

SECOND NATIONAL CONSULTATION DIALOGUE in Poland

1. General Data

<u>Country:</u>	Poland
<u>Organizer:</u>	Global Water Partnership - Poland
<u>Date & Place:</u>	12 December, 2014 at Warsaw University of Technology
<u>Participants:</u> (name & institution & email)	Representatives of water authorities, scientists, NGOs, private sector, consultancy
<u>Attachments:</u> (attendance list, photos, etc.)	List of participants Agenda

2. Agenda

Objective :

Presentation and discussion about the draft of the Guidelines for Drought Management Plans with the aim to contribute to its completion – elaboration of comments to the Guidelines

Special objectives:

Identification of Polish concepts and experiences in drought management planning
Provide national experience according to the templates in Annexes I – VI

Agenda:

Presentations:

1. Introduction. Basic information and summary of the Integrated Drought Management Programme in Central and Eastern Europe (IDMP CEE). Janusz Kindler, GWP PL
2. Summary of 1st National Drought Dialogue. Dorota Pusłowska-Tyszewska, GWP PL
3. Draft of Guidelines for Drought Management Plans (IDMP CEE) – guidelines' summary, main issues. Anna Mitraszewska, GWP PL
4. Tools for drought management plan – international cooperation. Tamara Tokarczyk, Institute of Meteorology and Water Management, PL
5. Drought's impact mitigation measures. Waldemar Mioduszewski, Institute of Technology and Life Sciences

Discussion:

In Poland, National Water Management Authority elaborated and approved (2013) national methodology for regional drought management plan. Regional water management authorities (RZGW) are bound to national methodology, the general approach, database and deadline should be common for all of them. The most important is to maintain the same drought thresholds and indicators for whole country. In case of relatively large country, as Poland, this is a challenge.

At the first sight, all the main issues discussed in IDMP CEE Guidelines are also included in Polish methodology for elaboration of the regional drought management plan (DMP). That's why it would be interesting to perform further analysis of both documents. If possible, it will be performed by GWP PL in cooperation with Regional Water Management Authority (RZGW)¹.

As a starting point for further discussion representatives of Regional Water Management Authority (RZGW) in Warsaw and in Krakow presented current stage of work on regional drought management plan. Already done stages are: timetable, general public consultation and data stocktaking. RZGW in Krakow has begun environmental impact assessment procedure by collecting of opinions and comments on scope of EIA report from other institutions, like Chief Sanitary Inspection, Chief Inspectorate of Environmental Protection. At the same time, the RZGW is consulting drought issues with local authorities and stakeholders (i.e. trying to determine severity of droughts and draught impacts in recent years), but till now the result of consultation is not satisfactory.

It should be stressed that Poland as a country developed methodology for elaboration of regional drought management plans; nevertheless due to political and financial issues or simply because of lack of appropriate tools we can't predict the final result. The idea of methodology is that DMP should be broader than merely problem identification; methodology indicates organizational structure, monitoring and warning systems; it also contains catalogue of potential measures. Polish DMP will be included into WFD planning process in 2021.

It should be noticed that actual water authorities in Poland are focused on river basin management plans and flood risk management plans, thus droughts are not the primary issue for them.

During discussion, it was also stressed that the government and national water authorities should give a mandate to drought committees (which are intended to operate on the regional level). In Poland, generally, water authorities are relatively weak. It is quite possible that the government would not support activities of drought committees.

Drought classification in Poland is still an issue. The problems are: different meteorological, hydrological and economic conditions across the country, different thresholds of drought identification in different regions, lack of one institution directly responsible for data collection, analysis and drought management. During discussion, main indicated problems of further drought risk management in Poland were: large number of monitoring systems, almost non-existing data exchange between institutions, lack of "helicopter view" of the problem. Warning or monitoring systems are not integrated or inter-calibrated.

Poland still has difficulties with identification of relation between drought and water scarcity (both risk and impact) and issues described in art. 4.7 WFD.

