

NATIONAL STRATEGIES AND ACTION PROGRAMMES ON DROUGHT MITIGATION

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Drought mitigation and prevention of drought damages is coming more and more important in those countries facing with frequent occurrence of severe dry periods. The complex phenomenon of drought needs a complex and interdisciplinary approach in drought mitigation as well. One of the most promising tool in the hand of all responsible parties of the society would be a well developed national drought strategy, in which all the relevant concepts, methods, steps, technologies, and sources of the fight against drought is summarized. In such a strategy all the necessary information should be collected which is important to drought prevention, and which can be used in the case of the occurrence of drought for the reduction and/or toleration of the caused damages.

As it is known the European Regional Work Team on Drought (ERWTD) of ICID (International Commission for Irrigation and Drainage) elaborated a guide which was edited with the help of the European Regional Working Group of ICID and the German National Committee of ICID as well as the German Government under the title *How to work out a Drought Mitigation Strategy (1999)*. The guide was completed on the basis of several earlier initiatives taken and proposals made at former ICID meetings and by individual experts, members of the ERWTD and other organizations.

In the *introductory part* it is important to determine the clear definitions of the relevant concepts concerning drought. There should be distinguished the differences between e.g. dryness and drought, and here should be formulated the aim of the strategy as well.

In the *second chapter* some drought occurrences have to be quoted from different part and countries of the World. The ICID Guide gives examples from recent drought events from Hungary, Yugoslavia, Romania and Croatia.

The *third chapter* deals with the drought analysis, examining first the climatic conditions and hydrological factors causing drought, secondly quoting the human made effects, especially the agronomic circumstances, and thirdly analyzing the role of soil types and soil conditions in drought occurrence.

The *fourth part* of the Strategy gives the inventory of the harmful impacts and damages of drought, specifically in the given country or region. Among these in first case the directly effected water users should be introduced and analyzed, namely the different branches of agricultural production, the different branches of industry, especially food industry, and the different services, which mostly suffer from drought. Also the environmental impacts on

natural resources, habitats and ecosystems, natural protected areas, national parks should be determined, and combined environmental effects studied in this part of the Strategy.

Among indirect effects the trade conditions, especially the import-export relations, financial affairs and social impacts on public health, on employment/unemployment, on politics and foreign affairs, and on tourism should be evaluated. Some beneficial effects of drought should be examined, too, e.g. mosquito reduction, reduced cost for clearance of snow during winter drought, improvement efficiency in water use and water quality control, and the control of overproduction in agriculture. It have to be strongly point out that intensive research work is urgently needed in the field of further beneficial effects of drought.

In the *chapter five* the measures taken so far against harmful impacts of drought damages should be taken into account. In most cases unfounded, not quite well consolidated, highly improvised measures have been taken during – or even after – recent drought events. The steps were mainly succeeding and not preventing the damages, the actions were mainly stop-gap type actions with partial effects. Also the attitude and reaction of the society on drought should be analyzed, which is in most cases strange and not understandable. In this respect the role of the media have to be pointed out as well.

The *chapter six* is the most important part of the Strategy, giving the means and methods of the complex fight against drought damages. First the assessment and forecast of drought events should be studied, determining the calculation methods and indexes used in the forecasting process. Establishment of a monitoring system in meteorology and in water management as well as in other branches of the economy is an important step. To draw up management plans in agriculture and forestry can help to mitigate drought damages in these sectors. Extension services and media programs should be used for increasing awareness of farmers and other professionals on potential drought events. Key question is the determination of prevention methods, damage reduction instruments and toleration of drought damages. Among prevention methods supply-oriented and demand-oriented measures, and impact- and losses minimization methods can be distinguished.

The instruments of *damage reduction* are manifold. There are agricultural methods, like optimum land use, better crop pattern, changes in the elements of agro-technology, complex land reclamation methods, improving plant breeding for better drought tolerant crop varieties, elaborating of authority system for control, regulation and support of drought damaged farmers, determining the sources and means of compensation or disaster aid for those who suffer from great income losses caused by drought, developing special insurance system for drought damages, establishing relief funds and/or guarantee funds for those who lost their yields or properties because of drought, etc.

Toleration means consciously counting on some risk, limitation or losses of yield or income. Therefore it is important to determine the tolerable level of losses by risk assessment, to set up priority lists for toleration of deficiencies caused by drought, and to draw up case studies on farm and/or company level for determining toleration, prevention and reduction measures for damage minimization.

Key questions are the *organization and coordination* questions, too, among which fist of all the followings should be answered:

- How to organize the formulation and interpretation of the national drought strategy?

- How to organize the determination of the tasks of the different participants?
- How to organize the compilation of the action program on the systems of measures?
- How to establish the National Drought Commission for the realization of the Strategy?

Especially the latest has of great importance, the detailed explanation of which should be included in the Strategy.

As far as the *international cooperation* is concerned the role of the neighboring countries have to be cleared, where the potential collaboration of the countries concerned should be organized. The contact with international organization, like UNCCD, ICID, or others should be determined either.

Also the needs for *research and development* as well as *education and training* should be analyzed in the Strategy. In most cases new types of research work are needed for summarizing and synthesizing the results gained so far, for systematization of the results and experiences according to a new classification of the themes: ecological, technological, economical and sociological questions of drought should be differentiated. It is important to find out new sources and funds for financing drought research.

Educational and training programs should be started for better understanding of drought problems among the public, to increase public awareness and preparedness for the coming drought events. Special media awareness program is necessary to convince journalists about drought problems and mitigation possibilities, and long term educational programs should be established for all groups and economic sectors.

