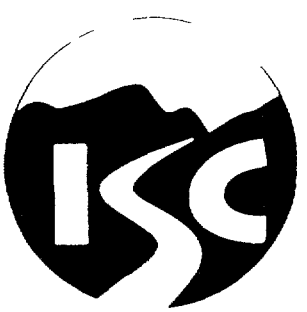
BULGARIAN COMMUNITY ENVIRONMENTAL ACTION PROJECT

FINAL RESULTS AND EVALUATION



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The Institute for Sustainable Communities
is a non-profit, 501(c)(3) organization, founded in January 1991
ISC promotes sustainable development, environmental protection,
and participatory democracy in communities in
Central and Eastern Europe and Eurasia
through training, technical assistance, and demonstration projects

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FINAL RESULTS AND EVALUATION

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I. PROJECT DESCRIPTION

A Brief History

In 1990, Madeleine Kunin, then Governor of the State of Vermont, led a delegation to observe the first democratically based elections in Bulgaria in five decades During her visit, Governor Kunin had an opportunity to observe the extent of environmental degradation and the public support for economic and democratic reforms

Drawing upon Vermont's experience with grassroots democracy and strong environmental policy, Kunin established the Institute for Sustainable Communities (ISC) to promote sustainable development, participatory decision-making, and environmental protection at the community level in Central and Eastern Europe ISC's first activity was to design a community environmental action project for Hungary and Bulgaria

During the same time period, the Government of Bulgaria, the World Bank, and the United States Environmental Protection Agency (USEPA) joined in a cooperative effort with the United States Agency for International Development (USAID), to develop the "Bulgarian Environmental Strategy Study " The study was designed to help the Bulgarian Government identify the most serious environmental problems facing the country and to develop cost-effective and efficient solutions

The study recommended that government and foreign financial donor agencies give full support to a community environmental program that utilized "risk" information as the foundation for ranking environmental problems The study also recommended that this program include training in public education and community involvement to promote interaction among the municipal, regional, and national levels of government

Following these recommendations, USEPA decided to fund ISC's proposed community environmental action project for Bulgaria The project design involved working intensively in one demonstration community (Troyan) and strengthening the institutional capacity of both national ministries and national non-government organizations to assist communities in replicating the demonstration project Toward this end, ISC worked with the National Movement of Ecoglasnost and the Ministries of Environment, Health, and Regional Planning and Construction to assist other communities

Troyan as a Demonstration Community

Troyan is a community of 46,000 people that rests in the northern foothills of the Balkan Mountains at the edge of a biosphere reserve and national park Located 90 miles east of Sofia, its natural beauty and historic monastery make the area a popular recreation site

Environmental problems have compromised Troyan's beauty and economic prosperity Severe shortages in potable water are common throughout the year and water is often of poor quality Untreated and inadequately treated municipal, industrial, and agricultural waste waters pollute the Osam River which flows through the heart of Troyan An uncovered municipal landfill, situated on the river banks and containing hazardous and solid wastes, pollutes the river as well Air pollution is prevalent throughout much of the year from the combustion of high sulfur coal and oil for home heating and industrial processes

With these and other pressing problems facing the community, the Troyan Environmental Action Project set out to evaluate the risks to public health, ecology, and quality of life (i e , economic and social) associated with environmental problems, rank these problems based upon their relative risks, and develop and implement an action plan to address the most severe problems

In selecting Troyan as the site for the demonstration project, ISC identified specific criteria and interviewed a number of communities These criteria included seeking a community that

- Had a number of representative environmental problems that could be managed at the community level,
- Was moderately sized and thus provided a reasonable chance that implementation strategies would be successfully realized in a relatively short time frame, and,
- Had a strong commitment from municipal officials, community members, and representatives from non-government organizations to fulfill the goals of the Project and address environmental problems in the community

Phase I Launching the Project

In early 1992, the Troyan Environmental Action Project was officially launched with a kick-off conference attended by more than 60 members of the community, including representatives from the local government, industries, and non-government organizations The conference familiarized participants with the goals of the Project and gave them first-hand experience in practicing some of the Project's methodologies

Two Citizen Committees were formed to undertake the work of the Project 1) a Policy Committee -- responsible for educating the public, soliciting public opinion, and actively involving

the public in improving the local environment, and 2) a Technical Committee -- responsible for collecting and analyzing information about the risks associated with various environmental problems and their potential solutions

The membership of the Policy Committee reflected the entire range of interests within the community, including industry managers, workers, parents, teachers, doctors, non-government organization representatives, students, retirees, citizens, and other groups defined as important by the participants themselves The Policy Committee's primary role was to solicit public opinion and educate the public They also helped to identify environmental problems for study, review data and analyses prepared by the Technical Committee, and assist in preparing the environmental action plan

The Technical Committee consisted of people with specialized training, expertise, and experience in such fields as environmental and/or public health, natural sciences, economics, and pollution control They collected and analyzed technical and scientific data to develop reliable information about the environmental problems facing the community Further, the Committee served as a technical resource in identifying and selecting environmental clean-up strategies

Staff from the Municipality was represented on the Technical Committee and a municipal official served as a liaison to the Committees Two coordinators, a US Peace Corp volunteer and a Troyan native, served as project staff to undertake many of the logistical and organizational details associated with the Project The coordinators arranged for Committee meetings and recorded minutes, arranged for meetings with government agencies, collected data, coordinated public outreach activities, wrote portions of the environmental action plan, and served as liaisons to municipal officials A project office was equipped with a telephone, computer, and fax machine Office costs and the coordinators' salaries were covered by a small grant from ISC

ISC provided technical assistance and training to municipal officials and Project Committee members Six trainings were conducted over an 18-month period for 50 members of the Troyan Citizen Committees in the following topics comparative risk analysis, group process skills, public participation techniques, work plan development, environmental action plan preparation, and implementation of a water conservation program ISC staff and consultants spent approximately six months in Troyan working with Committee members and municipal staff

Phase II Involving the Public and Ranking Environmental Problems

The Policy Committee immediately undertook a public opinion survey of residents to determine which environmental problems members of the public considered to be the most dangerous to human health, ecosystems, and their quality of life Four thousand residents identified inadequate supplies of clean drinking water, air pollution, deforestation, and surface water contamination as the most serious problems This information was used by the Technical

Committee in compiling the list of environmental problems The Policy Committee also implemented numerous activities to educate the public, including holding several public information meetings, publishing dozens of articles in the local newspaper, and setting up information displays

Meanwhile, the Technical Committee began the process of ranking environmental problems using a methodology known as "comparative risk analysis," developed by the USEPA Comparative risk analysis utilizes the best available scientific information on the health, ecological, and economic/social risks associated with various problems Combined with public opinion and priorities, this scientific information is used to develop a relative ranking of environmental problems in the community

The Technical Committee, with input from the Policy Committee, compiled a list of problems facing the community, collected data on the risks associated with each problem, and developed problem analyses for each problem summarizing its associated risks ISC provided technical assistance and three trainings to Committee members in the comparative risk process ISC sponsored an expert from the Northeast Center for Comparative Risk to help the Committees develop their problem analyses and learn to rank environmental problems

Jointly, the Committees ranked the environmental problems and determined that insufficient supplies of and poor quality potable water as well as air pollution from industrial, household, and transportation sources were the most severe problems facing the community

Phase III Developing an Environmental Action Plan and Selecting Strategies

With a focus on air pollution and inadequate supplies of and poor quality drinking water, the Committees collected information on potential implementation strategies Long-term goals were set to provide guidance in selecting strategies, and information on alternative strategies was gathered from US and Western and Eastern European sources As part of this process, ISC sponsored and organized a delegation of eleven Bulgarians to visit the US and Canada to collect information and observe how environmental programs are implemented Potential strategies were evaluated based upon their relative cost-efficiency, effectiveness in addressing the problem, and amount time needed for implementation, among other criteria

The Committees then summarized, in an environmental action plan, the information on the risks associated with each problem and the appropriate strategies for addressing the top priority problems After a draft document was circulated for comment by the public, City Council, and municipal government, a final plan was prepared and approved by the Troyan City Council (see Attachment 1 -- Final Report and Environmental Action Plan of the Troyan Environmental Action Project) A grant was provided to the Municipality by ISC to implement the recommended strategies

ISC conducted several trainings for Committee members in how to develop an environmental action plan ISC also sponsored the visit of a Canadian industrial waste water expert to serve as a consultant to the Municipality The consultant conducted five preliminary industrial waste audits and critiqued the proposed design of the municipal waste water treatment plant Her work is summarized in the report, Environmental Audits for Five Selected Industries in the Municipality of Troyan, Bulgaria This information helped the Committees design a program for reducing industrial water consumption

Phase IV Implementing Strategies

As a framework for strategy implementation, the Committees developed a detailed implementation plan that identified specific steps, delineated responsible groups and agencies, proposed a time frame, and established a budget for each strategy The Committees decided to focus on three specific implementation strategies leak detection of underground pipes, industrial water consumption, and environmental education

The Committees, in cooperation with the municipal government and local water utility, established a comprehensive program to detect and repair leaks in the underground water main and distribution pipes The Committees discovered that almost half of Troyan's drinking water escaped as a result of these leaks The Municipality purchased leak detection equipment, and ISC sponsored an expert from the Massachusetts Water Resources Authority to help local water utility officials launch the program

The Committees also decided to target industrial water usage -- since industries consume more than 60 percent of Troyan's drinking water supply A Bulgarian-born, Canadian waste water specialist conducted waste water audits on five industries in Troyan that revealed enormous opportunities for saving water and reducing waste water flows The Committees recommended, and the local government is currently implementing, an industrial water audit and control program to reduce industrial water consumption

Finally, the Citizen Committees supported the establishment of the Troyan Environmental Education and Information Center Based in the school system, the Center is developing environmental education curricula and producing and disseminating environmental education materials The Center's initial focus is educating school children in how to save water A coordinator for the Center has been hired, and Troyan's Mayor has appointed a board of directors to oversee the Center's activities

The Troyan Project has demonstrated how a municipality, with the active participation of its citizens, can set environmental priorities and take effective actions The Project has resulted in improved information flow from the regional inspectorates and national ministries to help the Municipality better address environmental problems The Municipality is demonstrating how

low-cost and cost-effective solutions can be implemented that achieve both environmental improvements and cost savings

V Dissemination of Results and Project Replication

One of the primary goals of the Troyan Project was to serve as a demonstration for other communities throughout Bulgaria ISC organized four national seminars on a) strategic planning and implementing community environmental action program for 60 members of local Ecoglasnost chapters, b) two workshops on comparative risk analysis and sharing information with municipalities for 50 national government officials, and c) municipal financing of environmental projects for 50 municipal environmental specialists and officials

ISC worked closely with the National Movement of Ecoglasnost to replicate the Project in six demonstration communities As a result, five of these communities have implemented local environmental action projects, including ranking environmental problems ISC held three trainings in the Municipality of Stara Zagora to help facilitate the establishment of a second community project Trainings were held in involving the public, undertaking a comparative risk project, ranking environmental problems, and developing an environmental action plan

ISC delivered papers at four international conferences to publicize the results of the Project, including a sustainable cities conference in Alborg Denmark (May 1994) and International Union of Local Authorities (June 1993) Finally, ISC developed the guidance document, Guide to Community Environmental Action in Bulgaria, on how to implement a community environmental action project and Community Based Approaches to Addressing Environmental Problems that identifies strategies that US municipalities have undertaken

II. SUMMARY OF RESULTS

The following is a list of major accomplishments, ISC assistance efforts, and documents generated as a result of the Project These results meet or exceed the original expected results as outlined in the Cooperative Agreement between USEPA and ISC (see Attachment 6)

MAJOR ACCOMPLISHMENTS

Troyan

1 The Troyan Citizen Committees (Committees) completed the comparative risk process and ranked the environmental problems facing the community The two highest ranked problems were 1) severe shortages of potable water throughout most of the year and poor water quality, and 2) air pollution from industries, home heating with high sulfur coal, and transportation

2 The Committees completed the preparation of an Environmental Action Plan, an Implementation Plan, and a Final Report Together, these documents have been compiled into the Troyan Environmental Action Project Final Report and Environmental Action Plan The Final Report includes a general overview of the Project, a summary of the results achieved, a step-by-step history of the Project, and an elaboration of how the plan was developed The Environmental Action Plan summarizes the risks associated with each environmental problem and reports on the results of the problem ranking The plan identifies goals and potential strategies associated with the two top priority problems of air pollution and inadequate supplies of and poor quality drinking water The Appendices summarize information on potential strategies and explain how strategies were selected The Implementation Plan focuses on the lack of adequate supplies of drinking water and includes a detailed project work plan, an itemized budget for each project element, and letters of support from participating institutions and industries

3 ISC awarded a $35,000 grant to the Municipality of Troyan to assist with implementation The Municipality of Troyan and the Municipal Water and Sewer Utility are currently implementing a three-pronged approach to water conservation, including

Leak detection and repair in the underground distribution pipes A leak detection group composed of two staff people has been established within the Municipality to implement the leak detection program As of February 1, 1994, the leak detection group had identified more than 25 leaks in the underground pipes and these leaks have subsequently been repaired by the Municipal Sewer and Water Utility The

leak detection staff has established an office, purchased a computer, and is currently in the process of digitizing and computerizing the underground pipe network through a Geographic Information System They have also contracted with several large industries in Troyan to detect leaks on industrial premises

Municipal regulations to reduce the amount of water used, particularly an industrial audit and water saving program The Municipality, with the assistance of a lawyer, has revised the municipal environmental ordinance that, among other things, requires industries to submit detailed reports to the Municipality describing their existing water usage and plans to reduce water The Municipality has contracted with private firms to conduct water and waste audits of the major water consuming industries in town

Environmental education in schools through the establishment of Environmental Education and Information Center The Center has been hampered by the resignation of two different coordinators, but a new coordinator was hired in April of 1994 and a number of activities are proceeding forward The Center was established, in conjunction with the Troyan Municipal Education Department, to coordinate existing environmental education efforts and initiate new teacher training activities, form a team of teachers to help plan activities, and organize hiking expeditions and other activities related to nature studies A committee has been appointed by the Mayor to oversee the activities of the Center

Project Management The Mayor has appointed a Financial Committee composed of representatives from the Troyan Citizen Committees and Municipality's staff to oversee the expenditure of funds and to report on progress toward implementation Progress and financial reports have been prepared for the first six months of implementation

4 The Policy Committee undertook a variety of activities to solicit public opinion and educate the public about the environmental problems facing the community In June of 1992, the Policy Committee, in conjunction with Ecoglasnost/Troyan, distributed a survey asking the public to prioritize the environmental problems facing the community The Policy Committee received an 80 percent return of the 5,000 surveys distributed Inadequate supplies of and poor quality drinking water, air pollution, surface water contamination, and deforestation ranked as the highest priorities perceived by the public In November of 1992, the Committees held the first of six public information meetings to a) inform the public about the activities of the Project, and b) solicit its opinions about the Committees' work and the environmental problems facing the community Two hundred members of the public attended the meeting The Committee held additional public

meetings that focused on specific problems, such as lack of quality drinking water and solid waste disposal Committee members also provided ecological information to the public through dozens of articles and columns in the local newspaper The Committees undertook a logo contest for the Project and developed a bulletin board display in the town square about the Project The Committee also organized several activities to involve the public in addressing environmental problems For example, a "Plumber's Telephone Line" was established to link plumbers with people who wanted leaks repaired at reasonable prices

5 The relationship between the Municipality and industry regarding environmental problems has significantly improved in Troyan In the Fall of 1992, municipal officials requested that local industries supply the Municipality with information on their individual solid waste and waste water management plans Responses were received from every major industry in Troyan Municipal officials also arranged numerous meetings with industry officials to discuss their plans pertaining to municipal solid waste, drinking water, and waste water facilities The Municipality of Troyan, in conjunction with ISC, sponsored the visit of a Bulgarian-born, Canadian-trained industrial waste water engineer, Alexandra Kantarjieff, who conducted five industrial waste water audits and evaluated the engineering design of the proposed municipal waste water treatment plant In addition, the Municipality sponsored a technical workshop for 20 industry representatives on pollution prevention and waste minimization As a result of these audits, several industries are now seeking funding to implement low-cost pollution prevention methods and the Municipality is redesigning its waste water treatment plant The Water and Sewer Utility, which has been less than enthusiastic about pursuing water conservation, has been pressured by the Municipality to undertake such programs As a result of the Action Plan developed by the Citizen Committees, the Municipality is scrutinizing the utility's activities and overseeing its implementation of the leak repair program

Replication and National Impacts

6 The National Movement of Ecoglasnost has established a national office to replicate the Project in six additional communities Nine full and part-time employees have been hired Five of the six demonstration communities (Dobrich, Velingrad, Vidin, Bourgas, and Kardzali) have formed citizen committees and identified environmental problems in their communities Several of the project communities have implemented various environmental activities, including a video show and photo exhibit, a map of the main pollutants of the Black Sea, an introduction to students of the environmental problems of the Black Sea, and a

two-day environmental excursion for students to observe first-hand, human-related impacts on the environment Ecoglasnost has published several issues of a newsletter to report on the activities of the project communities and the central office

7 In July of 1993, representatives from the Ministry of Environment, Ministry of Regional Planning and Construction, and Ministry of Health signed a Memorandum of Understanding pledging to work together to assist municipalities address environmental problems The memorandum includes four main tasks 1) to exchange information among the ministries on their community-related activities and programs, 2) to disseminate this information to the municipalities, 3) to provide assistance to municipalities to develop and implement environmental policies, and 4) to coordinate information exchanges among international environmental institutions Staff representatives from the three ministries subsequently formed a task force and have met monthly since July of 1993 Together, they have prepared and distributed a summary of laws governing municipal environmental responsibilities They have distributed a survey to each municipality to assess priority problems, current environmental activities, and assistance needs Several members of the task force will also participate as facilitators in a training to be held in June of 1994 for municipal environmental specialists and non-government organizations in implementing community environmental action projects

8 Through two regional workshops on water conservation, regional cooperation in addressing water shortages was fostered between the Municipalities of Lovech and Troyan The two municipalities have continued to share information about water conservation programs and are working together to implement leak detection and repair The regional government has also assumed a leadership role in water issues and is extremely interested in assisting municipalities in addressing and resolving the issue The regional government will play an active role in coordinating future technical assistance efforts in the region, in particular an international water assistance program operated by the American Water Works Association and sponsored by the USEPA Office of Water

9 A second, independent project was established in the Municipality of Stara Zagora The Stara Zagora Project was launched in November of 1992 with a two-day training attended by more than 60 people The training also utilized staff people and members of the National Movement of Ecoglasnost, who had received training the previous two days, to facilitate the small group work sessions Troyan Committee members attended the training, gave presentations on some of the obstacles they had encountered, and assisted in facilitating the small groups on the second day of the training Two other meetings were held jointly between members

of the Troyan and Stara Zagora Projects A second two-day training was held in May of 1993 that focused on public participation techniques for the Policy Committee and comparative risk analysis for the Technical Committee Approximately 25 people attended each workshop Both trainings built upon, and benefited from, the experiences of the Troyan Project A third training was held in January of 1994 to practice problem ranking and to learn how to develop an environmental action plan The Policy Committee has undertaken a public survey, and the Technical Committee has prepared problem analyses A ranking of the environmental problems is scheduled for July of 1994, and the preparation of the Environmental Action Plan should follow

ISC ASSISTANCE

10 ISC conducted six trainings over an 18-month period for 50 members of the Troyan Citizen Committees These trainings included

1) A two-day workshop to kick-off the Project that addressed comparative risk analysis, group process skills, and Committee roles and responsibilities (March 1992),

2) A two-day workshop that focused on work plan development, group process skills, preparation of meeting agendas, team building, public participation techniques, and comparative risk analysis (June 1992),

3) A two-day workshop to both clarify the information needs associated with risk analysis and undertake a practice ranking session (September 1992),

4) A one-day workshop on developing an environmental action plan (January 1993),

5) A two-week seminar in the United States and Canada for members of the Bulgarian delegation on community-based approaches to environmental problems (February-March 1993), and

6) A one-day regional seminar on implementing a water conservation program (September 1993)

11 ISC also worked directly with Committee members and project coordinators throughout the Project, including observing and participating in numerous Committee meetings ISC worked closely and met frequently with the municipal

environmental specialists, Mayor and Deputy Mayor, City Manager, and City Council Chairperson ISC staff members visited numerous industries and environmental problem sites (i e , landfill, water in-take) ISC also attended several public information meetings, City Council meetings, and met with regional government officials Over the life of the Project, ISC staff and consultants spent approximately six months in Troyan working directly with project staff, municipal officials, Committee members, and industry representatives

12 ISC organized a 2 1/2 week seminar in the US and Canada for 10 representatives from the Municipality of Troyan, the Citizen Committees, National Movement of Ecoglasnost, and the Ministry of Environment to help obtain first-hand knowledge of effective environmental clean-up strategies relevant to Bulgarian communities

13 ISC sponsored two regional conferences on water conservation in the Lovech region that helped address the regional water supply problem In total, 160 people attended, including municipal officials, water utility officials, NGO representatives, and citizens

14 ISC worked extensively with the National Movement of Ecoglasnost to help establish its "Community-Based Projects of Ecoglasnost " ISC conducted numerous trainings for staff and members of national and local Ecoglasnost chapters in how to implement a community-based environmental action project, strategic planning for local environmental action, facilitation and group process, and, organizational management ISC also worked extensively with Ecoglasnost during the first year on work plan and budget development, methods for hiring staff, and accounting procedures

15 ISC conducted five national seminars, including 1) *strategic planning* and *implementing a community environmental action program* for 60 members of local Ecoglasnost chapters, 2) two seminars (at different stages of the project) on *comparative risk analysis* and *sharing information with municipalities* for 100 national government officials, 3) *municipal financing of environmental projects* for 50 municipal environmental specialists and officials, and 4) *community environmental action in Bulgaria* for 45 municipal environmental specialists (Troyan officials helped lead training)

16 ISC replicated the Project in the Municipality of Stara Zagora -- a community of 225,000 people ISC organized three trainings for the Project Committees in comparative risk analysis, public participation, and environmental action planning to help implement the Project in their community

17 ISC staff participated in three international conferences to publicize the results of the Project

18 ISC developed a Guide to Community Environmental Action in Bulgaria and Community-Based Approaches to Addressing Environmental Problems for the Citizen Committees, local and national governments, and non-government entities on how to implement a community-based environmental action project

DOCUMENTATION

The following documents were generated as a result of the Project

- Troyan Environmental Action Plan and Implementation Plan August 1993 Troyan Citizen Committees, Troyan, Bulgaria

- Environmental Audits for Five Selected Industries in the Municipality of Troyan, Bulgaria February 1993 Alexandra Kantarjieff, Le Groupe Teknika, Quebec under contract to the Institute for Sustainable Communities (funded outside of USEPA grant)

- Community-Based Approaches to Addressing Environmental Problems May 1993 Institute for Sustainable Communities, Vermont, USA

- Guide to Community Environmental Action in Bulgaria June 1994 Institute for Sustainable Communities, Vermont, USA

