DRINKING WATER IN UKRAINE: COMMUNICATION AND EMPOWERMENT FOR LOCAL AND INTERNATIONAL ACTION

3rd EDITION

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This third edition of the case-study
of MAMA-86 “Drinking Water in Ukraine” campaign
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drinking water problem in Ukraine.

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Introduction

According to the UNECE definition, Ukraine (covering a territory of 603.7 thousand square kilometers, with a population 48,416 million on the 5 December 2001) is a water-limited country; with water resources of less than 1.5 thousand m^3 of river run-off per capita. In a dry year in Ukraine this figure is reduced to 0.67 thousand m^3 per capita. In addition, water resources are unequally distributed throughout space and time in Ukraine, making water supply problems even more complicated.

The water resources of Ukraine have suffered from considerable anthropogenic pressure and degradation. About 75% of the population is supplied from surface waters, whose quality is insufficient for drinking purposes.

In Ukraine 70% of the population use centralized water supply but still more than 814,000 dwellers in 13 oblasts and in the Crimea have no permanent or timely access to water and are forced to use imported water of low quality. The problem of drinking water reflects the state of the environment and economy and directly affects the health and well being of Ukrainian citizens.

The worsening and in some regions, already critical condition of water supply and sanitation services, combined with increasingly ineffective water and wastewater treatment and a lack of sufficient financing are the most pressing problems facing the water sector of Ukraine. Currently 25% *of water supply facilities and lines* have reached their expiry date, 22% of water supply systems are in a state of emergency, with 35% worn out and inadequate. Half of the pumping units have depleted their resources, with 40% of them requiring immediate replacement. 26% of *sewerage* nets and 7% of pumping plants are worn-out, moreover, 46% of pumping plants are to be fully replaced.

As a results of this situation 45% of the population are consuming water that does not comply with the state standards established in the early 1980s. Substantial water supply interruption are frequently observed in large cities and small towns. In cases of serious accidents at water distribution networks, consumers water supplies may be switched off for several days.

The problem of drinking water directly affects the health and well being of Ukrainian residents. In some areas of Ukraine the problems of water-borne diseases like hepatite A, rhotovirus infections, “blue baby” syndrome have become more acute.

From another perspective the cost of water supply and canalization services is rapidly growing without improvement of the provided service quality. During the time of the Soviet Union, water resources were generally considered to be unlimited. Resource use payments, including drinking water charges were set at merely nominal levels. In the recent decade, due to transition to a market economy, the issue of reforming pricing and tariff policy in the water sector became the key agenda item of all governmental levels and water utilities (vodokanals).

Tariffs for water supply and sanitation services continue to grow steadily resulting in serious protests from consumers, higher social tensions and reduction of water bills’ collection rates.

Consumers pay flat ratewater bills, based on average water supply norms, which are 2-3 times higher than elsewhere in Europe. Due to the absence of water meters, consumers have no idea about their actual water consumption and take no measures to limit their water use. As a result, water is often used excessively, exceeding even established water supply norms.

Low quality and rising prices for water supply generate protests from consumers and require urgent measures at the national and local levels, accompanied by the development of mechanisms for protection of consumers’ rights that currently exist only on paper. Contemporary state

of the water sector cannot guarantee fulfilment of these citizens' rights. In particular the poorer city residents are the consumers most heavily affected by growing water/wastewater prices.

The increase of housing and utility tariffs for households is a preliminary measure and cannot be introduced without prior implementation of socio-economic reforms.

Reform of the water sector is now in an ongoing and developing process with the principle aim of making water utilities economically effective. But water sector reforms will be successful only if they are accompanied by social reforms or similarly the economical reforms will have to be social orientated. According to the official statistics 28.3% of Ukraine's current population poor, in towns the figure is higher – 36.1% population are poor.

Water supply tariff has been increasing over recent years. Today the rate is 0.85 Hrv (15 cents for m^3) in comparison with the tariff for water supply in Europe where it is $1.50. However this figure should be compared also with the average price for labour which is 0.48 USD, in Germany – $25.Taking into account the proportional differences, if average eraning in Ukraine were the same as Germany, the relative cost would be over $7.00 per m^3.

The current critical situation in the water sector requires the urgent implementation of adequate decisions at all levels, the allocation of substantial resources and participation of all stakeholders. The water sector reforms have to be socially oriented reforms that are also aimed at the improvement of public health and well-being and environmental protection.

"Drinking Water in Ukraine" is MAMA-86 networking project

The idea of setting up the "Drinking Water in Ukraine" project was a result of the work of Ukrainian ecological NGOs leaders during prior discussions of problems of environment and health in Ukraine in 1997. It was a grass root initiative of 4 local NGOs from different cities and towns of Ukraine (Kyiv, Odessa, Artemivsk and Tatarbunary), who decided to join their efforts to solve the local drinking water problems.

From the very beginning the aim of the Drinking Water Campaign has been to improve citizens' access to safe drinking water in Ukraine.

Objectives of the Campaign

Short-term objectives:

- to carry out research of drinking water quality;
- to study public opinion on water problems in Ukraine;
- to raise public awareness on water and health problems, sustainable water management and environmental rights;
- to facilitate inter-sectoral discussions and co-operation between stakeholders;
- to exchange existing good practices of water purification and water supply;
- to hold public hearings on drinking water issues;
- to implement pilot projects to improve citizens' access to safe drinking water in Ukraine;
- to use international events to highlight situation in Ukraine and to promote participation, consultation and development of partnerships.

Long-term Objectives:

- to participate in decision making processes on drinking water problems at local, national and international levels;
- to establish working relations and information exchange at local, national and international levels;
- to advocate for the idea of sustainable water management, to encourage sustainable water management models to be designed and implemented in our communitiess;
- to promote public participation in planning, budgeting and implementation of actions to ensure guaranteed access to safe and affordable drinking water.

Since 1997 the structure of the water project has developed and the area of activity has been expanded. Presently, 11 local organizations in Kyiv, Artemivsk, Odessa, Tatarbunary, Sevastopol, Mariupol, Kharkiv, Yaremche, Nizhyn, Poltava, Mykolaiv, and Feodosia are working within the MAMA-86 water campaign.

The main elements of the campaign currently include the following: public information and education activities, implementation of pilot projects, public participation in decision making processes locally and nationally.

MAMA-86 Drinking water information/education activities

MAMA-86 Water project was started with the focus on the public information and search for the reliable information on the drinking water problems at the local level. The lack of clear and transparent information has been, and remains one of the main problems of our society. There is no tradition of information disclosure in Ukraine and it is difficult for the public to obtain clear information from official sources. However, the public must have accurate and reilable information about water quality and about practical steps which can be taken to improve the situation in order to protect themselves and their families from the health risks associated with inadequate water.

The absence of official policy with regard to environmental education and public awareness raising, combined with a lack of economical regulative instruments has resulted in a situation where the individual consumer has no motivation to use natural resources efficiently, this is especially true of water resources.

Under the existing conditions of a complex environmental situation, people are not interested in mere statistical deviations of water quality from the legal standards, they are more concerned about the safety of drinking water, the potential health impacts and are looking for affordable solutions to these problems.

At present with the current lack of accessible clear information on drinking water quality, it is the quantitative level of water supply which frequently induces the urban populations to raise issues of consumers' rights and use available mechanisms to protect these rights. According to the legislation currently in force, citizens of Ukraine have the following rights:

- the right to safe drinking water which will not adversely affect their health,
- the right for information on drinking water quality,
- the consumer's right to a guaranteed consumption level, the due quality and safety of goods, works and services, necessary and adequate information on both quality and quantity, as well as the right for redress of health/life damages and losses.

However, all these rights exist on paper only and the contemporary state of the water sector cannot guarantee fulfilment of the citizens' rights as described above.

One of the objectives of the MAMA-86 drinking water campaign is the raising of public awareness on water issues. To achieve this goal we use a range of different tools:

– ongoing research and collation of official and other existing information;

– independent analysis and monitoring of drinking water quality;

– public surveys, expert interviews;

– publication of informational materials (leaflets, booklets, articles, etc.);

– lectures, seminars, round tables; Water Day activities;

– regular training for MAMA-86 staff.

Since 2001 MAMA-86 in partnership with Women in Europe for Common Future (WECF) has been carrying out the drinking water educational campaign, which is financially supported by the MATRA Program of the Dutch Ministry of Foreign Affairs.

Our *target group* includes local NGOs, selected groups of water consumers, local and national authorities, experts from scientific institutes, water utilities; schoolchildren and students and the mass media.

MAMA-86 Independent research

Within the framework of ongoing educational activities each of MAMA-86 project-partner groups conducts regular search for information on common and local water problems and their solutions. The first case studies of drinking water quality were carried out by MAMA-86 in 4 towns of Ukraine (Kyiv, Artemivsk, Odessa, Tatarbunary) in 1998. Since 1999 MAMA-86 has been monitoring tap and artesian drinking water quality during springtime in Kyiv (Annex 1).

According to the results of these studies, even in Kyiv, notwithstanding a higher capacity of the capital and close attention of the city authorities to the problem, tap water quality does not always comply with the due standards and depends on quality of water supply sources, seasonal fluctuations, water treatment technologies and the state of the water distribution network.

Independent drinking tap and artesian well water quality monitoring in Kyiv

Since 1999 MAMA-86 has been carrying out monitoring of drinking water quality in Kyiv during springtime. The main sources of drinking water for Kyiv are surface waters, coming from the rivers Dnieper and Desna. At the time of spring floods the level of organic matter contamination of water increases creating difficulties for water treatment in Kyiv.

We conducted monitoring during March-May period in 1999-2002 in collaboration with experts from the Laboratory of Ion-exchange and Adsorption at the Chemical Engineering Department of the Ukrainian National Technical University. We chose 10 places for sampling each in one of the 10 districts of Kyiv for monitoring in 1999 and 2000. In 2001 we monitored only 3 districts namely those in which we found the low water quality in our previous studies. In 2002 the scheme of monitoring included monitoring tap drinking water (5 sampling points), artesian wells (6 wells) and the groundwater wells (4 points) in Kyiv.

The common task of the monitoring is to collect data on the water quality in Kyiv during the spring. In 2000 the additional task of the monitoring was to detect the relationship between water quality and the condition of the tap network system. In the framework of this monitoring verification of the methods was also carried out. There were 3 laboratories of Sanitary-Epidemiological Station, Vodokanal (Water utility) and the Laboratory of Ion-exchange and Adsorption at the Chemical Engineering Department of the Ukraine National Technical University which took part in this Verification.

The results show that the data of analysis made by each laboratory are the same, the differences between the results are not significant. These results are strengthening our position and confidence in our results of tap drinking water analysis. The data showed that for tap water the parameters of organic substances, colour, turbidity, aluminum and iron exceed the legal limits. The iron contamination is related to the tap water network conditions. The highest peaks of the problematic parameters were observed in 2000. In general we have to note that the main problem of tap drinking water is caused by organic matter contamination of water in sources during the flood period and secondary contamination caused by water treatment reagents (aluminum) and tap water system conditions (iron). The figures obtained in 2002 were more acceptable than in previous years.

It was found that among the chemical parameters the main problems of artesian water are manganese, iron, hydrogen sulphide, colour, turbidity and nitrates contents. The water quality in two artesian wells became worse from time to time. This year we made the first testing of the ground water wells for some chemical (iron, colour, turbidity, dry weight and nitrates) and microbiological indicators. In general the situation with wells in Kyiv requires further research.

On Earth Day (22 April 2002) MAMA-86-Kyiv started the public investigation/control of the sanitation state of the Kyiv artesian wells. During two weeks 74 out of 152 existing artesian wells were investigated. The main shortcoming is the lack of public information about water

quality. The results of the public investigation were sent to the national and city authorities and we are hoping to receive information and comments.

To find out about the level of public awareness and opinion about drinking water supply in 1998-1999 MAMA-86 carried out ***public surveys*** on water problems in 11 towns of Ukraine to clearly identify public concerns about water problems. The main conclusions of the survey made in co-operation with Socis-Gallup International in 11 cities and towns of Ukraine were that 64% of respondents perceived drinking water quality as a major environmental problem, 15.6% considered that a large-scaled public awareness raising drive would be necessary, 21.3% believed that they had to rely on their own devices to improve water quality, many citizens interviewed agreed to pay more, than at the time of the survey, if the quality of drinking water was guaranteed. This is especially important now, when pricing of water becomes the #1 issue and the majority of Ukrainian population has a very low income.

MAMA-86 network drinking water campaign is now operating under new conditions, following discussion of Water Management and Investment in the Newly Independent States (NIS) at a high official level – Ministerial Consultation between Economic/Finance and Environment Ministers took place in Almaty, Kazakhstan on 16-17 October 2000. Providing public information about participation in this process became the priority for MAMA-86 as these matters relate directly to the objectives of the project.

