristic for the SCWP associated with the right tributaries of Vistula.
Significantly lower fluctuations of the values are characteristic for the sizes of sensitivity (between 0.7 and 1.0). Such high values, even for the most favorable of the scenarios – B, indicate theoretical (according to some indices) high sensitivity of the whole analyzed area.
Thanks to the calculations, it is possible to determine the indices that dominate within the range of pressure and sensitivity and which have the greatest influence over the calculated risk. Of great importance are the results of sensitivity indices, since they allow assessing which elements that shape the SCWP are weak sides and require specific support. In the analyses, the formula determining the participation of a chosen index standardized in the distance from the model (model object) was used (chapter 8.2.1).

Conclusions

I believe that the advantage of the method is the possibility to use a wide spectrum of indices and estimate future risk by predicting the values of pressure and sensitivity indices in a given time-span. As a result, it is possible to plan local adaptive actions, what has a special meaning for the forecast climate changes.
The method allows to determine the key sources of sensitivities an pressures in the analyzed area units, leading to the individualization of actions and optimal financing.
The possible modifications of the method may allow for:

- their application for other spatial units – e.g. gmina (commune);
- widening the range of the indices used in the analysis;
- omitting indices that result from surveying and which are of subjective character;
- introducing weights (coefficient of hierarchy) for particular indices determined with the expert or hydrographic method or with the use of taxonomic methods.

4. Significant scientific and research achievements

My scientific activity fits into the environmental engineering discipline and is focused on the development and implementation of tools and methods in water management planning and administration. Modern, currently defined water management based on the IWRM principles combines the issues of hydrology, economy, organization, and society, what was included and stressed in my habilitation dissertation. My research interests were shaped by my work prior to the employment in the scientific unit.

Years 1984–2003 (before doctoral title)

The development and gradual concentration of my research interests on the problems of the Integrated Water Resources Management is directly connected with my professional career, the knowledge I possessed there, and because of perceiving water management as a discipline that links both physical and economic phenomena.

The beginning of my working career means nearly a six-year long employment in the Central Office of Hydraulic Engineering Projects "Hydroprojekt" branch in Krakow, where I gained experience in designing facilities of hydraulic engineering, providing water-management balances, and concepts of water management development in the catchment of the upper Vistula river basin. My most crucial works are: *The concept of Mała Wisła regulation in 0+000 to 36+000 km including the influence of mining; Rzeszów Reservoir – retaining walls with fish ladder – rebuilding of the fish ladder; Aquatic legal survey for water consumption from the Goczałkowice reservoir by the SUW (water treatment plant) Goczałkowice; The concept of Szczakowa deposit base-reaching exploitation in relation to reservoirs constructions.*

Working in the Regional Water Management Directorate and then, in 1991, in the Regional Water Management Board Krakow was the period of creating the bases for integrated subbasin management in Poland. During this period, I took part in, among others, implementation of a project financed by the loan provided by the World Bank "Planning and Administration of Water Management" and, in its initial state, in another program financed by the World Bank – "Elimination of flood consequences". Working in the administration allowed me to learn new, modern solutions in the environment protection thanks to a two-month apprenticeship in Japan in 1990, and in the field of Integrated Water Resources Management during a two-month apprenticeship in France in 1992. Separately from my work in administration, I took part in the studies and expertise concerning, among others, creating the bases for information systems (*The basis of a homogenous databases for subbasin units of water management, Krakow University of Technology, 1991*), impact of investments on the environment (*The assessment of the expertise on the "Świnna Poręba" and "Czorsztyn" reservoirs impact on the environment"*) carried out by the foreign consulting companies under the request of the Ministry of Environmental Protection, Natural Resources, and Forestry *(1994 - 1995*). I presented results of the works from that period during conferences in Poland and abroad, including the conference of the Międzynarodowego Związku Organizacji Zlewniowych (Reseau International des Organismes de Bassin – RIOB; International Network of Basin Organizations) in Morelia, Mexico, in 1996, where I referred the incorporation of a pilot system of the control of water losses in the upper Vistula water supply network.

During that period, exploiting the experiences from my employment, I focused my research interest on the use of taxonomic methods, classified as multidimensional comparative analysis for planning matters and water management (*The division of a river basin into balanced subareas with the use of the method of agglomeration of primary areas defined in a multidimensional space of attributes – Water Management 3/1999*). At the same time I was engaged as an adviser by the representative of the World Bank in Poland in the work on a new project called "*Revitalization of Rural Areas*". My activity in water administration in Poland

led to taking the office of the President of the International Network of Basin Organizations. This function allowed me, among others, to focus my interests on the Integrated Water Resources Management and its application in the member states of the Network.