III. EVALUATION APPROACH

The evaluation of the Bulgarian Community Environmental Action Project measures overall project performance and accomplishments against the stated objectives, in combination with specific impact indicators The results and evaluations are based upon participant evaluations -- solicited following seminars and workshops, through round table discussions, and at the conclusion of the Project -- and the observations of the ISC Project Director and ISC's In-Country Coordinator These objectives and impacts are described below

Project Objectives

The original project objectives, as stated in the Cooperative Agreement between USEPA and IS ", were

Objec ve 1 *Participatory Decision-Making* To provide a model of participatory decision-making related to environmental protection and economic restructuring by

A) Providing experience with comparative risk assessment as a method for supporting environmental policy-making,

B) Illustrating a process for developing cost-effective strategies to reduce specific environmental risks, and

C) Helping lay the groundwork for Western environmental investments by gathering reliable data, improving the quality of environmental analyses, and encouraging the adoption of realistic environmental priorities

Objective 2 *Environmental Planning and Implementation* To assist one Bulgarian community in conducting a comparative risk process and developing and implementing an environmental action plan by

A) Providing organizational, technical, and financial assistance to an individual community as it undertakes a comparative risk process and develops a strategy for environmental risk reduction,

B) Promoting public awareness and understanding of environmental problems and solutions, and public participation in environmental decision-making, and

C) Demonstrating specific environmental strategies at the community level

Objective 3 *Institutional Capacity Building* To strengthen the institutional capacity of government and non-government organizations (NGOs) at the national and community levels by

A) Training national and community leaders in environmental risk analysis, priority-setting, and integrated policy-making,

B) Expanding the capacity of government and non-government institutions to design, manage, and implement environmental protection programs,

C) Helping to develop procedures for environmental data collection, information sharing, and public participation, and providing experience and training in their use to non-government organizations and government officials, and

D) Encouraging information sharing among communities implementing environmental programs and measuring, documenting, and promoting their successes

Impact Indicators

The following impact indicators are used in this report to measure the degree to which each of the project objectives has been met

- Participation levels achieved
- Work products completed within time frame
- Quality of products attained
- Long-term program impacts realized

ISC's assistance activities are described and evaluated separately in this report according to the following impact indicators

- Scope of assistance activities
- Effectiveness of assistance activities

IV. PROJECT RESULTS AND EVALUATION

Introduction Organization of this Section

This section is organized according to the three broad objectives described above Within each of these objectives, specific activities are measured according to specific impact indicators ISC assistance activities are evaluated separately This section is organized as follows

Objective 1 Participatory Decision-Making
- Citizen Committees
- Public Participation
- ISC Assistance

Objective 2 Environmental Planning and Implementation
- Environmental Priority-Setting
- Environmental Action and Implementation Plan
- Strategy Implementation
- ISC Assistance

Objective 3 Institutional Capacity Building
- National Movement of Ecoglasnost
- National Ministries
- Regional Cooperation
- Municipality of Troyan
- Ecoglasnost/Troyan
- Stara Zagora
- ISC Assistance

A. OBJECTIVE 1: PARTICIPATORY DECISION-MAKING

TO PROVIDE A MODEL OF PARTICIPATORY DECISION-MAKING RELATED TO ENVIRONMENTAL PROTECTION AND ECONOMIC RESTRUCTURING

The Project promoted participatory decision-making through two distinct approaches First, two Citizen Committees were directly involved in making environmental decisions, including ranking environmental problems and selecting strategies for the top priority problems Second, the Policy Committee was actively involved in promoting public awareness and understanding of environmental problems and solutions through an extensive program to educate and solicit the opinions of community members This section describes the activities and evaluates the work associated with

- Citizen Committees
- Public Participation
- ISC Activities

1) CITIZEN COMMITTEES

One of the primary objectives of the Project was to actively involve the public in environmental decision-making Two Citizen Committees were formed to undertake the work of the Project 1) a Policy Committee that was responsible for educating the public and soliciting public opinion, and, 2) a Technical Committee that was responsible for collecting and analyzing technical information This objective can be evaluated in terms of the following impact indicators

- Participation levels achieved within Citizen Committees
- Work products completed within time frame
- Long-term program impacts Improved group decision-making

Impact Indicator Participation Levels Achieved within Citizen Committees

A total of 50 different community members served at various times on the Committees, with an average of 25-to-30 people participating at any given time The Committees met either weekly or bi-weekly over a period of 21 months While the composition of the Committees changed throughout the course of the Project, a core of committed individuals worked on the Project throughout

Impact Indicator Work Products Completed within Time Frame

The Committees accomplished all the major tasks before them, including obtaining broad public input through each stage of the Project, developing problem descriptions and ranking the environmental problems, preparing an environmental action and implementation plan, and assisting in strategy implementation (Detailed descriptions of the Committees' accomplishments are described later in this section of the report)

Project participants also felt that the Project had achieved its initial objectives Based upon an evaluation questionnaire completed in September of 1993, 13 of 14 respondents rated this question either a "four" or "five," (on a scale of one-to-five, with five being the highest, see Attachment 2 for the results of the final evaluation questionnaire) One illustrative comment from the questionnaire reads

> The Project succeeded in building a model where the residents of the Municipality, on one hand, and the Citizen Committees, on the other hand, took into account public opinion and the limited funds, and managed to define, analyze, and prioritize environmental problems

While all the major tasks were accomplished, the problem ranking was conducted three months behind the original schedule The completion of the environmental action plan and implementation plan were accomplished in the allotted time frame, and project implementation began on time The Committees experienced time delays at the project outset due to a number of factors Most significantly, Committee members experienced initial problems working together as a group, making group decisions, and organizing themselves

Time delays were also attributable to some confusion about the relative roles and responsibilities of the two Committees In the early stages, the original committee structure assigned the Policy Committee with the overall responsibility for the Project, accordingly, the Technical Committee was to report to the Policy Committee This structure proved unworkable as Policy Committee members began to view the Technical Committee as their staff, and conflicts soon arose Further, time delays were attributable to difficulties that Committee members experienced in detailing specific tasks that needed to be accomplished, dividing responsibilities, and developing a time frame for accomplishing these tasks

Political polarization also proved to be another problem faced by the Committees Due to the recent political changes that have swept the country, there is a strong polarization between ex-communist party supporters and non-supporters Oftentimes, people refused to work with anyone who was a member of the Bulgarian Socialist Party (the revamped Communist party) and visa versa This resulted in most of the Committee members who were members of the Bulgarian Socialist Party leaving the Committees and creating a void in certain areas of expertise

Impact Indicator Long-Term Program Impact Achieved -- Improved Group Decision-Making

One measure of participatory decision-making is how well people work together in a group Over the course of the Project, the quality of group process and decision-making improved dramatically as Committee members learned how to brainstorm ideas, facilitate meetings, work together as a team, identify tasks and divide up responsibilities, and make decisions through voting or consensus Evidence of this teamwork is manifested in the summary of project results and the completion of the Troyan Environmental Action Plan

In response to the final evaluation questionnaire, most Committee members felt that they had learned how to work together as a team to address environmental problems One illustrative comment from the questionnaire was

> As a member of the public, I started thinking in a better way about environmental problems, and I expect to see an actual impact from the Project As a person, I learned to retrain myself better, to organize people, to accept other opinions easier, to work more effectively, to consult with others for better and more democratic decisions, and I learned much more than I knew about the environment

A significant, but more difficult, measure of change is the level of assertiveness of Committee members' in expressing their views and taking actions in forums outside of the Project This difference was visible to US consultants who visited the region For example, in the Fall of 1993, a US water specialist traveled to the region to hold meetings with municipal officials and citizens from both Troyan and a neighboring community The consultant observed that Troyan participants were both much more informed about water issues and more comfortable in freely expressing their views compared to the neighboring community Representatives of the Troyan Citizens Committees participated freely in the discussions alongside municipal officials, while in the neighboring community, citizen participation was much more limited

2) PUBLIC PARTICIPATION

One of the primary objectives of the Project was to promote public awareness and understanding of environmental problems and solutions This objective can be evaluated in terms of the following impact indicators

- Public participation levels achieved
- Long-term program impact achieved Increased public awareness levels

Impact Indicator Public Participation Levels Achieved

The Policy Committee undertook a variety of activities to solicit public opinion and educate the public about the environmental problems facing the community In June of 1992, the Policy Committee, in conjunction with Ecoglasnost/Troyan, distributed a survey asking the public to prioritize the environmental problems facing the community The Policy Committee received an impressive 80 percent return of the 5,000 surveys distributed Inadequate supplies of and poor quality drinking water, air pollution, surface water contamination, and deforestation ranked as the highest priorities perceived by the public

In November of 1992, the Committees held the first of six public information meetings to a) inform the public about the activities of the Project, and b) solicit its opinions about the Committees' work and the environmental problems facing the community Two hundred members of the public attended the meeting The meeting format included a panel presentation from Committee members, a comment period from the public, refreshments, and the presentation of two ecological films The Committee held additional public meetings that focused on specific problems, such as poor quality and shortages of drinking water and solid waste disposal

Committee members also provided ecological information to the public through dozens of articles and columns in the local newspaper These included information about the ecological problems as well as tips about what the public could do to help improve the environment The Committees undertook a logo contest for the Project and developed a bulletin board display in the town square about the Project (see Appendix 3 for selected articles)

The Committee also organized several activities to involve the public in addressing environmental problems For example, a "Plumber's Telephone Line" was established to link plumbers with people who wanted leaks repaired at reasonable prices Also, the Community Coordinator and Ecoglasnost/Troyan organized, with the support of the Troyan Forestry Department, an environmental student brigade to mark the boundaries of the Central Mountain Balkan Park in Troyan

Impact Indicator Long-Term Program Impact Realized -- Increased Public Awareness Levels

Overall public exposure to the Project was high Hundreds of citizens attended public information meetings and thousands of citizens read articles about the Project According to the Committee members' evaluations, they believed that public awareness was much higher as a result of the Project Further, Committee members believed that the public was much more aware of the environmental problems facing the community and were better informed about the importance of the environment

Unfortunately, the actual impact on public awareness was not measured Policy Committee members did not assess public awareness of environmental issues either at the beginning or end of the Project due to an oversight by ISC Ideally, specific questions to ascertain the public's understanding of environmental issues should have been included in the original public survey, as well as a survey conducted at the end of the Project, to assess potential awareness levels This factor will be considered in future projects

3) ISC ASSISTANCE

The primary purpose of ISC's training activities and technical assistance in Troyan was to empower the Citizen Committees to complete the basic tasks of the Project ISC activities can be evaluated in terms of the following impact indicators

- Scope of assistance activities
- Effectiveness of assistance activities

Impact Indicator Scope of Assistance Activities

As described earlier, the Committees completed all of the major project tasks within the overall time frame ISC delivered or sponsored six different training sessions for Committee members A total of approximately 100 different people were trained during these sessions, including Troyan Citizen Committee members, elected officials, representatives from the Ministry of Environment, other municipalities, and various research institutions A core of 25 people participated in most of the training activities These trainings included

1) A two-day workshop to kick-off the Project that addressed comparative risk analysis, group process skills, and Committee roles and responsibilities (March 1992),

2) A two-day workshop that focused on work plan development, group process skills, preparation of meeting agendas, team building, public participation techniques, and comparative risk analysis (June 1992),

3) A two-day workshop to both clarify the information needs associated with risk analysis and undertake a practice ranking session (September 1992),

4) A one-day workshop on developing an environmental action plan (January 1993),

5) A two-week seminar in the United States and Canada for members of the

Bulgarian delegation on community-based approaches to environmental problems (February-March 1993), and

6) A one-day regional seminar on implementing a water conservation program (September 1993)

ISC also worked directly with Committee members and the project coordinators throughout the Project, including observing and participating in numerous Committee meetings ISC worked closely and met frequently with the municipal environmental specialists, the Mayor and Deputy Mayor, City Manager, and City Council Chairperson ISC staff visited numerous industries and environmental problem sites (i e , landfill, water in-take) ISC also attended several public information meetings, City Council meetings, and met with regional government officials The ISC Project Director and In-Country Coordinator visited Troyan monthly during the Project, spending approximately four months in the community

Impact Indicator Effectiveness of Assistance Activities

The Committee encountered numerous difficulties at the early stages of the Project, and in general, ISC was effective in meeting the training and technical assistance needs of the Committee members as they arose ISC underestimated the amount of training that Committee members needed at the project outset in group process, team building, running meetings, facilitation, and work planning Committee members also needed more guidance in how to implement specific public participation activities In response, ISC held a two-day training in June of 1992 in improving group process and team building skills, and developing work plans and public participation plans

Difficulties also arose from the initial hierarchical committee structure, in which the Technical Committee reported to the Policy Committee In May of 1992, ISC encouraged the Committees to give each Committee equal stature The Committees adopted the revised structure

Overall, Committee members ranked ISC assistance extremely high in the final evaluation Out of 15 responses, 13 Committee members rated ISC assistance a "five" (on a scale of one-to-five, with five being the highest), one member a "four," and one member a "three " Many members stated that it would have been impossible to accomplish the work without ISC assistance

Overall, ISC could have instituted a more systematic and regular process for assessing Committee needs, particularly at the project outset For example, evaluations were only conducted after a few of the training activities ISC could have instituted more informal exchanges with Committee members to assess how the Project was proceeding, identify problems encountered, and determine assistance needs

B. OBJECTIVE 2. ENVIRONMENTAL PLANNING AND IMPLEMENTATION

TO ASSIST ONE BULGARIAN COMMUNITY IN CONDUCTING A COMPARATIVE RISK PROCESS AND DEVELOPING AND IMPLEMENTING AN ENVIRONMENTAL ACTION PLAN

The Troyan Citizen Committees successfully completed a three-phase environmental planning and implementation process This section describes the activities and evaluates the work associated with

1) Environmental priority-setting using comparative risk analysis

2) Environmental action and implementation plans

3) Strategy implementation

The results of each of these steps are reported below

1) ENVIRONMENTAL PRIORITY-SETTING

A primary project objective was to provide experience with comparative risk analysis as a method for supporting environmental policy-making and to demonstrate this application at the community level This objective can be evaluated in terms of the following impact indicators

- Completion of problem ranking
- Quality of comparative risk analysis

Impact Indicator Completion of Problem Ranking

Technical Committee members, with input from the Policy Committee, undertook each of the steps involved in the comparative risk process From March to July of 1992, the Technical Committee developed preliminary problem descriptions and a list of potential information sources A dozen information requests were sent to such various information providers as the Regional Health Inspectorate and Regional Environmental Inspectorate After information was collected, problem analyses were prepared and distributed to all Policy and Technical Committee members in November and December of 1992 The ranking was completed by members of both Committees in January of 1993 A summary of the problem rankings is provided below

RANKING OF RISKS ASSOCIATED WITH TROYAN ENVIRONMENTAL PROBLEMS

Environmental Problems	Health Risk	Ecological Risk	Quality of Life Risks	Combined Risk
Inadequate Supplies of and Poor Quality Drinking Water	High	Low	High	High
Air Pollution	High	High	High	High
Radiation	High	High	High	High
Poor Nutrition	High	Low	High	High
Loss/Degradation of Forests	Low	High	Medium	High
Loss of Flora and Fauna	Low	High	High	High
Air Pollution in Working Environment	Medium	Low	Medium	Medium
Noise Pollution	Medium	Low	Medium	Medium
Direct Discharge of Industrial and Household Waste	Medium	Medium	Medium	Medium
Direct Discharge of Sewage from Breeding Farms	Medium	Medium	Medium	Medium
Emergency Releases of Toxics	Medium	Medium	Medium	Medium
Soil Erosion	Medium	Medium	Medium	Medium
Industrial Chemicals and New Production Processes	Medium	Low	Medium	Medium
Industrial Waste Disposal	Medium	Low	Low	Medium
Tobacco Smoking	High	Low	Medium	Medium
Solid Waste Landfills	Low	Low	Low	Low

The problem ranking occurred three months later than originally planned The reasons for this delay are related to the quality of the comparative risk analysis and are discussed below

Impact Indicator Quality of Comparative Risk Analysis

The comparative risk process proved to be the most difficult and lengthy component of the Project The actual quality of the Technical Committee's work is difficult to gauge when taking into account the numerous and sometime insurmountable difficulties the Committee encountered in preparing the problem analyses Given these difficulties, the Committee did an admirable job of compiling the information and preparing for the problem rankings Still, the problem analyses could be improved upon considerably, and future community comparative risk projects will benefit

from the Troyan experience Some of the difficulties encountered by the Technical Committee and some opportunities for improving future comparative risk projects are identified below

Lack of Data Availability Technical Committee members had problems determining what information was available and from what sources For instance, data on water quality was available from two different Regional Inspectorates - Health and Environment Second, some vital information simply did not exist For example, ambient air data had never been collected in the Municipality because Troyan had always been considered a "clean city" in the mountains

Lack of Data Access The Technical Committee also had an extremely difficult time gaining access to information The problems encountered with the Regional Health Inspectorate in Lovech are illustrative The Health Inspectorate has vital information on drinking water quality, food quality, and worker exposure Over a period of eight months, the Health Inspectorate alternatively told the Committees that they would have to pay for the information or that their information request was unreasonable and would take too much time to compile

When it was clear that the Health Inspectorate was being less than cooperative, the ISC Project Director met with the Health Inspectorate Director to learn the reasons behind the delay The Health Inspectorate Director explained that prior to releasing information she wanted a protocol signed among the Health Inspectorate, ISC, the Municipality of Troyan, and the Ministry of Health that defined the various roles and responsibilities of the respective parties and that gave her direct authorization from the Minister of Health to release the information

The Health Inspectorate typifies the difficulties that municipalities and citizens have in obtaining information from some regional and national government bodies -- despite laws that require this information to be made available to the public These agencies do not have experience with sharing information and are unaccustomed to releasing information without direct authorization from higher officials

Lack of Data Accuracy Problems with data accuracy also posed a significant challenge to the Technical Committee's work For example, in Troyan, the Health Inspectorate, which is responsible for sampling and testing drinking water, asserts that the water met all quality standards Yet, many Troyan residents refuse to drink tap water and cases of dysentery are commonplace, especially during low rainfall months of the year One plausible explanation for the increase in dysentery is that, due to the severe water rationing, people and especially children have reduced their personal hygiene levels Questions regarding the validity of government data remain, and independent data to verify water quality levels is either scarce or non-existent

Lack of Technical Expertise The Technical Committee did not have the full range of expertise necessary for all of the various analyses required by the Project For example, representatives from the Regional Health Inspectorate were not fully cooperative and eventually

stopped participating in the process Also, while Committee members had expertise in forestry, agriculture, and medicine, they lacked people with backgrounds in other key areas such as epidemiology and wildlife ecology In some respects, this difficulty is inherent in small and medium-sized communities Larger communities are likely to have a broader range of available experts Experts from regional and national government bodies can fill a vital gap in helping to prepare and/or review problem analyses and their commitment at the beginning of the Project is critical to gaining access to specific expertise and information

Lack of Understanding of Comparative Risk Analysis This Project, together with the community environmental action projects in Hungary, is among the first applications of comparative risk analysis methodology in Eastern and Central Europe The comparative risk process involves several, oftentimes complicated, steps and the Technical Committee members experienced difficulties in grasping some of the basic steps in the comparative risk process

Many of the final problem analyses did not answer the fundamental question, "Why does this environmental problem pose a concern to the community, i e , What are the associated human health, ecological, and quality of life risks?" Some of the problem analyses lacked information about the number of people affected in the community and the severity of these impacts, or the extent of ecological destruction caused by environmental problems Other problem analyses failed to relate how specific pollution levels or pollution levels exceeding certain standards posed specific risks to the community Alternatively, a certain risk would be identified, such as cancer deaths, but a quantitative relationship to a human activity that may have caused the risk was not clearly established

2) ENVIRONMENTAL ACTION AND IMPLEMENTATION PLANS

After the problem ranking was completed, the next primary objective of the Committees was to complete an environmental action plan and implementation plan This objective can be evaluated in terms of the following impact indicators

- Completion of environmental action and implementation plans
- Completion of Vermont Seminar
- Quality of the plans

Impact Indicator Completion of Environmental Action and Implementation Plans

The Committees successfully completed the preparation of the Environmental Action Plan and the Implementation Plan In addition, they prepared a Final Report documenting the history of

the Project and summarizing the major results Together, these documents have been compiled into the Troyan Environmental Action Project Final Report and Environmental Action Plan and represent a tremendous amount of work by the Committees This 90-page document is complete with graphs and charts and is described below (see Attachment 1 -- Final Report and Environmental Action Plan)

The Final Report includes a general overview of the Project, a summary of the results achieved, the step-by-step history of the Project, and an elaboration of how the plan was developed

The Environmental Action Plan summarizes the risks associated with each environmental problem and reports on the results of the problem ranking The plan identifies goals and potential strategies associated with the two top priority problems of air pollution and inadequate supplies of and poor quality drinking water Appendices summarize information on potential strategies and explain how strategies were selected

The Implementation Plan focuses on the lack of adequate supplies of drinking water This plan provides a detailed description of the drinking water shortages, and includes a detailed description of recommended implementation strategies, including leak detection of underground pipes, municipal ordinances to control and reduce water losses, particularly industrial water consumption, and the establishment of an environmental education center The Implementation Plan also includes a detailed project work plan, an itemized budget for each project element, and letters of support from participating institutions and industries

The Committees used the following approach in developing the Environmental Action Plan

A) Establish environmental goals The Committees identified goals for environmental improvements associated with the top priority problems of air pollution and inadequate supplies of and poor quality drinking water

B) Identify potential strategies and potential obstacles The Committees identified a list of strategies under five broad categories public education and training, economic incentives, community programs, technological measures, and regulatory/legal actions The Committees also identified possible obstacles to implementing particular strategies

C) Identify criteria for evaluating strategies The Committees identified several criteria that were used as the basis for evaluating and selecting from among a number of possible implementation strategies These criteria included effectiveness, cost-efficiency, implementation time frame, economic benefits, and environmental impact

D) Collect information and prepare "Issue Profiles" The Committees developed "Issue Profiles" for the priority problems of air pollution and inadequate supplies of and poor

quality drinking water These "Issue Profiles" included a description of the problem, goal statements, a list of potential strategies, potential obstacles for each strategy, and preliminary information collected on each strategy These profiles provided a summary of the available information to assist the Committees in narrowing the list of potential strategies that warranted more in-depth analyses

E) Evaluate and select strategies After a more finite list of potential strategies was developed, the Committee solicited the assistance of the Chief Engineer of the Municipality, the Director of the Water and Sewage Utility, and the Chairman of the Municipal Council to develop the Environmental Action and Implementation Plans (May-July 1993)

F) Prepare draft plan for public comment As a result of these efforts, the Committee produced a draft Environmental Action Plan and Implementation Plan These plans were then circulated to members of the public and the City Council for comment

G) Prepare and adopt final plan Comments were then incorporated into the final document, and the City Council approved the plans on July 23, 1993