Expert interview

At the beginning and the end of implementation of technical solution projects MAMA-86 decided to undertake a series of expert interviews. MAMA-86 will identify social indicators for monitoring development of the relationship between the main stakeholder groups, involved in the project. The taget group is made up of experts from the 5 cities of Ukraine (Kyiv, Artemivsk, Odessa, Sevastopol, Mariupol), involved in water sector reforming. A questionnaire was drawn up by MAMA-86 in co-operation with Socis-Gallup and the results were processed by the Socis-Gallup expert – Alexander Stegniy.

80 experts became the respondents of the MAMA-86 interview, which was carried out in March-April 2001. The results of analysis of expert intervies were presented at the "Water meters are an important instrument of water sector reforms in Ukraine" round table in May 2001. The main conclusions are as follows – the majority of experts think that:

– to improve the drinking water quality in Ukraine the water sector needs reforming, using individual water purification devices is secondary to this concern;

– as for water saving the most urgent measure is installation of water meters for all consumers (86% of experts); 42% support the importance of raising public awareness on water saving; the majority of the experts identified increasing consumer payments as the least effective measure;

– for the implementation of this decision it is possible to establish partnerships between the main stakeholders, the views of the representatives of water utilities are extremely pessimistic on this issue.

MAMA-86 staff trainings on project implementation problems

MAMA-86 actively collaborates with experts, inviting them to prepare overview and analysis of different aspects of water problems, to carry out the independent researche of local drinking water problems. This work included information on the legal framework and water sector reforms related to consumer rights, water tariff reforms, basin approach and project implementation problems in Ukraine. The analytical works of experts are presented at MAMA-86 staff training, seminars and round tables and are also available for members of the MAMA-86 net-

work and other NGOs at the MAMA-86 Web site. Some of this information has also been already published.

MAMA-86 – Aquanet project

In 2000 MAMA-86 worked in collaboration with the experts of Aquanet (a joint venture of Dutch water supply companies, water boards and the Netherlands Water Works Testing and Research Institute) to implement a project with the aim of further developing MAMA-86 pilot project activities.

During February to March 2000 MAMA-86 and experts of Aquanet conducted fact-finding missions in Kyiv, Artemivsk, Odessa, Sevastopol and Tatarbunary. The mission objectives were:

– to review the legal, institutional, financial, technical and social aspects of local water supply,

– to review the training needs of MAMA-86 partners;

– to review the local possibilities and priorities for practical follow-up activities within the framework of the "Clean Drinking Water and Democracy Building" project.

During this mission the Aquanet experts and MAMA-86 representatives met with local authorities, the representatives of water utilities and other stakeholders.

The information gathered by the fact finding mission was used by MAMA-86-Kyiv, together with Aquanet staff, to organise a project management in May 2000. The event was used to provide a week of training for the MAMA-86 network with 12 participants from Kyiv, Artemivsk, Odessa, Sevastopol, Tatarbunary, Ternopil, Mariupol, Yaremche, Nizhyn and Kharkiv. The training focused on the use of a systematic scheme to plan and describe a viable project proposal described as a Logical Framework for Project Design. The program for the week included training on many aspects of water production and distribution in legal, institutional, financial, technical and managerial context in Holland, in relation to the Ukrainian situation as discovered during the fact-finding mission. For demonstrative purposes the Sevastopol project proposal was worked out during the plenary session and three other project proposals were designed in working groups.

Analysis of the three years experience gained during the Drinking water Campaign and together with the new knowledge provided by the Aquanet training became the basis for designing new short and long term projects as a concrete solutions to local problems within water sector in Ukraine.

MAMA-86 and WECF staff training activity

Since 2001 MAMA-86 worked in partnership with Women in Europe for a Common Future (WECF) to organize a range of training/workshops focused on specific problems of project implementation, the seminars and other events are supported by the participation of Ukrainian and foreign experts. Three training events have been organized dealing with different project management issues, water sector reforms (legal, economical and social aspects), the introduction in Ukraine of the river basin approach and drinking water quality problems (contamination of nitrates).

MAMA-86 and WECF staff workshops are important for the developing the skills of all participants, they are also important as sources of reliable information and for the exchange of experience and best practice between the project partner groups. The training aims to provide all project partners with the required high level of understanding of the issues so they can become respected partners in discussion and negotiation with governments, water engineers and business people.

MAMA-86 activities on informing and education

The quality of drinking water and consumer concern about this issue are the key factors, which can help to influence the environmental consciousness of population in order to preserve water resources in Ukraine.

In 1999 Ukraine ratified the Aarhus Convention on access to information, public participation in decision-making and access to justice in environmental matters. This Convention is strengthening the legal framework and leading to new trends for democracy building and development of environmental rights in our country. The Aarhus Convention stipulates that "in the field of the environment, improved access to information and public participation in decision-making enhance the quality and the implementation of decisions, contribute to public awareness of environmental issues, give the public the opportunity to express its concerns and enable public authorities to take due account of such concerns".

Drinking water is the key issue for democracy building in our society. The implementation of Aarhus Convention in Ukraine should see the development of mechanisms for the active provision of environmental information by the State to the population, as well as the involvement of the population into the environmental decision making process, and in particular on the issue of water use.

MAMA-86 works actively in providing informing and education to the public about existing water problems and possible solutions; the organisation works to promote dialogue between stakeholders (governmental bodies, local authorities, water utilities, science, business and public) and to provide the public information mechanisms and capacity building for adequate and substantial public participation in decision-making process at all levels.

During the five years of the water campaign the MAMA-86 network prepared and published more than 50 various informational materials (newsletters, leaflets, brochures, reviews, case studies, articles and collection books) on many different water problems and solutions. These materials are broadly distributed among the public. We organize lectures on water issues for different target groups: teachers and doctors, parents and consumers of drinking water; we also use our materials to organize exhibitions and libraries for schools and the general public. The materials we have produced have proved to be very popular and are widely used by the mass media and other sectors of the population. The most popular information includes the leaflets on rational water use, nitrates in water, water and health problems and materials on the methods of drinking water purification.

The two main objectives of the public information-education campaign can be summarised as follows: drinking water problems and the reform of the water sector.

MAMA-86 seminar "Basic principles of sustainable water use in Ukraine"

On 22-23 February 2000 MAMA-86 held seminar in Kyiv entitled "The basic principles of sustainable water use in Ukraine and the role of NGOs in preparation to the World Water Forum" seminar. Almost 100 participants played an active role in the seminar, among them: 26 Government officials, 19 experts and representatives of 25 NGOs from 9 regions of Ukraine. The implementation of the principles of sustainable development in the management, protection and use of water resources is an urgent and vital matter for Ukraine. Althoough the concept of development is well understood by Ukrainian environmental NGO's, currently these same principles are not adequately reflected in either public opinion or through state legislature and economic regulation at a local and national level. The safe provision and management of water resources is an issue of immediate and ongoing concern to every person, all people understand that clean water is essential to a healthy life. The drinking water campaign therefore also presents a unique opportunity to popularise the principles of sustainable development and democracy building.

The development of partnerships between the Government and other sectors of society (business, science, industry, trade unions, NGOs and public) is a necessary precondition to solving the challenges of sustainable development and bringing patterns of sustainable water use into practice. The seminar achieved a number of outcomes including several important documents: NGO Position Paper was produced entitled "Basic principles of Sustainable Water Use in Ukraine", other documents included "NGO recommendations to the Government", "Government recommendations to NGOs" the latter in connection with the campaign to popularise and promote sustainable development.

All seminar materials were published and delivered to state institutions, water utilities and NGOs.

22 March – World Water Day

As part of celebrations of World Water Day in 2001 and 2002, partners from the MAMA-86 network in 10 towns of Ukraine, organized a broad public information campaign that addressed issues including water saving and the relationship between water and health. In 2002 MAMA-86 invited MD G. Korchak, a medical expert from the Marzeev Hygiene and Medical Ecology Institute of the Ukrainian Academy of Medical Sciences, to prepare an analytical review "Water and Infectious Morbidity in Ukraine" (Annex 2), which provided basic data for information leaflets and press releases dedicated to Water Day. MAMA-86 in Kyiv and Mariupol involved volunteers in Water Day activities, trainings was organised for volunteers, participants received special information and materials and had the opportunity to share their experiences. The water project groups prepared and distributed leaflets (about 4,000 copies) on a range of water issues. The lectures centred on water based issues considered from both local and global perspectives. Subjects included water usage and conservation, water resources protection and the relationship between water and health. Other Water Day activities in schools and colleges include the presentation of case studies and competitions of children drawings on subject of water.

In 2002 volunteers delivered these Water Lessons described above in 13 Kyiv schools. Nearly 2,000 pupils of different grades participated in the lessons and received informational leaflets, in total. 1,118 pupils filled in a questionnaire about water issues.

On Water Day MAMA-86 "Ecotelephon" hotline recieves twice the usual number of calls, with most of the questions about drinking water quality, additional individual purification methods and other water issues.

As a part of the Water Day activities regional project partners organized the cleaning of springs, river banks and recreation zones of the rivers, including tree planting. For example in Sevastopol, the local group and residents of Peredovoe village carried out a clean-up the local lake. In 2001 in Artemivsk 134 activists – including pupils of schools and colleges played an active part in MAMA-86 Artemivsk action for cleaning the Chetverikov stream. In Yaremche a similar project cleaned up the banks of small local river. In Odessa MAMA-86, working together with activists and local residents Luzanivka district carried out a clean up operation of the Black Sea Recreation zone followed by tree planting.

These Water Day activities have became annual traditions in the regions where MAMA-86 is running the water campaign.

MAMA-86 round tables

As one of the most effective instruments for the debate and analysis of water problems and their solutions, MAMA-86 has organized the stakeholders dialogues – in the form of round table discussions. The first round tables were organized in 1998 to discuss the results obtained throuugh the independent research of the drinking water quality in Kyiv and other cities. Transparent and reliable information, the open exchange of opinions, the involvement of the main stakeholder groups representatives and the development of partnerships are the key principals of our round tables.

Within the framework of the water campaign all project groups conduct round tables for discussion of local drinking water problems and finding ways to reach appropriate decisions, other practical issues including the challenges of project implementation are also coverei. The materials of these round tables are published and used in our campaign activities.

One of the most important round tables was held in May 2001. Its topic was "Water Meter is an important instrument of the water sector reforms in Ukraine". The representatives of all stakeholder groups were invited to participate in multysectoral discussion of the problems. The experts and representatives of the state institutions presented economical, social and environmental aspects of the water supply from the local and national levels and from the perspective of international institutions. Experts of Task Force for the Implementation of the Environmental Action Programs for Central and Eastern Europe (EAP) also took an active part in this round table. In the ensuing discussion participants noted the importance of the water meters for the protection of consumers' rights and for water saving strategies. At the round table MAMA-86 presented the Water meter installation pilot project, which MAMA-86 was implementing in Kyiv, Odessa and Kharkiv within the framework of the Novib supported programme "Technical solutions for the improvement of Ukrainian citizens' access to safe drinking water in urban and rural areas". The participants supported the idea of the project and expressed readiness to collaborate on the issue. A report was presented at the round table that described the findings of the experts' interviews on reform of Ukrainian Water sector, as carried out by MAMA-86 together with the expert Stegniy Olexandr of Socis-Gallup. All round table materials and reports were published (200 copies) and broadly disseminated among the stakeholders. The materials were very helpful to the education and information work of the campaign and for preparation of implementation of the water meters pilot projects in Kyiv, Odessa, Kharkiv and other regions.

Regional education activities

In Sevastopol our local group, together with the youth environmental association "Gaia" and Children Tourists Center, carried out 3-5 day expeditions to the Baydarskaya valley to investigate and to make a detailed inventary of the drinking water sources (mountain streams, wells). A map showing fresh water sources of the valley and some of the Sevastopol districts was produced as one of the results of this investigation. The collected information and map were presented by MAMA-86-Sevastopol at round tables and meetings with local authorities aimed at discussion of the local capacity of alternative drinking water provision for the city.

In 2001 our **Poltava** regional organisation gathered official data on the quality of water in wells in the rural area Poltava oblast. The analysis and mapping data shows that all wells in the rural area of Poltava oblast are highly contaminated by nitrates. Some concentrations are no less than 3-5 times higher than standard (45mg/l) and the maximum concentrations detected in Semenovsky district were 50 times higher than standards and exceeded 2,200-2,500 mg/l. Alternatively, according to official statistics, 10-15 cases of the "blue baby" syndrome have been detected in this oblast. Based on the information that has been collected, MAMA-86-Poltava actively continues to work on a campaign of public education about the contamination by nitrates of drinking water in wells, this campaign also aims to inform the public about the measures that can be adopted to prevent or minimise toxic impact of nitrates. Booklets on this issue were published and widely distributed: "Pregnant nutrition and nitrates" (400 copies); recommendations on "Nitrates and nutrition" (400 copies); info letter "What do we know about the nitrates?"(400 copies). 4 lectures, 1 seminar and a round table for the chief physicians and the doctors of the districts were organised on basis of these materials. 42 meetings with people (600 residents) were organized for the dwellers of the most heavily contaminated districts (Semenivskiy and Lochvitskyi).