Main points of discussion:

1. Both documents (IDMP CEE Guidelines and Polish methodology) have common points.
2. As broad public is not aware of drought and water scarcity issues, early warning system is not functioning properly and efficiently. Moreover, it is difficult to distinguish between drought and water scarcity from

¹ Description of Polish methodology and main differences between IDMP CEE Guidelines and this methodology is under development

climate change process (freak weather conditions).

3. Pilot projects are good source of information for both GWP and Polish institution; project presented during 3rd presentation is a practical example of adjusting existing procedures and indexes.
4. GWP PL can also provide experts to working group dedicated to drought issues. Broad public consultation of DMP should be recommended.
5. Broad planning documents can cover all water management issues (water management, flood risk prevention, drought risk management) but due to their complexity they are more difficult for both preparation and implementation. Poland will favour step-by-step approach.
6. Broadly speaking, all data necessary for DPM are available. Nevertheless, in Poland, numerous data collection systems and unclear institutional structure create difficulties for efficient management. As Water law amendment is in progress we should expect that this issue would be fixed.
7. Main problems in drought risk management come from political and administrative obstacles.

3. Report (max 3000 characters)

After each of five presentations, minor questions, necessary for further comprehension, were answered. Next, participants presented point of view of practitioners, basing on short power point presentations and official statements. Then, general discussion followed. Its main objective was to answer questions raised by goals of seminar, presented at the beginning.

Introduction: The meeting was opened by prof. Janusz Kindler (GWP PL). He informed participants about existing experiences in a solving of hydrological extreme issues; about the current need of risk management plans linked with decision support systems. He also described main activities of Global Water Partnership and general ideas of the Integrated Drought Management Programme (IDMP) which is funded by GWP. Next, he presented a review of Project's activities where Poland participates. There were presented the expected main outputs of the project and the objective of second national dialogue: the Guidelines for Drought Management Plan. At least, he raised questions, as the inspiration for further discussion, related to the annexes for the Guidelines. He also emphasised the idea of consultation, discussion and compromise in solving problems.

Dorota Puśłowska-Tyszewska (GWP PL) presented outputs from the First National Dialogue and outlines of the current stage of elaboration of Drought Management Plans in regions. The subject was developed later by representatives of regional water management authorities. Detailed information is available through the website.

Msc eng. Anna Mitraszewska (GWP PL) presented outlines of the Draft Guidelines for Drought Management Plans (IDMP CEE). Proposed approach is based on crisis management of drought - the planning process as the main administrative tool for drought risk management, implementation of prevention/preparedness measures and mitigation measures when drought occurs. She also reported about proposed basic principles for creating a plan and steps in the process of drawing up of DMP. As the first step is proposed to establish a commission for drought management.

Prof. Tamara Tokarczyk (Activity Leader 5.4.), Institute of Meteorology and Water Management, presented Polish input into IDMP CEE. She focused on international cooperation in the field of drought indicators interpretation. Moreover, she presented the list of working definitions associated with drought issues developed within the project.

Prof. Waldemar Mioduszewski, Institute of Technology and Life Sciences, presented drought's impact mitigation measures and existing experiences in a solving of hydrological extreme issues. He highlighted the

need of linking risk management plans with decision support systems.

Main issues raised during discussions have been described above. Information on the downloadable materials on the website of the GWP PL (Slovak Case Study, Draft Guidelines for Drought Management Plans, link to the GWP – WMO Guidelines, presentations from the first and second ND) were delivered.

4. Conclusions

Outcome of the public consultation:

1. Polish national methodology is generally in line with IDMP CEE approach.
2. In some extent Polish national methodology can be implemented into IDMP CEE, but that issue requires further analysis.

Brief information about actual status of production of DMP:

First drafts of regional DMP are planned for 2015; public consultations and EIA reports are intended for 2016. On the basis of preliminary arrangements, DMP for river basins will be started after 2017.

Proposals for further steps focused on elaboration of (comments to the draft of the Guidelines and national experience according to the templates in Annexes I – VI):

Polish concepts/experiences could be transferred into IDMP CEE; GWP PL and experts from regional water management authorities will provide the input.