Impact Indicator Completion of Vermont Seminar

A delegation of 11 Bulgarians traveled to Vermont, Massachusetts, and Canada to collect information on community-based approaches to environmental problems The participants consisted of seven representatives from Troyan (four Committee representatives, one municipal, one from Ecoglasnost/Troyan, and the Community Coordinator), one from the National Movement of Ecoglasnost, one from the Ministry of Environment, the ISC In-Country Coordinator, and a translator

The goals of the Vermont seminar were to

- Collect information pertinent to identified environmental problems,
- Provide an opportunity for the Bulgarians to interact with a diverse mixture of government, non-government, and business representatives, and
- Begin the process of applying information from US experiences to the problems of Troyan

During the 16-day seminar, the delegation participated in 35 different meetings and three different workshops The issues addressed during the workshop, included drinking water, air pollution and energy conservation, waste water, sustainable agriculture solid waste, community planning, environmental planning, and natural areas and tourism Site visits included drinking

water treatment facilities, waste water treatment facilities, recycling facilities, a lined landfill, a residential energy efficiency retrofit, a residential water conservation retrofit, a residential co-generation application, a fish breeding facility, dairy and pig farms, logging operations, and a natural gas distribution facility The workshops addressed environmental education, water conservation, and developing an environmental action plan

Overall, the participants rated the Vermont seminar very high -- with all participants rating the seminar either a "four" or "five," (on a scale of one-to-five, with five being the highest) Many participants stated that the Vermont seminar would improve their abilities to implement specific strategies in Bulgaria because they were exposed to entirely different perspectives on how to address environmental problems Participants universally requested that more discussion time and fewer meetings be built into the program (see Attachment 4 for a copy of the seminar evaluation, the participants' evaluations, and the program schedule)

Impact Indicator Quality of Plans

The Environmental Action Plan is a detailed and comprehensive document, but has several limitations First, environmental strategies are identified for only two of the 16 problems While the original intention was to identify potential strategies for all of the priority problems (six problems ranked in the high risk category), time constraints forced the Committees to focus on just two problems

Second, the Environmental Action Plan and Implementation Plan lack Troyan-specific analysis of various implementation strategies, and strategy selection was based solely upon existing information For example, the leak detection program was selected because these programs have been very successful in the US and Troyan had an estimated leakage rate of 30-to-50 percent The process for strategy selection was supposed to be two-phased First, the initial brainstorm list would be narrowed based upon generic information applied to selected criteria, and then Troyan-specific analyses (economic, engineering, or legal) would be conducted by consultants as the basis for strategy selection This second step was never conducted, again, due to time constraints

3) STRATEGY IMPLEMENTATION

The Troyan Project set out to demonstrate the implementation of specific environmental strategies at the community level, with an emphasis on low-cost resource conservation and pollution prevention strategies This objective can be evaluated in terms of the following impact indicator

- Completion of strategies identified in the Implementation Plan

Impact Indicator Completion of Strategies

As noted above, the Committees and Municipality selected three water conservation strategies for implementation

- Leak detection and repair in the underground distribution pipes,
- Municipal regulations to control and reduce the amount of water used, particularly an industrial audit and water saving program, and
- Environmental education in schools through the establishment of an Environmental Education and Information Center

Project implementation began in September of 1993 At that time, ISC awarded a $35,000 implementation grant to the Municipality of Troyan, the Environmental Education and Information Center was opened, the leak detection program was launched with a regional conference, and a lawyer was hired to help prepare draft ordinances These programs have progressed at mixed rates

Leak Detection Implementation of the leak detection strategy has progressed very well A leak detection group composed of two staff people has been established within the Municipality to implement the leak detection program As of February 1, 1994, the leak detection group had identified more than 25 leaks in the underground pipes and these leaks have subsequently been repaired by the Municipal Sewer and Water Utility (This is a fairly significant achievement in light of the difficulty of detecting leaks when water is flowing only two-to-three hours per day due to severe water shortages) The leak detection staff has established an office, purchased a computer, and is currently in the process of digitizing and computerizing the underground pipe network through a Geographic Information System It has also contracted with several large industries in Troyan to detect leaks within industrial premises

Municipal Regulations and Industrial Water Saving Program The Municipality, with the assistance of a lawyer, has revised the municipal environmental ordinance, that, among other things, requires industries to submit detailed reports to the Municipality describing their existing water usage and plans to reduce water Municipal staff has contracted with private firms to conduct water and waste audits of the major water consuming industries in town

Environmental Education and Information Center The Center has been hampered by the resignation of two different coordinators, but a new coordinator was hired as of April 1994 and activities are proceeding forward The Center was established, in conjunction with the Troyan Municipal Education Department, to coordinate existing environmental education efforts and initiate new teacher training activities, form a team of teachers to help plan activities, and organize hiking expeditions and other activities related to nature studies A Committee has been appointed by the Mayor to oversee the activities of the Center

Project Management The Mayor has appointed a Financial Committee comprising representatives from the Troyan Citizen Committees and Municipality's staff to oversee the expenditure of funds and to report on progress toward implementation Progress and financial reports have been prepared for the first six months of implementation

ISC is committed to monitoring the progress of the Municipality in implementing these strategies over the next year by reviewing and commenting on work plans and conducting site visits on a periodic basis

4) ISC ASSISTANCE

ISC's primary objective for environmental planning was to provide organizational, technical, and financial assistance to Troyan as it undertook the comparative risk process and developed a strategy for environmental risk reduction ISC's assistance can be evaluated in terms of the following impact indicators

- Scope of assistance activities
- Effectiveness of assistance activities

Impact Indicator Scope of Assistance Activities

Comparative Risk Analysis As described earlier, ISC conducted three different trainings in March, June, and September of 1992 that addressed different stages of the comparative risk process ISC also assisted the Committees in conducting the actual ranking process by hiring independent facilitators ISC assisted the Technical Committee in developing its problem analyses in a variety of ways First, ISC developed a standardized format for the problem description sheet that helped the Committees identify sources, stressors, pathways and negative impacts, information sources, data gaps, and methods to address each data gap ISC assisted the Committee in developing a work plan for each problem area, provided direction on how to solicit information from information providers, and overcome specific challenges to the information collection process, and reviewed and commented on the problem analyses ISC sponsored a week-long visit to Troyan by an expert from the Northeast Center for Comparative Risk to conduct trainings and work with the Technical Committee in developing its problem analyses

Environmental Action Plan ISC conducted several training activities related to developing an environmental action plan An introductory training was held immediately following the ranking (January 1993) and a 2 1/2 week seminar was organized in Vermont for 11 Bulgarians (February-March 1993), including seminars on the environmental planning process

ISC prepared a guidance document, Community-Based Approaches to Addressing Environmental Problems, that explained how US communities, and particularly Vermont, are

solving environmental problems This document addresses the following topics air pollution, drinking water, energy, hazardous materials in the work place, land-use planning, loss of flora and fauna, solid waste, and municipal waste water ISC also prepared guidance documents on how to develop an environmental action plan and provided comments on the draft action plan

Implementation In September of 1993, ISC sponsored an expert from the Massachusetts Water Resources Authority (MWRA), Larry Gabrynowicz, to work with Troyan Water and Sewer Company and the Municipality of Troyan for a week to assist them in their efforts to implement the leak detection program Mr Gabrynowicz also gave a presentation at a regional workshop on leak detection in which all the neighboring communities and water utilities attended ISC purchased and delivered three pieces of leak detection equipment to help launch the program Finally, ISC worked with the various Committees established by the Mayor, with the Water and Sewer Utility, and the City Council to help establish a system of financial and management accountability

Impact Indicator Effectiveness of Assistance Activities

ISC assisted the Committees and Municipality in successfully completing the problem ranking, developing an environmental action plan, and implementing selected strategies ISC's training and technical assistance program were critical to the success of the Project As noted earlier, Committee members' evaluations confirm this view

However, there were opportunities for improvement Committee members would have benefited greatly by training materials that provided in more detail how to undertake the comparative risk process, apply specific tests or criteria to the strategy selection process (i e , cost-effectiveness), involve the public, and implement and manage environmental programs Thus, ISC has prepared a resource document, Guide to Community Environmental Action in Bulgaria, that offers a step-by-step approach on how to implement each of these components

The overall project time schedule was unrealistic and burdensome to the Committee members A longer and more flexible time frame can take into account unexpected problems The six-month time frame for the environmental action plan was unreasonably short and did not allow sufficient time for undertaking site-specific analyses Also, three months was an insufficient amount of time for project implementation, and more time should be incorporated into the project design to assist in and monitor implementation As a result, ISC requested and received a time extension from the USEPA to monitor and oversee project implementation activities

C. OBJECTIVE 3. INSTITUTIONAL CAPACITY BUILDING

TO STRENGTHEN THE INSTITUTIONAL CAPACITY OF GOVERNMENT AND NON-GOVERNMENT ORGANIZATIONS (NGOs) AT THE NATIONAL AND COMMUNITY LEVELS

The Project was designed to strengthen both national and local government and non-government institutions to design, manage, and implement environmental protection programs Assistance at the national level was designed to help national institutions establish an assistance program to help their local counterparts (either government or non-government), while the local program was designed to help them directly improve their management capabilities ISC's role was to provide training and technical assistance to these institutions, and to encourage information sharing among communities This section describes the activities and evaluates the work associated with

- National Movement of Ecoglasnost
- National Ministries
- Regional cooperation
- Municipality of Troyan
- Ecoglasnost/Troyan
- Stara Zagora
- ISC Assistance

1) NATIONAL MOVEMENT OF ECOGLASNOST

The National Movement of Ecoglasnost is one of the foremost national non-government environmental organizations in Bulgaria with more than 70 local chapters ISC awarded Ecoglasnost a sub-grant to assist local Ecoglasnost chapters address environmental problems in their communities by building upon the experiences of the Troyan Project The Memorandum of Agreement between Ecoglasnost and ISC identified several objectives, including documenting and promoting the successes of the community demonstration projects and strengthening Ecoglasnost's organizational capacity to sustain community-based assistance in the future Ecoglasnost's efforts can be evaluated in terms of the following impact indicators

- Activities completed within time frame
- Long-term program impacts achieved Strengthened institutional capacity

Impact Indicator Activities Completed

In October of 1992, Ecoglasnost established "Community-Based Environmental Action Projects of Ecoglasnost," in which a national office and six local offices were created to replicate the Troyan Project Nine full- and part-time employees were hired A work plan developed pursuant to the Memorandum of Agreement outlined three specific components of the program 1) to create an informational system for data acquisition concerning the environmental problems, 2) to disseminate information and methodological assistance to the local chapters, and 3) to establish six demonstration communities and provide technical assistance to these chapters (Velingrad, Vidin, Dobrich, Kardzali, Lovech, and Burgas)

Progress toward implementing these program components has been slow, but steady Four of the six demonstration communities have formed citizen committees and identified environmental problems in the community Velingrad has just completed the problem ranking and several other communities completed their rankings in the Spring of 1994 Several workshops and conferences have been held to train Ecoglasnost members and staff on how to implement a community-based environmental action project

Beyond collecting data and preparing for the problem rankings, several of the project communities have implemented various environmental activities Vidin has organized a video show and a photo exhibit, Dobrich has prepared a map of the main pollutants of the Black Sea and introduced the problems of the Black Sea to students, and Velingrad organized a two-day environmental excursion for students so that they could observe first-hand, human-related impacts on the environment

Ecoglasnost has published several issues of a newsletter to report on the activities of the project communities and the central office The database has not yet been established, but the software has been selected Ecoglasnost has been very economical in spending its grant monies, and thus, has been able to extend the project time frame until September of 1994 Now that some of the project communities have started to rank environmental problems, ISC is hopeful that Ecoglasnost will help these communities take the next step of developing local environmental action plans and implementing appropriate strategies

Impact Indicator Long-Term Program Impact Achieved -- Strengthened Institutional Capacity

Ecoglasnost has established a national program to assist its local chapters, and this program is steadily improving Several Ecoglasnost-sponsored communities are moving ahead with replicating the Troyan Project Over the last two years, the staff of Ecoglasnost's community-based project has improved its abilities to define its mission and role develop work plans and adhere to time frames, manage finances, and organize local community actions

The initial time delays, mentioned earlier, can be explained by several factors Foremost, the Ecoglasnost staff lacked basic skills in organizing and project management, due to the newness of the organization Ecoglasnost also experienced a complete turnover in the project staff due to the original staff members leaving to take different jobs All of the current national project staff members were hired after the Project began, and thus much of the initial staff training and assistance, as well as project continuity, was lost Time delays were also caused by initial legal complications that Ecoglasnost faced due to changes in the composition of its board and political differences among board members

Ecoglasnost and ISC also experienced some significant differences of opinion over Ecoglasnost's high political profile that contributed to another two-to-three month time delay ISC signed a Memorandum of Agreement with Ecoglasnost with the understanding that Ecoglasnost would become an "independent" environmental organization with a focus on environmental rather than political activities However, in February 1993, ISC learned that the Ecoglasnost leadership had been making strong political statements against the Bulgarian government under the name of Ecoglasnost A meeting was held in April to resolve these differences Ecoglasnost agreed to create a separate identity for its community projects and establish an independent advisory committee to improve coordination among institutions providing environmental assistance at the local level

2) NATIONAL MINISTRIES

Institutional strengthening of national governmental agencies was designed to expand their ability to provide environmental assistance to municipalities, develop procedures for data collection, information sharing, and public participation, and encourage information exchanges among communities Activities by the national ministries can be evaluated in terms of the following impact indicators

- Participation in Troyan Project
- Long-term program impacts achieved strengthened institutional capacity

Impact Indicator Participation in Troyan Project

Ministry staff and officials participated in the Troyan Project in several ways First, several national ministry officials worked with the Municipality of Troyan and the Citizen Committees to provide data on the environmental problems facing the community Dozens of ministry officials attended workshops related to the Project on comparative risk analysis, environmental financing, and public participation The Ministry of Environment also assisted by conducting the first ambient air monitoring in Troyan

In September of 1992, a one-day seminar was held for 50 representatives of ministries and other national institutions to improve communication and environmental assistance to municipalities and non-government organizations The Troyan Committees' efforts were used as an example, and representatives from the Troyan Citizen Committees attended and presented their positions

In July of 1993, representatives from the Ministry of Environment, Ministry of Regional Planning and Construction, and Ministry of Health signed a Memorandum of Understanding pledging to work together to assist municipalities address environmental problems The memorandum includes four main tasks 1) to exchange information among the ministries on community-related activities and programs, 2) to disseminate this information to the municipalities, 3) to provide assistance to municipalities to develop and implement environmental policies, and 4) to coordinate information exchanges with international environmental institutions (see Attachment 5)

Staff members from the three ministries subsequently formed a task force and have met monthly since July of 1993 Together, they have prepared and distributed a summary of laws governing municipal environmental responsibilities They have distributed a survey to each municipality to assess priority problems, current environmental activities, and assistance needs Several members of the task force will also participate as facilitators in a training to be held in June of 1994 for municipal environmental specialists and non-government organizations in implementing community environmental action projects

Impact Indicator Long-Term Program Impacts Achieved -- Strengthened Institutional Capacity

The Memorandum of Coordinating Actions signed by the Ministries of Environment, Health, and Regional Planning offers much promise for future ministry efforts in assisting municipalities to address environmental problems As noted above, the inter-ministry task force has undertaken several concrete activities, and ISC will continue to work with task force members to expand their program

The Troyan Project has received very positive remarks from the Bulgarian Minister of Environment, Valentin Bossevski In September of 1993, Minister Bossevski joined the ISC Board of Directors in Troyan to congratulate the City upon completion of the country's first Community Environmental Action Plan Minister Bossevski stated that he was impressed with the quality of the Troyan Plan and with the planning process the Citizen Committees followed

While the inter-ministry efforts appear to be gaining momentum, ministry efforts to directly assist Troyan could have been stronger As noted earlier, Troyan Committee members and municipal staff had a difficult time obtaining information from some ministries and regional inspectorates Ministry staff did not participate in all Troyan training activities, and specific staff

members within each ministry were not designated to work on the Troyan Project or attend training activities

Part of these difficulties stem from the changing relationships between national ministries, and municipal governments and its citizens For example, early meetings between national officials and Troyan representatives were often contentious Troyan representatives complained that their information requests were unanswered, while ministry officials complained that these requests were unreasonable Over the course of the Troyan Project, these relationships have improved -- as evidenced by the emerging national assistance program and strong support from the Minister of Environment

3) REGIONAL COOPERATION

One of the original project objectives was to promote information sharing among communities implementing environmental programs In this context, fostering regional cooperation also became an important project objective as it became clear that several environmental issues were beyond the jurisdiction of a single municipality Efforts to promote regional cooperation can be evaluated in terms of the following impact indicators

- Activities completed
- Long-term program impact achieved Regional cooperation fostered

Impact Indicator Activities Completed

The severe drinking water shortage facing the region offered an ideal opportunity for regional cooperation The Municipalities of Troyan, Pleven, and Lovech share the same water source that originates in the Balkan Mountains in the territory of Troyan The Municipalities of Lovech and Troyan each receive 100 percent and Pleven receives 20 percent of their drinking water from this source The water system is plagued by shortages and poor quality Severe rationing is often in effect during the summer and early fall, and cases of dysentery are common throughout these months

A dam, proposed for the Cherni Osam River (in the territory of Troyan) to improve the consistency of flow throughout the year, would have resulted in flooding portions of a United Nations designated biosphere reserve Approximately $500 000 was spent on the dam before a public protest and the lack of funds put a halt to the project The dam has pit the Municipality of Troyan, an opponent of the dam, against the Municipalities of Lovech and Pleven, which are dam proponents

Water conservation offered at least a partial solution to this difficult issue, and in September of 1992, a regional conference was held to discuss water conservation programs in the United

States and potential applications for Bulgaria The conference featured an expert from the Rocky Mountain Institute in Colorado, Andrew Jones Approximately 100 people attended the conference composed of representatives from the Municipalities of Plevin, Lovech, and Troyan, the municipal water utilities, regional government, Ministry of Regional Planning and Housing, regional environmental and health inspectorates, local Ecoglasnost chapters, and Troyan Technical and Policy Committees Evaluations indicated that the workshop was successful in generating a general agreement that water conservation was an untapped strategy for increasing water supplies

In September of 1993, a second regional conference was held to discuss Troyan's proposed water conservation program, with a specific emphasis on leak detection of underground pipes The conference featured a US leak detection specialist from the Massachusetts Water Resources Authority who gave a presentation of the history and success of their program The audience of 75 people was primarily composed of municipal and water utility officials The workshop concluded with a demonstration of leak detection equipment This workshop was co-sponsored by the Regional Government of Lovech -- a body comprising municipal representatives from the surrounding 25 municipalities -- which sent invitations to each of its members urging them to attend

Impact Indicator Long-Term Program Impact Achieved -- Regional Cooperation Fostered

Significant strides have been made toward fostering cooperation between the Municipalities of Lovech and Troyan The two Municipalities are continuing to share information about water conservation programs and working together to implement leak detection and repair The regional government has also assumed a leadership role on water issues and is extremely interested in assisting municipalities in addressing and resolving the issue The regional government will play an active role in coordinating future technical assistance efforts to the region, in particular an international water assistance program operated by the American Water Works Association and sponsored by the USEPA Office of Water

4) MUNICIPALITY OF TROYAN

One of the primary project objectives was to strengthen the capacity of the Municipality of Troyan to design, implement, and manage environmental programs and develop procedures for data collection, information sharing, and public participation This objective can be evaluated in terms of improvements in local environmental management

Impact Indicator Long-Term Program Impacts Achieved -- Improved Environmental Management

The Municipality of Troyan has improved its environmental management capabilities on several issues, particularly regarding its communication and relations with local industries

Municipal and industry officials are cooperating on plans for a new solid waste landfill and new waste water treatment facility In the Fall of 1992, municipal officials requested that local industries supply the Municipality with information on their individual solid waste and waste water management plans Responses were received from every major industry in Troyan Municipal officials also arranged numerous meetings with industry officials to discuss their plans pertaining to municipal solid waste, drinking water, and waste water facilities

The Municipality of Troyan, in conjunction with ISC, sponsored the visit of a Bulgarian-born, Canadian-trained industrial waste water engineer, Alexandra Kantarjieff, who conducted five industrial waste water audits and evaluated the engineering design of the proposed municipal waste water treatment plant In addition, the Municipality sponsored a technical workshop for 20 industry representatives on pollution prevention and waste minimization

As a result of these audits, several industries are now seeking funding to implement low-cost pollution prevention methods and the Municipality is redesigning its waste water treatment plant Ms Kantarjieff is currently in the process of making arrangements for more detailed engineering studies of the municipal treatment plant She is also working with the Municipality to explore the idea of forming a new company to manufacture pollution prevention equipment in the Troyan firm, Mashestroy

Troyan is one of the few municipalities in Bulgaria that directly controls the water utility The Water and Sewer Utility, which has been less than enthusiastic about pursuing water conservation, has been pressured by the Municipality to undertake such programs As a result of the Action Plan developed by the Citizen Committees, the Municipality is scrutinizing the Utility's activities and overseeing implementation of the leak repair program The Chief Engineer of the Municipality is requiring monthly work reports from the Utility's Director on progress toward plan implementation

In contrast, efforts by the Municipality just two years ago showed inexperience and a lack of foresight For example, in May of 1992, the Municipality of Troyan sent letters to each Troyan industry informing them that the municipal landfill would be closed to all industrial waste within two months When a high level municipal official was asked how the industries were supposed to find an alternative disposal site in such a short time frame, he replied, "I don't know, but at least we have their attention!" Needless to say, the ban on industrial waste was never enforced and industries are continuing to take their waste to the old municipal landfill

This example is indicative of the relative lack of environmental management experience that Bulgarian municipalities have The Municipality of Troyan has shown the enormous potential for improvement that exists

5) ECOGLASNOST/TROYAN

ISC worked with Ecoglasnost/Troyan, an affiliate of the National Movement of Ecoglasnost, to strengthen its capacity to implement local environmental activities, particularly public outreach efforts Through a $1,500 subgrant, Ecoglasnost/Troyan's role was primarily to strengthen the capacity of the citizens of Troyan to continue and follow-up on the Project, collect independent information, provide information on the Project to the public, and help publicize the Project to other communities in the region Ecoglasnost/Troyan's activities can be evaluated in terms of the following impact indicators

- Activities completed
- Long-term program impact Minimal impact on institutional strengthening

Impact Indicator Activities Completed

Ecoglasnost/Troyan members either took the lead or participated in a number of public outreach activities They organized the preparation, distribution, and compilation of 4,000 public surveys on environmental problems Members carried out, with the assistance of the Municipal Council, an independent testing of the quality of drinking water from the central city water main Ecoglasnost/ Troyan organized and held a public information meeting on the solid waste problem that was attended by approximately 30 people They also organized a program to test and label vegetables "organic" at the farmers' market and assisted in a student brigade to mark the boundaries of the nearby national park Finally, Ecoglasnost/Troyan members participated throughout the Project and regularly attended meetings

Impact Indicator Long-term Program Impact -- Minimal Impact on Institutional Strengthening

As noted above, Ecoglasnost/Troyan organized and/or participated in a number of public outreach activities However, it was never able to put together an overall plan on how to effectively participate in the Project It experienced many of the same difficulties that non-government organizations throughout Central and Eastern Europe experience, including lack of a clear understanding of both its role in effecting environmental decisions and how to manage projects