To run the education campaign MAMA-86 **Mariupol** organized a programme of work with volunteers. The idea was that children would be educated so that they could explain water prob-

lems to other children of the same age, the project worked with volunteers for three age groups. They prepared a course of lectures on different water problems: drinking water quality, water conservation, the protection of fresh waters, water and health, and the problems of the Azov Sea basin. The work was extremly successful and popular with children, who actively participated in conferences, seminars and art competitions. As a result of these activities MAMA-86 organized the children eco-centre, which works in closely cooperation with other city educational institutions within the framework of the direction "Adolescent for the adolescent". A series of educational leaflets were published based on materials created by the volunteers. Among them are the following:

"What is water?" leaflet produced in cooperation with the Mariupol scientific-methodical centre and senior students of several Mariupol schools;

"Ways of contaminating drinking water in Mariupol" leaflet produced in cooperation with Mariupol marine Lyceum cadets;

"Quality of drinking water and its effect on people's health" leaflet produced in cooperation with the students of Mariupol medical school.

In cooperation with technical experts MAMA-86-Mariupol created 2 thematic lectures for the Mariupol marine Lyceum, a booklet entitled "The right to health and longevity" (about methods of additional purification of drinking water) and the "Clean drinking water" leaflet.

MAMA-86 network implements the pilot projects

The "Drinking Water in Ukraine" Campaign was started in 1997 with the aim of finding concrete solutions for local drinking water problems. The installation of drinking water purification device in Tatarbunary and creation of the MAMA-86 water filter data base are examples of small-scale short-term alternative solutions developed in order to provide people with safe drinking water. This task remains extremely urgent and important today. From the experience of this campaign it is clear that local drinking water problems must be solved in partnership with local governments and businesses, and in close connection with policy at national and international levels.

During a three year period the MAMA-86 network has obtained a clear picture of the situation in regard to drinking water in Ukraine.

The project has shown that there are three main directions for future activities in addressing drinking water problems:

- drinking water from centralized systems of supply;
- drinking water in wells;
- alternative solutions (bottled drinking water, installation of additional purification devices, individual filters and other individual purification technologies).

Within the framework of the Drinking water campaign the MAMA-86 network implements pilot projects to provide practical small-scale and low-cost alternative solutions for drinking water supply. The exhange of knowledge and experience of positive solutions to ecological problems (water pilot projects, in particular) are of great importance for catalyzing public activity. MAMA-86 develops and widely replicates such pilot projects. The first pilot projects were launched in Tatarbunary, Odessa oblast (May 1999) and Sevastopol (1999).

Since 2001, in the framework of water campaign MAMA-86 has been implementing the programme, supported by Novib-Oxfam Netherlands: "Technical solutions for the improvement of the Ukrainian citizens' access to safe drinking water in the urban and rural areas". This programme consists of 9 pilot projects that address specific local drinking water problems and public involvement in these solutions through establishment of partnerships between the all stakeholders (authorities, the public, science and business).

Developing a Community Based Secondary Purification Water Project in Tatarbunary (Odessa oblast)

MAMA-86 carried out a research programme to determine the advantages and disadvantages of small-scale water purification system for special target groups (kindergartens and schools) in Tatarbunary.

The main sources of water for Tatarbunary are groundwater and artesian wells. The water in these sources exceeds the state standard for mineralization, and the level of nitrates is very high. The drinking water is not safe at all. The local authorities claimed that the region is not included within the Ukrainian State Plan on improving drinking water.

In 1999, as the result of MAMA-86 campaign, our regional partner received the drinking water additional purification device (reverse-osmosis water treatment device UVPM-01,"EcoSoft"), which supplies the kindergarten with safe drinking water.

In 2000-2001 the regional group organized meetings with the local authorities and director of the town school to discuss the option of moving the existing water purification unit to the school in order to supply pupils with safe drinking water. A Contract on collaboration between MAMA-86 and the Director of town school was signed. Within the framework of the project the expert of EcoSoft, the producer of purification device, presented a report that identified the economical aspects of using the additional water purification device.

From September 2001, when the additional purification device was moved into the local school, all schoolchildren and kindergarten children (1,300 children) were provided with safe drinking water.

In January-February 2002 MAMA-86 invited EcoSoft to carry out technical control of the device and to upgrade it. A new membrane and cartridges were installed. The question of financial support for the ongoing maintainance of the device is still a problem and the local partner group is looking for possible options.

Mariupol water purification

The need for development of community based economic model for water purification is a pressing problem for big and small towns of southern Ukraine.

Mariupol is a large industrial town with a population of 532,000. It is well known as a town with an ecologically dangerous situation. The city has two very big metallurgical enterprises, a coke-chemical plant, machinery and building industries, a sea harbour and highly-developed transport network. All these enterprises have significant ecological impacts and produce wastes that are polluting the environment. For example the condition of water resources in the city area does not meet the state standards.

Water characteristics: percentage of sulphate exceeds the standard 2-3 times, 1.6-2.5 times for dry rest and 1.5 times for chlorides. It should be mentioned that the levels of water treatment are very low and not efficient. Hyperchlorination is used for water disinfection, the result of this chlorination is secondary drinking water pollution by chlororganics which are both toxic and cancerogenic. The citizens of the Mariupol are justifiably worried about water quality and also the lack of clear and reliable information on this problem. The current sanitary situation in Mariupol is critical as the following example demonstrates: there are 250 cases of viral hepatitis among children caused by polluted drinking water.

In 2001 the chief physician of "Ajbolit" sanatorium (treating pulmonary disease and Tuberculosis) asked MAMA-86-Mariupol for help in solving drinking water quality problems within the sanatorium. The city administration had agreed that this objective qualified for state aid, but there was no money available within the city budget. It is clear that the issue of drinking water quality is a significant and ongoing problem for the city.

Based on the experience of the Tatarbunary pilot project MAMA-86 developed a model for the preparation of the installation of a water purification system in the sanatorium in 2002.

MAMA-86-Mariupol undertook independent analysis of water quality in the sanatorium. The research revealed that the main problems of this water are a high level of mineralization, high concentration of sulphates and bacteriological pollution.

MAMA-86-Mariupol also researched the current situation as regards the water purification systems available in Ukraine. As a result of the MAMA-86 Drinking water Campaign in general and Mariupol project activities, and through the support of MAMA-86 "Eco-Telephone" a database is available for all partner groups to access information on water purification devices and producers and service providers.

In June 2002 MAMA-86-Mariupol carried out an open tender for the sanatorium project. The winner of the tender is a private company "EkoTekhnologii". This next phase of activity

reveals the real benefits of developing the partnership and the involvement of the private sector in the solving of water problems. In order to facilitate future projects a contract of long-term cooperation has been signed between MAMA-86-Mariupol and "EkoTekhnologii". In September 2002 the water purification unit will be installed in the sanatorium of Mariupol, charting another success in addressing serious water issues through a multi stakeholder approach.

MAMA-86 and Sevastopol City Infectious Diseases Hospital

In 1998 the administration of the City Infectious Diseases Hospital in Sevastopol (Crimea) applied to MAMA-86 for assistance in the rehabilitation and improvement of the hospital drinking water, wastewater and heating systems.

In June-July 1999 MAMA-86 invited the Tebodin Ukraine LLC for Technical Services to conduct a technical survey. The investigation revealed that the water supply, sewerage and heating systems were in a state of emergency and needed urgent repair measures to be undertaken to prevent the total collapse of these systems. The Hospital wastewater contained pathogenic micro-organisms and had become a dangerous source of pollution to underground water and the open sea.

Tebodin's experts carried out a technical investigation of the situation, which resulted in a priority list and a preliminary cost estimate for the necessary reconstruction works.

In December 1999 MAMA-86 together with the local partner Youth Ecological Association "Gaja" initiated the project of the rehabilitation of the Sevastopol City Infectious Diseases Hospital. The Netherlands Organization for International Cooperation Novib provided financial support for this project. Through the aid of Novib it was possible to allocate funding for improvement of the Hospital water supply, heating and sewerage systems. According to the Contract between MAMA-86 and Novib the additional money required had to be found through local fundraising. The local partner "Gaia" organised a series of meetings and "round tables" that considered problems that were encountered during the implementation of the Hospital reconstruction project. The representatives of MAMA-86, environmental and women's NGO's, members of the community, local authorities, the mass media and Hospital staff were involved in these discussions.

The Working Design of the Hospital reconstruction was prepared by Sevastopol branch of "NIIPROEKTREKONSTUKTSIYA" under the technical consultation of Tebodin in February-March 2000. The tender for the construction work was held in May 2000. The private companies MORSTROY and PARIS were selected to carry out the reconstruction. The execution phase of the Hospital project started on the 1st of July 2000.

On the 27th of December 2000 acts of acceptance were signed by the State Acceptance Commission.

"Gaia" organized a broad and transparent public information campaign that provided details on implementation of the Hospital project through a series of radio and TV programs and articles in regional newspapers. "Gaia" published and distributed a leaflet about the Hospital project. As a result of the succes of the local media campaign, the city authorities allocated the additional money for the completion of the overall rehabilitation works. All works were completed in 2001.

Water meters installation projects

Water wasting is major problem facing the water sector in Ukraine. The outdated water supply systems and equipment combined with irrational and unregulated consumer water usage create a serious situation. In Ukraine people generally have not got water meters and have no

idea about the volume of water they use. Consumers pay bills based on water consumption norms. For example 350 litres per day per person is the water use norm for Kyiv. MAMA-86-Odessa has conducted research that provided evidence that the real water use rate is 2-3 times higher than norms that are in place in Ukraine, this equals water usage that is 4-5 times higher than EU standards. Analysis of the cost of drinking water in Ukraine reveals a situation that is neither realistic nor transparent. In Ukraine 1 cubic meter of drinking water costs not more than 15 cents for the individual consumer, this figure is 10 times lower in comparison with the Netherlands, where 1 cubic meter costs up to 1.5 USD.

The implementation of water saving strategies is a major priority for the water sector. The State programme on the installation of water meters installation exists but it is being implemented very slowly because of a lack of money.

It is also apparent that the water meter installation program is not a priority for the city administration and water utilities.

Since 2001 within the framefork of the "Technical solutions" Program MAMA-86 has been carrying out experimental pilot projects in three cities: Kyiv, Odessa and Kharkiv, aimed at changing public attitudes to water use with the main purpose of decreasing the levels of consumption.

The aim of the pilot projects is to stimulate the public to water saving through an educational campaign combined with the use of economic instruments.

The outcomes of the project are expected as follows:

- raising public awareness on rational water use and consumer's understanding of water sector reforms;
- changing the Water Supply Utility (Vodokanal) policy by forming transparent and open relations with consumers.
- decreasing the level of water consumption in the experimental buildings;
- making the process of water pricing and payments based on water meters understandable for consumer.

Kyiv water meters project

On 02.08.1999 Kyiv City administration adopted the document on the improvement of cold and hot water supply and sewage services system and also promoted the installation of water meters. Today individual house water meters are installed in new apartment blocks in Kyiv by the Water Supply Utility. Consumers of older city districts rarely install individual water meters because of the high costs of these services. At present there is no real economical motivation for the public to have water meters installed and for consumers to use water sensibly. Under the rapid water tariff reform of the water sector in Ukraine. In May 2001 MAMA-86 organized the multi-stakeholder seminar – round table entitled "Water meter is an important instrument of water sector reforming in Ukraine" (see the information above), which helped us to recognize the general situation with water meters in Ukraine and in Kyiv and the economical, social and environmental aspects of the issue.

In September 2001 MAMA-86-Kyiv chose 3 old-fashioned apartments in buildings located in old districts of Kyiv as the place for implementation of the project. We worked with the residents of the block for a period of one month and gained their agreement to support the project to install individual water meters.

MAMA-86 gathered legal documents on water meter program at national and local levels and collected information about the providers of services in Kyiv. We prepared documents for the tender and organized the tender of the contract of the installation of water meters. Following detailed evaluation the "Ukrservicemontazh" Company was awarded the tender. Installation of water meters in apartments was completed in January 2002. In total 67 water meters were in-

stalled in 27 apartments with contracts of collaboration signed between MAMA-86 and 27 Consumers. Since March 2002 we have been gathering water consumption data in this building, these figures will be used for the next stage of the project activity – a mass media and public awareness campaign on water saving.

Odessa water meters project

According to official information the Odessa Water Utility "Odesvodocanal" suffered losses of 8 million hrivnas in the first quarter of 2000. The Water utility was determined that an escalation of water tariffs and the installation of water meters would be the solution to this situation.

During July 1999 Mama-86-Odessa with help of experts carried out 24-hours monitoring of cold water usage at 4 houses in the Luzanivka microdistrict. As a result of this research we found out that the daily consumption of drinking water per person was about 900 litres, and that an average family of 4 people used more than 535 cubic meters of cold water a year. Under the existing situation the consumer's payment did not cover the volume of drinking water that was going to waste. People paid taxes based on a calculation of 300 l/day/person and did not think about water problem.