Annexes for draft of IDMP CEE guidelines will be delivered to Slovak partners.

Templates for elaboration of the national experiences included into Annexes of the Guidelines

KZGW	National Water Management Authority
RZGW	Regional Water Management Authorities (7 in PL)
IMGW-PIB	Institute of Meteorology and Water Management - National Research Institute
PIG-PIB	Polish Geological Institute - National Research Institute
IUNG-PIB	Institute of Soil Science and Plant Cultivation - State Research Institute
ITP	Institute of Technology and Life Sciences
NFOSiGW	National Fund for Environmental Protection and Water Management
GDOS	General Directorate for Environmental Protection
GIOS	Chief Inspectorate of Environmental Protection
WZMiUW	Voivodeship Board of Land Reclamation and Hydrotechnics
CBW	Climatic Water Balance
SPI	Standardized Precipitation Index
ThLM	Threshold Level Method
KN	ground draught risk index
WEI+	Water Exploitation Index Plus
fAPAR	Fraction of Absorbed Photosynthetically Active Radiation
FDC	Flow Duration Curve
PDSI	Palmer Drought Servity Index
EDI	Effective Drought Index
HTC	Selyaninov's Hydrothermal Coefficient
CDI	Crop Drought Index
CMI	Crop Moisture Index
SWSI	Surface Water Supply Index

**Annex I: Examples of the national methodologies for assessment of historical drought
STEP 4 (section 3.4.2 of the Guidelines)**

Country: Poland

Pursuant to the guidelines of the National Water Management Board’s (KZGW) Methodology: „Draught prevention in water management planning – methodology” [„Ochrona przed suszą w planowaniu gospodarowania wodami – metodyka postępowania”] historical analyses shall be performed at every Regional Water Management Board (RZGW) based on the indices required for operational analyses. The National Hydrological and Meteorological Service (IMGW-PIB, PIG-PIB) applied other indices in preceding studies.

Indicators used for the historical data assessment:

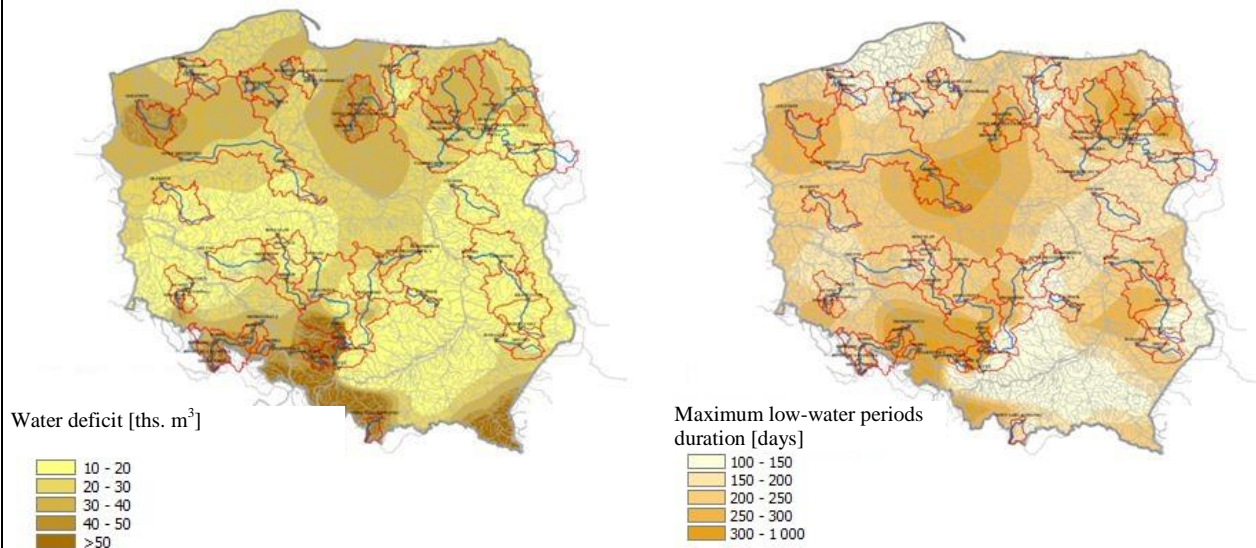
The following indices are required pursuant to the KZGW’s methodology and recommendations: CWB, SPI, ThLM, KN and, if available: WEI+ and fAPAR