A glossary of terms and indexes, and a collection of recommendations for potential risk reduction actions are advised to attach in appendixes to the Strategy.

If we would like to answer the question: *why is important to have a national drought mitigation strategy*, the following top ten priorities can be summarized.

1. The drought mitigation strategy gives the possibility to sum up the most important knowledge on drought in the given country or region. Many investigations have been made on the occurrence, reasons and effects of drought in most countries, the main results and conclusions of which should be summarized in the Strategy as a good basis of further steps in drought mitigation.
2. It gives the opportunity to focus on the risks of drought and the vulnerability of the society on drought events in the given country, based on the already gathered data and experience.
3. The drought-prone areas of the country could be drawn up in the Strategy, and also the main economy branches concerned could be nominated. It is important to know the spatial distribution of the territories of the country where the most severe drought used to be happened, and also to point out the economy branches which are mostly exposed for the negative impacts of drought.
4. The Strategy gives a good chance to distinguish the interest among different professional fields and authorities responsible in drought management in the given country.

5. It creates the opportunity to establish the basis of cooperation in drought mitigation among the above mentioned authorities.
6. It makes the possibility to summarize all the methods, means and measures usable in the fight against drought damages in the given area.
7. It encourages all necessary activities either of governmental or non-governmental organizations interested in drought mitigation.
8. It creates a stable basis for action plans and practical programs for drought mitigation in the given country.
9. It points out research needs and education necessities as well as teaching/training methods for a better and more effective fight against drought damages.
10. The Strategy helps to convince people in a wider scale about the importance of drought mitigation and the importance of water management.

On the basis of the well elaborated national drought strategy the tasks of the different participants should be determined. It seems recommendable to sum up these tasks in a national action program, where everybody – governmental bodies, regional and local authorities, institutions, organizations, NGOs, companies, farms, individuals – can find his/her own duties and possibilities, and at the same time can see the whole system of measures to be done for drought mitigation. National action programs are promoted and desired also by the UN Convention to Combat Desertification and Drought (CCD), in which a special part of the text is devoted to action programs, scientific and technical cooperation and supporting measures.

As far as the *action programs* are concerned their structure and content should be build up according to the UNCCD proposals for this specific topic. Main points of the National Action Program (NAP) on desertification and drought are as follows:

- The strategies and priorities established within the framework of sustainable development plans and/or policies in the country.
- The institutional measures taken to implement the Convention to Combat Desertification and Drought (CCD).
- The participatory process in support of the preparation and implementation of the action program.
- The consultative process in support of the preparation and implementation of the national action program, and the partnership agreement with developed country Parties and other interested entities.
- The measures taken or planned within the framework of the national action program, including measures
 - to improve the economic environment,
 - to conserve natural resources,
 - to improve institutional organizations,
 - to improve knowledge of desertification and drought, and
 - to monitor and assess the effects of drought.
- Financial allocations from the national budgets in support of implementation as well as financial assistance and technical cooperation received and needed, identifying and prioritizing requirements.
- Reviewing the benchmarks and indicators utilized to measure progress and an assessment thereof.
- Summary on the activities at national level and at local level, and on the actions for international development cooperation.

Among the necessary actions the *establishment of a National Drought Commission* is one of the most important, in which all representatives of the mission agencies involved should be integrated. This commission – with the help of the necessary sub-commissions or committees – is the key organization for the implementation both of the strategy and the action program, and for the prevention and preparedness to the repeatedly coming drought periods. The commission should make inventory of all forms of assistance available from local, state and/or regional authorities during severe drought, and evaluate these programs for the ability to address short-term emergency situations and long-term mitigation programs to reduce the vulnerability to drought. Assistance should be defined in a very broad way to include all forms of technical and relief programs available. It is most desirable that in the frame of the National Drought Commission (NDC) at least three sub-commissions or committees would be created, each focusing on the primary needs: 1) monitoring, 2) impact- and vulnerability assessment, and 3) mitigation and response. These committees will have their own tasks and goals, but well-organized communication and information flow among each other is still a necessity to ensure effective planning and operation. The NDC have to be the joint chiefs of staff of the fight against drought damages and any actions for drought mitigation in the given country.

Finally it is unavoidable to note and stress again that because drought and similar natural processes do not consider political boundaries, the influences from the neighboring territories should be taken into consideration, and – bi- and multilateral – international cooperation should be developed among countries involved. This is promoted by several international organizations, even the United Nations try to help the member countries and call the attention of the states on a better international collaboration in the fight against drought and desertification. Up till now many countries joined to the United Nations Convention to Combat Desertification and Drought (UNCCD), the statement and recommendations of which are desired to build into the national drought strategy, especially those being in the Fifth Annex of the Convention which covers the problems of the Central and Eastern European countries. Different international cooperation are maintained in forestry for establishing forest plantation with drought tolerant and indigenous tree species, and to have our forests in a better condition, they have similar aims. Also big international plant breeding institutions, companies and seed distributors can be involved into the fight against drought.

As it is well known ICID also deals very actively with drought management problems and tries to help the member countries to find out the possibilities of a common and concerted action against drought damages. Among other working groups the European Regional Work Team on Drought provides a special forum for European countries to come together and help each other to organize effective bi- and multilateral connections. One of the major task of these cooperation could be the preparation of a Network for Central and Eastern European Countries, and to draw up the European drought sensitivity map which can be a good basis of any further actions against harmful drought effects.