In April 2002 Mama-86-Odessa launched the water meter project in a typical new apartment building of Suvorovski district of Odessa.

Artemivsk alternative water supply

MAMA-86-Artemivsk has been working on the issue of drinking water since 1997. During this period the local and regional water-supply situation was clearly defined. The analysis of drinking water quality and surveys of public opinion were held in Artemivsk and partnerships have been established with local governments. MAMA-86-Artemivsk coordinates the work of the public initiative group on water sector problems. The town of Artemivsk is situated in the northern part of the industrial Donetsk region, its population is 86,000.

One of the administrative units of the town is Soledar – with 15,000 inhabitants, which has its own Water-Supply Administration. At present water is taken from the open canal "Severskiy Donets – Donbass" and is then directed to town. The water supply system covers 30 km from the treatment plant to the town. There are Water-supply restrictions for the whole region of Artemivsk and this is reflected in the current levels of water supply that are below the standards described by the state. The consumption standard is set at 260 litres per person per day whereas actually the level of water-supply in Artemivsk is 190 litres/person a day, in Soledar this falls to – 145 litres/person a day, in addition the drinking water supplied also fails to meet the set quality standards.

The goal of the project is to organise alternative water-supply in the town of Soledar in co-operation with the Water-Supply Company.

Objectives are to:

- provide people of Soledar with safe drinking water from the local artesian water sources;
- provide industrial water of suitable quality and quantity directly from the Canal;
- allow Soledar Water utility to save funds for improvement of the water service, including water quality and the regime of water provision;
- increase the level of public awareness concerning drinking water quality and rational water use;
- create a precedent of co-operation of NGOs and municipality for solving local problems.

There are local artesian water sources in Soledar area located at Yalynka and Forest Site. Yalynka's capacity has been estimated at 3,000 cubic meters per day, however this figure is sev-

eral years old. Of the two wells on the site only one is operational and both require repair and upgrade to increase capacity. Alternatively new wells can be drilled. Additional purification is not required.

Since 1998 Soledar Water utility has been carrying out installation of water meters in Soledar. Today this campaign has established good relations with consumers and as a result of this work Soledar Vodokanal has a profitable business. The population pays its water bills.

MAMA-86-Artemivsk is responsible for the first stage of the project and also for a broad information campaign in order to involve investors and find other matching funds to start the second, more expensive stage. At this first stage the main task is to create the technical survey for the project. Now MAMA-86 is working with Soledar Water utility on preparing the technical background materials for the busines plan. One of the outcomes of this project will be the introduction of new methods of collaboration between public organizations, enterprises and local government to realize town programmes.

Drinking water solution for rural area

Today the drinking water quality in rural areas escapes the attention of powerful institutions. State water sector reform programmes neither give financial support or include reconstruction and improving of the water supply of rural area within national plans. The combination of reduced investment and a decrease of regulatory activity has led to changes in polluting inputs, the disruption of water supply and sanitation services, disruption of pollution control and the growth of population morbidity.

As a result of long-term extensive agricultural activities the soil and water sources (rivers, underground waters, springs) are highly polluted by chemicals, nitrates, pesticides and other dangerous substances. People in the countryside use the drinking water from wells drilled to a depth of between 5 and 20 meters. These may be community or individual wells. The water quality control of the wells is conducted by Sanitation and Epidemiology Service (SES), but it is very irregular. Such lack of State monitoring was caused by general economical difficulties and limits of money, materials and reagents for control service. The community wells are practically not being cleaned and washed. The well water quality is affected by environmental pollution. The common problems of well water quality include nitrates, pesticides, radiological and bacteriological pollution.

A lack of money, a lack of information on the water quality of wells, ongoing drinking water problems and unsuitable solutions create the preconditions for a decrease in the level of public wellbeing in the countryside. The unsafe drinking water determines and contributes to the complex set of social and health problems commonly found in rural areas of Ukraine.

MAMA-86 project in rural area is aimed on:

- investigation of the quality of water in wells;
- raising public awareness on drinking water problems;
- finding technical solutions to improve the quality of drinking water;
- creation of community based drinking water supply and services.

Safe drinking wells water in Yaremche

In Ivano-Frankivsk oblast more than 70% of the population use drinking water from wells. The total number of wells in this area is more then 100,000, including 550 community wells. Most of the wells were built decades ago and have never been washed. There is a serious problem of bacteriological pollution of drinking water sources in this area. According to the water quality investigation of Yaremche region carried out in 1997; 50% of water samples did not meet the sanitary standards (e.g. coli index varied from 460 to 2,380, the norm is 100). In 1999 according

to the official data 40% of the drinking water samples were outside stated norms. In 1999 40% of community wells did not meet the regulatory standards. The individual wells are outside of state control service, SES takes the water samples, analyses and carries out washing only in those cases when the well owner claims responsibility for control of the well. This service must be paid by well owner.

Two thirds of illnesses in the rural population are the result of low quality unsafe drinking water. A lack of ecological knowledge, informing people about water quality under conditions of the economical constraints described above makes the drinking water problems more complicated. The failure to maintain public wells adequately, mistakes in settlements planning, and the unsanitary condition of utility buildings (farm yards, toilets and others) are frequent causes of bacteriological pollution of drinking water in rural areas. Often rural wells are located close to the source of pollution and waste waters may also discharge into the wells. The second problem of rural wells in Ivano-Frankivska oblast is contamination by nitrates. The last investigation of the condition of wells in two districts of Yaremche was carried out in 1994 and revealed that 40% of the researched wells did not meet the standards on nitrates. According to the official data the nitrates concentrations varied from 48 to 73 mg/l (standard is 45 mg/l).

In previous years SES carried out the washing and disinfecting of wells by using special equipment with chlorine substances, but more recently a lack of funds has stopped these activities.

Goals of the well water project are as follows:

- to revive the culture of well maintenance;
- to organize a community running well washing service for the Yaremche district.

Nizhyn wells water protection projects

Nizhyn is a small town in Chernigivska oblast in northern Ukraine with a population of 132,000. The main activity in this territory is agriculture including arable and livestock farming. 60% of the water supply in Nizhyn district is supplied from traditional wells. In 1998 according to the SES data 43% of the drinking water samples from community wells did not meet the chemical standards and 32.5% of wells did not meet the bacteriological standards. The individual wells which make up the majority of all wells in the district are outside the control of the state. Official data shows that contamination of drinking water exists but is described as not substantial. We do not believe that this is true, especially in consideration of the fact that most part of this oblast has suffered radioactive contamination following the Chernobyl disaster.

According to medical statistics in 1999 Chernigivska oblast occupied the first place in register-list of childhood sickness rates of gastrointestinal tract diseases (234.9%). There is a direct relation between gastrointestinal tract diseases and nitrate concentrations in drinking water and food.

As a result of the economic situation, combined with the lack of up to date and reliable information on drinking water quality and associated medical problems, much of the public in the region is ignorant of the need to perform regular and effective well maintenance activities.

Poltava community based alternative solution

During the last 5 years Poltava oblast has occupied 3rd place on the list of childhood sickness rates of gastrointestinal tract diseases and ontological disease. Annually 10-15 cases of acute nitrate-poisoning (those that can be clearly diagnosed as such) among the children under 3 months of age are registered in the region. The cause for this is the high level of nitrates in drinking water that is passed to children though use in preparation of children's milk meals.

According to the SES data in 1999 the drinking water most heavily contaminated by nitrates was in Semenovsky district (maximum recorded concentration – 2,252 mg/l) and

Lokhvitsky (2,053 mg/l). Given that the state standard for safe levels of nitrate in drinking water is set at 45 mg/l, in these cases, the standard had been exceeded more than 50 times. Goals of the Poltava project are:

- to inform the public on nitrate water pollution problems and the influence on human health;
- to improve access to safe drinking water via borehole exploration and building the community supply systems (close to schools or hospitals).

MAMA-86-Poltava works to actively promote public education on the issue of nitrate contamination of drinking water in wells. Durring 2001 they organized a public survey on water problems in rural areas of the region. 500 questionnaires were completed and analysed. During fact-finding missions to the rural areas MAMA-86-Poltava also collected official data on nitrate contamination of well water. A map illustrating nitrate contamination in the region was created based on this information. According to this map there are no nitrate free wells anywhere in the region. The results were presented to oblast authorities and at a conference for physicians and the local medical administration and also at a round table with medical administration of all levels. Partnerships with local authorities and chief physicians of the oblast were established for future collaboration dealing with problems of drinking water quality in the rural areas of Poltava oblast. The village of Pesky (population 3000) in Lokhvitsky district was chosen as the location for implementation of the pilot project. The average contamination of wells water in this area is rated at 1000 mg nitrates per litre. The other significant problem of the well water is bacteriological contamination with single instances of tularaemia occurring in this village.

MAMA-86-Poltava is actively researching possible methods of solving the problems of drinking water contamination. The principle idea to solve the nitrate problem is to drill new deeper wells and organize the supply of safe drinking water to the community. The implementation of this project is multi sectoral and is therefore dependant on the cooperation of local authorities, the community and local businesses.

MAMA-86-Poltava plays the role of facilitator in the development of multi-stakeholder dialogue and partnership.

Public participation in the policy and decision-making processes

The passive public attitude to the decision making processes in our country is largely a consequence of the soviet state system, which was based on a top down administrative system. The mechanisms of public participation in decision making are being developed in Ukraine and form a key element of the democracy building process in our society. Today the State has a requirement to acknowledge that the development of information access mechanisms and increased public participation in the decision-making process improve the quality of governmental decisions and promote their effective fulfilment.

Active public participation in decision-making processes, the development of partnerships between different social sectors – all these standards of democracy are now supported by Aarhus Convention which was ratified by Ukraine in 1999.

Today the reform of the water and sanitation sector is an important priority for Ukraine. Within the framework of the reforms the State has made some substantial steps on the developing of the legal basis, preparing institutional and tariff reforms, decentralizing responsibility for water supply from the national to a local level. The objectives of the reforms are to overcome the current crisis situation within water sector, to improve water supply and sanitation services, to make vodokanals (water utilities) economically efficient enterprises. In the current situation even representatives of vodokanals and local authorities often have no idea about water sector reforms, to say nothing of the level of understanding of the general public. Moreover, governmental officials and representatives of vodokanals are often not aware of the ultimate aims of water sector reforms, i.e. improving the health and well-being of the population and protecting the environment and natural resources.

According to the Aarhus Convention, the state is obliged to develop and implement mechanisms for public participation. Within the context of water sector reform these mechanisms must be based on:

- ensuring participation of public representatives in working groups and commissions for decision-making on water sector reform, in conducting of state expert assessments;
- broad application of opinion polls, holding public consultations/hearings, public supervision and expert assessments of development and implementation stages of reforms;
- facilitating introduction of contractual arrangements between households and vodokanals, ensuring transparency of contracts between vodokanals and local authorities, ensuring transparency of negotiations dedicated to involvement of the private sector in addressing water supply and sanitation problems;
- guaranteeing citizens' rights for access to safe drinking water and the due quality of water supply/sanitation services; developing mechanisms for the protection of citizens' rights.

A positive public attitude to governmental initiatives in the sphere of water sector reform is a necessary precondition for their successful and efficient implementation and for attraction of the necessary investment into the water sector.

One of the key elements of reform, as highlighted in "Joint Conclusions of Almaty Ministerial Consultation", Kazakhstan, 16-17 October 2000, is "engaging the public directly in the reform process and making adequate provision for consumer protection... The public should be actively engaged in the process of reforming the urban water system from the very start to receive

timely and exhaustive information, to offer citizens an opportunity to express their views and to participate in the decision-making process."

One of the goals of the MAMA-86 drinking water campaign is to involve concerned public in the decision making processes on water issues at local and national levels. To achieve this goal MAMA-86 actively informs the public about water problems, which are on the agenda of the local and national decision-makers. We promote public participation at all stages of the process by gathering public opinion and comment on critical issues and we present the results of public consultations to the decision makers. We also involve local communities in the implementation of MAMA-86 pilot projects.

MAMA-86 works on a campaign of the public information delivering information about water sector reform. A range of official documents and other materials is widely distributed in order to involve concerned public and other NGOs in all stages, and at all levels of the policy and decision-making process.

Public participation at the local level

Each of MAMA-86 project groups engages the public in the implementation of pilot projects that deliver technical solutions to local drinking water problems. Our aim is to make these projects community-running.

Through the drinking water campaign MAMA-86 has gained positive experience of public participation in local decision making and is able to apply this knowledge to current and future projects.

In 1999 **MAMA-86 Odessa** organized the "Program of Health for Luzanivka" round table. The key issue of the discussion was the programme: "The Pure Water for Luzanivka" which was designed in co-operation with professor Grabovsky P.A., Doctor of Technical Sciences, the Head of the Water Supply and Canalisation Department of Odessa State Building and Architecture Academy. More than 100 participants took part in the work of the round table which resulted in MAMA-86-Odessa initiating the creation of the "Drinking water for the Odessa Region" city program. MAMA-86-Odessa was invited by the City administration to be a public representative in the official working group on the issue. To provide the public of Luzanivka district with safe drinking water the city administration has installed an additional water purification unit in the Luzanivka district. In 2001 the city program on water saving was developed with MAMA-86-Odessa making a substantial contribution in this process. The program is now being implemented in Odessa.