The preceding IMGW-PIB analyses used the RPI-based classification of the meteorological draught (according to Kaczorowska); $RPI [\%] = P / AVG P$; P – annual total precipitation [mm]; AVG P [mm] – average annual total precipitation. The analysis provided the number of dry months in selected basins in the period from 1966-2005.

Hydrological draughts were characterized by maximum low-water periods occurring in between 1966 and 2005, taking into consideration the waterflow shortfalls below $ThLM=Q70\%$ [thousand of m^3] as well as the duration of the maximum low-water period [days].

Period	extremely dry	very dry	dry	average
RPI – Year	< 50	50 - 74	75 - 89	90 - 100
RPI – Month	< 25	25 – 49	50 – 74	75 – 125

Short methodology of assessment of long-term series of meteorological data or picture illustrating evaluation of the historical data for the chosen parameters/indicators:



Source: <http://posucha.imgw.pl/>

Annex II: Examples of the national drought indicator systems
STEP 4 (section 3.4.3 of the Draft Guidelines)

Country: Poland

Parameter/indicators included or proposed into the national drought indicator system:

The following indices are required pursuant to the KZGW's Methodology: CWB, SPI, ThLM, KN and, if available: WEI+ and FAPAR.

In the case of basins with high draught risk confirmed in historical analyses it is also required to monitor the PDSI index. For the areas of prolonged draughts, the Methodology introduces the additional EDI index.

The following indices are listed as additional ones in the Methodology: FDC, HTC, CDI, CMI and SWSI in case of several basins.

Methodologies used for evaluation of the chosen parameters/indicators:

The Agricultural Draught Monitoring System keeps a national IUNG-PIB that evaluates potential losses caused by draught in open field cultivation. Critical values of the climatic water balance indicating draught are different for various species of crops and crop groups as well as soil categories and development periods.

Exemplary CWB thresholds for individual crops and soils indicating draught (<http://www.susza.iung.pulawy.pl/>)

Variety of field crops	April-May				May-June			
	Soil category							
	I	II	III	IV	I	II	III	IV
Winter cereals	-150	-170	-210	-240	-180	-200	-250	-280
Spring cereals	-150	-160	-200	-220	-150	-170	-200	-230
Grain maize	x	x	x	x	-	-250	-290	-310
(...)								

In the case of SPI the KZGW Methodology provides a classification different than the one applied for the IMGW-PIB's monitoring.

Draught categories pursuant to the KZGW's Methodology

Draught category	extreme	severe	moderate	mild
SPI	≤ -2.0	-1.99 - -1.5	-1.49 - -1.0	0- -0.99

EDI humidity thresholds according to IMGW-PIB

Category of hydrological conditions	very dry	dry	normal	wet	very wet	bardzo mokre
FDC quantile	Kwantyl FDC	$\leq -1,5$	(-1,5; -0,7)	(-0,7; 0,7)	<0,7; 1,5)	$\geq 1,5$

Hydrogeological draught according PIG-PIB

The definition of the ground draught danger index:

$KN=1-AG/SNG$ or $KN=1-AG/SNO$ if $AG>SNG$, where

AG-current depth of the ground level [m], SNG- average low depth in the period from 1991-2005 [m], SNO-alarm depth [m] defined as an average of selected annual minimum levels ($SNO>SNG$).