The final stage of my work in the administration coincided with coming into force of the Water Framework Directive. My earlier interests in the work of European Commission on the directive allowed me, as requested by the Ministry of the Environment, to prepare methodological assumptions and complete contract requirements for a twining project PHARE that concerned the implementation of the directive in Poland (*Preparation of the assumptions and complete contract requirements (Terms of Reference) for the PHARE PL/IB/2002/EN/01 twining project implementation "Implementation of Water Framework Directive in Poland"; 2010*) as well as participation in the responsibilities of the expert group appointed by the European Commission on the guidelines for planning process (*Common Strategy on the Implementation of the Water Framework Directive - Best practices in river basin planning Work Package 2 Guidance on the planning process-member of the expert group. European Commission; 2003*). I also continued my research on the taxonomical methods in water management proposing, among others, a model allowing to establish hierarchy of tasks in protection against flood (*The model of complex protection against flood in the area of the upper Vistula with Małopolska Voivodeship as an example; Research grant ordered by the Małopolska Governor No. PBZ-006-14 financed by the KBN in 1998-2000, supervisor of the project: prof. dr. hab. inż.* (Prof., PhD, Eng.,) *Maciej Maciejewski*).

My interest in the use of taxonomical methods in water management helped in the preparation of my doctoral dissertation, in which I made an attempt to apply them for the determination of homogenous water zones basing on the Water Framework Directive – during that time not implemented in legal and terminological terms into the Polish Law. The defense of my dissertation in 2003 practically coincided with my employment in the Institute of Meteorology and Water Management in the position of an associate professor – head of research team (Department of Water-Management Systems presently called Department of Water Management and Water-Management Systems), which had already had great achievements in water management research.

As most important publication of the period before receiving doctoral title I regard those which concerned the principles of planning documents for water management methodological preparation, including the conditions of subbasin waters use, experiences in the implementation of new tools and methodic as well as the outcomes of "Water Management Planning and Administration" (*Water Resources Management in Poland- Problems and Solutions: - Substantive report on the implications for integrated water management in Europe with special emphasis on countries in transition - United Nations Environmental Programme; Moscow 1996*). I also consider the results of the work on a model for task hierarchization in protection against flood as significant.

Period from 2003 (after receiving doctoral title) - presently

Employment in the Institute of Meteorology and Water Management – National Research Institute (IMGW PIB), due to my interests, allowed me to focus research on two main aspects. These include:

- methods and tools for the implementation of Integrated Water Resources Management;
- water management development scenarios and their quantification.

The function of research coordinator of engineering and water management in the IMGW PIB in 2007-2011 was of great importance for the organization and for carrying out the research. From 2011, under the supervision of prof. dr hab. inż. (Prof., PhD, Eng.,) Maciej Maciejewski, I have been the head of the Polish National School of Water Management, organized by the Committee on Water Resources Management of the Polish Academy of Sciences (KGW PAN) and the IMGW PIB. The aim of the School is to exchange experiences and improve knowledge of water management in a broad sense as well as popularize the results of planning and research tasks carried out by the participants. I also perform functions of chairman of Water Resources Management Systems in the KGW PAN (term of office: 2007-2010 and 2011-2014).

Below, I cover the most important achievements divided into the specializations, giving specific examples and chosen publications that accompany them.

4.1. Methods and tools for Integrated Water Resources Management principles implementation

Methods

My scientific and research activity soon after receiving doctoral title was dominated by creating the bases of methodology for the Water Framework Directive 2000/60/WE implementation. Therefore, I initiated and supervised the works in the Institute of Meteorology and Water Management, which led to the creation of a new thematic working group for that scope [Appx. 3: II C1.1, II C1.2]. I initiated and supervised the research, among others, on:

- the bases of the classification of watercourses in Poland in accordance with the requirements of the European Commission;
- the bases and models for developing referential conditions for watercourses types;
- the principles of public consultations in the planning process in water management.

The results of these tasks were consulted in the previously prepared twining project PHARE, in which I performed the function of technical committee chairman. The results were then

developed and integrated into a series of tasks completed as the requests of external units [Appx. 3: II C.2.4, II C.2.5, II C.2.6, II C.2.9, II C2.10, II C2.11, II C.2.12, II C.2.13].
Especially important was the preparation of the reports for the European Commission on the implementation of Water Framework Directive in Poland [Appx. 3: C2.7, II C.2.8]. The monograph which I edited and which was published by the Institute of Meteorology and Water Management [Appx 3: II.B.1.1] as well as other publications [Appx. 3: II B.1.2, II B.2.1. II B.2.2, II B.2.3, II B.2.4, II B.2.5, II B.2.6 II.B.2.7, II B.3.1, II B.3.3, II B.3.7, II B 3.8, II B.3,9, II B.3.10, II B.3.11, II B.3.12] concluded the research.

The creation of methodological bases that concerned the analysis of risk and flood risk estimation is the stage of my research in the Integrated Water Resources Management which closely relates with the preparation for the Floods Directive incorporation. During that time, before adopting the Floods Directive in 2007, I took part in the floods working group sessions that functioned within the European Union. The conditions of the Directive incorporation that I learned about allowed me to launch in the IMGW PIB researches on:

- methodology of flood hazard initial assessment including current stage of flood protection studies;
- methodology of the creation of flood hazard maps and flood risk maps,
- methodology of the creation of flood risk management plan [Appx. 3: II C1.4]

I continued the research in this area for the orders of external units [Appx. 3:II C 2.19, II C 2.20]. The identification of relations and reciprocal limitations that resulted from the planning process within the Water Framework Directive and protection against flood was discussed, among others, in the studies of flood protection considering people and property protection [Appx. 3: II C 2.1, II C 2.2, II C.2.3, II C.2.14, II C.2.15, II C.2.16, II C 2.22, II C 2.23, II C 2.25, II C.2.26]. Final two studies in this field were fulfilled under my supervision for the National Water Management Board: "Methodology of flood risk management plans establishing for river basins and water regions" [Appx. 3:II C.2.31], and "The analysis of current state of flood protection for flood risk management plans establishing for river basins and water regions [Appx. 3: II C2.34].