MAMA-86-Odessa continues to deliver activities connected with water sector reforms. The programme aims to guarantee the citizens' rights to a clean and healthy environment, to have access to affordable and safe drinking water and to water supply/sanitation services that are of a recognised standards. Furthermore MAMA-86 is developing mechanisms to protect these rights **(**Annex 3).

In 1998 **MAMA-86 Artemivsk** was actively lobbying the Session of the Local Soviet and undertaking activities for the implementation of the "Drinking Water Supply till 2002" Program. MAMA-86 worked with a number experts in preparation of public recommendations and amendments to the city Program. Professor Kulikov N.I. prepared an alternative project proposal for reconstruction of a wastewater treatment plant instead of the much more expensive official project to build a new plant. The City Council adopted the additional measures on implementation of the drinking water improvement project and financed the necessary construction works (8% of town's budget) in November 1998. These additional measures included the public recommendations on wastewater plant rehabilitation, putting artesian wells in town into operation and the production of bottled drinking water. In 1999 3 local enterprises producing bottled

drinking water began production. One of the major stakeholders "Vodokanal" has also made the decision to use ozone treated water from the "Krasnoselskaya" artesian well as an additional source for supply.

In 2001 MAMA-86 project "Public initiation of development of the Local Environment and Health Action Plans (**LEHAP**)" was implemented in **Kyiv, Sevastopol and Nizhyn**. Within the framework of the project a series of inter-sector roundtables were planned to facilitate discussion of the state of environment and health in the cities and identify actions that are needed to improve the situation. The knowledge and experience of the MAMA-86 water project groups has made a substantial contribution to the discussion of local priorities and the issue of drinking water issue has been incorporated into all of the LEHAPs.

The active work of MAMA-86-Nizhyn on the LEHAP has resulted in substantioal broad public support. This support has enable MAMA-86 to draw the attention of the local authorities and the water utility to the low quality of drinking water in the town and as a result has achieved major improvement in the quality of drinking water in one of the town districts (Annex 4).

Public participation at the national level

MAMA-86 participation in Drinking Water Law making

Beginning in late 1999 the Ukrainian government initiated the drafting of the Drinking Water Law and from the earliest stage NGOs had the possibility to participate in making of the political decision.

In January 2000 the first comments/notes on the structure and content of the Drinking Water Law were prepared by MAMA-86 and delivered to the Law working group.

MAMA-86 invited an expert on legislation Nataliya Malysheva (Doctor of Juridical Sciences, Honorary Attorney of Ukraine from Koretsky State and Law Institute, National Academy of Sciences) to prepare an analysis of existing legislation on issues of drinking water in Ukraine. This information was essential for understanding the mechanisms by which the state determines and guarantees human rights for access to safe drinking water. The results of this analysis were presented and discussed at training workshop held in November 2000; materials were distributed among all stakeholders and broadly used by members of MAMA-86 network for a public information campaign and for public consultations on the draft Law. The conclusions of this further analysis were used as a background for the development of the MAMA-86 position and for the preparation of amendments to the draft Law.

During 2000 and 2001 MAMA-86 monitored the Law drafting process. 4 different drafts of the Law were prepared, which all came through the preparation procedure of confirmation at the Council of Ministers level. On the 18 of June 2001 the Ukrainian Parliament passed the Bill on Drinking Water and Drinking Water Supply in the first hearing. The draft Law worked out by the State Committee on Architecture, Building and Housing policy of Ukraine was chosen as the basis for amendments and revision at the second hearing in Parliament.

During August and September 2001 MAMA-86 initiated public consultations on the draft Law. The document was distributed through the MAMA-86 network and other Ukrainian environmental NGOs. MAMA-86 invited the representatives of stakeholders to discuss it at the local level. As a result of this process 155 amendments to the bill were identified. On the 1st of October MAMA-86 organized public hearing on the Drinking Water Law, the meeting was attended by 64 representatives of public including 22 NGOs, from 11 cities of Ukraine. The materials and resolution of the public hearing were delivered to the Parliament Committee on environmental policy, which was responsible for the editing work on the Law. There followed 4 rounds

of meetings of the working group to discuss the amendments discussions and incorporate them into the Draft Law. MAMA-86 was invited to participate in these meetings.

Finally 45 public amendments were taken into consideration. One of them was the MAMA-86 proposal on public hearings about water issues. As a result of MAMA-86 activity during the drafting of the Law some progress has been made in gaining official recognition of the importance of public participation in the decision-making process. Moreover, progress has been made in the development of working partnerships between state authorities and representatives of the public. However we are at the very beginning of making this process a fully transparent and open procedure. If we are to succeed NGOs must demonstrate that, in presenting the views and opinions of the public to local and national authorities, they are ready and able to participate in the discussion in a balanced and professional manner.

Public participation at the international level

MAMA-86 participation in Almaty process

MAMA-86 actively participated in the NGO process of preparing for the Ministerial Consultation between Economic/Finance and Environment Ministers on Water Management and Investments in the NIS in Almaty, Kazakhstan, 16-17 October 2000.

MAMA-86 regularly informed Ukrainian NGOs about this process and participated in every stage of it, preparing comments on the official documents and developing the NGOs position paper and involvment in the NGO seminars and the Almaty NGO Conference. A representative of MAMA-86 was an elected member of the NIS NGOs delegation at the Almaty Ministerial Consultations.

MAMA-86 distributed the materials of the Almaty Ministerial Consultations widely to Ukrainian NGOs, we also delivered this information to the State Committee on Building and Water sector and informed about Almaty Consultations at the different seminars on water sector problems in Ukraine.

In September 2001, within the framework of the Almaty process, the Task Force for the Implementation of the Environmental Action Programs for Central and Eastern Europe (EAP) organized the first meeting of the Senior Officials responsible for water sector reforming in the NIS. The event took place on 10-11 September 2001, in Kyiv, Ukraine. Experts from NIS, OECD and Central and Eastern Europe, the representatives of donors, international financial institutions, business and NGOs took part in the meeting.

At the meeting special attention was paid to discussion of the social aspects of water sector reform. MAMA-86 was invited by the Task Force Secretariat to participate in the meeting and to present the experience of environmental NGOs on public participation in water sector reforms in NIS, specifically: "Consumers rights and public participation in decision making process on water sector". It was recognised during the discussion that the consumer is a major actor within the process of reform, the conclusion was reached that a special workshop should be organised to further discuss public involvement in reform of the water sector.

On 4-5 March 2002 the workshop on consumer rights protection and public participation in water sector reforming in NIS was held in Paris. MAMA-86 was invited to participate as an expert to present the discussion paper on this issue.

Protocol on Civil Liability

MAMA-86 is a member of the Pan-European Eco-Forum and actively participates in the Water Issue Group (WIG). The ECO-Forum Strategy Meeting in Kyiv (September 14-16, 2000) decided to call upon Governments to develop and sign in Kyiv the Protocol on Water Liability

and Responsibility to the 1992 Helsinki Convention on the Protection and Use of Transboundary Watercourses.

The Eco-Forum WIG recognized the priority of participating in the Civil Liability Protocol drafting process. This Protocol is seen as a legally binding international tool to address civil liability for damage resulting from transboundary impacts caused by water-related accidents.

MAMA-86 as a co-ordinator of WIG is facilitating the preparation work and discussion of the position paper.

The first Eco-Forum Position paper on the issue was prepared by WIG and presented at the joint special session of the Meeting of the Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes. The document was also presented to the Conference of the Parties to the Convention on the Transboundary Effects of Industrial Accidents took place in Geneva, on July 2-3, 2001 Switzerland.

In November, 2001 the first meeting of the Intergovernmental Working Group on Civil Liability took place in Geneva, where the draft materials for working on the Protocol were presented and discussed. Today the Protocol design process is open to contributions. Eco-Forum expresses commitment and willingness to work on the development and implementation of the Protocol. For the forth meeting of the Intergovernmental working group on civil liability taking place in September, 2002. WIG is going to present the formulation of the Article 11bis on Access to Information, Public participation and Justice to the Protocol.

Sustainable rivers basin management: transboundary cooperation

Today it is clear that improvement of the drinking water quality depends mainly on the quality of water sources. In Ukraine the main sources of water for drinking purposes are surface waters (rivers and lakes). The fundamental approach to solving water quality problems is the river basin management approach.

In December 2001, within the framework of MATRA project, MAMA-86 organized staff training on river basin approach and its implementation in Ukraine. We invited experts from The Ministry of Ecology and Natural Resources of Ukraine, from GEF Dnieper project and experts from Russia to present this approach and describe the problems that have been encountered during its implementation. The information provided during the seminar gave MAMA-86 staff the basis for developing a deeper understanding of local water problems and further opportunites for creating alternative solutions.

The regional MAMA-86 project groups work within the river basins of the Dnieper, Dniester, Danube and Siversky Donets. We support and develop the transboundary cooperation with NGOs and other stakeholders. MAMA-86 is one of the founders and active members of the Dniester River Keepers Association – "Eco-Tiras" and the representative of MAMA-86 in Odessa is regular participant in "Eco-Tiras" activities.

In March 2001 "MAMA-86-Mariupol" organised the seminar on the environmental problems of the Azov Sea: issues discussed included chemical contamination, deterioration of the marine ecosystems and the potebtially dangerous plan to build a new oil terminal in Mariupol. One of the results of the seminar was the idea to establish the Azov Sea NGO network, which is now in operation. Following MAMA-86 staff training on river basin approach we have since established good relations with Russian NGOs, which, we hope will develop into productive and fruitful partnerships.

Cooperation of NGOs connected with the Dniester River

The transboundary problems of the Dniester river became more complicated and require concerted international cooperation. Despite its polluted condition, the Dniester is the main source of drinking water for millions of people including 2,500 inhabitants of Odessa oblast.

In October 1999 in order to develop a programme of integrated protection and management of the Dniester Ukrainian and Moldavian NGOs organised a regional eco-forum in Chisinau and founded the Dniester River Keepers Association – "Eco-Tiras"; MAMA-86 actively supports this initiative and was one of the founder members of the association.

The priorities of "Eco-Tiras" activities are to protect and maintain the ecosystems of the river and to develop ecotourism activities in the region. In 2000 the Moldovian Ministry of environment prepared the draft of the Dniester Convention and proposed Ukraine to support the processes of developing the Convention. Today one of the major goals of "Eco-Tiras" is lobbying for the further elaboration and signing of the convention. To achieve this goal in December 2000 MAMA-86 organized an international conference of those NGOs which are located in the basin of the river Dniester from Moldova and Ukraine. The conference discussed the draft of the document and prepared NGOs comments.

In March 2001 the representatives of "Eco-Tiras" began a new stage of negotiations with the Ukrainian Ministry on the issue of the Convention. However it was also at this time that the building of a new motorway began in the downstream area of Dniester wetlands. The decision to implement this environmentally destructive project was made by Ukrainian local authorities who did not carry out any open discussions or consultations with environmental organisations.

Environmental NGOs together with local people organized direct action to stop the construction in the Dniester wetlands. More than 50 environmental NGOs signed the Letter to the Presidents of Ukraine and Moldova with the demand to stop destroying what remained of the native wetland ecosystems of Dniester river. In August 2001 MAMA-86-Odessa and 5 other Ukrainian environmental NGOs organized public hearings on the subject "Save the Dniester wetlands". 120 representatives of local people, scientific institutions and local authorities, NGOs from Ukraine, Moldova, Pridnestrovie, together with experts from the Netherlands and UK took part in the hearings. The aim of the hearings was to attract the attention of state to the environmental problems of the Dniester wetlands region, to develop democracy building mechanisms for solving of environmental problems and to involve public into the decision making process on the important environmental problems of the region. Today there is no final decision on the future of the motorway project, but as a result of the protest action and the public hearing the construction, for now at least, has been suspended.

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One of the principle objectives of the MAMA-86 drinking water campaign is to deliver activities and information that will enable people to develop feeling of ownership and personal responsibility for the natural resources of Ukraine, and in particular our rivers, lakes and seas. The aims of the campaign are not limited to merely educating a rational consumer; but also at working for the education of an active and enlighted citizen, one who can become the key driving force for implementation of sustainable management, protection and use of water resources.

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Annex 1

Results of the tap drinking water quality in some districts of Kyiv in the spring high-flood period of 2000, 2001, 2002

Produsedby the Laboratory for Ion exchange and Adsorption of the Chemical Engineering Department of the Ukrainian National Technical University (KPI)
Research work managers:
Prof., Ph.D. Tatyana Eu.Mitchenko,
Candidate of Sciences, Natalya V. Makarova

Table 1. Results of tap drinking water analysis on colour, turbidity,iron and aluminium in Dniprovskiy district , 2000 year.