Hydrogeological low-water period risk thresholds according to the KZGW's methodology

Hydrogeological low-water period risk	No risk	Low-water period risk	Low-water period – justifying warnings and taking measures
KN	$KN<0, AG<SNG$	$KN<0, SNO>AG>SNG$	$KN<0, AG>SNO$

Hydrological condition categorization thresholds based on FDC according to IMGW-PIB (for the period of 1961-2000)

Category of hydrological conditions	very dry	dry	normal	wet	very wet
FDC quantile	90-100	75-90	25-75	10-25	0-10

Annex III: Examples of the national drought classification and early warning systems

STEP 4 (section 3.4.4 of the Draft Guidelines)

Country: Poland

Indicators included into drought warning system:

The following indices are required pursuant to the KZGW's Methodology: CWB, SPI, ThLM, KN, PDSI and EDI in case of some basins as well as WEI+ and fAPAR, if available

Thresholds for chosen indicators for four drought stages (normal, pre-alert, alert, emergency):

The thresholds referring to the possible risk, issuing warnings and recommending actions have been provided for the KN index and divided into 3 categories (no risk, risk of a low-water period, low-water period – justifying warnings and taking measures. All the remaining indices are classified without reference to (any) actions to be taken.

The KZGW's Methodology recommends applying current monitoring performed in Poland to evaluate the risk, however, it also lists the required indices (CWB, SPI, ThLM, KN, in the case of some basins PDSI and EDI as well as, if available, WEI+ i fAPAR), that should be constantly monitored by the Draught Teams active at every RZGW. Along with developing plans the Draught Teams shall elaborate a system for draught alarm and draught forecasting together with selection of indices, data, thresholds and alert levels, and in may vary between individual regional RZGW. It depends not only on the data availability but also on the environmental conditions.

The current monitoring of the atmospheric draught kept by the IMGW-PIB is based on the SPI and EDI used for making forecasts. It seems that analyses for that type of draught are sufficient. Only the draught intensity classification provided by the Methodology would require homogenization with the IMGW-PIB's classification.

Monitoring of the agricultural draught performed by the IUNG-PIB covers the whole territory of Poland and is based on the CWB for the last 60 days, being updated every 10 days. That monitoring does not take into account the forecasted CWB, what seems insufficient to evaluate the risk and take immediate actions as soon as the agricultural draught occurs. The said monitoring requires prolonging the time scope at minimum as well as wider account of meteorological forecasts. The monitoring kept by the ITP may be applied for selected agrometeorological area not covering the whole territory of Poland. It is based on: SPI, SMI, CDI and possible reduction of the final yield (YR) , it also takes into account 10- and 20-days' forecasts, however, in order to be able to apply it to the whole territory of Poland its monitoring network need to be enlarged. Monitoring of the hydrological draught is performed by the IMGW-PIB based on FDC and low-water periods. It includes only several gauge stations grouped mostly in south-western Poland. It does not take into account any forecasts. To allow the regional RZGW apply the IMGW-PIB's monitoring, the number of monitoring stations needs to be increased as well as short- and long-term forecasts need to be implemented.

The hydrological draught is monitored by the IMGW-PIB based on the KN index mostly. The monitoring is performed by publishing quarterly notices about the current hydrological situation; monthly notices for provinces stating the occurrence of low-water periods as well as quarterly forecasts of hydrological situation in ground water resources and share. The monitoring seems to be sufficient to reliably evaluate the hydrological situation.

The results of each monitoring system are published online, there is the possibility to download notices and forecasts. The data may be published on the commune level. However, it may not reach individual farms, if a farm is not connected to the Internet or if a given farmer is not aware of the existence of such forecasts.

The time scope of data update as well as forecast advance shall differ for different types of draught and for different users. The daily scope seems unnecessary, except for heat and forest fire risk notices. Middle- and long-term forecasts are the ones providing time to take actions. Also the middle- and long-term forecasts allow implementing measures aimed at time-related water consumption and loss reduction as well as changes in water management rules in storage reservoirs.