The results of the research in this field were published [Appx. 3: II B.2.8, II B 2.9, II B.2.18, II B2.28, II B. 2.31, II B.2.38, II B.2.39, II B.2.40, II B.2.41, II B.3.13].

Another significant task was the work fulfilled under my supervision in the IMGW PIB for the Carpathian Convention, which considered flood risk assessment outside Poland [Appx. 3: II C.2.24].

Being aware of not only the significance of the Water Framework Directive but also the importance of sustainable development of water resources, I initiated the concept of a monograph that described the results of research and solutions that limit the risk of conflict between various water uses an water environment protection [Appx. 3: II B 1.3]. A

publication that concluded the study period of Integrated Water Resources Management is the previously mentioned monograph of my authorship "The Risk in Integrated Water Resources Management" [Appx. II A]. The result of the discourse was also a report prepared for the conference in Catania, and a publication under the same title [Appx. 3: II B.3.20].

Analyzing the conditions that emerge from the IWRM and limitations of the Water Framework Directive, I also continued a research on the perspectives of the hydrotechnical infrastructure in Poland. The interests in this field result from my participation in works that concern this matter of water management [Appx. 3: II C1.7, II C1.8, II C 1.9, II C.1.10, II C.1.12, II C.1.13, II C.2.27, II C.2.28, II C.2.29, II C.2.30] and the results of my research and analyses are compiled in a publication [Appx. 3: II A.4].

Tools

I also focused my interests on the creation and use of models and tools that supported the Integrated Water Resources Management. In this field of research matters, I include works on subbasin water resources management tools, considering their quality [Appx. 3: II C.2.15].

During the implementation of the SWAT (Soil Water Assessment Tool) model for the Zgłowiączka pilot river subbasin, I continued studies on the impact of intensive agriculture on the water environment in the chosen hydro-geological area, what allowed me to design a tool for subbasin management in accordance with Water Framework Directive. The tool allows to determine the influence of external factors on the state of a subbasin, takes into account the need for optimization of the model subbasin management, including the principles of application of actions that shape hydrographic conditions suitable for chosen types of crop. The suggested model minimizes costs and shortens the time needed for obtaining good quality water, giving the administrative bodies an effective tool for proper management, what is especially important in view of the implementation of Water Framework Directive in the whole country [Appx. 3: II F.1, II B.2.21].

My participation in the project presenting the solutions for waters monitoring in accordance with the WFD requirements was an interesting research experience [Appx. 3: III A.2]. The project was financed from the Leonardo da Vinci Programme, and was addressed to the specialists who professionally deal with water management. I was a tutor in the project and organized courses with participants from various countries, using remote teaching techniques via the Internet.

The GENESIS (Sustainable, General Information Area for the Environment) project was a yet another example from this group [Appx. 3: II F.2]. In the project, I supervised the task carried out in the IMGW PIB. The results of the Genesis project realized within the European Union 7^{th} Framework Programme support the actions for the incorporation of effective methods for limiting contamination emission and methods for the effects mitigation. They also influence the actions of providing information to authorities and population by designing and realization of a network that allows every citizen of the European Union to have the access to the

information of the environment through the use of modern information and telecommunication technologies. The aim of Polish pilot solution was forecasting the risk of viral infections in, among others, water-bathings in the Bay of Szczecin as well as developing a plan information and warning against such a risk sent to local governing bodies and sanitation. The participation in the project is included in publications [Appx. 3: II A.1,II A.2, II B.2.29].

The information on the project was qualified to be included in a publication prepared by the National Contact Point for Research Programmes of the EU that presented Polish beneficiaries of the projects of the 7th Framework Programme and the Competitiveness and Innovation framework Programme: The Information and Communication Technologies Policy Support Programme (CIP ICT-PSP). The title of the publication: *Polish contribution to EU success in ICT(2012)*.

4.2. Scenarios of water management development and their quantification

The European Union developed common approach to the matters of the natural environment use based on the principle of sustainable development. In my opinion, this is a corner stone of reasonable and economical natural resources use thanks to which excessive exploitation or devastation will not lead to the deterioration of living standards and limitations of the future generations' development. I also believe that in view of climate changes, and the need to consider a very long future, it does not affect the general aims of natural resources management, where proper planning and predictions in this sphere are of crucial importance. A significant research project in this group was "Methodological bases of the Integrated Water Management Development Plan in Poland" financed by the Committee for Scientific Research and coordinated in the Krakow University of Technology. Part of the project was completed by the IMGW team under my supervision. The results of the IMGW team works were documented in publications [Appx. 3: II B.2.17, II B.2.18].