Ecoglasnost/Troyan lacked experience in conceiving long-range projects, identifying tasks and time frames, and assigning responsibilities Despite numerous assistance efforts by ISC staff and project coordinators, Ecoglasnost/Troyan had basic difficulties in hiring staff, finding office space, and spending the grant monies provided by ISC In fact, after the first quarterly payment, it did not receive a second payment because it failed to fully document expenditures, produce activity reports, and prepare adequate work plans

In addition, several conflicts arose between Ecoglasnost/Troyan and the Policy Committee about their roles in the Project Ecoglasnost/Troyan members complained that the Policy Committee wanted to control their activities, while the Policy Committee members complained about their reluctance to ask Ecoglasnost/Troyan to undertake assignments because of their poor follow-through Part of the problem stemmed from the fact that Ecoglasnost/Troyan did not internally clarify the distinction between its role in the Project versus its distinct and separate role as an non-government organization

Thus, despite several activities implemented by the NGO during the course of the Project, it is difficult to conclude that its long-term capacity to effectively participate in environmental decision-making has actually been improved

6) STARA ZAGORA

A second community-based environmental action project was established in the Municipality of Stara Zagora, thus expanding the Project beyond the initial scope After the Project had begun in Troyan, ISC wanted to gain experience working in a larger community and gain additional experience in implementing a community project Stara Zagora was selected because of its larger size (220,000 people versus 45,000 in Troyan), expressed support from municipal officials, a strong and independent NGO -- Ecoglasnost/Stara Zagora, its location in the southern part of the country, and a broad range of environmental problems ISC provided a seed grant of $10,000, funded by the USEPA, to Ecoglasnost/Stara Zagora to cover the cost of a coordinator and operational expenses Stara Zagora activities can be measured in terms of their completion toward implementing a community project

Impact Indicator Activities Completed Toward Implementation of a Community Project

The Stara Zagora Project was launched in November of 1992 with a two-day training attended by more than 60 people The training also utilized staff and members of the National Movement of Ecoglasnost, who had received training during the previous two days, to facilitate the small group work sessions Troyan Committee members attended the training, gave presentations about some of the obstacles they had encountered, and assisted in facilitating the small groups on the second day of the training Two other meetings were held jointly between members of the Troyan and Stara Zagora Projects

A second two-day training was held in May of 1993 that focused on public participation techniques for the Policy Committee and comparative risk analysis for the Technical Committee Approximately 25 people attended each workshop Both trainings built upon, and benefited from, the experiences of the Troyan Project A third training was held in January of 1994 to practice a ranking session and learn how to develop an environmental action plan

The Policy Committee has undertaken a public survey, and the Technical Committee has prepared problem analyses A ranking of the environmental problems was completed in June of 1994 and the preparation of the Environmental Action Plan should follow The Committees experienced initial delays due to some difficulties in carrying out the comparative risk process ISC will continue to provide technical assistance to Stara Zagora to help complete the remaining phases of the Project

7) ISC ASSISTANCE

ISC's primary objective for this component of the program was to strengthen institutional capacity of national and local government and non-government organizations to assist local government and non-government organizations in managing environmental problems This can be evaluated in terms of the following impact indicators

- Scope of assistance activities
- Effectiveness of assistance activities

Impact Indicator Scope of Assistance Activities

National Movement of Ecoglasnost ISC conducted three trainings and seminars for staff and members of national and local Ecoglasnost chapters to assist in their efforts In June of 1992, ISC helped organize a national seminar of 60 representatives from 40 different local Ecoglasnost chapters that focused on how to replicate a community-based environmental action project and strategic planning for local environmental action Prior to the workshop, ISC trained 15 Ecoglasnost members in facilitation and group process so they could lead the small group work sessions

In November of 1992, ISC conducted a two-day training for both the national and regional staffs to assist them in their efforts to establish community projects -- including training in group process skills, components of a community-based environmental action project, work planning, and organizational issues These individuals assisted in facilitating the group work sessions at the first training in Stara Zagora to launch the community-based project there ISC assisted in a two-day follow-up training for staff in February of 1993 in how to establish citizen committees and undertake the comparative risk process ISC also worked extensively with Ecoglasnost staff during the first year on work plan and budget development, methods for hiring staff, and accounting procedures

National Ministries In September of 1992, ISC organized a workshop for more than 50 national government officials on working cooperatively with municipalities to address environmental problems ISC also met several times with department heads of the respective ministries, and facilitated three joint working meetings with department heads and their staff

members to assist in developing the memorandum of coordinating actions and work plans Two dozen different ministry officials attended various ISC trainings and workshops

Regional Level ISC held two regional workshops on water conservation in September of 1992 and September of 1993 A total of 160 people attended the two workshops ISC sponsored experts on water conservation from the United States for both workshops ISC also met with the regional governors on three different occasions and met with staff from the regional government on a regular basis

Municipality of Troyan ISC sponsored the visit of a Canadian industrial waste water expert to serve as a consultant to the Municipality The consultant conducted five preliminary industrial waste audits and critiqued the proposed design of the municipal waste water treatment plant In addition, municipal staff, as members of the Troyan Citizen Committees, attended all the Troyan-based trainings Further, municipal staff participated in the regional water conservation trainings, the national training for Ecoglasnost chapters, the one-day seminar for national government officials, and the national seminar on municipal financing ISC staff met dozens of times with the municipal staff over the course of the Project, including numerous meetings with the municipal environmental specialists, City Manager, Deputy Mayor and Mayor, Chief Engineer, and City Council Chairperson

Other Municipalities ISC held three trainings in Stara Zagora to help establish a second community-based project (November 1992, June 1993, and January 1994)

ISC organized a three-day workshop entitled, "Municipal Financing of Environmental Projects" for 50 officials representing more than 30 different municipalities as well as representatives from numerous Bulgarian ministries and international assistance organizations The workshop focused on how to raise and repay capital to finance environmental projects, with a case study approach of the proposed Troyan municipal waste water plant In June of 1993, ISC spoke before 25 mayors in the Lovech region to talk about the Troyan Project and discuss water conservation strategies that municipalities can take to address drinking water shortages

Impact Indicator Effectiveness of Assistance Activities

ISC provided technical assistance and a wide range of trainings to strengthen government and non-government institutions ISC's effectiveness in this regard was mostly successful The Project exceeded expectations in promoting regional cooperation and establishing a second community-based project in Stara Zagora The environmental management skills of the Troyan municipal government have improved, and the national ministries are working together to provide environmental information, technical assistance, and training to municipalities Regarding non-government organizations, the National Movement of Ecoglasnost is proceeding ahead steadily but slowly, while Ecoglasnost/Troyan implemented a number of public outreach activities but failed to improve as an organization

ISC could have improved its assistance activities in a number of ways

Municipality of Troyan ISC should have developed a more focused 18-month assistance program for the Municipality While several municipal staff members participated in the trainings as members of the Committees, the municipal staff had more specific assistance needs beyond those provided as part of the Project For example, the municipal environmental specialists could benefit from training in how to fulfill their job responsibilities, enforcement, working with industry, drafting local ordinances, etc Through consultations with members of the municipal staff, specific environmental problems and types of assistance might have been identified and measures may then have been taken to meet those needs

National Ministries ISC should have improved its follow-through regarding the early commitments of ministry officials to participate in the Project For example, ISC should have requested that specific ministry staff be assigned to work on the Troyan Project and should have worked with Ministry officials on how to assist in the Project

Non-Government Organizations ISC underestimated NGO needs for basic organizational skill development and should have allocated more time and assistance in this area, especially at the project outset ISC was overly optimistic in expecting Ecoglasnost to replicate the Troyan Project in six communities, three might have been a more realistic number ISC also encountered numerous difficulties in assisting Ecoglasnost that were outside of ISC's control, such as Ecoglasnost's legal problems, political stances, and staff turnover

V. PROJECT CHRONOLOGY

Major milestones and accomplishments of the Project are delineated below

1/92	•	Municipality of Troyan, Ecoglasnost/Troyan, and the Institute for Sustainable Communities sign Memorandum of Agreement
	•	Committee members selected, first Committee meetings held
3/92	•	First training for Troyan Committees held on comparative risk assessment and group process skills
5/92	•	Public survey on Troyan environmental problems distributed
6/92	•	Second training for Troyan Committees held on work plan development, public participation, and group process skills
	•	One-day workshop for 60 representatives of local Ecoglasnost chapters held in Sofia
	•	Committees complete preliminary descriptions of environmental problems
7/92	•	Troyan Committees send out information requests for comparative risk analysis
9/92	•	Third training for Troyan Committees held on ranking of problems
	•	Regional water conservation conference held
	•	One-day seminar held for national government officials on municipal environmental assistance and comparative risk
10/92	•	Environmental student brigade marks boundaries of Central Mountain Park
	•	"Plumber's Telephone Hotline" in Troyan initiated
	•	National Movement of Ecoglasnost launches "Community-Based Environmental Projects of Ecoglasnost"
11/92	•	Committees hold first public information meeting
	•	First training for Stara Zagora Environmental Action Project held

12/92	•	Problem analyses distributed for comments and revised
	•	Ecoglasnost selects six communities with which to work
1/93	•	Troyan Committees rank environmental problems
	•	Fourth training held for Troyan Committees in developing environmental action plan
	•	Canadian industrial waste water specialist conducts five preliminary audits of Troyan industries Pollution prevention and environmental audit workshops held for Troyan industries
2/93	•	2 1/2 week Vermont Seminar for Troyan Committee members and other environmental leaders held on environmental strategies and developing environmental action plan
3/93	•	Ecoglasnost/Troyan, with assistance from the Troyan municipality, carries out independent monitoring of the quality of drinking water
4/93	•	Committees develop "Issue Profiles" for air pollution and inadequate supplies of and poor quality drinking water
	•	Bulgarian Ministry of Environment conducts first pollution monitoring of ambient air in Troyan
5/93	•	Troyan hires lawyer to help prepare municipal ordinances
6/93	•	Draft Troyan Environmental Action Plan and Implementation Plan developed and distributed
	•	Second training held in Stara Zagora
	•	National seminar on municipal financing of environmental projects held in Bankya
7/93	•	City Council adopts Environmental Action Plan and Implementation Plan
	•	The Ministries of Environment, Regional Planning and Construction, and Health sign Memorandum of Agreement pledging to work together to assist municipalities

8/93	•	ISC Board of Directors approves Troyan implementation grant
9/93	•	Municipality of Troyan receives implementation grant Leak detection program launched and "Environmental Information and Education Center" dedicated Mayor appoints Committees to oversee implementation
	•	Regional water conservation conference held on detecting and repairing leaks in underground water mains, featuring US expert
	•	Bulgarian Minister of Environment visits Troyan to commend Committee members and municipal officials on their work ISC Board of Directors visits Troyan
10/93-9/94	•	Project implementation and monitoring

VI. RECOMMENDATIONS FOR FUTURE COMMUNITY ENVIRONMENTAL WORK IN BULGARIA AND CENTRAL AND EASTERN EUROPE

The following recommendations have been developed for other individuals and organizations that are providing or interested in providing assistance at the community level in Bulgaria or in other Central and Eastern European countries These recommendations have been gleaned from the Troyan Project in terms of what worked well and what may have worked better Some of these suggestions were included as part of the original project design while others result from modifications to this design

A PARTICIPATORY DECISION-MAKING

Citizen Committees

1 Provide Assistance in Group Process Skills. Many of the early difficulties in the Troyan Project stemmed from the lack of basic group process skills of Project participants Citizen committees need extensive training at the outset in such group process skills as brainstorming, interpersonal communication, team building, facilitation, and conflict resolution Training should also be conducted in clarifying roles and responsibilities, work planning, meeting skills, and committee structures

2 Engage Key Technical Expertise While initial commitments to participate on the Committees were secured from government agencies, the community, and research institutions, several key individuals left the Committees Some problems were due to political polarization while others were due to the lack of history of national/regional government cooperation with local government The role of national and regional government and academic institutions needs to be carefully delineated and secured Municipalities should consider preparing letters of agreement with regional and national government institutions outlining what information and assistance they need and the terms of cooperation

3 Engage Key Municipal Experts. Participation by City Council members and elected officials is critical to the success of the Project, particularly the Environmental Committee of the City Council In Troyan, the City Manager served as an official municipal liaison with the Committees, and although not an official member of either Committee, he attended most of the meetings This considerably strengthened the ties between the Committees and the Municipality

4 Clarify Time Commitment and Project Scope at Outset. Troyan experienced a significant turnover of Committee members. Some of this turnover was due in part to the appointed Committee members not being fully aware of the scope of the project or the time commitment required. Thus, it is important to carefully delineate the time requirements and work expectations to prospective Committee members.

5 Utilize Self-Selection Process in Forming Committees. It is worthwhile considering a process where prospective Committee members are self-selected, at least to some degree. This will help ensure the commitment of Project participants because those interested in the Project will be more likely to devote the necessary time and actually perform the work. Thus, one approach to establishing the Committees would be for the Mayor to officially invite community members to an introductory seminar in order to become familiar with the project scope and methods of work. This seminar would be open to the public and those interested would be allowed to participate on the Committees. Commitments can then be obtained from individuals interested in working on the Project.

6 Encourage Formations of Sub-Committees. Troyan Committee members were reluctant to divide into sub-committees to undertake much of the detail work, thus, an unnecessary amount of the Committees' time was spent dealing with minutia. Some of this can be explained by the concerns of some Committee members that these individual sub-committees might make decisions without the participation of other Committee members. Committee members need training in how to delegate responsibilities to sub-committees, which tasks are appropriately delegated, and the role of the larger Committee in making final decisions.

7 Strongly Encourage and Assist in Development of Work Plans. Troyan Citizen Committees experienced initial difficulties in developing work plans delineating specific tasks, assigning responsibilities, developing a timetable, and preparing cost estimates. This difficulty can be explained by the Committee members' relative lack of experience in making group decisions (i.e., under centrally planned economies, decisions were made from the top-down). Committee members need initial training on work planning. Further, they should be strongly encouraged to develop work plans, and technical assistance should be provided in developing them.

8 Be Aware of Politically Charged Atmosphere. Eastern Europe faces a relatively politically charged atmosphere, that sometimes can impede the

progress of environmental activities A keen awareness and explicit acknowledgment of existing political differences within a community can help in identifying potential political conflicts Committee ground rules can be established that acknowledge these political differences yet encourage all members to focus on the common goal of environmental improvement and protection Also, Committee members might consider banning all political discussions during Committee meetings

9 Be Aware of Time Limitations of Citizen Volunteers Volunteers are limited in the amount of time they can devote to the Project This needs to be taken into account in developing the training schedule and determining the amount of time volunteers can spend on the Project Accordingly, trainings should be scheduled for weekends and evenings

Public Participation

10 Provide Assistance in Public Participation Techniques Troyan Committee members had very little experience in educating the public and soliciting public opinion Citizens need training and assistance on such various public outreach techniques as designing public surveys to both solicit public opinion and educate the public, and holding public information meetings

11 Public Should Be Well-Informed About the Project Citizen Committees should be sure to publicize the Project's goals and expected benefits at the outset, and keep the public aware of achievements as the Project proceeds Accordingly, the development of a public participation plan can be useful in detailing specific activities that the Committees will undertake to involve the public

12 Assess Public Awareness Levels at Outset and Conclusion One of the objectives of the Troyan Project was to increase public awareness about environmental problems However, the impact on public awareness could not be accurately measured because data on public awareness levels at the beginning or end of the Project was not obtained Public surveys should incorporate questions that ascertain the level of public awareness on environmental problems, willingness to act either individually or collectively to address problems, and willingness to pay for environmental improvements

13 Undertake Initial Public Involvement Activities Public involvement activities, such as a river clean-up, citizen water monitoring, or recycling drop-off programs provide Committee members and municipal staff with experience in project implementation Public involvement activities should be incorporated into the Project design to address environmental problems that have been identified by the public

B. ENVIRONMENTAL PLANNING AND IMPLEMENTATION

Comparative Risk and Problem Ranking

14 Obtain Commitments from Information Providers The Troyan Committees' biggest challenge to problem ranking was obtaining information Information providers have very little history of providing this type of information to the public or municipalities Citizen Committee members and municipal officials should meet with key information providers at the outset to explain the Project goals and solicit cooperation Key information providers should also be represented on the Committees Consideration should also be given to signing memorandums of cooperation between the Committees and/or Municipality and key information providers

15 Identify Data Gaps and Accuracy Problems at Early Stages The Troyan Committees encountered problems due to the lack of information and the inaccuracy of data Critical data gaps and questions about data accuracy should be identified as early as possible This will provide some time to generate supplemental data through monitoring or interpolation from other communities

16 Provide Guidance on Developing Problem Analyses The Troyan problem analyses sometimes lacked critical information quantifying the relationship between environmental problems and specific risks faced by the community More guidance and oversight should be provided to Committee members that describes the specific steps and critical information needs of the comparative risk process and how to meet these needs Project staff or consultants should allow ample time to review and comment on draft problem analyses

17 Conduct Survey of Information Providers Troyan Committees lost time trying to identify which information providers had what information An

initial survey of information providers should be conducted to determine what information is readily available to the public, from whom, and in what form the information exists

Environmental Action Plan

18 Provide Guidance and Time on Strategy Selection. The Troyan Committee members had very little experience in how to select implementation strategies Training should be provided to clarify the process for selecting implementation strategies Committee members should be provided with guidance on how to apply selection criteria to the list of potential strategies Training should also be provided in how to apply such specific economic tests as cost-effectiveness or cost-benefit analysis, and how to evaluate the technical merits of a project Committee members also need assistance in how to develop request-for-proposals and select contractors to perform certain analyses or services

19 Provide Guidance in Preparation for Potential Loan Applications. The Municipality of Troyan was given an implementation grant, upon completion of the action plan, to implement selected environmental strategies Training in how to acquire additional funds was partially addressed through a three-day national workshop on municipal financing In order to help the municipality acquire project funding for full-scale implementation, future projects should provide guidance on how to prepare loan applications to international or national lenders This should include training in how to prepare analyses that document the technical and economic qualifications and financial feasibility of a project, as well as the municipality's ability to repay the loan

20 Allow Time for Daily Discussions During US Seminars. Participants in the Vermont Seminar commented that the schedule was too full and that not enough time was incorporated for daily discussions to reflect on what they had learned Future seminars should schedule fewer meetings and site visits, and allow more time between meetings for daily discussions and free time

Implementation

21 Provide Training on Project Implementation. Troyan Committee members and municipal officials had little experience in implementing and overseeing program implementation Training should be provided in how

to establish a system of financial and program accountability that ensures effective management

- Allow Sufficient Time During Project Life for Monitoring The original Troyan project design incorporated only three months for plan implementation, though this was extended to allow for an additional 12 months of project monitoring The original three-month implementation period was insufficient to ensure effective implementation, and monitor and evaluate results Future projects should allot a minimum of 9-to-12 months for project implementation and evaluation of results

C INSTITUTIONAL CAPACITY BUILDING

Non-Government Organizations

23 Provide Direct Assistance on Capacity Building Bulgarian non-government organizations (NGOs) involved in the Project had difficulties defining their roles in the Project, developing an overall program for their participation, developing concrete tasks, and adhering to agreed upon time frames for implementation Training and extensive assistance should be provided to NGO staff in strategic planning, roles and functions of NGOs, work plan and budget development, accounting and financial management, and monitoring and evaluating program implementation Further, NGOs need training in how to mobilize and involve the public

24 Clarify Process for Hiring Staff The National Movement of Ecoglasnost experienced significant delays due to a 100 percent turnover in its national staff Oftentimes, Ecoglasnost hired staff people without a competitive process and without a clear understanding of a selection process that matched the skills needed to the skills a particular individual brought to a position Guidance should be provided in the process of developing job descriptions and selecting staff Further, staff people should only be hired with an understanding that they are expected to work for an agreed upon time period

25 Work with NGOs without Political Agendas Ecoglasnost mixed its political agenda with its environmental agenda -- often making it difficult for individuals to listen to its environmental viewpoint A careful screening should be conducted for future projects to select NGOs whose environmental agenda is their sole political agenda

National Ministries and Regional Governments

26 Project Replication Should be Institutionalized at Critical Regional and National Government Agencies. Three national ministries (Environment, Health, and Regional Planning) signed a Memorandum of Coordinating Actions to cooperate in providing environmental assistance to municipalities. It is critical that key national and regional governmental agencies, which can provide environmental assistance to the municipalities, are identified at the outset and commitments for their participation secured. Commitments, preferably through written agreements or understandings, should be obtained from these agencies clarifying how they will participate in the Project. Specific staff members from these agencies should be identified and assigned to work on the Project. Sub-grants can be provided to these institutions to cover expenses and project staff.

27 National/Regional Governmental Agencies Can Assist in Outreach to Neighboring Communities. In the Troyan Project, the Lovech Regional Government provided outreach assistance by inviting municipal and water utility officials from surrounding communities to a regional water conservation conference. Because the regional governments are composed of representatives from each municipality in a region, their involvement optimizes the impacts of any training activity.

Municipal Assistance

28 Municipalities Need Assistance Beyond Addressing Environmental Problems. The Troyan Project principally focused on assisting municipalities in addressing environmental problems. Municipalities also need basic assistance in how to function as a municipality, including open government, budget development and fiscal management, and organizational management. These problems are directly tied to a municipality's ability to address environmental problems.