**Annex IV: Examples of national organizational structures to deal with drought
STEP 1 (section 3.1 of the Draft Guidelines)**

Country: Poland

Competent authority:

The Polish concept of planning the draught counteractions pursuant to the KZGW's Methodology concerns mainly the water areas, not the whole country or river basins. The KZGW's Methodology recommends appointing Draught Risk Management Committees for river basins (only the two of them, for the Odra and Vistula rivers, that would include also the smaller river basins). The Committees shall be in charge of activating in case of draught over a large basin area in order to implement measures provided for in Plans, monitoring Plan completion, approving Plans and taking initiatives for changing legal provisions. However, most of the responsibilities related to the draught risk management, monitoring, development and implementation of actions is vested to the Draught Teams active in each RZGW. The draught risk manager shall be the Draught Risk Management Committee in the Water Region (RZGW) supported by the draught teams divided into three working groups (for monitoring, data and education). The development of draught counteraction plans for river basins (no such document has been provided for the national level) shall consist in creating a unified document based on the draught counteraction Plans for water regions.

According to the water management law, the President of the KZGW is in charge of elaborating the draught counteraction plans for the river basins, while the RZGW Directors are in charge of elaborating such plans for water regions.

Proposed composition of Draught Committee indicating involvement of all actors on three levels:

- governing level
- professional level
- affected stakeholders

The river basin Committee shall be composed of: the President of the KZGW, representatives of voivodes, province marshals, of the Ministry of: Environment, Agriculture and Rural Development, Administration and Digitalization, and many others, as well as the representatives of the National Fund for Environmental Protection and Water Management (NFOSiGW), the General Directorate for Environmental Protection (GDOS), the General Inspectorate for Environmental Protection (GIOS), KZGW and RZGW.

The Draught Risk Management Committee at the RZGW shall be composed of: the Director of the RZGW as its chairman as well as the representatives of voivodes and province marshals, the starosts, the presidents of the provincial environmental protection and water management funds, representatives of the provincial melioration and water facilities boards, representatives of the national forests, of the Regional Directorate for Environmental Protection (RDOŚ) scientists majoring in climatology, hydrology or atmospheric physics, chambers of agriculture, chambers of industry, commune management and RZGW. The Committee shall be mainly in charge of making day-to-day decisions concerning the possible draught risk counteraction as well as the most important (for draught risk limitation) aims, priorities and solutions (instruments) that need to be applied in long term, including motivating the government and local administrative bodies as well as other water users for cooperation.

The Methodology indicates the Draught Team to be the main body dealing with the elaboration and implementation of the draught counteraction plans in water regions, to be appointed at each RZGW. The Teams shall be composed of: the permanent representatives of RZGW, the Provincial Melioration and Water Facilities Boards (WZMiUW), RDOŚ, scientific institutions, NGOs, local administration units listed as the ones endangered with draught, agriculture, industry, commune management, etc. The Team shall also be liable for maintaining updated website, and during draught, initiating actions provided for in the Plan, preparing activity reports for the Committee, informing the general public about the current situation, etc.

The draught teams are divided into three working groups. The data analysis working group shall be mainly dealing with the historical data concerning draught, analysing current monitoring data, community-level users in agriculture, industry and commune management concerning their current status of water consumption issues, draught-related applications and the stages of a draught, elaborating guidelines for other groups. The monitoring group shall constantly acquire and process data from the draught monitoring institutes, presenting and publishing current monitoring results, making applications to complement the scope of monitoring. The third group is dedicated for information and education and shall mainly deal with: elaboration of current draught risk notices and informing about draught counteractions taken, developing various forms of social education, elaboration and publishing leaflets, brochures, books, websites, etc., as well as contacting media.

Schema of organizational structure for drought management is recommended:

**Annex V: Examples of national program of measures for preventing and mitigating drought
STEP 4 (section 3.4.5 of the Draft of the Guidelines)**

Country: Poland

List of the measures identified on the base of the national situation in drought management structured at least into three groups:

- *organizational*
- *operational*
- *preventive*

The Methodology suggests dividing drought counteractions by performance time into:

- current – to be applied immediately after the occurrence of draught,
- short-term – to be completed within a short period of time – up to 5 years,
- long-term – that may be completed during a long period >5 to 25 years,

as well as by the provisions of the Water Management Law by types of actions covering:

- analysis of possibility to enlarge the available water resources;
- suggestions of building, reconstructing or extending water facilities;
- proposals of the required changes concerning the water resource consumption as well as changes into the natural and artificial water retention.