The following matters were included in the project:

- establishing principles that focused on methodological bases for the realizations of packages: water protection, water maintenance, water management in urban areas, connecting water management plans with development plans, protection against flood;
- formulating common criteria that allowed integration of the fundamental aims of water management;
- determining the directions of development and requirements of the feasibility studies as well as the range of necessary handbooks, guidelines, and recommendations.

One of the significant tasks in which I took part in this course was the development of an interdisciplinary team of experts of the National Strategy for Management of Water Management 2030 [Appx. 3: II C.3.12].

The financial tools are one of the fundamental factors of the IWRM. I became familiar with this subject during my work in administration during the development of new concepts of subbasin payment system for water use. In the project, which concerned the methods of estimation of future investments needs and their influence on the payment system, financed by the 5th EU Framework Programme for Research and Innovation, I took part as an advisor of the analyses that were part of the programme [Appx. 3: III A.1]. My experience in this subject comes also from a two-month apprenticeship in French Water Agency as well as contacts within the International Network of Basin Organizations.

Such extent of experiences allowed me to participate in the process of methodological solutions development for the elaboration of economic analyses and tools in water management as well as be present in their implementation in the first period of planning [Appx. 3: II C.3.1, II C.3.2, II C.3.3, II C.3.4, II C.3.5, II C.3.6, II C.3.7, II C3.8, II C3.9]. The results were discussed in publications [Appx. 3: II B.2.1, II B.2.10]. Yet another important project in this course was my participation on the panel of experts in the SCENES project realized within 6th PR UE, with the "Water Scenarios for Europe" until 2025 and 2050 as its outcome [Appx. 3: III A.3].

The experiences that I gained thanks to the participation in the panel were used in another project: "The impact of climate changes on the environment, economy and population (changes, consequences and their limitation, conclusions for science, engineering practice and economic planning)" (KLIMAT Project). The project contained the task named "National sustainable natural resources management (water, geological and forest resources)". For this task, I arranged the range of issues and chaired, with over 30-person research tem under my supervision [Appx. 3: II F.3]. With my guidance, the scenarios of water management development and their quantification were carried out. The scenarios of water management are visions of the future with descriptions of the factors that influence the process of their development. The scenarios are cognitive representations of the sequences of variant operations that man can perform in certain situations. A useful final outcome of the water management development modeling is their quantification. The quantification, by providing a quantitative interpretation of the scenarios allows to carry out detailed analyses and, consequently, a variant planning of operations in water management, that is practical implementation of the scenarios. In the KLIMAT project, I proposed three of the IPCC emission scenarios with the codenames from Special Report of Emission Scenarios: A1B, A2 and B1 as the foundation of further deliberations. The scenarios were analyzed for the purpose of the task and adapted for Polish conditions, for the perspective of the year 2030, including their degree of accordance with the IWRM principles. The quantification of the scenarios was achieved through modeling the influence of the emission scenarios on water resources using the interpretation of changes in precipitation and determining the changes in specific runoff. Using the causative factors developed in the project for each of the scenarios, water demands were later determined. For this reason, there were used, developed under my supervision, the methods of quantification using hydrophilicity trends, comparative analyses witch chosen, based on the purpose of water use, countries within the EU as well as available forecasts. In the project, I also used the modification of the method that I proposed in my habilitation

dissertation, using it for the hierarchization of the combined water surface water body regarding possible water shortages. In the summary of the project, conclusions for adaptive water resources management were formulated.

The experiences from the realization of the project were presented during the XXXVIII International Association of Hydrogeologists in Krakow in 2010 as well as in a publication [Appx. 3 : II B.2.30] and, above all, in monograph entitled "Sustainable water resources and hydrotechnical infrastructure management in forecast climate changes" [Appx. 3: II B.1.5] of which I am a coeditor, chapter editor, and coauthor. The completion of the project allowed me to take active part in conferences and resulted in further publications [Appx. 3: II A.1.3, II B.2.42, II B.3.19, II B.3.22].

5. Other academic and research achieveiments

Other academic achievements are first of all associated with the supervision of research teams that worked in the IMGW PIB on water management matters. I consider the following subjects realized in the IMGW PIB to be the crucial ones:

- Development of methodology and tools for the analysis of the condition of water resources within the combined surface water body, assuming the possibility of implementing the solutions in compiling the terms of subbasin water use as well as estimating the values of chosen hydromorphological elements of waters ecological conditions; 2004;

- Standardization of methodological and technical bases for flood risk outline within the analysis of warning stages;

- Development of regional curves for determining referential conditions for set watercourse types and formulation of the principles of good practice in watercourses maintenance (based on chosen watercourses of the mountainous and submontane regions of the upper Vistula subbasin) 2008-2009;

- Analysis of the efficacy of water management within EU water policy. Water management within the uncertainty associated with climate variability; 2008;

- Analysis of problems in the development of subbasin water use conditions with algorithm procedure.

The interests that show in my scientific activity and which concern the problem of risk, lead to participation in works concerning risks assessment in other natural and technological hazards as well as synergistic disasters.