29 Municipal Environmental Specialists Need Targeted Training. Most medium-to-large Bulgarian municipalities have hired one or more environmental specialist to address local environmental problems and implement solutions. These individuals have little experience or training in how to perform their functions. Training should be provided on

municipal legal authority and responsibilities related to the environment, management tools, auditing and monitoring, project/program design and implementation, environmental enforcement, project financing, work plan development, public participation, and specific technical issues Training programs should be developed to specifically meet the coordinators' unique needs

30 Facilitate Municipality-Industry Communication. In the early stages of the Troyan Project, communication between the Municipality and local industries was poor In Central and Eastern Europe, municipalities and industries are in the process of evolving from state control to independently functioning entities They have little experience in how to interact with each other Industries and municipalities can work together to jointly solve environmental problems, but will need assistance in how to reap the mutual economic and environmental benefits resulting from cooperation

ADDITIONAL RECOMMENDATIONS

Training

31 First Training Should Provide a Clear Overview of Project Components In the final evaluations, Troyan Committee members commented that they often didn't have a clear idea where the project was heading -- beyond the immediate next steps The first few trainings should devote considerable time to providing a clear description of each step of a community environmental action project, including priority-setting, environmental plan development, and implementation

32 Training Sessions Can Be Used as Project Milestones The Troyan Committees utilized trainings as deadlines for accomplishing specific tasks Project milestones provide the Committees with deadlines that will help keep the project within its designated time frame

33 Evaluation, Evaluation, Evaluation Evaluation forms should be an integral part of all training activities (pre-and post), and should be conducted after various project milestones Evaluations can be used to determine how well participants' needs are being met and what their future assistance needs will be

Staffing

34 More US Staff Time Needed at Beginning of Project Assistance from US project staff is especially critical in the early stages of the project Project staff should consider spending a greater percentage of its time in-country during the early stages of the Project

35 In-Country Coordinator is Critical to Success An In-Country Coordinator was vital to the success of the project and should be incorporated in other country projects

36 Carefully Select Community Coordinator A strong community coordinator was essential to the success of the project Coordinator(s) should receive training in group process skills and on basic project elements They should have an environmental background, strong people skills, solid organizational and writing skills, and a thorough understanding of the community Given the strong political climate in this region of the world, consideration should be given to candidates who are willing to forego high-profile political activities

37 Conduct Regular Meetings with All Project Staff US Project staff and the In-Country Coordinator should meet regularly with community Project staff to review progress toward implementing the Project work plan and address any unforeseen problems that may arise

VII. ATTACHMENTS

1 Troyan Environmental Action Project
Final Report and Environmental Action Plan

2 Troyan Citizen Committees
Final Evaluation

3 Selected Articles from Troyan

4 Vermont-Bulgaria Environmental Seminar
Report, Participant Evaluations, and Itinerary

5 Memorandum of Coordinating Actions
between the Ministry of Environment and the
Ministry of Regional Development, Housing and Building

6 Expected Results and Benefits
(from Cooperative Agreement between USEPA and ISC)

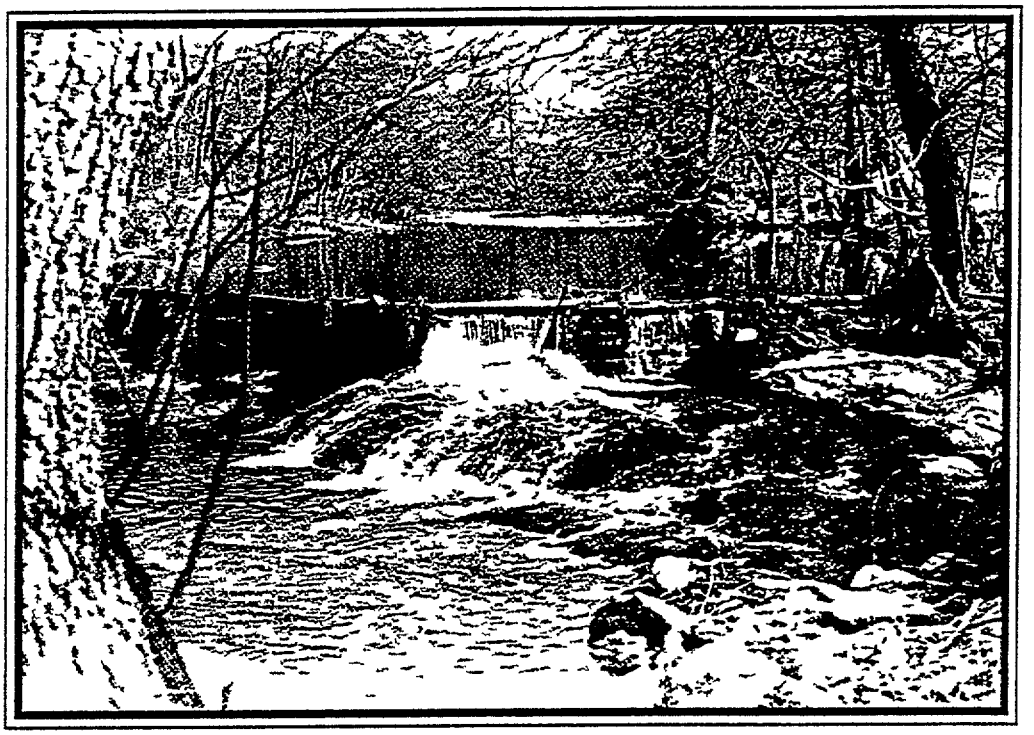
TROYAN ENVIRONMENTAL ACTION PROJECT

FINAL REPORT AND

ENVIRONMENTAL ACTION PLAN

RISKS TO TROYAN AND ITS CITIZENS

Written by
the Citizen Committees of the
Troyan Environmental Action Project



Environmental Action Project Partners
Institute for Sustainable Communities, Vermont, USA,
Municipality of Troyan
Ecoglasnost/Troyan

With funding from the
U S Environmental Protection Agency, Washington DC, USA
in cooperation with US AID
August 1993

T R O Y A N M U N I C I P A L I T Y

##

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##

August 30, 1993

TO THE BOARD OF DIRECTORS
INSTITUTE FOR SUSTAINABLE COMMUNITIES
VERMONT, U.S.A.

FROM
K. FICHEV,
MAYOR OF TROYAN MUNICIPALITY

Dear Ladies and Gentlemen

It is my pleasure to inform you that the Citizens' Committees completed its work related to the Troyan Environmental Action Project and that the Project has been approved at a Troyan Municipal Council session by Resolution No 43 of July 22, 1993

In addition, a meeting was held with the Mayor of the Municipality, the Chairman of the Municipal Council, the Secretary of the Municipality and the ISC Coordinator in Troyan concerning the personal involvement, the terms and conditions of implementing the decision made

I avail myself of the opportunity to express my gratitude for the assistance rendered to the Citizens' Committees and to the Troyan Municipality

I hope that our relations will continue in the future

Mayor of Troyan Municipality

/K Fichev/

Final Report, Environmental Action Plan, and Implementation Plan[1]

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[1]This document has been translated from Bulgarian

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Participants in the Troyan Environmental Action Project

* Eng Valya Pencheva - Institute for Mountainous Stock-breeding & Farming
* Eng Vasil Kovachev - representative of the Bee-keepers' Society in Troyan
* Dr Violetta Taslakova - retired radiologist
* Georgi Marinov - biologist, teacher of chemistry
* Dr Georgi Mareshki - dentist
* Darina Todorova - biotechnologist
* Dilyana Yasheva - graduate of the Institute of Forestry, Sofia
* Dimitur Mitev - agronomist, research worker at the Institute for Mountainous Stock-breeding & Farming
* Docho Neshkov - worker at the Steneto natural reserve
* Zhivko Stoilov - student of ecology
* Ivan Vakinov - member of Troyan community
* Magdalena Sabcheva - journalist at the local newspaper
* Eng Mariana Terzieva - forest engineer, Institute of Forestry, Sofia
* Eng Milko Stanchev - director of the State Forestry Board in Troyan
* Mitka Gavazova - teacher of biology
* Nikola Vulkov - chemist
* Osman Osman - machine building technologist
* Eng Petko Nankov - microbiologist
* Petrana Volova - economist
* Eng Petur Machkovski - environmental specialist at the Troyan Municipality
* Petya Kovacheva - environmental specialist in Troyan Municipality
* Radyu Minkov - Chairman of Ecoglasnost Independent Society in Troyan
* Tsenka Nankova - librarian
* Vesela Minkova, student of pedagogics

Temporary participants in the Committees and in the work of the Project included

* Boryana Mircheva - pupil
* Aishe Kurteva - Health Inspectorate
* Dr Valya Aleksandrova - Member of Environmental Commission at the Municipal Council, Troyan
* Veselin Oryashkov - agronomist
* Eng Dimitur Gruncharov - economist, municipal counselor
* Denislav Dakov - ecologist at Troyafarm Company
* Eng Ivan Dudev - Director of Municipal Water & Sewerage Company
* Dimo Minkov - Member of Environmental Commission of Troyan Municipal Council
* Krasimir Khristov - coordinator of the Project until June 1992
* Kalin Dragoiski - worker at the Institute for Mountainous Stock-breeding & Farming

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* Maria Lisichkova - Deputy Mayor of Troyan
* Minko Kereshki - innkeeper
* Petur Bilyarski - Mayor of the Village of Oreshak
* Subcho Subchev - Director of Public Utility Services, a municipal firm
* Eng Temenuzhka Enkina - civil engineer at the Municipality
* Todor Bodovski - specialist on territorial planning for the Municipality
* Todor Gladkov - teacher
* Khristo Yonkov - artist

Of great value to the work on the Project was the contribution of a number of institutions and outside experts, including

* Regional Environmental Inspectorate in Pleven
* Vodokanal Engineering Company - Sofia,
* Alexandra Kantarjieff - Le Groupe Teknika - Quebec, Canada
* Dilyan Enkin - Chief city engineer of Troyan
* Ministry of Environment
* Ministry of Housing Policy and Construction
* and many others

Individuals directly involved in managing and coordinating the Project, included

* Sasho Ignatovski - Secretary of Troyan Municipality, Municipal Coordinator of the Project

* Eng Iliyan Peevski - Coordinator of the Troyan Project with the Institute of Sustainable Communities - U S A

* Adam Bram - volunteer from the U S Peace Corps, coordinator of the Project

* Dr Elena Petkova - National Coordinator of Ecological Projects for the Institution for Sustainable Communities in Bulgaria

* Paul Markowitz - U S Institute for Sustainable Communities, Director of Community Programs in Bulgaria

* many other experts working with the Institute for Sustainable Communities involved in educating the participants in the Project

The results presented in this report prove that this structure has operated successfully

FINAL REPORT

I GENERAL REVIEW OF THE PROJECT

I 1 Introduction

This Final Report is a summary of the work done and the decisions made on the Troyan Environmental Action Project

The Troyan Environmental Action Project was an 18-month demonstration project which enabled citizen committees to identify, analyze, and rank the environmental problems facing the community of Troyan Committee members identified and proposed adequate strategies for resolving priority problems, taking into account the community's limited financial capacities The recommended decisions, which included taking specific, concrete steps, were funded through a grant for improvement of the environmental conditions in Troyan

The Project utilized a method for identifying the environmental priorities at the municipal level called "comparative risk analysis " Comparative risk analysis combines the best possible information about the reasons and consequences of a certain number of environmental problems, on the one hand, and the public opinion and the community values, on the other hand, when deciding which environmental problems pose the greatest threat to human health, ecosystems, and quality of human life Prioritizing environmental problems helped the Municipality focus its efforts on the gravest environmental problems, thus achieving the most effective and rapid improvement in the environment

The Project was financed by the United States Environmental Protection Agency (USEPA), as part of its program for environmental assistance to the Eastern and Central European countries, and was implemented with the assistance of the Institute for Sustainable Communities (ISC) - a non-government organization based in Vermont, U S A

Financial assistance was provided by ISC to Troyan for personnel and consultants, operating and office expenses, preparation of reports and school aids, assistance in obtaining the necessary data about the environment, as well as any other expenses, needed for the successful implementation of the Project ISC will allocate to the Municipality additional aid amounting to $35,000 (US) based upon the recommendations of this present report and the proposal for implementation of the Project The Municipality is responsible for providing a ten percent contribution -- either in levs, labor, or materials

Under the technical and methodological guidance of ISC, the following structure of the Project was worked out

* Technical Committee provided assistance in collecting and analyzing technical and scientific information,
* Policy Committee studied public opinion and involved the public

The two Committees suggested strategies to address the environmental problems facing Troyan The Committees consisted of government employees, public activists, representatives of non-government organizations, scientific workers at research institutes, medical workers, teachers, students, and citizens interested in ecology Their participation in the project was voluntary

In addition, the Project involved

* utilizing methods of democratic decision-making,
* establishing consensus and support for ecological decisions,
* launching realistic initiatives for new businesses in the municipality,
* suggesting educational environmental programs,
* establishing better relationships between the municipality and the industrial enterprises, and,
* better coordination between international financial and private investors in financing environmental programs

I 2 The Objectives of the Troyan Environmental Action Project were the following

* To help the Municipality in ranking the environmental problems in Troyan, and in elaborating and implementing the Environmental Action Plan,
* To help the Municipality in obtaining information from the ministries and the regional inspectorates in view of improving the municipality's abilities to make managerial decisions on protecting the environment,
* To encourage the activities of non-government organizations on national and municipal levels to support the municipalities in resolving their environmental problems,
* To demonstrate in Troyan the process of resolving and implementing low-cost and cost-efficient decisions aimed at improving the environment with limited funds, and,
* To contribute to the starting of environmental projects in other Bulgarian municipalities

ТРОЯН

ГОСТИТЕ ОТ САЩ СПОДЕЛЯ...

...кто вече информирахме читателите на в. „Троянски глас", ...ят етап от работата по местния българо-американски проект за екологично ... стане в Троянската община ... ключи през последните д... март с двудневен семи... него екип от Програм... чение от САЩ ок... годическа помощ ... ите от страт... ническата к... рроволния ... с общин... „Ек... ...учение ...тодическ... ...кха насоче... ...есни много з... ...та Затова пре... ...дем думата на д... ...хански гост... ...рограмата з... ...ха любез... ...едстав...

ТРОЯНСКИ ...

СЕДМИЧНО ИЗДАНИЕ НА ... ОБЩИНА

ТРОЯН, СРЯДА, 29 януари 1992 г.

ПРЕЗИД...

НА ... ТРОЯ... ЖЕ...

НОВИНА НА СЕДМИЦАТА

МОДЕЛ ЗА ЕКОЛОГИЧНО РАВНОВЕСИЕ

ПОДПИСАН БЕШЕ ДОГОВОР ЗА ОПАЗВАНЕ НА ОКОЛНАТА СРЕДА МЕЖДУ ИНС... ТУТА ЗА УСТОЙЧИВИ ОБЩИНИ В ЩАТА ВЕРМОНТ — САЩ, ТРОЯНСКАТА ОБ... И ОБЩИНСКОТО НЕЗАВИСИМО СДРУЖЕНИЕ „ЕКОГЛАСНОСТ"

ЗА РЕЦИКЛИРАНЕ ... МУЗЕЙ МОНТШИР ... СЪВЕТ ЗА ...

СЕНАТОРЪТ ОТ ВЕР... МОНТ (САЩ) ПРИВЕТСТ... ВА ХОРАТА ОТ ОБЩИНА ТРОЯН

... СЪС СЕНАТОРИ ОТ ЩАТСКИЯ ПАРЛА... ДЕПАРТАМЕНТ ПО ООС ...

ЧЕСТВАНЕ НА 3-ти МАРТ

СРЕЩА С КМЕТА НА БЪР...

СРЕЩА С ГРАДСКАТА ...

ДЕПАРТАМЕНТ ...

ВЕРМОНТ ГА...

АМЕРИ...

...ИЗАЦИЯ „ЗЕЛЕНИ ПЛАНИНИ" —

...НИЗАЦИЯ ПО ВОДНИТЕ РЕСУРСИ —

...ЖИЛИЩНА СГРАДА — ...

...ИН ПЕЕВСКИ ...

...ЕНИЯТА

ЗА... И К — СТЕНЕТО"

...АТА АДМИНИСТРАЦИЯ

И ОБЩ...

1 Задължава ОбФ "В и К — Стенето" да актуализира и ... стави в ОбС своя инвес... ... за ремонт

Срок 30 март 1993 г
Отг Управителят на фирмата

2 Задължава общинската администрация да разработи ... за одобряване

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II REVIEW OF THE ACHIEVED RESULTS

II 1 Ranking of Environmental Problems

The Citizen Committees were charged with studying 16 environmental problems in the Municipality In order to answer the question, "Which of these problems pose the greatest risk to Troyan?" the Committees reached the conclusion that the environmental problems posed numerous risks to human health, the ecosystem, and the quality of life Quality of life risks include aesthetics, economic welfare, justice, future generations, psychological balance of the population, and sense of belonging to the community Thus, each individual problem was analyzed according to the health, ecological, and quality of life risks, and how extensive and serious the risks were

The Committees combined the three rankings into a final integrated ranking which included all three risks The combined risks were classified into three groups of problems arranged in a descending order according to the degree of the risk they posed, as follows

CATEGORY A ENVIRONMENTAL PROBLEMS WITH HIGH RISKS

* Quality and quantity of drinking water
* Air pollution
* Nutrition and health status of the population
* Loss and degradation of forests
* Radiation and electromagnetic pollution
* Loss of flora and fauna and wildlife habitat

CATEGORY B ENVIRONMENTAL PROBLEMS WITH MEDIUM RISK

* Direct discharge of industrial and household waste waters
* Air pollution in the working environment
* Noise pollution
* Direct discharge of sewage waters from pig breeding farms
* Soil erosion
* Emergency releases of toxic substances
* Effects from certain chemicals in industry, and, introduction of new production processes and technologies
* Industrial waste disposal
* Tobacco smoking

CATEGORY C ENVIRONMENTAL PROBLEMS WITH LOW RISK

* Landfills for solid household waste

In the spring of 1992, the Policy Committee undertook a survey of public opinion to determine which environmental problems were considered to be the most serious by the community's citizens Over 4,000 residents responded Together, the results of the polls, the collected specialized information about all individual risks to the community and its members, as well as the Committees' assessment of this information and their values, were taken into consideration by the Committees in order to conduct the ranking The results of problem ranking were used by the Committees in identifying the priority problems for which strategies had to be worked out, including specific measures aimed at reducing risk

Since time was a factor of considerable importance in studying the problems and working out strategies for the problems, the Committees decided to concentrate their attention on the "high risk" problems and more specifically quality and quantity of drinking water The public opinion supported the Committees' decision

II.2. Strategy Selection: Focus on Drinking Water

In order to facilitate the elaboration of strategies, the Committees decided to formulate the objectives which they hoped to achieve when addressing the problem of inadequate supplies of drinking water and poor water quality These objectives were to

1) Increase the quantity of drinking water,
2) Improve the quality of drinking water, and,
3) Improve the distribution of water

The initial list of specific strategies to meet these objectives was achieved by means of "brainstorming" -- a frequently used group process method in the work on the Project The Committees agreed that their broad brainstorm list of strategies could be grouped into the following categories

* Education and involvement of the public,
* Economic incentives and disincentives,
* Municipal programs,
* Technical applications, and,
* Regulations

The significant number of strategies resulting from the brainstorming session were distributed into these five categories The question before the Committees was "Which strategies should we select for implementation?" The Committees collected information on this issue both in the country and abroad

In this process, the Committees used the following eight criteria to evaluate the strategies 1) cost-efficiency, 2) total costs, 3) overall benefits, 4) equality, 5) flexibility, 6) environmental impacts, 7) time of completion, and 8) public support In addition, potential obstacles hampering the implementation of the strategies were examined as well

All these efforts resulted in the preparation of an "Issue Profile" -- a summary document -- to address drinking water issues An Issue Profile was prepared for air pollution problems, as well These Issue Profiles included the following information

* Problem description,
* Goal/objectives,
* List of potential strategies,
* Obstacles to each individual strategy, and,
* Information about each strategy, according to the individual criteria

When determining the final strategies to select for implementation, the Committees and the outside experts took into account which strategies could be realistically launched, which could be put into operation immediately upon the adoption of the Action Plan, and which could be implemented with the funding allotted for the Troyan Project

The strategies identified as the most successful combination in the present Action Plan, after the classification had been done, were the following

1	Working out an action plan for the elimination of leaks in the water main (pipes) in the territory of the city, municipality, and enterprises,
2	Developing and adopting new local regulations, and,
3	Working out educational programs for the schools and kindergartens

These strategies were offered to the public for consideration and comments, and were adopted by the Committees for presentation to the Troyan Municipal Council On July 13, 1993 the strategies, outlined in the Proposal for Implementation, the Report, and the Environmental Action Plan were approved by the Municipal Council

II 3 Other Significant Results Achieved

While the primary goal of the Troyan Project was to develop an Environmental Action Plan and to implement selected strategies, the participants in the Troyan Project also achieved

other results while working on the development of the Environmental Action Plan These included the following

* The Institute for Sustainable Communities and the Municipality cooperated with the Ministry of Environment in carrying out the first pollution monitoring of the ambient air in Troyan,
* A water expert from ISC was hired to prepare ecological audits of five city industrial enterprises These evaluations were provided to the experts hired by the World Bank to conduct a pre-investment study of Cherni Osam River Basin,

* A conference entitled "Possibilities for Efficient Use of Drinking Water in the U S A and Their Potential Application in Bulgaria" was held in September 1992 The conference was organized by Ecoglasnost Independent Society in Troyan and Lovech, with assistance from ISC, and was attended by over 80 people This conference resulted in the initiation of a water saving project in the City of Lovech,

* The Community Coordinator for Troyan, and Ecoglasnost/Troyan organized, with the support of the Troyan Forestry Department, an environmental student brigade to mark the boundaries of the Central Mountain (Tsentralen Balkan) Park on the Municipality's territory,

* Ecoglasnost/Troyan, with the assistance of the Municipality, carried out independent monitoring of the drinking water quality from the central city water main,

* The participants in the Project organized six city meetings on environmental problems for the purpose of providing information and educating the Troyan public,

* Video footage was taken of environmental facilities and programs in Vermont, visited by a delegation of the Troyan Project, as well as a short documentary about the situation of waste disposal in Troyan,

* The Citizen Committees organized a "Plumber's Telephone Line" - to provide assistance to people who wanted leaks in their residences fixed at reasonable prices,

* Some members of both Committees participated in a working meeting with 5(representatives of ministries and other institutions in order to achieve bette ways of communication, and obtain the necessary ecological information needed

by the non-government organizations and community,

* Members of both Committees participated in a national meeting of 60 Ecoglasnost representatives to report results of the work on the Project,

* Committee members assisted participants in the Stara Zagora Environmental Action Project by providing information about the obstacles in the implementation of the Troyan Project In addition, two joint working meetings were held that included members from both projects,

* Project representatives prepared a case study of Troyan and participated in a workshop entitled "Possibilities and Restrictions in Financing Municipal Environmental Projects" jointly with fifty environmental specialists from other Bulgarian communities and representatives of ministries and banks The workshop was sponsored by ISC,

* Current ecological information was provided to community members through dozens of articles and columns in the local newspaper,

* A workshop on industrial waste audits and pollution prevention was held for technical specialists in the industrial enterprises The workshop was organized with the assistance of ISC, and,

* Committee members acquired better communication and team working abilities

Overall, the Project provided numerous additional benefits to the community and project participants which are more general in nature, including

- The work on the Action Plan enabled more people to have access to broader ecological information,

- More people felt like thinking and talking about important issues such as equality, security, and future generations, and,

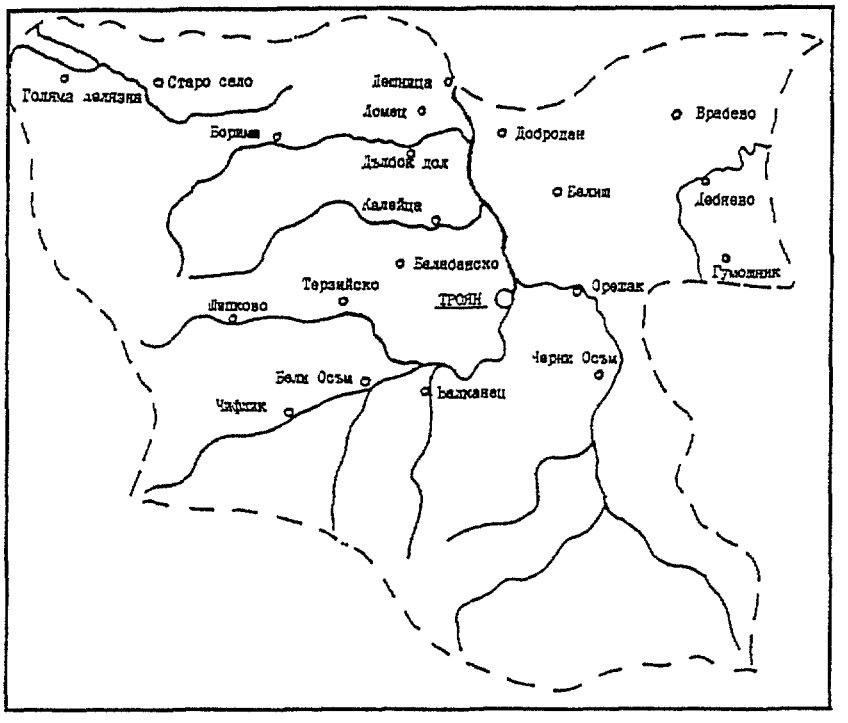
- The Project had provided the opportunity for evaluation, seeking ways for decision-making, and transforming decisions into actions