Analysing the list of actions provided for in the Methodology, the actions may be divided into preventive measures (mainly enlarging the amount of natural and artificial water retention, construction of water supply network, reconstruction of melioration systems or renaturalisation of river beds), operational measures (mainly limiting the number of water consumption approvals, elaboration of water pricelists to be implemented during draught, etc.) or organizational measures (implementing unified data acquisition rules, implementing educational programmes, etc.). The list provided for in the Methodology is open and needs to be adjusted to local conditions. In the RZGW's opinion, the set of actions provided for therein is mostly sufficient to develop initial Plans.

The Methodology indicates no clear manner how to select individual actions, however, it has been stated that any implementation shall be preceded by a thorough risk and benefit analysis. Implementing any action may not be more expensive than the forecasted limitation of draught effects. However, the basic method of cost and benefits analysis has not been described, allowing individual RZGWs to apply various methods.

The list includes the following actions:

- Increase of forest retention within a basin
- Increase of agricultural retention
- Increase of urban retention
- Construction of water supply pipelines from the existing „small retention” reservoirs
- Using the groundwater resources for agricultural irrigation
- Construction of small water reservoirs near open fields
- Construction of storage reservoirs of up to 20 million m³ of water
- Construction of storage reservoirs of > 20 million m³ of water
- Reconstruction of the melioration systems from the drainage systems into drainage and irrigation systems
- Renaturalisation of watercourse beds and edges
- Reconstruction of old river beds as well as swamp areas
- Making the water retention facilities control more functional so that the water may be used for irrigation
- Creating local draught warning systems
- Developing and implementing scientific research plans for draught identification and counteraction
- Developing unified rules for gathering data and information concerning the scope and severity of draught-related losses
- Development of water pricelists for the draught period
- Improving the actual and financial support for draught victims
- Developing national and local legal acts allowing implementation of draught counteractions
- Developing of the financing provisions supporting the programmes implementing draught counteractions
- Developing and implementation of social educational programs informing about the draught reasons, manners of identification, effects and protective measures

- Limiting the water consumption approvals
 - Construction of ground water intakes to irrigate fields
- Construction of groundwater intakes to protect drinking water in the mountains

Annex VI: Examples of the national research programme supporting drought management

STEP 6 (section 3.6 of the Draft Guidelines)

Country: Poland

List of suggested actions for the national research program supporting drought management (eventually supplemented by short description of the action):

The KZGW's Methodology provides for the action consisting in developing scientific and research programmes for draught identification and counteraction. Such programmes shall support draught counteractions plans both nationally and locally for water regions. The scientific research shall indicate the type of measure applicable in individual cases as well as providing solutions for protecting our environmental resources from draught and supporting the decision-makers. The studies conducted pursuant to the KZGW's Methodology will result in the improved documentation of historical draughts and providing draught forecast guidelines as well as new monitoring methods and improvement of social information and education within the field of draught counteractions. However, due to the wide scope of action of such scientific institutions, such actions will be more easily accomplishable at the draught counteraction plans for river basins than for water regions. The representatives of such scientific institutions have also been delegated to work at the draught teams at RZGW, however, their liability has not been provided for.

Materials:

Katarzyna Tarnowska, 2014: Polish concepts in draught risk management planning – based on the KZGW-recommended methodology: „Draught prevention in water management planning – methodology”. The experience of the RZGW in Warsaw. the National Water Management Board's (KZGW) Methodology: „Draught prevention in water management planning – methodology” [„Ochrona przed suszą w planowaniu gospodarowania wodami – metodyka postępowania”], RS-EKO, Kraków 2013

<http://posucha.imgw.pl/>

<http://www.pgi.gov.pl/>

<http://www.susza.iung.pulawy.pl/>