In this scope, I participate in the works of the Central European Disaster Prevention Forum (CEUDIP), European Network of National Platforms, and European Forum for Disaster Risk Reduction. I perform the duties of national contact point associated with the Hyogo

Declaration (Japan) that declares the decade of 2005-2015 a decade of natural disasters prevention (Hyogo Framework for Action).
(http://www.preventionweb.net/files/19617_overviewnpeuropeefdrr20130802.pdf.
For reporting the realization of the declarations' resolutions, I prepared reports from two accounting periods for Poland. The first one concerned the period of 2009-2011 and was included in the National Progress report on the implementation of the Hyogo Framework for Action 2009-2011 [Appx. 3: III A5].
The second report concerned the period of 2011-2013 and was included in the National Progress Report on the Implementation of the Hyogo Framework for Action 2011-2013 [Appx. 3: III A.6]. Within the European Forum for Disaster Risk Reduction, I participate in the works of climate changes working group. One of the results presented by the group is the publication on the adaptation to climate changes, of which I am a coauthor [Appx. 3 III A.7]. Making use of the experiences I gained during my work in the KLIMAT project as well as detailed analysis of the IPCC reports during the project realization, allowed me to get involved in the process of reviewing of the Fifth Assessment Report of the IPCC. I reviewed a chapter on water resources, published in 2014.
(http://ipccwg2.gov/AR5/contributors/reviewers/P800).

A project that was linked to this scope of my research interests is named the IT System for Country Protection against Extreme Hazards (ISOK) funded by the Innovative Economy Operational Programme, in which I supervise the IMGW PIB map team, which focuses on three tasks: new Map of Hydrographic Division of Poland in the scale of 1:10,000; Other Hazards Maps; Meteorological Hazards Maps.
The development of the map of Hydrographic Division of Poland in the scale of 1:10,000 was completed in 2013. It was based on the most recent data sources and on fully-developed methodology of its creation. During its completion, a special attention was paid to the Water Framework Directive (2000/60/WE), Flood Directive (2007/60/WE), and INSPIRE Directive (2007/2/WE) [Appx. 3: II B.3,21].

Another component of the ISOK is Other Hazards Maps. While working on the concept of the maps, I suggested that they should include the occurrences of hazards in respect of hydrologic and meteorological conditions. The project assumes the development of five maps:

- Maps of electrical grids disruptions due to weather conditions;
- Maps of serious industrial disasters due to weather conditions;
- Maps of surface- and groundwater intakes in areas prone to flooding;
- Maps of air pollution due to weather conditions;
- Maps of life- and health threat due to weather conditions.

This component in accordance with the ISOK project concept, is an open solution. In the feasibility study of the project it was assumed that ISOK will provide a proper IT platform and only chosen pilot maps will be developed. The IT platform will allow for gradual introduction of new maps or representation of the current solutions in the future [Appx. 3: II B.2.37]. Currently, I am working on the concept of new solutions.

I have taken part in the analyses of 2010 flood, realized in the IMGW PIB. The outcome is the summarization of the 2010 flood in the Vistula river basin in a monograph, of which I am a coeditor and chapters coauthor [Appx. 3: II B.1.4].

As the author and coauthor of scientific and research works, I focused my interest on the problem of the commercialization of findings. Chosen works which were used in practice can be found in Appendix 4.

Crucial, from the point of view of national economy, is developed under my supervision analysis and modeling of brine discharge to Vistula in the process of cavern leaching for gas storage [Appx .3: II C.2.36, II C.2.37]. Therefore, the WASP 7 model for model analyses, developed by the US Environmental Protection Agency (EPA) is implemented. For me, the project is a challenge within the realization of the IWRM, since on the one hand it requires the recognition of environmental needs determined by the Water Framework Directive; and on the other – it should ensure civilizational development and energy security of the country.

The reaction to the search of the improvements of the commercialization of water management scientific findings was the Research to Market (WaterRtoM) project, in which I was a member of the so called Liaison Committee. The project was funded by the LIFE+ programme and was developed within an international consortium [zał.3: III A.4].

6. Summary of the scientific and research output

Taking into consideration my overall scientific and research work, I believe that the following achievements, which account for innovative approach in solving and investigating phenomena and processes, are the most crucial:

- defining risk R^i in the Integrated Water Resources Management along with developing method of its quantification in function that contains two measures – pressure M^i_p, an aggregated measure representing the pressure index; and sensitivity M^i_w, an aggregated measure representing pressure sensitivity;

- combining in the method the indices that represent physical, economic, economical, organizational, and societal factors that influence the Integrated Water Resources Management;

- defining main groups of indices for pressure and sensitivity in the Integrated Water Resources Management;

- methods of creating water management development scenarios based of the forecasts of the changes of the indexes and their combination for scenarios;
- modification of the developed method for the hierarchization of subbasins threatened by water shortages;
- methods of creation and quantification of water management development scenarios allowing for water resources and water demands changes that consider the results of modeled precipitation changes, developed hydrophilicity trends, comparative analyses with chosen EU countries and available forecasts.