III HISTORY OF THE PROJECT. PROCESS OF DEVELOPING THE ENVIRONMENTAL ACTION PLAN

The Project for environmental protection initiatives in Troyan was started in January 1992 when an agreement was officially signed by representatives from the Municipality of Troyan, represented by Mayor Fitchev, Chairman of the Municipal Council, Mr Tabakov, Chairman of Ecoglasnost/Troyan, Mr Sapundzhiev, and by the Executive Director of the Institute for Sustainable Communities/USA, Mr Hamilton The purpose of this agreement was to specify the role and responsibilities of the three parties to the Agreement in the implementation of the Troyan Project

The signing of the Agreement was preceded by active preparatory work A November 1992 study on Bulgaria's environmental strategy, which was a joint report of the Bulgarian and American governments, and the World Bank, recommended that serious attention be given and full support be granted on behalf of the government and foreign assistance organizations, to municipal environmental protection programs based on risks in the environment The report pointed out that such a program should include education of the public and active participation of the community to establishment an active relationship between community members and the local government

Map of the Troyan Municipality



Taking these recommendations into consideration, the US Environmental Protection Agency (USEPA) provided funding for a community project to be implemented in Bulgaria under the guidance of ISC The project used a methodology for ranking environmental problems known as "comparative risk analysis " In order to select the demonstration municipality to begin the project in January 1992, Ecoglasnost/National Movement suggested that representatives of USEPA and ISC visit six municipalities in Bulgaria Troyan was selected because it proved to be the best place to show the advantages of democratic decision-making, since there existed a number of various environmental problems, the community was small enough to produce evident results in a short time, and the community's members and officials became actively involved in support of the project

After the announcement of the choice of Troyan, a number of preliminary meetings were held to prepare for the organization and structure of the Project The proposal of ISC was approved for setting up two Committees to work on the Project

The Troyan Project consisted of four phases

Phase One: Project Organization and Initial Training
(January - March 1992)

At the proposal of Ecoglasnost, ISC, and the Municipality, the Mayor chose the participants for the Technical Committee and Policy Committee, as well as their respective chairmen The Mayor introduced them at a general city meeting organized for the signing of the Agreement Both committees were composed of volunteers

The members of the Policy Committee (PC) were representatives of public organizations and the community Their tasks and duties were to

- seek new ideas and suggestions pertaining to environmental problems and solutions on behalf of the inhabitants of Troyan,
- solicit public opinion,
- coordinate the actions on the Project with the other non-government organizations,
- follow the information and analyses made by the Technical Committee and provide assistance if possible, and,
- develop a communication system with the authorities at all levels

The members of the Technical Committees (TC) were local specialists with technical education and experience, who were capable of doing research work in various fields Their task was to collect, analyze, and provide information about the dangers resulting from the environmental problems The final task of both Committees was the preparation of the Environmental Action Plan, a municipal policy document which clearly sets its environmental

priorities and identifies implementation strategies to address these problems

After the tasks were made clear to the Committees, members began working on the first phase in compliance with a working plan recommended by the ISC The TC prepared a preliminary list of environmental problems and organized the existing information and the results of the investigation on these problems

The PC identified all organizations and institutions dealing with protection of the environment and elaborated a plan for involving the population in the implementation of the Project

At the end of this phase, the Committees' members, visitors from the Ministry of Environment and various institutions, jointly with consultants from ISC, held a workshop entitled "Introduction into the Methods of Comparative Risk Analysis and Team Decision Making" The purpose of this training was to develop abilities in the participants of both Committees to

- analyze environmental problems,
- define the priorities in reducing risk,
- develop strategies for education of the public,
- involve the public in democratic decision-making,
- resolve conflicts, and,
- build team work

Phase Two Identification and Comparison of Environmental Risks
May 1992 - mid-January 1993

This phase had three stages

STAGE 1 Approval of a list of environmental problems subject to analysis

ISC appointed a local coordinator of the Project who participated in the Committees' work The PC used the preliminary list of environmental problems in the municipality, elaborated by the TC, and prepared a questionnaire for a public poll on "What ecological problems are considered most dangerous to human health and to the ecosystems?" The questionnaire assisted in the ranking of the specified problems according to their importance, and also resulted in adding other problems which the responders considered important Five thousand questionnaires were distributed among the population Analyzing the results of the p oll, the PC revised the list of problems, thus obtaining the final list of environmental problems reflecting the generalized opinion of both specialists and public

STAGE 2 Data collection and assessment of the scope of ecological problems

The TC prepared a data collection form which included the following information

1) description of the problem,
2) sources,
3) stressors,
4) problem assessment criteria,
5) data sources,
6) basic information about the problem,
7) data,
8) problems in data collecting, and,
9) suggestions about additional data

These forms afforded an opportunity to discover the critical gaps in the data The PC continued its activities for involving the public through publishing Project-related materials in the press It launched a program called "Household Leaks," and opened the Plumber's Telephone Line The Committees also carried out a competition for a symbol of the Troyan Project

ISC carried out a second workshop on comparative risk analysis, this time focusing on "What information is necessary for analysis?" In addition, the workshop focused on ways of collecting additional information and assessing risks The report of the TC on the information accumulated until the workshop (June 1992) showed that the TC faced serious problems in collecting data These problems were due to the lack of information on certain problems, the refusal of certain institutions to provide information, or their demand to be paid for the information

In order to overcome this difficulty and to save time, ISC Project Director, Paul Markowitz, suggested that the Committees

- First, elaborate work plans on every individual problem These plans had to specify the objectives and tasks to be performed for the achievement of the objectives The plans had to also specify the ways to perform the tasks, the performer of the tasks, and the deadline for their completion

- Second, hold a working meeting in Sofia with members of TC and with representatives of the ministries and organizations which failed to provide information The completion of these two initiatives marked the transition to the next phase of work

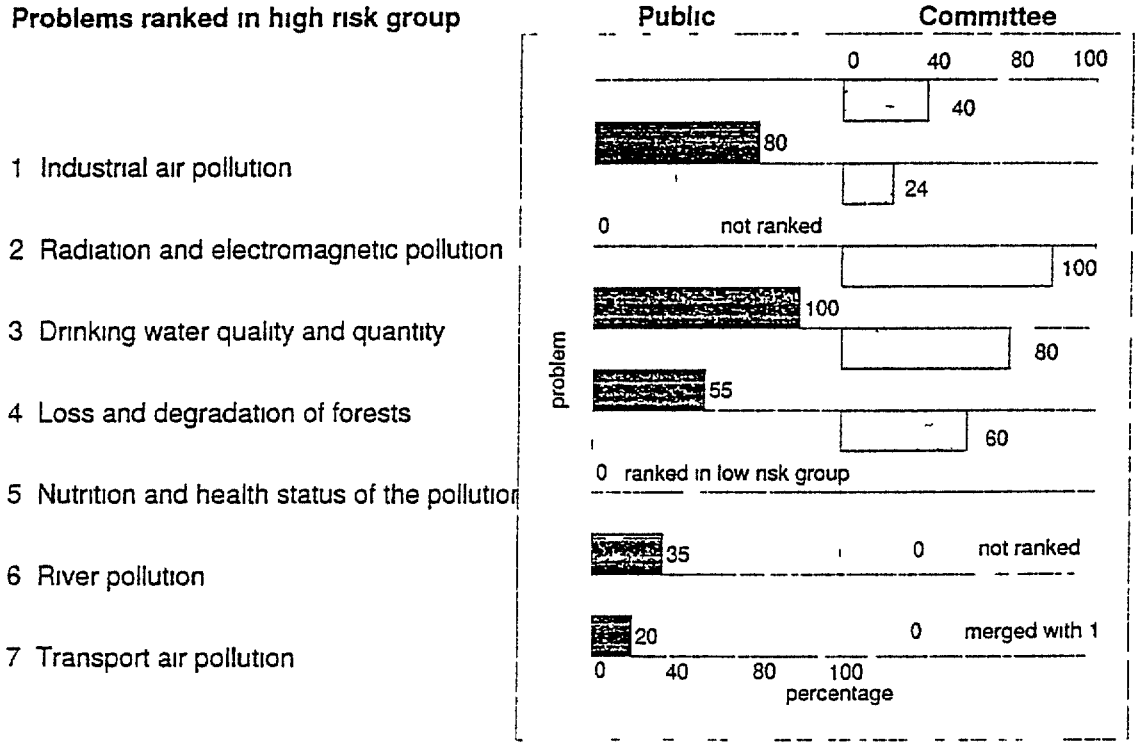
STAGE 3 Environmental Risk Assessment

The TC did not expect new information and decided to use the available information pool in order to define and describe the risks for every individual problem To that end, sub-committees were set up to prepare a summary about every problem The summary included the already established risk assessment criteria (see chapter I) about the effect which each risk can have on human health, ecosystems, and social-economic development

On the basis of these summaries, the Technical Committee prepared reports on all problems designed for the PC and the public A workshop was held on ranking the ecological problems, organized by ISC for the TC and interested members of the SC In addition to the various approaches in problem ranking, the participants in the workshop were involved in a model of team decision making with consensus

At the end of this stage, the problems were ranked in accordance with their importance depending on the risk they posed The second phase was completed in January 1993, after prioritizing the environmental problems

What are the five priority problems in the municipality?
Comparison between the ranking of the public and the Committees



Phase Three Identification and Selection of Strategies
Mid-January 1993 - June 1993

This phase began with a workshop dedicated to developing environmental strategies, and was organized by ISC Ten representatives of the Project, including representatives from the Municipality, National Movement of Ecoglasnost, and the Ministry of Environment, took part in a two-week workshop in Vermont, Boston, and Sherbrooke, Canada The purpose of the workshop was to provide first-hand information and to gain on-the-spot experience in working out and implementing environmental protection measures at the local level The emphasis of the seminar was on the strategies for resolving environmental problems identified as priorities by the Troyan Committees

The participants attended meetings and/or workshops on water management, waste disposal, waste recycling, ecology-oriented farming, resources conservation, protected regions, energy saving, and financial audits in the course of the environmental protection process During their visit, the Bulgarian participants discussed the main strategies for resolving the priority ecological problems in Troyan municipality The representatives of the Project had the opportunity to visit ecological sites, to observe and discuss cases of successful prevention of pollution, sewage water purifying plants, drinking water purifying plants, landfills, recycling centers, and ecology-oriented farms Participants saw on-the-spot implementation of programs for water and energy efficiency management The participants in the workshop also learned how the people, government, and organizations in the State of Vermont took part in local government decision-making

Upon returning from the workshop in the U S A , the participants began working on the Environmental Action Plan, jointly with the Committees, the representatives of the community, and interested organizations The two Committees merged into one citizen committee to increase work efficiency This Committee evaluated the specific measures for reducing risk with respect to various criteria (see chapter I)

The Committee elaborated strategies for the "Air Pollution" and "Drinking Water" problems and proposed specific implementation strategies Drinking water then became the focus of the Committee's recommendations for strategies to be implemented by the Municipality One meeting addressed the solid waste problem and the second meeting was with the participants in the workshop in Vermont The next step of the process was the adoption of the Plan by the Municipal Council

Phase Four Strategy Implementation
September 1993 - the future

The Citizen Committees, in cooperation with the staff of the City Council and the Water and Sewer Utility, have developed an Implementation Plan for water conservation to help address the problems associated with the chronic water shortages facing the municipality The details of this Plan are identified at the end of this document The Municipality of Troyan needs financing to put into operation the strategies recommended in the Environmental Action Plan

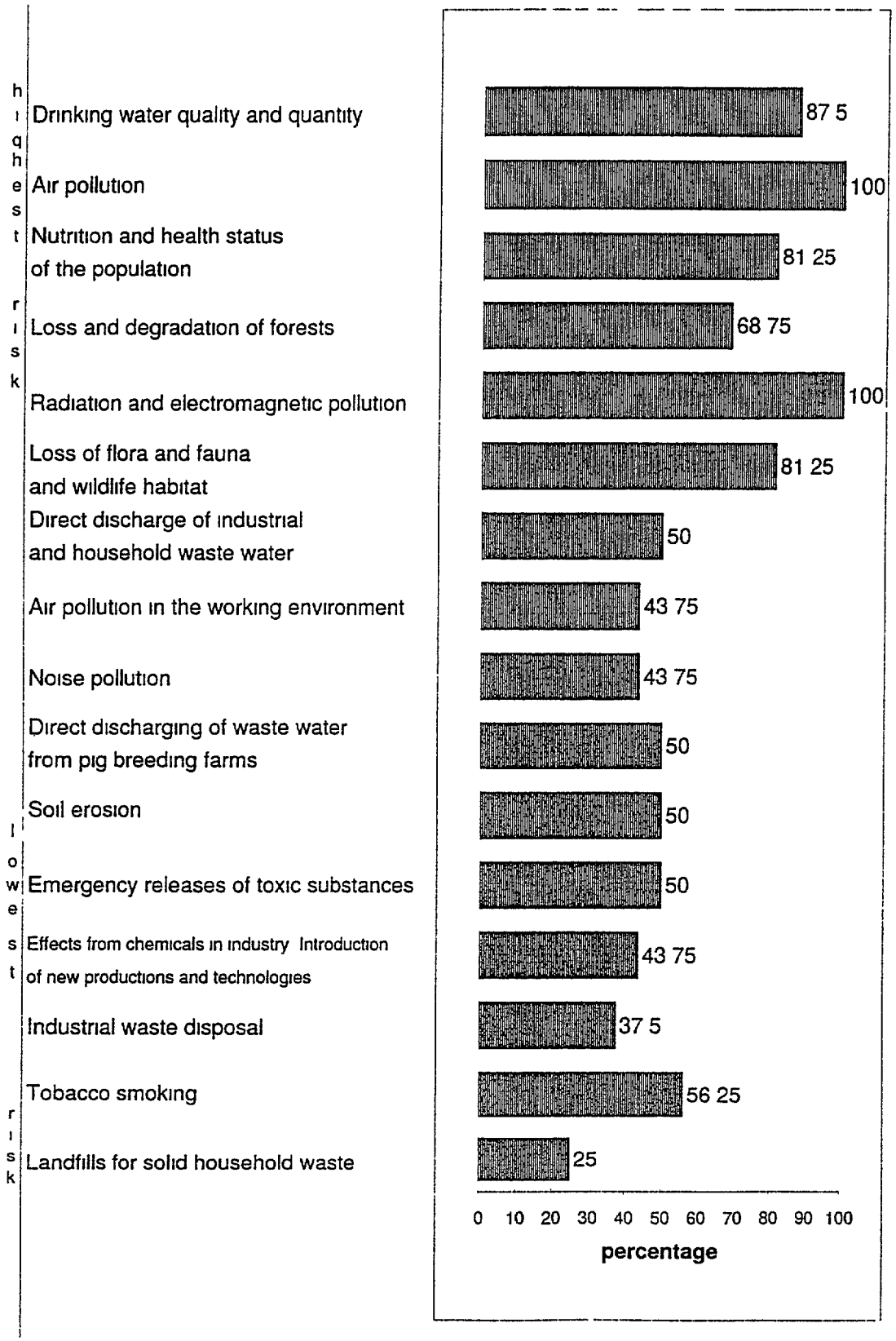
ENVIRONMENTAL ACTION PLAN

I INTRODUCTION

As noted in the "Final Report", the Committees evaluated the risks associated with sixteen environmental problems Summaries of all sixteen problem statements are provided in the Environmental Action Plan Every problem summary contains 1) definition of the problem and descriptions of the greatest stressors, 2) description of the risks to human health, ecosystems, and quality of life, and 3) a chart showing the Committees' risk classification of every problem The summaries follow the order of the three categories of risk Category A -- High Risk, Category B -- Medium Risk, and Category C -- Low Risk These rankings are based on the scarce information available to the Committees, and on their views and the public opinion on the strategies

Due to time limitations, the Committee decided to focus on only two problems for purposes of developing objectives and identifying potential implementation strategies These problems are 1) Drinking Water, and 2) Air Pollution Strategies identified for these problems are categorized into five areas education, economic incentives and disincentives, municipal programs, technical applications, and regulations While strategies have been identified for only two environmental problems, the Committees hope that this Plan will provide a foundation for developing strategies associated with the remaining environmental problems

The table below summarizes the risks and relative ranking associated with each problem


PROBLEM
RANKING
highest risk
lowest risk
Drinking water quality and quantity
Air pollution
Nutrition and health status of the population
Loss and degradation of forests
Radiation and electromagnetic pollution
Loss of flora and fauna and wildlife habitat
Direct discharge of industrial and household waste water
Air pollution in the working environment
Noise pollution
Direct discharging of waste water from pig breeding farms
Soil erosion
Emergency releases of toxic substances
Effects from chemicals in industry Introduction of new productions and technologies
Industrial waste disposal
Tobacco smoking
Landfills for solid household waste
87 5
100
81 25
68 75
100
81 25
50
43 75
43 75
50
50
50
43 75
37 5
56 25
25
0 10 20 30 40 50 60 70 80 90 100
percentage

II PROBLEM STATEMENTS AND STRATEGIES

CATEGORY A -- HIGH RISK PROBLEMS

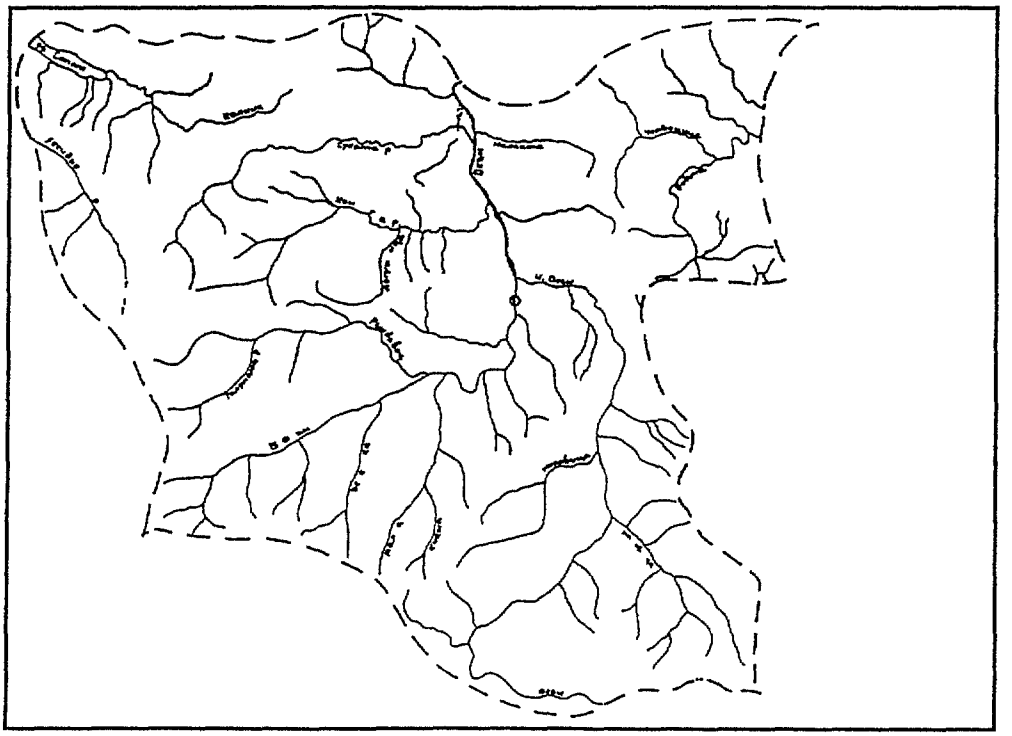
DRINKING WATER QUALITY AND QUANTITY

RISK	lowest highest
Ecosystems	##################
Health	##
Quality of life	###
General ranking	##

The drinking water characteristics in Troyan municipality show that its quality has worsened It has

1 High chlorine content and low fluorine content,
2 Poor mechanical composition,
3 Lack of purifying plants,
4 Poor water supply system,
5 Bacterial contamination, and,
6 Discontinuation of water supply

Map of the rivers in the community



Surface water is the primary source of drinking water supplies However, these surface waters are characterized by bad catchment areas and poor mechanical composition Drinking water lacks fluorine and iodine, and at the same time, the calcium content is very high The existing purification plants are obsolete and worn out, and the water supply system is in a poor condition

The quantity and quality of drinking water is greatly affected by the high percentage of leaks along the water-main This presents an additional pollution risk and increases drinking water losses In 1992, an estimated 43% of drinking water was lost due to leakage in the water mains But, in fact, due to the lack of effective equipment, qualified specialists, and underground cadastre in some parts of the community and industries, this percentage may be even higher

There is no doubt that the quality of drinking water is affected by the water-main and distribution system of the municipality The water-main consists of metal, asbestos-cement and plastic pipes There is a risk of polluting the drinking water with fine particles of asbestos

I HUMAN HEALTH

The lack of drinking water and the water-supply restrictions imposed presents a health hazard for the municipal residents, causing a real danger of epidemics During low rainfall periods of the year, residents only have water for an extremely limited amount of time per day -- sometimes as little as two hours The data given by the Water and Sewage Municipal Company in Troyan show that, in 1991, drinking water consumption was 85 l/day, which is far below the sanitary minimum This increases the risks of incidence of bacterial pollution, as well as creating prerequisites for using uncontrolled, unsanitary sources of water

The composition of the water can cause the following diseases

1 Gastro-enterological,
2 Stomatological,
3 Goiter,
4 Renal disorders, and,
5 Cancer

II EFFECT ON THE ECOSYSTEMS

The disinfection of drinking water affects the micro-flora and micro-fauna The decreased water flow and the volume of surface waters in the open-air basins change the ecosystems in the territories downstream the river

III GENERAL WELFARE AND QUALITY OF LIFE

When drinking water becomes turbid, this causes visual discomfort Besides, the water tastes and smells bad when being consumed The problem affects some economic aspects in the community development and its budget, namely allotting additional expenditures for maintenance of the water supply system, buying of mineral water and supply of drinking water from other places for the population, spending money on boiling and additional water purification The irrational and unjust distribution of drinking water violates the sense of justice and equality of the community members These unsettled problems will be a burden for the generations to come

Objectives

The Committee decided to formulate the objectives which it hoped to achieve when addressing the problem of inadequate supplies of drinking water and poor water quality These objectives are to