Kyiv city district	Date of sample taking	Water quality parameters			
		Colour	Turbidity	Iron	Aluminium
Dniprovskiy		degree	mg/l	mg/l	mg/l
	11.04.00	34	1,4	0,15	0,47
	04.05.00	44	0,7	0,15	0,65
	11.05.00	34	1,4	0,15	0,47
	24.05.00	31	1,0	0,11	0,40
	05.06.00	28	1,4	0,14	0,41

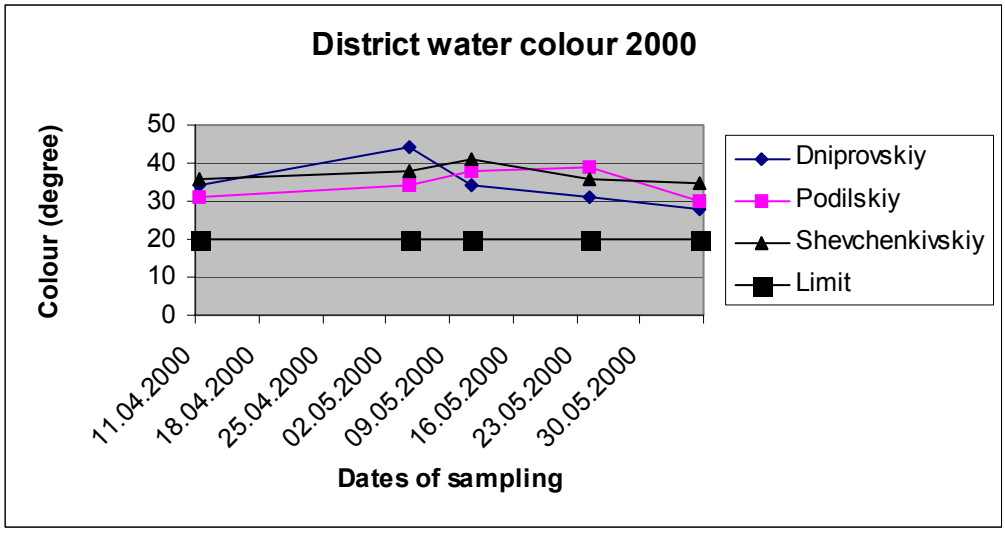
Table 2. Results of tap drinking water analysis on colour, turbidity,iron and aluminium in Podilskiy district , 2000 year.

Kyiv city district	Date of sample taking	Water quality parameters			
		Colour	Turbidity	Iron	Aluminium
Podilskiy		degree	mg/l	mg/l	mg/l
	19.04.00	31	1,4	0,37	0,45
	05.05.00	34	0,3	0,17	0,52
	12.05.00	38	0,3	0,25	0,43
	24.05.00	39	0,9	0,30	0,23
	06.06.00	30	0,3	0,19	0,21

Table 3. Results of tap drinking water analysis on colour, turbidity,iron and aluminium in Shevchenkivskiy district, Kyiv, 2000 year.

Kyiv city district	Date of sample taking	Water quality parameters			
		Colour	Turbidity	Iron	Aluminium
Shevchenkivskiy		degree	mg/l	mg/l	mg/l
	20.04.00	36	1,2	0,15	0,49
	05.05.00	38	0,9	0,16	0,64
	11.05.00	41	0,6	0,14	0,45
	24.05.00	36	0,7	0,12	0,34
	06.06.00	35	0,7	0,11	0,32

Picture 1
Water colour indicators for 3 Kyiv's districts in 2000



Picture 2
Aluminium content in tap drinking water for 3 Kyiv's districts in 2000

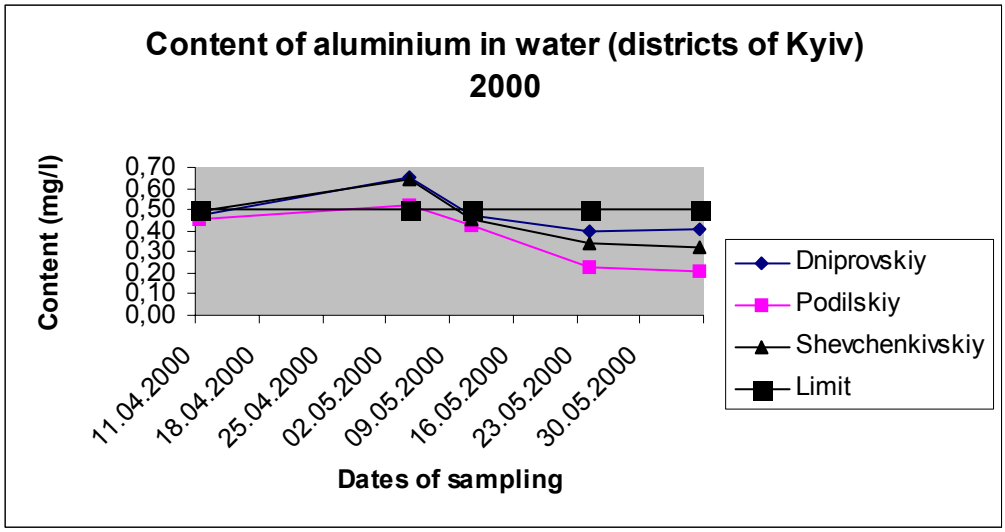


Table 4-6. Results of tap drinking water analysis on colour, turbidity, iron and aluminium in Dniprovskiy district, in 2000, 2001 and 2002

2000

Kyiv city district	Date of sample taking	Water quality parameters			
Dniprovskiy		Colour	Turbidity	Iron	Aluminium
		degree	mg/l	mg/l	mg/l
	11.04.00	34	1,4	0,15	0,47
	04.05.00	44	0,7	0,15	0,65
	11.05.00	34	1,4	0,15	0,47
	24.05.00	31	1,0	0,11	0,40
	05.06.00	28	1,4	0,14	0,41

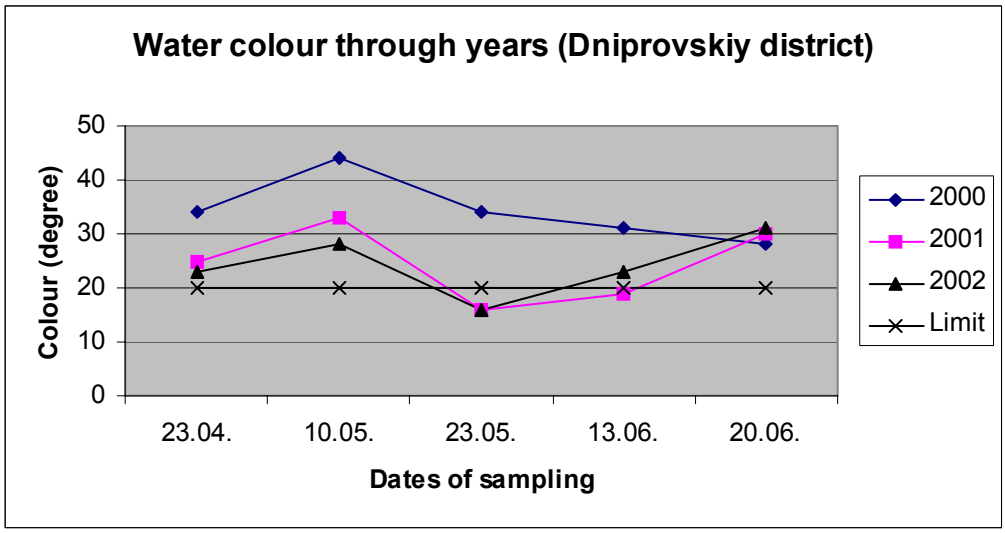
2001

Kyiv city district	Date of sample taking	Water quality parameters			
Dniprovskiy		Colour	Turbidity	Iron	Aluminium
		degree	mg/l	mg/l	mg/l
	23.04.	25	0,8	0,07	0,52
	10.05.	33	0,9	0,33	0,35
	23.05.	16	0,3	0,08	0,45
	13.06.	19	0,8	0,05	0,30
	20.06.	30	0,8	0,04	0,41

2002

Kyiv city district	Date of sample taking	Water quality parameters			
Dniprovskiy		Colour	Turbidity	Iron	Aluminium
		degree	mg/l	mg/l	mg/l
	24.04.02	23	0,3	0,05	0,21
	07.05.02	28	0,3	0,15	0,25
	21.05.02	16	0,1	0,07	0,28
	04.06.02	23	0,5	0,07	0,14
	18.06.02	31	0,8	0,06	0,21

Picture 3
Water colour indicators for Dniprovskiy district in 2000, 2001 and 2002



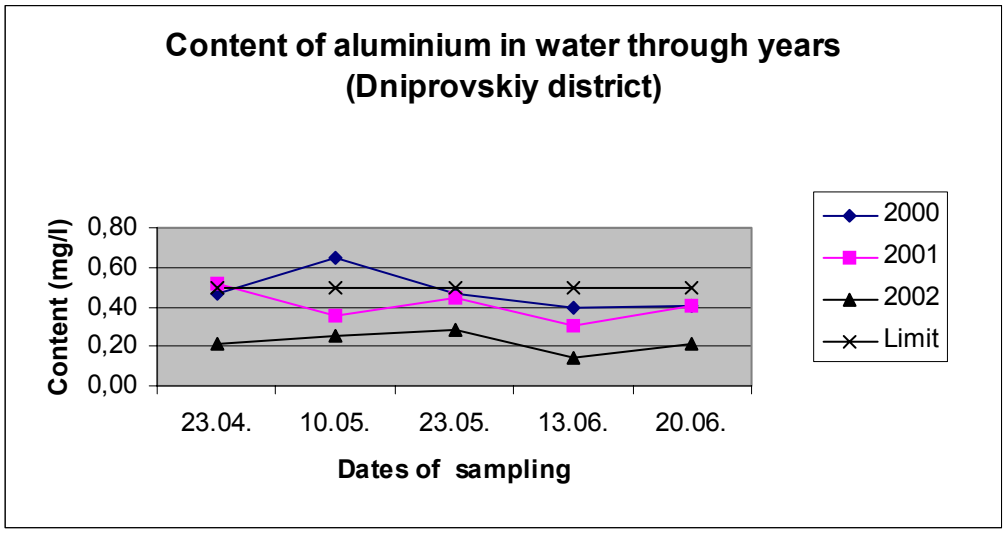


Table 7. The average values of water colour for 3 Kyiv districts (Dniprovskiy, Podilskiy, Shevchenkivskiy) in 1999, 2000 and 2001

Districts / Years	1999	2000	2001	GOST 2874-82
Dniprovskiy	27,55556	31,44444	27,5	20
Podilskiy	23,88889	33	26,625	20
Shevchenkivskiy	27,33333	33,7778	28,625	20

Picture 4
The comparison of the average values on water colour indicators for 3 Kyiv districts (Dniprovskiy, Podilskiy, Shevchenkivskiy) in 1999, 2000 and 2001