Table 1 QUANTITATIVE RECORD OF SCIENTIFIC OUTPUT*

Lp.	SPECIFICATION	BEFORE DOCTORAL TITLE	AFTER DOCTORAL TITLE	TOTAL
1.	Monographs, including: a. individual [in press] b. as editor and coeditor [in press]	 0 0	 1 6 [1]	 1 6 [1]
2.	Scientific articles, including: a. in journals from the ISI Master Journal List - individual [in press] - as coauthor [in press] b. chapters in monographs c. in foreign journals and by foreign publishers d. in Polish journals and by Polish publishers	 1 5 10	 1 [1] 2 42 [2] 3 22	 1 [1] 2 43 [2] 8 32
3.	Popular science publications	5	8	13
4.	Patent application	0	**0**	**0**
5.	Unpublished scientific studies, total: including: a. realized in research projects ordered by the Ministry of Science and Higher Education as well as other ministries b. realized in foreign research projects (Including cofinanced by the EU, World Bank, and other) c. realized as orders from the industry, Ministry of the Environment, National Fund for Environmental Protection and Water Management, and other.	 4 4 8	 14 9 36	 18 13 44
6.	Total [in press]	**37**	**144 [4]**	**181[4]**

* The record does not provide for three publications from the JCR journal list that are currently under review

7. Professional and educational activity as well as qualification certificates

Along with my work, I improve my professional qualifications. The two apprenticeships from the beginning of my professional work played a vital role in this matter:

- Two-month apprenticeship in Japan in 1990 that concerned the issue of environmental protection, arranged and funded by the Japan International Cooperation Agency;
- Two-month apprenticeship in France in 1992 in the International Office for Water n Sophia-Antipolis, and in Artois-Picardie Water Agency in Douai, arranged and funded by the French Government.

Other significant practices in water management were:

- course "National Floodproofing Conference" in Baton Rouge, USA 1999;
- "Administration and Financing of Water Management" in France 2001;
- "Environmental Impact Assessment for Hydraulic Engineering", in Koblenz, Germany 2003.

Along with improving my qualifications, I participate in many conferences that are thematically connected with water management.

Altogether, I took part in 50 conferences, 40 seminars and workshops. In a series of conferences and workshops, I presented the results of my works. The most important ones, during which I presented my reports or led sessions, are listed below:

- Walczykiewicz T. Report: "Sensibilisation of the public water utility companies in water economy in the upper Vistula river basin" during Reseau International des Organismes de Bassin Congress in Morelia ; Mexico 1996;
- Walczykiewicz T. Report: "Flood control in the basin of the Upper Vistula" during Reseau International des Organismes de Bassin Congress in Salvador de Bahia; Brazil 1998;
- Walczykiewicz T. Report and session leading: "Présentation de la politique de l'eau des six pays hôtes des Assemblées Générales du RIOB, Brésil - Espagne - France - Mexique - Pologne – Québec" and session leading: "Assemblée Générale statutaire" during International des Organismes de Bassin (RIOB; International Network of Basin Organizations) congress; Zakopane 2000;
- Walczykiewicz T. Report: "Regional visions of river basin organizations – introduction to on-going projects" during Integrated Water Resources Management at River Basin Level workshop. World Water Forum, The Hague, Holland 2000;

- Walczykiewicz T. Report: “Flood control in the basin of the Upper Vistula” during 3rd Cannes Water Symposium; France 2001;

- Walczykiewicz T. Presentation summarizing activity during Reseau International des Organismes de Bassin presidency; Quebec, Canada 2002;

- Walczykiewicz T. Report: “Experiences with Flood Protection Warning Systems and Flood Risk Management” during Central European Disaster Prevention Forum: Plans session; Krakow 2006;

- Walczykiewicz T. Report: “Floods Directive and its Implications for Poland” during scientific conference organized by the IMGW and MPT: “Natural Disasters and their Consequences” on the International Ecological Fair POLEKO 2006; Poznań 2006;

- Walczykiewicz T. Session leading during “Protection Against Floods” conference Podbanské - Vysoké Tatry. Conference organized by the VUVH; Slovakia 2006;

- Walczykiewicz T. Report: “Polish Conditions of the European Union Water Policy Implementation”. Meeting of the Polish Committee of Global Water Partnership Warsaw 2006;

- Walczykiewicz T. Report: “Application of the principles of the Water Framework Directive in Transboundary Waters” and session leading during the International Environmental Forum Baltic Sea Day. Coauthor of Round Table Resolution; St. Petersburg, Russia 2007;

- Walczykiewicz T. Report “Implementing the EU Directives for a common water policy; the shared challenges of quality standards, resource preservation and sanitation” during “The governance of sustainable development with the New Member States of the European Union-Water as a new vector for solidarity challenges –Suggestions for France’s EU presidency” conference. Annemasse, France 2007;

- Walczykiewicz T. Report: “How existing national legislation and coordination mechanisms support the contribution of national meteorological and hydrological services to DRR”; World Meteorological Organization, Geneva, Switzerland 2007;

- Walczykiewicz T. Report: “Role of NMHS’s in risk identification as a fundamental basis for disaster risk”; Seminar “Role of NHMS”; World Meteorological Organization, Geneva, Switzerland 2007;

- Walczykiewicz T. Report: “Role of NMHSs in Multi-Hazard Early Warning Systems with Multi-Hazard Approach”; World Meteorological Organization, Geneva Switzerland, 2007;

- Walczykiewicz T. Report: “Hot issues – climate change initiatives in Poland” during Central European Disaster Prevention Forum session. Bonn, Germany 2007;