1) Increase the quantity of drinking water,
2) Improve the quality of drinking water, and,
3) Improve the distribution of water

Potential Strategies

The strategies below gained the largest number of votes by members of the Committees and were pursued for further study These strategies are divided between water quantity and water quality, and include

Water Quantity

Education

* Institute an environmental education program in the Troyan school system with an initial focus on water conservation, and,

* Offer ecology as an optional subject at school

Economic Incentives and Disincentives

* Encourage the Water and Sewage Company (WSC) to save water by accurately pricing water to reflect the costs associated with providing water, and,

* Encourage industries to develop their own sources of water

Municipal programs

* Establish a program for new sources of water,

* Investigate and explore the possibility of expanding existing or developing new reservoirs of drinking water, and,

* Require the water utility to eliminate leaks in, and replace where necessary, the underground water pipes

Technical Applications

* Establish programs requiring industries to recycle drinking quality water, and,

* Install new devices to equalize pressure in the water system

Regulations

* Restrict the use of drinking water for industrial purposes, except in situations where proven necessary,

* Require all industries and residential blocks to install meters, and establish a system of water pricing based upon quantity used,

* Examine possibilities for changes in the ownership of drinking water from national to the local level,

* Increase public and local city council control of the activities of the municipal Water and Sewage Company to assure greater accountability, and,

* Require the Water and Sewer Utility to publicize notices of water rationing which provide ample notification to the public

Water Quality

* Construct new drinking water treatment plants,

* Establish programs to control and limit erosion in the drinking water supply zones,

* Propose changes in the Bulgarian State Standards with respect to drinking water quality to be consistent with European standards, and,

* Adopt regulations which prohibit wood cutting in the water supply areas

AIR POLLUTION

RISKS	lowest	highest
Ecosystems	##	
Health	##	
Quality of life	##	
General ranking	##	

The air pollution resulting from motor transportation, industry and household fuel consumption is due to the combustion of gaseous, solid, and liquid fuels Large quantities of CO2, SO2, NO2, lead aerosols, organic evaporations, dust, and others concentrate in the atmosphere that contribute to the so called "green-house effect " The problem exists in the whole community area

I HUMAN HEALTH

The combustion products are a threat to human health The most probable dangerous consequences are cancer diseases, lung diseases, and lead poisoning The acid rains increase salt contents in drinking water, which results in upsetting the balance in the system of human beings

II ECOSYSTEMS

Acid rains increase acid contents in soils, upset the balance, increase the nitrate and sulphate contents of subsoil water, and all this badly affects the ecosystems Some species, sensitive to pollution, die out

III GENERAL WELFARE AND QUALITY OF LIFE

Some of the direct aesthetical impacts are worsening visibility, damage to tree and plant species, as well as to monuments and buildings Polluted air is hard to breathe Foodstuffs with lead content violate the economic welfare and increase the expenditures for health protection

The consequences of lead poisoning are fatal to the future generations It damages the genetic code and sexual potency The dying out of forests leads to mental disturbances

CONCLUSION The problem poses a high risk and affects the whole community of Troyan It has an impact on health and the ecosystems

Objectives

1) To reduce air pollution caused by fuel and burning of waste,
2) To reduce air pollution caused by motor transportation, and,
3) To reduce air pollution caused by certain industrial technologies

Potential strategies to address air pollution were divided into the categories of education, economic incentives and disincentives, municipal programs, technical applications, and regulations

Potential Strategies

Education

* Institute an environmental education program in the Troyan school system,

* Offer ecology as an optional subject at school,

* Develop and disseminate pamphlets and educational articles on how to save energy, and,

* Educate the public about the problems associated with burning household waste

Economic Incentives and Disincentives

* Utilize the waste heat from industrial facilities for home and industrial space heating,

* Encourage the use of lead-free gasoline and gas devices in motor vehicles,

* Promote greater residential energy conservation efforts, including more insulation,

* Provide incentives for residences to convert to gas heating and to coal with high heat content, and,

* Encourage owners of motor vehicles to use catalytic converters

Municipal Programs

* Promote use of solar energy and wind energy facilities,

* Develop a new local urbanization plan which addresses the railroad station, bus station, fuel selling organization, and industrial facilities in the central city area,

* Establish collection days for old tires and other garbage,

* Modify the city transportation routes to improve efficiency and explore alternatives to the city transportation, such as trolleybuses,

* Establish a municipal tree and shrub planting program, and,

* Establish a program to collect and compost organic waste and to collect household waste and others' wastes

Technical Applications

* Extend the natural gas pipeline to Troyan,

* Install more efficient household heating systems, and,

* Install scrubbers and other smoke stack devices for purifying the air polluted by steam heating plants and industrial facilities

Regulations

* Institute bans on the use of motor vehicles emitting gases which violate certain quantity and quality standards,

* Ban burning of meadows, pastures, and stubble-fields,

* Institute an air monitoring program in the community to test for certain air pollutants, and,

* Impose fines on industrial facilities for polluting the air beyond certain standards

NUTRITION AND HEALTH STATUS OF THE POPULATION

RISK	lowest	highest
Ecosystems	##	
Health	##	
Quality of life	##	
General ranking	##	

In order to guarantee favorable conditions for correct development of human organisms, for preservation of good health status, labor efficiency, and vitality, it is necessary to focus on nutrition - both rational and preventive

I HUMAN HEALTH

The systematic comprehensive studies on nutrition shows that the frequency of cases of fattening, arteriosclerosis, high blood pressure, and other diseases related to nutrition, is very large Nutrition, regime of eating, and quality of food also has a curative effect

More and more often people happen to live and work in unusual conditions which are often harmful to their systems These conditions necessitate greater adaptive, defensive, and metabolical abilities Individual and group nutrition norms have been worked out They take into consideration the sex, age, progression, nutrition habits, and physiological specific features of the Bulgarian people The individual norms take into account also the specific features of the individual Any exceeding or decreasing of these norms would result into lower labor productivity and would negatively affect the health status The high and uncontrolled content of nitrites and heavy metals in the foodstuffs affect human health and more specifically the central nervous system and the gastro-intestinal tract A tendency toward larger carbohydrate consumption has been observed It results in excess loading of the system with "acid products" which impede metabolism

II ECOSYSTEM

None

III GENERAL WELFARE AND QUALITY OF LIFE

Nutrition depends on purely biological factors, on the one hand, and on socio-economic ones, on the other hand It depends on the peculiarities of Bulgaria's agriculture and food industry The expenditures for treatment of diseases caused by wrong nutrition - overfeeding and malnutrition - affect the welfare of the population

Wrong nutrition, and especially fattening of second and third degree are very

unattractive Fattening, combined with decreased physical activity and high nervous/emotional tension lead to upsetting individual peace of mind

Foodstuffs, beyond their expiration date, provide less energy in the human system and can cause grave poisoning Conditions are created for transferring some diseases to the future generations as a result of a direct damage of the genetic system

CONCLUSION The problem is local Its impacts are mostly on human health and the welfare of the population

LOSS AND DEGRADATION OF FORESTS

RISK	lowest highest
Ecosystems	##
Health	##########
Quality of life	###################
General ranking	##

The degradation and loss of forests is due to diseases of the trees, improper wood felling, mass wood cutting, cutting down of orchards, uncontrolled pasture, fires, plant diseases and pests, soil erosion, and atmospheric effects

I HUMAN HEALTH

The problem has an indirect effect on human health due to climate changes and loss of medicinal plants

II ECOSYSTEMS

The changes in the forest ecosystems bring about a number of unfavorable effects on the soil ecosystems, water flow and landscape They decrease wildlife, change the microclimate globally, decrease the ability of woods to hold water, change the composition of micro-elements in soil, respectively in effluent and bacterial micro-flora These combined effects ultimately lead to a radical, although slow change of natural conditions, soil erosion, increasing sedimentation in water supply, and reduction of oxygen production

III GENERAL WELFARE AND QUALITY OF LIFE

The effect of the changes on tree plantations can result in unfavorable consequences to the economic prosperity of the population Future logging, wood products, and fruit production will decrease The forests will have to be restored artificially This is a long and difficult process, the cost of which will affect the quality of life to a considerable

81

extent The psychological discomfort is obvious The possibility for contact with nature is lacking A sense of inferiority in comparison with the past generations appears, as well as discontent with the inefficiency of forest management by the government institutions Ultimately, all this is a violation of human rights

The community members have the right to know how, when, and why the national resources are being destroyed

CONCLUSION The process is irreversible in time and covers the territory of the whole community It is of enormous economic and social significance from the viewpoint of future expenditures and government authority

RADIATION AND ELECTROMAGNETIC POLLUTION

RISK	lowest highest
Ecosystems	##
Health	##########
Quality of life	##
General ranking	##

The radiation and electromagnetic pollution of the environment causes lasting and irreversible changes in living systems Radiation can be of natural or artificial origin Radiation levels can be increased due to trans-municipal or trans-border transfers of radioactive elements

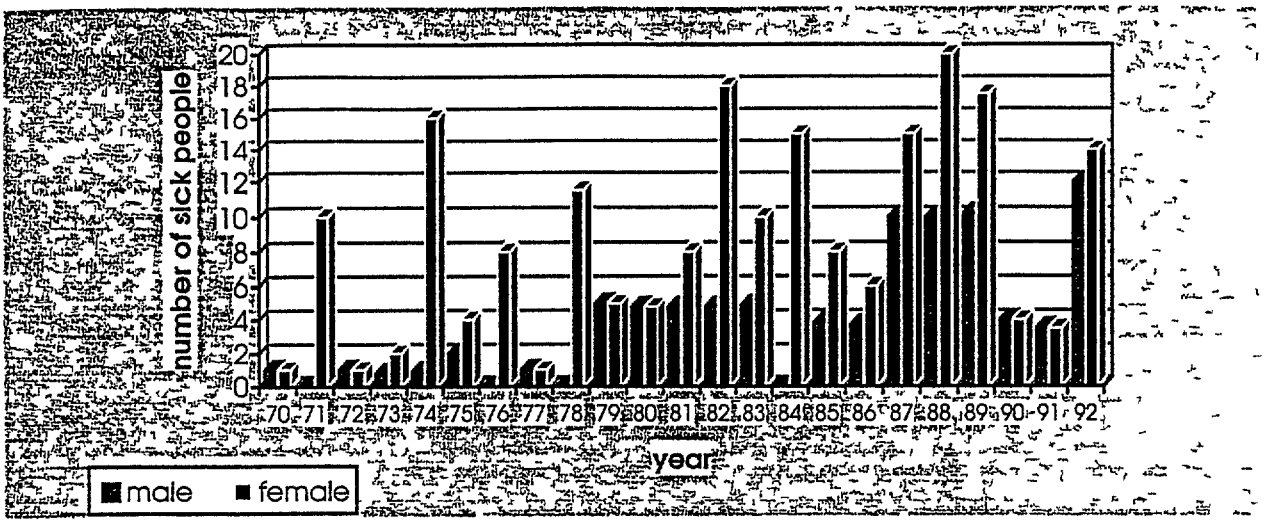
In the region of the Troyan municipality, there exists a mineral source whose water is a potential source of high radioactivity The natural radioactive background in the municipality has not increased, with the exception of the Chernobyl accident

Electromagnetic pollution is caused by the power transmitters

I HUMAN HEALTH

Lasting and irreversible changes can take place in human organisms, including premature births, congenital abnormalities, brain tumors, leukemia, and death Data from the Troyan hospitals indicates an increase in cancer cases and morbidity over the last 10 years Genetic changes will affect the future generations

Cancer patients in the community



II ECOSYSTEMS

It is known that small radiation doses may lead to genetic consequences disturbances in the development of the embryo and reduced fertility in animals However, little documentation exists on the exact impact

III GENERAL WELL-BEING AND QUALITY OF LIFE

Certain positive or negative aesthetical feelings related to the ecosystem can be expressed when talking about forest clearings As far as the feelings related to the sufferings of cancer patients are concerned - they are always depressive

In spite of the great benefit from the constant monitoring of the radiation background, it is very expensive, since a lot of money is needed for the purchase of analyzing equipment, communication means, and salaries of the technical personnel

Large amounts of money are needed to treat sick people Sometimes this money is used inefficiently However, this money should not be economized but used - mainly for preventive measures The fear of accidents causes upsetting of peace of mind The genetic changes remain for the future generations

The community might be exposed to transboundary pollution Accidents like the Chernobyl one, as well as all other significant temporary or more lasting increase in radiation, lead to significant losses because foodstuffs cannot be consumed, special measures need to be implemented (including emergencies), etc They also create social tensions, fear, and a sense of insecurity

CONCLUSION The problem is of national importance and its impacts will affect the future generations, too (i e Chernobyl)

LOSS OF FLORA AND FAUNA AND WILDLIFE HABITAT

RISKS	lowest	highest
Ecosystems		##########
Health		##########
Quality of life		##########
General ranking		##########

The main stressors on flora and fauna are a result of negative human activity The cutting down of a big part of the woods negatively affects the flora and most of the fauna Many animals move to other, different regions and adapt to new conditions The changed conditions give rise to new animals

As a result of human economic activities, the oak woods typical for the region of Troyan are decreasing At the same time, the areas with secondary bush and grass vegetation have expanded The beech trees are also typical for the community and region However, due to the cutting down of many trees in different periods of their growth, many of the beech forests have trees of several generations Many of the forest insect species have become a serious threat to the fruit trees in the municipality These are the plum aphids, apple aphids, cherry moth, and plum canker-worm In agriculture, some pests have become a grave problem for the community slugs, mole-crickets, cabbage aphids, and the Colorado potato beetle

I HUMAN HEALTH

None

II ECOSYSTEMS

The natural grass, bush, and forest vegetation which has been destroyed for centuries by the people, parallel with land cultivation and often uncontrolled hunting and fishing, comprise the complex of reasons for which some of the animal species have died out and some others decreased to a considerable extent The existence of secondary vegetation is due to the cutting down of primary oak woods and uncontrolled pasture which destroys the young trees in the forests Valuable plant species have disappeared while some others have decreased considerably Some species which are not typical for the region, such as coniferous trees, have spread in bigger areas This results in a change of the natural landscape and the microclimate

III QUALITY OF LIFE

The mass spread of plum aphids, apple aphids, cabbage aphids, slugs, mole-crickets

and Colorado potato beetles results in decrease of yields, or to bad-quality production, thus worsening the welfare of the community The loss of valuable plant species, trees, medicinal plants, and mushrooms can result in lessening of interest in short recreation The landscape, typical for the region, changes and this gives rise of a feeling of uncertainty

Sometimes, several decades are necessary, if the conditions are favorable, for the restoration of the population of the jeopardized animal and plant species

CONCLUSION The problem is regional but its consequences are of national significance since it reduces the national genetic fund of flora and fauna

CATEGORY B -- MEDIUM RISK PROBLEMS

DIRECT DISCHARGE OF INDUSTRIAL AND HOUSEHOLD WASTE WATER

RISK	lowest	highest
Ecosystems	##################	
Health	##################	
Quality of life	###################	
General ranking	##################	

After local treatment, or without being purified, the industrial waster water is discharged directly in the river The household waste water from the villages and the city run directly into the river The sewage collection system is only partially built and in the places where it exists, it only changes the point of discharging in the river A city waste water treatment plant does not exist and household septic systems are rarely built All this results in pollution of the river basin with industrial and household sewage, especially in summer-fall season when the level of river water subsides

I HUMAN HEALTH

The polluted river water is used for irrigation and thus, indirectly, it can cause disorder of the internal organs and nervous system, and allergies Rivers are used as recreation areas (swimming and fishing), and this can indirectly increase morbidity rate Subsoil water contaminated by direct discharging contaminates even larger areas of drinking water, and thus, indirectly again, jeopardizes human health

II ECOSYSTEMS

When the organic substances enter into rivers, they consume oxygen in water and create anaerobic conditions This results in an unpleasant smell and taste For fish and other river organisms, oxygen is a limiting factor The suspended substances create

sediments which decompose, emitting an unpleasant smell Mineral oils, fats, and other products, whose relative density is lower than water, float on the surface and create the following unfavorable effects

- They hamper oxygen absorption in the process of natural aeration,
- They are toxic in respect to certain water organisms,
- They intensify the erosion of river banks and destroy their vegetation, and,
- They increase the likelihood of fires

Inorganic salts increase water hardness and form coatings Mineral salts contain biogenic elements which encourage water eutrophication The toxic substances of organic and mineral origin can prove fatal to the river ecosystems

III GENERAL WELFARE AND QUALITY OF LIFE

The organic and inorganic substances which have gotten into the rivers, not only pollute water, but also violate their aesthetic properties The visible discomfort, disease causing agents, and mineral oils and fats are repulsive to the tourists who visit places for recreation, swimming, and fishing The municipality is thus forced to spend money on river purification and public health This causes a deterioration of the prosperity of the population The toxic chemicals cause anxiety in people, although their effect on the ecosystems and human health probably is small The violated river ecosystems and the economic damages will be a burden for the generations to come

CONCLUSION The problem is regional It is relevant for Troyan and the neighboring communities

AIR POLLUTION IN THE WORKING ENVIRONMENT

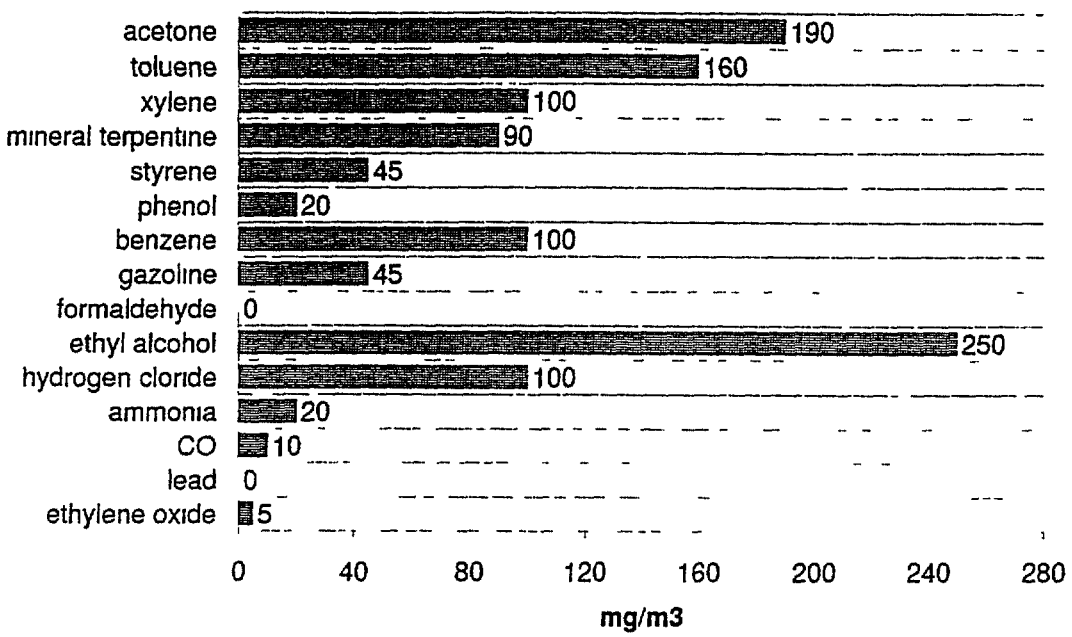
RISK	lowest	highest
Ecosystems	########	
Health	##########	
Quality of life	##########	
General ranking	##########	

Air pollution in the working environment is due to the various technological operations in industry such as chemical processes, painting, galvanization, founding, metal processing, and others Air is loaded with evaporations of chemical substances, organic aerosols, emissions of acids and alkali, SO2, CO2, CO, NO2 from foundries, dust, and soot The problem exists in the territory of the plants in Troyan municipality

I HUMAN HEALTH

When the workers are subjected to a continued impact of these polluters and poisons, even small concentrations can cause poisoning, allergies, or other occupational diseases The continued breathing of polluted air can cause pneumonia and lung cancer Emergency concentrations can result in grave poisoning and even death

Average air pollution of the working environment



II ECOSYSTEMS

The polluted air affects vegetation and the animals in the immediate area around the working place in an indirect way

III GENERAL WELFARE AND QUALITY OF LIFE

Pollution caused by smoke, dust, and gases in the working premises has a poor aesthetic effect on the appearance of the firms, manufacturing facilities, and environment

Diseases and poisonings affect labor productivity and result in demurrages A lot of money is spent for the medical treatment of sick workers The municipality spends money on the construction of purifying plants

Diseases and poisonings affect the workers' peace of mind They become indifferent to work, feel isolated, and their sense of community affiliation is upset The poisonings and illnesses also affect the future generations - the offsprings of the victims

CONCLUSION The problem is local It has almost no effect on ecosystems, but its impact on the health of workers is serious

NOISE POLLUTION

RISK	lowest	highest
Ecosystems	#######	
Health	##################	
Quality of life	##################	
General ranking	##################	

The machines and equipment used in the enterprises and firms make noise that exceeds the established standards The concentration of transport vehicles in some municipal areas during certain hours are also a cause of noise pollution

I HUMAN HEALTH

The noise exceeding the standards passes through the hearing systems of people and affects their nervous systems The intensity and duration of the irritation might result in lessening of the concentration of attention, short temper, bad mood, aggressive behavior, damage of the hearing system, nervous disorders, and/or damage to internal organs

II ECOSYSTEMS

III QUALITY OF LIFE

Noise pollution adversely affects the quality of life People who feel hearing discomfort are mostly those who live near areas with noise exceeding the standards The firms spend a lot of money on noise and vibration protection in the production environment Also, as a result of lessening of attention, labor efficiency decreases

CONCLUSION The problem is local and reversible It affects residents in areas in close proximity to the noise sources

DIRECT DISCHARGING OF WASTE WATER FROM PIG BREEDING FARMS

RISK	lowest	highest
Ecosystems	##################	
Health	##################	
Quality of life	###################	
General ranking	##################	

The primary function of sewage disposal in the stock-breeding farms is to divert sewage water and urine, and in some cases, also faeces mixed with water The sewage system also takes the waste water from washing and disinfection of the farms, the excess water around the watering troughs, rain water, and others In most of the existing farms, waste water is discharged directly in a nearby basin Purifying plants are also lacking Favorable conditions are created for the development of infectious, non-infectious, and parasitical diseases in animals Another subsequent effect is the pollution of the adjacent soil horizons and underground waters

I HUMAN HEALTH

The pathway for these health impacts are through food (contaminated meat or crops grown near a contaminated water source) or through underground water - if the water-holding horizon is shallow Human systems are affected by toxic substances or vermin which cause gastro-intestinal diseases, allergies, acne, and disorders of the nervous and respiratory systems

II ECOSYSTEMS

The balance in the ecosystems is upset, a new microclimate is created, and the air, water, nutrition, and heat regime is changed

III GENERAL WELFARE AND QUALITY OF LIFE

Urine and feces decomposition produces a sharp and unpleasant smell, resulting from the rotting and fermentation of manure The unpleasant smell spreads in the settlements, resorts, tourist sites, and highways, and has a negative impact Direct discharging also creates visual discomfort and is a blot on the natural landscape

The places of direct discharging can become a reservoir of parasites and pathogenic agents, which could worsen the economic efficiency of the pig company as a result of the stress, diseases, and dying of a number of animals