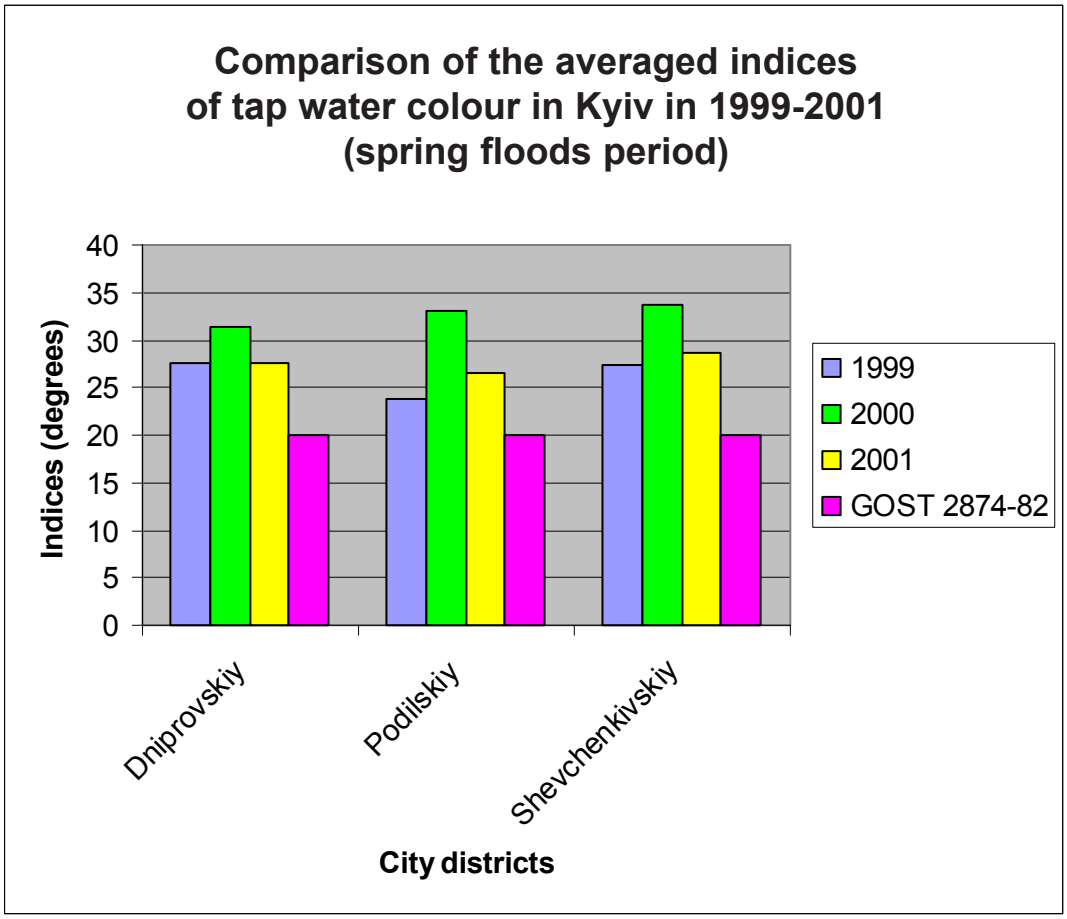
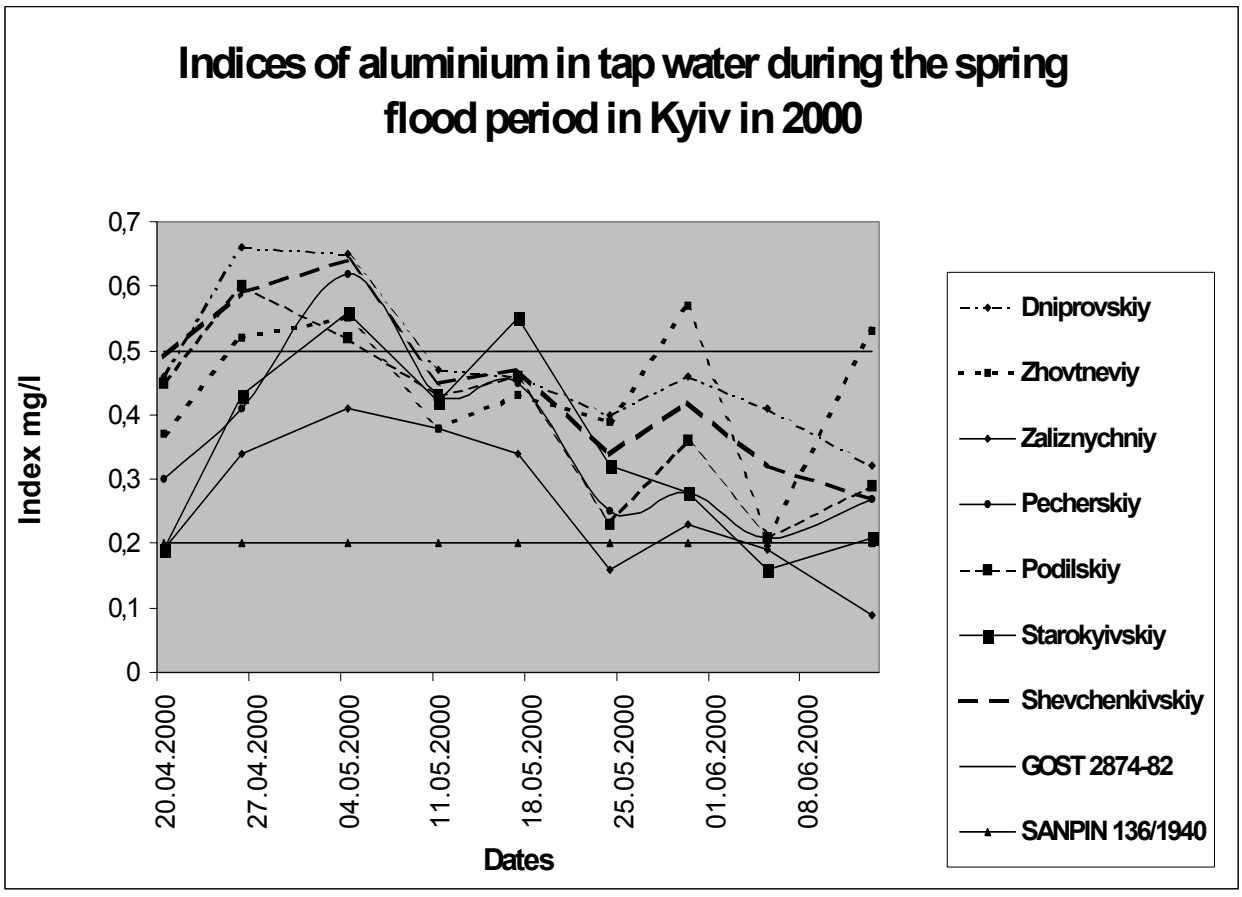


Table 8. Aluminium content in tap drinking water of 8 Kyiv districts in 2000 year

Districts \ Dates	20.04.00	26.04.00	04.05.00	11.05.00	17.05.00	24.05.00	30.05.00	05.06.00	13.06.00	Average
Dniprovskiy	0,46	0,66	0,65	0,47	0,46	0,4	0,46	0,41	0,32	0,476667
Zhovtneviy	0,37	0,52	0,55	0,38	0,43	0,39	0,57	0,21	0,53	0,438889
Zaliznychniy	0,19	0,34	0,41	0,38	0,34	0,16	0,23	0,19	0,09	0,258889
Pecherskiy	0,3	0,41	0,62	0,43	0,45	0,25	0,28	0,21	0,27	0,357778
Podilskiy	0,45	0,6	0,52	0,43	0,46	0,23	0,36	0,21	0,29	0,394444
Starokyivskiy	0,19	0,43	0,56	0,42	0,55	0,32	0,28	0,16	0,21	0,346667
Shevchenkivskiy	0,49	0,59	0,64	0,45	0,47	0,34	0,42	0,32	0,27	0,443333
Minskiy	0,11		0,08		0,12					0,103333
GOST 2874-82	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
SANPIN 136/1940	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2

Picture 5
The comparison of aluminium content in tap water of 8 Kyiv districts in 2000



Annex 2

Water and infectious morbidity

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Water is one of the main components of human life support. Human beings use water all their life that is why it can be considered as a factor of permanent influence. This is why special requirements are applied to water quality.

Surface waters are the main source of water supply. They make up about 80% of total water abstraction. As everybody knows, surface waters (rivers, lakes, reservoirs, seas) suffer the most severe contamination due to household sewage and wastewater discharges, vessel sailing, recreation, surface drainage, rainfalls, air aerosol, etc.

One of the most harmful pollutants is contamination with bacteriological objects, which are harmful to human health. Among them are numerous bacteria, viruses, pathogenic and parasitic organisms. It is true to say that theoretically all pathogenic organisms excreted by human beings and animals can get into water and on the assumption of poor water purification they can penetrate into organism and infect new groups of humans and animals.

Microorganisms are of the exceptionally small size (millimicrons and nanometres). Besides a lot of them, especially viruses, cysts, heminth eggs are highly resistant towards disinfectants. This is why water treatment process is very complicated and highly efficient technologies must be used to receive safe water. Unfortunately, the situation in a large number of countries, including Ukraine is paradoxical; the level of anthropogenic contamination has risen dramatically and at the same time the functioning water treatment technology is too old to cope with the current level of pollution. It cannot treat water effectively, that is guarantee its quality, absence of pathogens, especially viral, protozoa and parasitic.

Water quality indicators and infectious morbidity mainly depend on the quality of water in sources. In the table there are indicators of water quality in water sources of the 1st and 2nd categories and excretion of intestinal infection pathogens from them. As a rule, those infections are shigelloses and salmonelloses. On average, every fifth water sample was non-standard, this argues for severe contamination by the intestinal micro flora of warm-blooded. This confirms direct excretion of intestinal infection pathogens in 0.6-3.3% of samples.

Table. Water quality of the open sources according to microbiological indices.

Year	Water sources of the 1st category		Water sources of the 2nd category	
	% of non-standard samples containing intestinal bacillus	% of excretion of infectious diseases pathogens	% of non-standard samples containing intestinal bacillus	% of excretionof infectious diseases pathogens
1997	22.6	3.3	20.8	0.55
1998	22.9	1.4	18.8	0.6
1999	20.1	3.0	19.7	0.9
2000	14.2	2.1	20.0	1.6

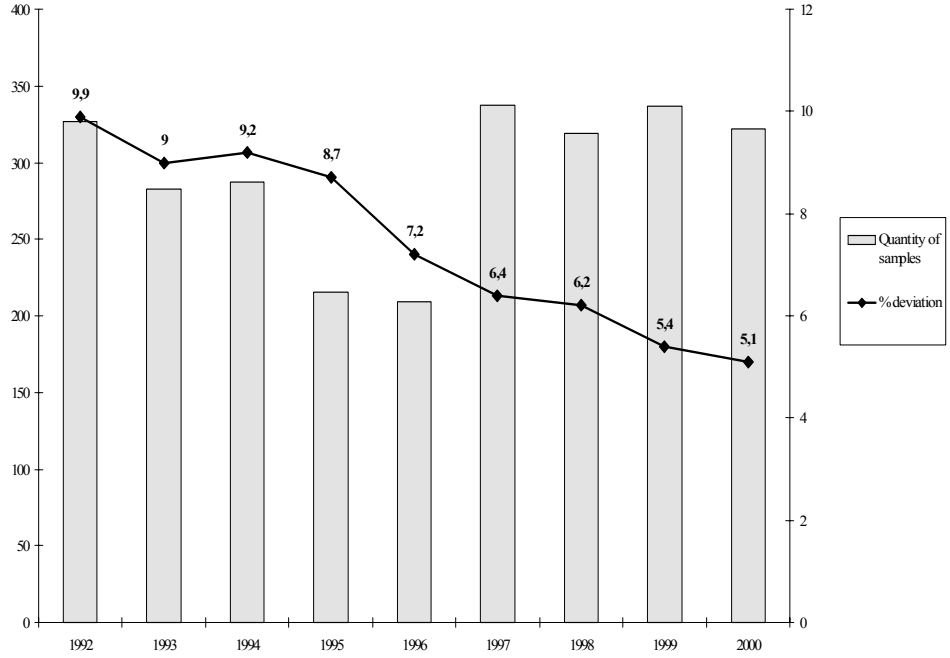
The main cause of the present situation is low treated and raw wastewater discharged into the water bodies, which almost in 100% cases do not reach the necessary level of treatment concerning microbiological indexes (coli-index – 1000, residual active chlorine – 1.5 ml/g). This situation becomes more complicated because of the large volume of wastewater caused by extreme urbanization. 1 hectare of the territory of Ukraine corresponds to 19.6 cubic metres of wastewater, in Russia it corresponds to 6.6 and in Belarus to 3.9 cubic metres. The important negative factor is occurring everywhere violations of sanitation protection zones. A considerable lowering of impact of these factors is possible through legislation improvement, which based first of all on the introducing the economic instruments.

The water quality of centralized water supply is presented at the picture. It shows, that percentage of non-standard samples dropped more than two times in the period of 1992-2000 and the latest index, 5.1% complies with European standards. At the same time, the deeper analysis shows the high percentage of samples with coli-index of 20 and higher. On average it equals 2.7%, it is most likely caused by leakages in the system.

Water from decentralized water supply is of a poor quality too. Percentage of non-standard samples is between 24.1-26.8, it directly endangers people's health.

The water quality mentioned above is responsible for outbursts of intestinal infections, which are annually observed in Ukraine. There are 59 water-related outbursts, which were registered during the last 10 years in Ukraine. The larger part of them is connected with contamination of tap water in the result of water-supply and sewerage networks leakages. Unfortunately, despite all official protests the situation has not changed.

Pic. Quantity of researches and position of non-standard centralized water supply samples (thousands) , according to microbiological indices in Ukraine in 1992-2000.



Special attention should be paid to outbursts of typhoid fever, that are registered every year in Zakarpatska oblast (Svalyava). This region can be considered endemic as for typhoid fever morbidity. The partial water supply reconstruction resulted in decreasing of outbursts number (only 2 in 1997-2001), but it could not eliminate the rare infection.

It is important to note circulation of cholera pathogene in southern Ukraine (Donetska and Mykolayivska oblast). In 1997-2001 there was only one outburst of cholera registered in Mariupol in 1999 (Donetska oblast). Still, the pathogene can be found in open water sources (rivers, seacoast waters) every year. This fact enables infecting of the territory and spreading of the infection. The undertaken measures slowed down the frequency of outbursts, but the state of municipal water supply system, lack of drinking water and wastewater discharges make elimination of cholera impossible. At present, we have reasons to make an assumption that river Kalmius is the natural source of cholera vibrio spread.

Special attention must be paid to water analysis according to virological indices and viral infection morbidity. The lack of virological laboratories does not permit regular monitoring of viral infection pathogens circulation and effectiveness of water treatment. Yet, the main problem is not the lack of monitoring, but the absence of a proper barrier at water treatment installations.