- Walczykiewicz T. Report: "Presentation of recent developments in disaster risk reduction in Poland" during Central European Disaster Prevention Forum session. Bonn, Germany 2007;

- Walczykiewicz T. Report: "The use of monitoring data in water management plans in river basin – practical aspects" during workshop Surface Water Monitoring according to Water Framework Directive 2000/60/WE organized by Gdansk Water Foundation: Gdańsk-Sobieszewo 2009;

- Walczykiewicz T. Report: "Determining environmental aims and exceptions from them for water management plans – examples" during workshop Surface Water Monitoring according to Water Framework Directive 2000/60/WE organized by Gdansk Water Foundation. Gdańsk-Sobieszewo 2009;

- Walczykiewicz T. Report: "Derogations in water management plans" during workshop Surface Water Monitoring according to Water Framework Directive 2000/60/WE organized by Gdansk Water Foundation: Gdańsk-Sobieszewo 2009;

- Walczykiewicz T. Report: "Polish National Platform For Disaster Risk reduction and Hyogo Framework for Action", European National Platforms Meeting in London, London, Great Britain 2009;

- Walczykiewicz T. Report: "Factors and Driving Forces Affecting Water Withdrawals in Future" with Agnieszka Boroń and Magdalena Kwiecień. XXXVIII Congress of International Association of Hydrogeologists, September 12-17, 2010, AGH University of Science and Technology – Krakow;

- Walczykiewicz T. Report: "Commercialization of Water Management Research Results – activities carried out as part of the Water Research to Market Project" – konferencja Contemporary Problems in Hydraulic Engineering and Water Resources Management, IMGW PIB, KGW PAN, Krakow 2013;

- Walczykiewicz T. Report: "Water Management in Poland in light of Climate Changes" during the seminar of the Section of Water Use and Protection Economics, State Higher School of Vocational Education in Głogów, and European Association of Environmental and Natural Resources Economists; Głogów 2013;

- Walczykiewicz T. Report: "The impact of climatic changes on water resources in forest areas of Poland according to chosen IPCC scenarios (A2, B1, A1B) – possible impact on forest ecosystems untill 2030 and beyond" First expert panel within the works on the KLIMAT National Forestry Programme – forests and wood in light of climatic changes: dangers and opportunities. Sękocin Stary 2013;

- Walczykiewicz T. Report: "European Union Water Policy in light of the Second Cycle of Water Framework Directive Planning" Union's Water Policy seminar, The Governor Office of Malopolska, May 2014;

- Walczykiewicz T. Report: “The use of Geospatial Data in Flood Risk Management Plans”; with Agnieszka Buczek, “From Data and Information to Geospatial Knowledge – 10 Years of Meetings with INSPIRE” 10th Polish National Symposium called Meetings with Inspire in Krakow. The Municipal Office of Cracow, May 2014;

From 2011 I am the head of the National Polish School of Water Management, organized by the KGW PAN and the IMGW PIB. My responsibilities concern the coherence of research subject area presented during particular Schools.

Participation in the research on the Integrated Water Resources Management and gaining experiences in this field regardless of my supervision over research team and coordination of works within engineering and water management in the IMGW PIB, allowed me to gradually become involved in educational activity. Below are my most significant achievements in this matter:

- Lectures on control and management of surface water resources during course for candidates aspiring for hydrological qualifications – IMGW, Warsaw; 28.05.2004; 09.07.2004; 16.04.2005;

- Lectures and practice for full-time students in summer semester in the years: 2008, 2009 2010, 2011, and 2012 in the University of Agriculture in Krakow on EU water policy and water management planning;

- Lectures on water management planning during the years 2008 and 2009 in the IMGW Centre of Hydrometeorological Education;

- Lectures during Polish National Schools of Water Management organized by the KGW PAN and the IMGW PIB;

- Lectures for postgraduate students “Water Management” on the University of Silesia in winter semester 2009, on course “Legal and economic aspects of water management”.

8. Organizational activities

The characteristics of my scientific and research as well as professional work require simultaneous development of my research and supervision over teams, both from methodological and organizational point of view. I am a member of the IMGW PIB Scientific Council of the 6th and 7th tenure. During my work, I was a member of organizational and scientific committees. As the most important ones I regard:

- Scientific Committee of the “Typology and Referential Conditions of Surface Waters” conference in Bukowina Tatrzańska; 2005;

- Scientific Committee of the “GIS Polonia” conference; 2008;

- Scientific Committee (secretary) and Organizational Committee of the "Contemporary Problems in Hydraulic Engineering and Water Resources Management" conference, IMGW PIB, KGW PAN, Krakow 2013;

- Scientific Committee – Tourism facing climate changes, Zakopane 2014.