A national document – "Drinking water. Hygienic requirements to centralized water supply quality" State sanitary rules and standards was created. It was approved by Ukrainian Ministry of Health Protection on 23.12.1996, this document provides for higher standards of sanitary-chemical and microbiological indicators (definitions of bacteriophage, enteric, rota- and adenoviruses, pathogens of parasitic infections were introduced). But unfortunately, introduction of this progressive document is delayed.

The topicality of this document is confirmed by viral hepatite A morbidity, its water way of diffusion is out of the question. Cyclic recurrence of its course caused lowering of morbidity rate in recent years, it is the regular course of infectious process. The collected data is the evidence of the fact that Ukraine occupies one of the first places in viral hepatite A morbidity in Europe.

High rate of VHA morbidity is noted in southern and eastern regions, i.e. in regions with lack of safe drinking water. The highest morbidity rates are in Mykolayivska, Dnipropetrovska olast and Crimea.

During recent years there were outbursts of other enteric viral infections and gastroenteritis, caused by rotaviruses. The most dangerous was the outburst of rotaviral infection in Odesa and Bilgorod-Dnistrovskyi district of Odesa oblast in 2000. There were 3143 registered patients.

Odesa receives water from the Dniester river (a river of a hard anthropogenic pollution, it is classified as the water source of 2nd-3rd category according to chemical and microbiological indicators). Odesa water supply is one of a special attention, because it is in a critical state. Yet, all proposals and demands of the sanitary-epidemiological service and public have no adequate reactions of water utility and city administration and results.

Usage of microbe pollution indicators for water objects in Ukraine and infectious morbidity allowed to present the unsatisfactory state of water supply in the country, caused by the following factors:

- Contamination of water supply sources by wastewater;
- Neglect or absence of sanitary protection areas of surface and ground water sources;
- Using of time-worn water treatment technologies, which are not efficient for treatment and disinfection (e.g. concerning viral infections);
- Unsatisfactory state of water supplying networks;
- Insufficient use of ground water sources for centralized water supply;
- Absence of the legal framework, which could promote modernization of old water and wastewater treatment systems.

Annex 3

Public Participation in Addressing Environmental Problems: Luzanivka Experience

Svitlana Slesarenok,
the Director of MAMA-86-Odessa

The most poor population groups usually live in the most hazardous environmental conditions and suffer from adverse impacts of negative environmental factors on their health and health of their family members. Economic hardships, large-scale unemployment, environmental crisis and, as a result, deep depression and frustration – all these factors severely affected the overwhelming majority of Luzanivka households.

Local environmental problems in their places of residence induced women of Luzanivka district (a former recreation district of Odessa) to join their efforts in order to ensure survival of their families and protection of their Constitutional rights for clean and safe environment.

Residents of Luzanivka did not need manuals and education ads to study ecology – they studied practical ecology every day, while crossing sewage flows at streets and breathing with toxic emissions of the nearby facility, that washed railway oil tanks.

For many years, former recreational district Luzanivka accumulated impacts of two environmental problems, that finally had resulted in the severe environmental disaster of the whole district.

From the one hand, due to lack of necessary sewage-pumping capacity in the district, residential houses for a long time were affected by periodical sewage spills. As a result, the majority of residential houses become unfit for living. From the other hand, life of Luzanivka residents was poisoned (in both figurative and the proper senses of the word) by nearby railway-terminal "Odessa-Sortuvalna", that operated the washing facility for cleaning railway oil tanks at the open air (the facility was operational since 1938). Ambient air concentrations of hazardous substances in residential areas sometimes exceeded relevant MACs in tens or even hundreds times. The death of six local residents in March 1996 was the last straw, that detonated the social explosion in the district – all of them died simultaneously in a house, located close to the railway facility. At the moment of establishment of MAMA-86-Odessa initiative group, in 1997, young women were well aware of specific environmental factors, that adversely affected health of their families. The organisation initially focused its activities at grass-root level, actively working with local residents, who were severely affected by environmental crisis in the district. Diverse actions had been carried out in order to address local environmental problems, these actions culminated in mass filing of court suites.

80 residents of Luzanivka simultaneously sued local authorities for their failure to act. The court actions was legally supported by "EcoPravo-Kyiv" NGO – representatives of the NGO provided legal advice to local residents and served as lawyers in courts. Broad media coverage of these court proceedings induced local authorities to respond properly and adequately – they started to look actively for options to resolve environmental problems of Luzanivka with support of non-governmental organisations. While co-operation between the local authorities and non-governmental organisations was not very easy and problem-free, the common goal allowed the partners to strip away all their differences. Well-targeted lobbying of the local authorities and non-governmental organisations in the Verkhovna Rada of Ukraine and the Cabinet of Minis-

ters of Ukraine produced tangible results. The Cabinet of Ministers of Ukraine allocated UAH 14 million from the reserve fund for completion of construction works at pumping station KNS-10A, that were absolutely necessary to ensure normal living conditions of Luzanivka residents. In response to request of the meeting of Luzanivka community, Odesa City Council allocated money for implementation of the environmental assessment works in the district.

Representatives of MAMA-86-Odessa NGO were incorporated into the working commission in charge of development of the draft decision of Odessa City Council "On Addressing Environmental Problems of Luzanivka District". Members of the commissions had different views on methods and means for addressing these problems, very hot discussions were associated with the deadline for decommissioning of the railway oil tank washing facility – the most environmentally hazardous object. Some "obscure" lobbyists tried to extend the deadline up to 2005. Representatives of non-governmental organisations discussed documents and issues, that were discussed at sessions of the City Council, with residents of Luzanivka. It was a unique case in the whole history of the city, when Odessa residents discussed draft decisions of the City Council more closely than the most active deputies of the City Council. So, when deputies appeared to demonstrate some lack of understanding (especially in connection with materialisation of citizens' rights for participation in decision-making on matters of environmental significance), local residents rallied sessions of Odessa City Council, trying to make their deputies more responsive. The Aarhus Convention was successfully used for these purposes, 150 hardcopies of the Convention were distributed among the City Council deputies and local executives.

Besides that, NGOs also implemented action "Direct Calls to Deputies" – phone numbers of all deputies of Odessa City Council (including both their office and private phone numbers) were provided to residents of Luzanivka. After 6 months of direct communications with local residents, all deputies of Odessa City Council followed requests of their electors and supported measures, proposed by residents of the trouble-making district.

In December 1999, under heavy public pressure, the session of the City Council adopted the radical decision to decommission of the railway oil tank washing facility in December 2000. However, in September 2000, implementation of the decision was seriously endangered. Representatives of MAMA-86-Odessa applied for support to representatives of European environmental community, who at that time participated in the strategic meeting of the Eco-Forum in Kyiv. More than 100 delegates from more than 30 countries of Europe contacted the Mayor of Odessa and deputies of Odessa City Council with requests to support local residents and decommission the hazardous facility.

In 2000, the most daring dreams of Luzanivka residents became reality – the brand new sewage-pumping station became operational, and the environmentally hazardous facility in the water protection zone of the Black Sea and Kuyalnic Bay was finally decommissioned. The local authorities eliminated the source of endless social troubles and had finally realised that cooperation with NGOs and the general public offers much more tangible and efficient results than their isolated efforts to address social and environmental problems, that joint lobbying at the national level can generate substantial finance allocations. Ordinary citizens realised that they can make their voices to be heard and that their joint efforts can overcome any obstacles. At the same time, non-governmental organisations have accumulated experience of lobbying at local, national and international levels and substantially strengthened their reputation and influence.

The newly accumulated experience was in need in a short time later to resolve a new problem. When Luzanivka residents started to get enormously high water bills (in some cases these bills reached up to 50% of their aggregate incomes), they called the environmental Hot-line service ("Eco-Telephone") of MAMA-86-Odessa NGO. The reason of these high bills and their illegal nature were identified fairly quickly.

Luzanivka is located within the lowest portion of the city area, as a result, due to design errors of the water supply network, water pressure in supply mains is excessively high (especially in night hours). These factors result in high rates of deterioration of water supply network and serious water losses. Under these circumstances, the water supply monopoly simply tried to transfer the burden of water losses onto water consumers, instead of addressing the technical problems. House-level water meters were installed in residential blocks. As a result, the overbilling affected mainly the most poor population groups – families with many children and the elderly. More wealthy individuals immediately installed apartment water meters and forgot about the problem. Other water consumers were billed based on readings of block-level water meters (including actually consumed water, as well as water losses in internal and external supply networks and excessive water consumption in neighbouring apartments).

Non-governmental organisation MAMA-86-Odessa notified the water provider and the housing maintenance facility about illegal nature of their actions, arguing that the due legislation requires to sign service contracts with consumers and to notify consumers on adjustments of conditions of pay and services. All these legal requirements were not met. MAMA-86-Odessa developed the draft decision of session of Odessa City Council on protection of rights of water customers and launched lobbying efforts for its adoption. However, only after several "water riots" in different locations, that were caused by similar developments, the Chairman of Odessa City Council issued the order on termination of the practice of illegal overbilling and approved Regulation "On Procedures of Installation of Apartment Water Meters", proposed by the non-governmental organisation.

According to our estimates, only in Luzanivka district alone (12 thousand residents), the aggregate illegal overbilling reached UAH 200 thousand, while the relevant figure for the whole city exceeds UAH 5 million. MAMA-86-Odessa has succeeded to return overpaid UAH 4.5 thousand to residents of an individual apartment block, but we have identified the option, that might be used by many other city residents. Now, everyone can call "Eco-Telephone" in Odessa (phone number (048) 715 50 55) and get information on protection of citizens' rights for safe and affordable drinking water and clean environment; on return of money paid for provision of services of inadequately low quality.

Annex 4

Community involvement in the problem of drinking water improvement

Shchokina Valentina
Director of MAMA-86-Nizhyn

For More than a year residents of one of the largest microdistricts in Nizhyn (the district of the plant "Progress" with 8,000 inhabitants) have been using poor quality water. The repeated citizens recourses were not answered and there was no adequate official reaction at all.

At the beginning of spring 2001 having lost their patience and hope for resolving of the problem, people of the district turned to the city ecological organization MAMA-86-Nizhyn for help. They told about their year of suffering and their efforts to improve the quality of tap water.

MAMA-86-Nizhyn began studying complaints of the water consumers. The main things people were irritated with were the smell and taste of water. It smelled like swamp and dust, people could not drink it or use it for cooking. The city sanitary service and its authorities ignored official citizens' complaints. What is more important, people did not trust them because according to the official information water in their flats met the standards.

Oral statements addressed to sanitary and environmental services of MAMA-86 representatives concerning presence of harmful substances in water were considered by local authorities as untrue, unchecked information. At the same time one of the executive power representatives stated: "I told them a long time ago that even brushing one's teeth using this water is disgusting".

Public inspection with witness involvement at the site of drill №5, which supplied water for the district revealed that it is located in the former place of toilets waste disposal. As stated by witness M.Kigot, there was a place of animal burial nearby. There were privately owned vegetable gardens located in the direct nearness of this drill at the time of inspection, they were heavily watered with insecticides.

During July-August 2001 people of the district addressed the local authorities with written enquiries many times. They demanded confirmation of the fact of water source contamination. They received the official reply from the head of Nizhyn Vodokanal Fedorchuk on 4.09.2001 stating that there was no official information concerning the facts of possible contamination. The organization then decided to do a research of its own, the "PEVS PUVKG" laboratory from Kyiv conducted it. The analysis proved presence of "dust" smell, which is usually associated with DDT content and a quick growth of cyanobacteria in tap water.

MAMA-86-Nizhyn initiated creating of a letter from the inhabitants addressed to the city administration, Vodokanal, sanitary and environment services:

"We, residents of Shevchenka, Nezalezhnosti and Obyzhdzhoyi Streets, claim our rights for the safe living and healthy environment, right for the public access to the information about the state of environment, according to the stated above laws and bills, we address the authorities and demand resuming of our right of access to full reliable information on drinking water quality, which is being consumed by us and developing of measures directed at the improvement of the situation in this sphere".

This letter included detailed facts of environmental rights violations, community actions directed at their protection, it also included facts on possible contamination of water horizon. The letter suggested ways of improvement of the drinking water situation.

There was no answer to this letter. Nevertheless, residents of the district started consuming absolutely different kind of water two weeks later. Their water supply received the new source. On September 18, 2001, a new director of Vodokanal was appointed and the chief engineer was fired.

Thus, the community defended its ecological rights for informing and safe drinking water. This event propelled community involvement in ecological policy formation.

MAMA-86-Nizhyn implemented "Public Initiation of LEHAP" project. It resulted in official recognition of drinking water problems as ones of the major importance for Nizhyn. It was the community initiative to include the wells problem to the city actions program. MAMA-86-Nizhyn put the data of their several years' water campaign in Nizhyn area at community's disposal.

Today the Environment and Health Improvement Council of the town administration functions in Nizhyn. For the first time local authorities consider environmental issues as a priority and, what is more, public representatives are involved in Council work.