A prominent form of my organizational activities is the preparation of proposals that concern research programs financed from national and foreign resources. In the last few years, I took part in the following proposals preparation:

- Mediating integrated actions for reducing eutrophication and flooding in a changing climate BONUS call 2012: Viable ecosystem;

- Methodology of risk assessment for emergency management system of the Republic of Poland, NCBiR (National Centre for Research and Development), 2012;

- Integrated system for levees monitoring, NCBiR, 2013;

- Tools, methods and training for communities and society to better prepare for crisis TACTIC, FP VII-SEC-2013 -1;

- Development of a Systemic, Risk Evaluation, Operational Tool for Climate Proofing of Water Related Strategies and Actions in Europe" (CLIPOST-WAT)- Horizon 2020 first call – WATER-2a-2014;

- Mediating integrated actions for sustainable ecosystem services in a changing climate "MIRACLE"-BONUS, call 2014: Sustainable ecosystem services: Governance structures, policy performance and policy instruments;

Two of the proposals (TACTIC 2013, MIRACLE 2014) have been accepted. I am member of the advisory board in project Soils2Sea financed by BONUS programme for Baltic Sea.

I also distinguish the following functions in my research and implementation activities:

- World Bank advisor for the preparation of the "Revitalization of Rural Areas" programme – 1999

- Chairman of the Technical Committee and participation in the Control Committee in the PHARE PL 2002/IB/EN/01 project "Implementation of the Water Framework Policy in 2000/60/WE Poland" – (Twining Agreement between Poland and Germany, Bavaria);

- Participation in the water management planning working group activities in the PHARE PL 2002/IB/EN/01 programme – (Twining Agreement between Poland and Germany, Bavaria);

- Participation in the water management economic analyses working group activities in the PHARE PL 2002/IB/EN/01 programme – (Twining Agreement between Poland and Germany, Bavaria);

- Participation in the ENVIRONMENT working group of the European Commission dedicated to providing conclusions on undertaking common actions for flood protection in the European Union; 2004;

9. Membership and participation in the activities of international organizations

During my presidency in the International Network of Basin Organizations (RIOB) in 2000-2002, I signed the agreement on cooperation between Water Management Office in Warsaw and International Office for Water in Paris (Office International de l'Eau). The function of the RIOB president allowed me to call for the Central European Network of Basin Organizations (CEENBO) during conference with the Polish Committee of Global Water Partnership in Warsaw, in 2001. From 2003, I have been a member of the CEENBO Liaison Bureau. From 2000 I have been a member of the Polish Committee of Global Water Partnership. I am also a vice-president of the Central European Disaster Prevention Forum that operates within the International Strategy for Disaster Reduction (ISDR) secretariat at the United Nations (www.unisdr.org). From 2006, I have been a member of the (National Platform for Disaster Risk Reduction). In my work in the National Platform I am responsible for managing a liaison point for the implementation of the Hyogo Framework for Action (a decade of natural disasters prevention ratified in Hyogo, Japan) as well as contacts with the ISDR Secretariat (www.preventionweb.net), including making periodic reports, reviews, and analyses of accomplishments in Poland.

10. Membership in scientific councils, Polish Academy of Sciences committees, scientific organizations

- Chief Technical Organization, Association of Water and Melioration Engineers and Technicians – IMGW Circle – Krakow until 2007;

- Member of the Water Management and Water Quality Section of the KGW PAN until 2007;

- Member of the Institute of Engineering and Water Management Presidium Council – Krakow University of Technology;

- Member of the Gdansk Water Foundation Council from 2002;

- Member of the research projects assessment interdisciplinary team in the Scientific Research Committee in 2002-2005 tenure;

- Chairman of Water Resources Management Systems Section in KGW PAN in 2007-2010 and 2011-2014 tenures;
- Head of the Polish National School of Water Management organized by the KGW PAN from 2011;
- Member of the Section of Water Use and Protection Economics of the Polish Branch of the European Association of Environmental and Natural Resources Economists;
- Member of the IMGW PIB Editorial Committee;
- Member of the Programme Council of the "Gospodarka Wodna" ("Water Management") journal from 2000;
- Member of the Association of Polish Hydrologists from 2007
- Member of the IMGW PIB Scientific Council of the 6th and 7th tenure;

11. Awards and Distinctions

- Gold Book of the Krakow University of Technology Alumni Laureate;
- Water and Vistula of Malopolska - Guidebook of the Regional Water Management Board in Krakow (team Award of the Ministry of the Environment, Natural Resources and Forestry, awarded in 1998 for outstanding constructive achievements in the field of environmental protection, water management, geology, forestry, and nature preservation); 1997;
- Commemorative Medal – 10 years of subbasin water management administration in Poland, Regional Water Management Board in Szczecin, Szczecin 2001;
- "Water Drop" – for merits in the promotion of subbasin water management administration in Poland, Szczecin 2001;
- Silver Honorary Badge of the Association of Water and Melioration Engineers and Technicians, 2004;
- Commemorative Medal No. 8 – 10 years of the International Network of Basin Organizations (RIOB) Paris 2004;
- Certificate from the Polish Ministry of the Environment and the Bavarian State Ministry of the Environment Public Health and Consumer Protection for the input in the realization of the PHARE project "Implementation of the Water Framework Directive 2000/60/WE", Dębe 2005;
- Honorary Badge from the Ministry of the Environment for the Merits in Environmental Protection and Water Management 2008;

- Commemorative Medal – 90 years of the IMGW, Warsaw 2009;
- Commemorative Medal – 20 years of the Regional Water Management Board in Szczecin, Szczecin 2011.

Kraków, 04 July 2014 Tomasz Walczykiewicz