Maintaining of favorable climate is necessary for both people and animals Everybody wants to live in a clean environment and to breathe fresh air not only within the

boundaries of the settlements but also in the recreation areas

Health risks arise also for the future generations The natural interrelations and mutual dependence among the components of the ecosystems are disturbed The whole ecosystem is damaged

People fear contamination from sick animals, surface or subsoil water, and contaminated crops Their stress grows as a result of the growing number of stock-breeding farms without sewage treatment which pollutes the environment

The number of stock-breeding farms grows without taking into account the urbanization of the settlements This results in a change of the natural landscape and upsets people People lose their mutual respect and the willingness for joining together to resolve the problem Profitable agricultural enterprises fail as a result of people's failure to understand the inter-relationship "ecology - economy - man, and vise versa "

CONCLUSION The process is of local significance and is reversible The impacts are felt outside the community, too

SOIL EROSION

RISK	lowest	highest
Ecosystems	##################	
Health	##################	
Quality of life	##################	
General ranking	##################	

All soils on slopes over 1-1 5 degrees are subjected to soil erosion The territory of Troyan municipality is characterized by sharp changes in relief -- both horizontally and vertically About 70% of the rainfalls in the region are during the vegetation period and they often are torrential The prevailing soils are grey and brown forest soils which are less erosion resistant In many areas the natural forests are destroyed This fact pre-determines the generation of floods which carry large amounts of soil and creates a serious threat of silting up small water basins and of shortening the full life of large dams

The soil structure and its quality deteriorates As a result, the natural fertility is lost and yields sharply drop A direct consequence of erosion is the on-going thinning of the soil layer Therefore, soil erosion occurs to some extent all over the territory of Troyan municipality

I HUMAN HEALTH

The lack of basic sustaining elements in soil or the excess use of organic and mineral

fertilizers for restoration of soil fertility, results in a change of the salt balance of the human system

II ECOSYSTEMS

The uncontrolled rain and snow waterflow in certain areas upsets the interrelationship and mutual dependence among the ecosystem's components This results in an unfavorable air, water, nutrition, and heating regime which causes the dying out of precious animal and plant species, or changing the areas of their existence

III GENERAL WELFARE AND QUALITY OF LIFE

The arable land gradually loses its soil layer and gets cut into many furrows, ravines, and gullies The flooded arable land is unattractive and creates visual discomfort

The decreased soil fertility results in a sharp drop in crop yields The restoration of fertility necessitates the use of large quantities of organic and mineral fertilizers Silting up of dams and water basins shortens the term of their use Huge amounts of money are needed for their restoration The unsteady floods negatively affect the water and energy economy The quantity of water in the dams provides the basis for planning irrigation areas and the quantity of electricity production

In the regions of overflows, the means of communication, hydroelectric plants, settlements, industrial, and other facilities are greatly damaged

The money intended for restoration of soil fertility of land plots situated on various slopes, is unequally allotted

The restoration of a washed away soil layer takes hundreds of years in a normal process of soil formation

The loss of arable land or the drop in crop yields, resulting from the worsened soil fertility, leads to deterioration of the welfare of the community The cutting down of forests changes the water balance by increasing surface water run-off and decreasing percolation into groundwater This results in a water shortage and in a water consumption problem In the regions subjected to erosion, the arable land is strongly indented by deep gullies and ravines which collect and rapidly lead away the surface rain water and deprive the crops of the moisture they need

CONCLUSION The problem is local for the town of Troyan It is relevant to the on-going changes in farming

EMERGENCY RELEASES OF TOXIC SUBSTANCES

RISK	lowest	highest
Ecosystems	##################	
Health	##################	
Quality of life	##################	
General ranking	##################	

Emissions of large quantities of specific substances are possible in cases of breakdowns in storehouses for liquid and partly gaseous petro-products and chemicals There are such sources in Troyan's industrial zone There were a few cases of releases of toxic substances and petro-products in the environment during the last 20 years

I HUMAN HEALTH

The toxic substances and petro-products can cause poisonings, disorders of the nervous system and of the gastro-intestinal tract, cancer, eczema, skin diseases, and others

II ECOSYSTEMS

The migration of eco-toxins can result in a lasting and irreversible upsetting of the environmental balance of the Osam River and its affluent, the soil, and air

III GENERAL WELL-BEING AND QUALITY OF LIFE

The influence of toxic pollution on people is similar to the one of military aggression People suffer from a permanent feeling that their health and life are jeopardized and from a feeling of uncertainty There exist conditions for stress situations of which the outcome is unpredictable The effects may be endured by generations to come

The main loss of money is due to the expenditures for medical treatment, compensations, safety measures, the substances themselves when used as raw materials, and the water wasted for cleaning and lessening of concentration in case of emissions

CONCLUSION The problem exists in the region of Troyan and the storehouses in its vicinity The consequences are irreversible The problem is of social significance since it creates the feeling of uncertainty

EFFECTS FROM CHEMICALS IN INDUSTRY,
INTRODUCTION OF NEW PRODUCTIONS AND TECHNOLOGIES

RISK	lowest	highest
Ecosystems	##########	
Health	##########	
Quality of life	##########	
General ranking	##########	

The problem of consumption and use of chemicals in industry is related to their effect on the environment - direct and indirect The chemical substances used in chemical, timber, food, and other industries, which are emitted into the atmosphere, soil, and water, very strongly affect the natural ecosystems The environmental pollution caused by chemical substances and their derivatives is in many cases local in respect to soil and water components, but not in respect to the air component

I HUMAN HEALTH

Chemicals affect the health of those who work with them to different degrees -- depending on the duration of work and the substance's composition Some chemicals used in the manufacturing facilities in the city and the municipality have a latent effect on the regenerative capacity of those subjected to their influence They affect the mucous membranes, nervous system, and cardio-vascular system The carbon-oxide inactivates the hemoglobin and causes arteriosclerosis

II ECOSYSTEMS

The steam heating plants emit into the atmosphere the following gases sulphur oxides, nitric oxides, dust, fluorides, and sulphur dioxide The atmospheric pollution affects visibility, the content of carbon dioxide - the radiation of heat, the growth and development of trees, soil fertility, and purity of rivers

III GENERAL WELFARE AND QUALITY OF LIFE

The negative effects include economic losses due to pre-term building restorations, frustrated production, idlings, damage of historical valuables, and unplanned demurrages

The economic losses and the damages of human health affect the psychic comfort

Human health and the ecological comfort of the people demands strict observation of regulations and safety measures

The influence on the generations is direct and more pronounced than the other problems because of the limited ability to adapt to pollution

CONCLUSION The problem is local but is important for the safety of residents in proximity of industries and of industries' workers who handle toxic chemicals

INDUSTRIAL WASTE DISPOSAL

RISK	lowest	highest
Ecosystems	#######	
Health	##################	
Quality of life	#######	
General ranking	##################	

The industrial waste from Troyan municipality can be classified in several main groups 1 Wood waste, 2 Paper and cardboard waste, 3 Textile waste, 4 Chemical waste, 5 Glass waste, 6 Ferrous and non-ferrous metal waste, 7 Construction waste, 8 Food waste, 9 Waste from other industries Industrial waste results from industrial processing of raw and other materials, which is not utilized by the enterprise which produces it In most cases, this waste is disposed in landfills, stored in incidental depots, or burnt Only a small part of the waste - mainly paper, glass and food - is recycled The Committees have failed to discover ecologically harmless industrial waste in the municipality Part of the disposed industrial waste belongs to the group of "hazardous industrial waste " These are the petrol products, galvanized sludges, medicinal waste, phenyl-containing waste, purifying plants' waste, and others

Due to the lack of monitoring of industrial waste, the municipality has little information about the problem, which hampers accurate risk assessment

I RISKS TO HUMAN HEALTH

Certain people are subjected to the effects of industrial waste -- mostly in the cases of water pollution Similar to the situation with household waste, the inspections by the specialized authorities show that there is no such pollution in the community The percentage of affected people in such cases can not be detected since the community members also use a considerable number of local water sources

The number of people who can be affected directly is small, but the risk in such cases can be very high, depending on the type of industrial waste and the dose Two death cases and one poisoning from direct contact with dangerous industrial waste were registered in the course of the last year Several cases of stomach disorders due to direct contact with food waste were registered during the last few years

II RISKS TO THE ECOSYSTEMS

It was not proven that industrial waste had any effect on the ecosystems in the municipality The previous monitoring of the river showed that some industrial waste such as petrol products entered eventually into the river from landfills into the underground

water But then the waste is thinned and does not have a tangible effect on the ecosystems The combustion of certain industrial waste produces stressors which can affect the land ecosystems, but such cases are very rare in the municipality But this amplifies the green-house effect by increasing C02 content in the air

III QUALITY OF LIFE

Justice, peace of mind, and feelings of community affiliation are adversely affected The few people who live near the landfills are subjected to health and financial risks The dangerous waste scares the population and has a poor effect on its feeling of community affiliation

The future inhabitants will be subjected to these risks provided the dangerous industrial waste is not rendered harmless, or packed

CONCLUSION The problem is of local significance It is irrevocable and affects the ecosystems

TOBACCO SMOKING

RISK	lowest highest
Ecosystems	#######
Health	##
Quality of life	#####################
General ranking	#####################

In contemporary society, tobacco smoking is the most wide-spread harmful habit, and a form of mass intoxication The clinical and epidemiological data shows indisputably that the number of smokers grows constantly, paralleling the health problems which are a consequence of smoking

I HUMAN HEALTH

Death rate with smokers is twice as high as with non-smokers Tobacco smoking negatively affects the lungs, heart, gastro-intestinal tract, among other areas of the body In addition, the probability of cancer is greater with smokers Smoking is a drug addiction with pronounced psychological and physical dependence which affects the smoker's labor productivity The relationship between pregnant women and infant mortality has been proven, as well as the relationship between the frequency of inborn lung diseases and infant susceptibility to respiratory infections

II ECOSYSTEMS

Tobacco smoke has a direct toxic effect on the smoker's system and the people

around him/her The risk is bigger in closed rooms The environment is polluted also by the stubs which create the risk of spreading certain infectious diseases such as tuberculosis, hepatitis, and others

III GENERAL WELFARE QUALITY OF LIFE

Tobacco smoking unfavorably affects the general well-being of people and their life quality Aesthetics in people's everyday life is damaged When in a room filled with smoke, non-smokers get equal damage to their health as smokers High-risk of cancer degeneration of human cells appears, and for future generations as well

When estimating the economic damages for the state resulting from tobacco smoking, one should take into account not only the damage caused by the increased morbidity among smokers and early death, but also their deteriorated labor efficiency and the waste of time for smoking during the working day It is believed that the damages from tobacco smoking are larger than the revenues from tobacco selling in the state budget

CONCLUSION The problem is global It could become reversible with good education of young people

CATEGORY C -- LOW RISK PROBLEMS

LANDFILLS FOR SOLID HOUSEHOLD WASTE

RISK	lowest	highest
Ecosystems	#######	
Health	#######	
Quality of life	#######	
General ranking	#######	

The solid household waste in the Troyan community is thrown away in landfills and rubbish heaps There exists no protective screen or drainage system for the rain water This causes infiltration and pollution of subsoil water The landfills and rubbish heaps are not surrounded by protective rings and a lot of the rubbish is littered At the city landfill, the solid waste is burnt There is no control on the use of landfills In most cases their location is very unsuitable on a river bank, in a water basin, near a settlement, etc In a number of places along the road, in some yards and districts there are also some incidental rubbish heaps and illegal dumps

I HUMAN HEALTH

The light fractions dispersed by the wind and the waste carried by the animals are carriers of pathogenic microorganisms which are a threat to human health They can cause

a spread of epidemics The subsoil waters which are contaminated through infiltration also create a risk of contamination of drinking water sources

II ECOSYSTEMS

Disposal of waste in non-regulated landfills can result in upsetting the balance with tree ecosystems as a result of direct air pollution, and indirectly - through contamination of subsoil water

III GENERAL WELFARE AND QUALITY OF LIFE

The now existing landfills and the non-regulated dumping of waste near roads, yards, and other places, provoke negative reactions among people This occurs mainly with people living in the immediate area, or using the area for recreation purposes

Owners of land in the immediate area of landfills are subjected to high risk of life quality deterioration In these areas there is a high density of truck traffic and there exists a potential threat to human health In cases of non-regulated landfills, only few people use them but many others are subjected to aesthetical and health risks People suffer from the feeling of impending threat when seeing and smelling burning solid waste which can carry and spread infection from the landfills Non-regulated disposal of waste is fined Infiltration from already buried and re-cultivated landfills continues for years

CONCLUSION The problem is local Consequences for the ecosystems however are irreversible because both ground water and soil and contaminated

III APPENDICES

The committees worked out profiles for the two problems ranked as priorities These are Quality and Quantity of Drinking Water and Air Pollution Brainstorm sessions, discussions, and consensus were the group processes usually used but occasionally committee members voted on a decision

The profiles explain why an issue is a problem for the community For instance, the quality and quantity of drinking water is a priority for Troyan because there is a severe shortage and consequent rationing This, as well as other factors mentioned in the problem statement contributes to higher concentrations of polluters One of the objectives outlined in the drinking water profile is to increase the quantity of drinking water We believe that this will also help improve water quality and thus be able to prevent some health risks and quality of life risks associated with water rationing In addition, we would like to establish a system of fair water distribution to reduce or eliminate residents feeling that their interests are unprotected and compromised Hopefully this will reduce consequent tensions and conflicts among different groups of water users as well as water users and government

agencies involved in water supply and distribution

The profiles also describe possible strategies, actions, or programs to address problems Every strategy is then broken down to sub-strategies or specific actions For example the five major strategies outlined in the Quality and Quantity of Drinking Water Profile are broken down into specific actions like leak detection and fixing leaks, introducing incentives to save water, more fair distribution, etc In this way all strategies in addressing the problem with water quality and quantity encourage water conservation because the Committees believe that reduction of water loss and waste should be the first, most cost-effective step to address water shortage and improve quality Committee members identified many of the strategies during their seminar in Vermont, and information from this trip is also provided

Another question the profiles answer is what the obstacles to the strategies are They are outlines in Part IV of the Profiles

A ISSUE PROFILE - QUALITY AND QUANTITY OF DRINKING WATER

1 SUMMARY OF PROBLEM

a/ shortage of drinking water,
b/ poor quality of drinking water, and,
c/ unjust distribution of drinking water in the community

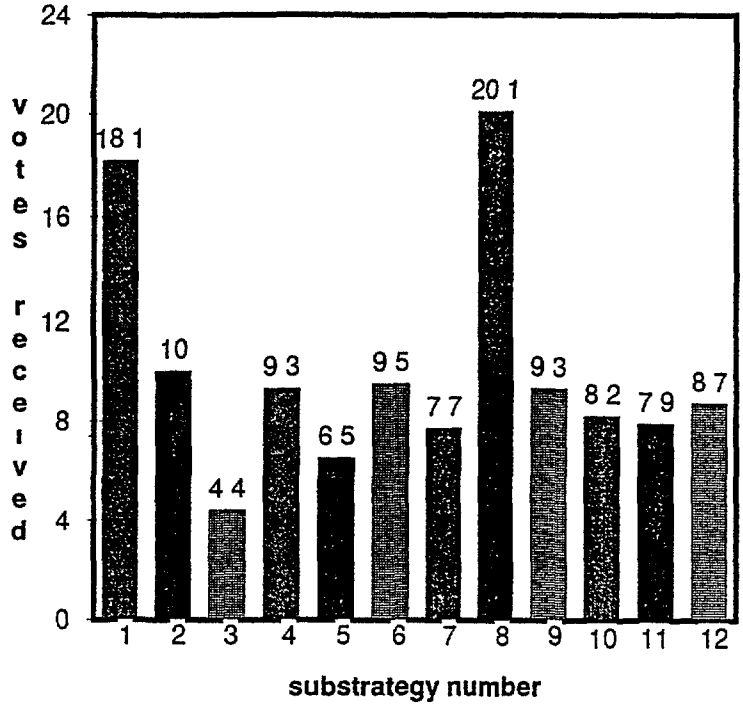
I OBJECTIVES

1 1 Increase the quantity of drinking water,
1 2 Improve the quality of drinking water, and,
1 3 Improve the rational distribution of drinking water

II STRATEGIES

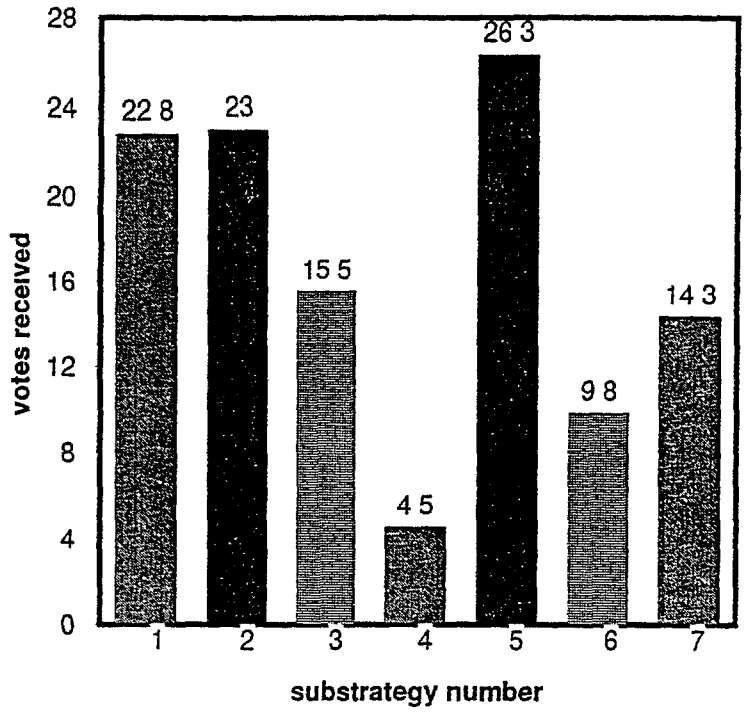
2 1 Education and involvement of the public,
2 2 Economic incentives and penalties,
2 3 Municipal programs,
2 4 Technical innovations, and,
2 5 Regulations

2 1 RANKING OF SUB-STRATEGIES UNDER "EDUCATION AND INVOLVEMENT OF THE PUBLIC"



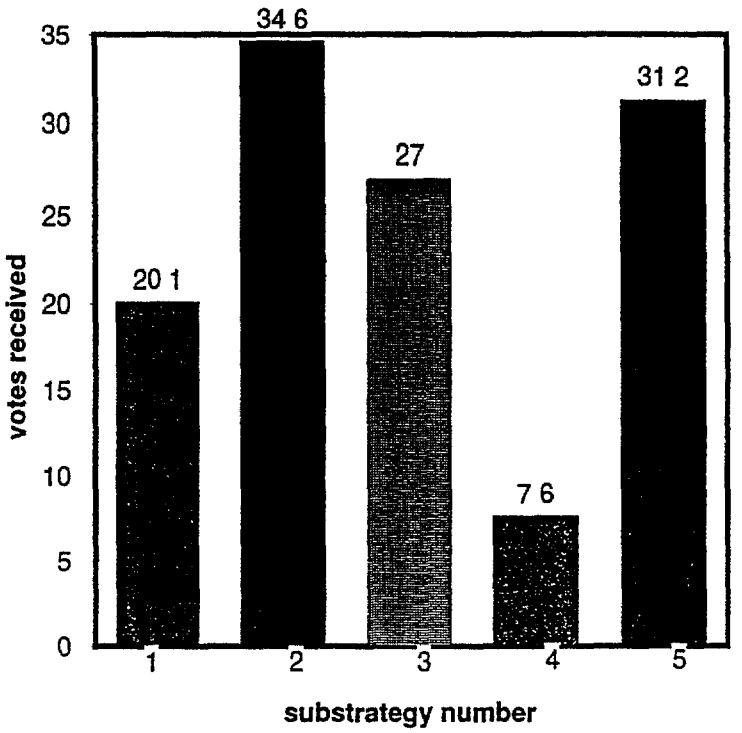
Substrategies	Obstacles on the strategy
- educational articles, - pamphlets, - water carnival, - radio information, - water saving day and other initiatives, - introduction of ecology as an optional subject at school, - posters, - ecological training at school, - winning over and involving the young generation, - introduction of a plumber's telephone line, - setting up of an ecologists' club, and, - compiling an information bank for general use	- the existing legislative system - conservatism in the curricula at the high schools - inactivity of the population, of the community and government structures and organizations - lack of cadres in the educational system - lack of reference materials - lack of experience - drop in the number of children

2 2 RANKING OF SUB-STRATEGIES UNDER "ECONOMIC INCENTIVES AND SANCTIONS"



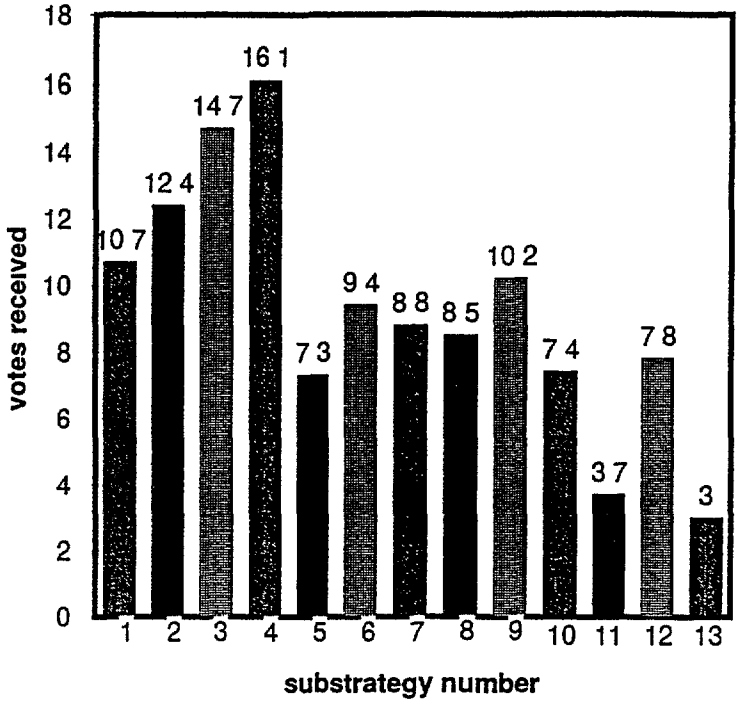
Substrategies·	**Obstacles on the strategy**
-introduction of a progressive system of payment for water consumption, - penalties for use of drinking water for other purposes, - differentiated approach to users of drinking water for non-drinking purposes, - no privileges for the workers at the Water & Sewerage Company, - encouraging the creation of private water sources, - lower rates for reduced water consumption in certain hours, and, - material incentives to the workers at the Water & Sewerage Company for water saving initiatives	- conservatism in the work of the local Water & Sewerage Company - poor qualification of the water specialists - lack of funds - public passivity and lack of initiative - lack of legislative regulations - lack of access to technologies, which results in inability to implement incentives and fines

2 3 RANKING OF SUB-STRATEGIES UNDER "COMMUNITY PROGRAMS"



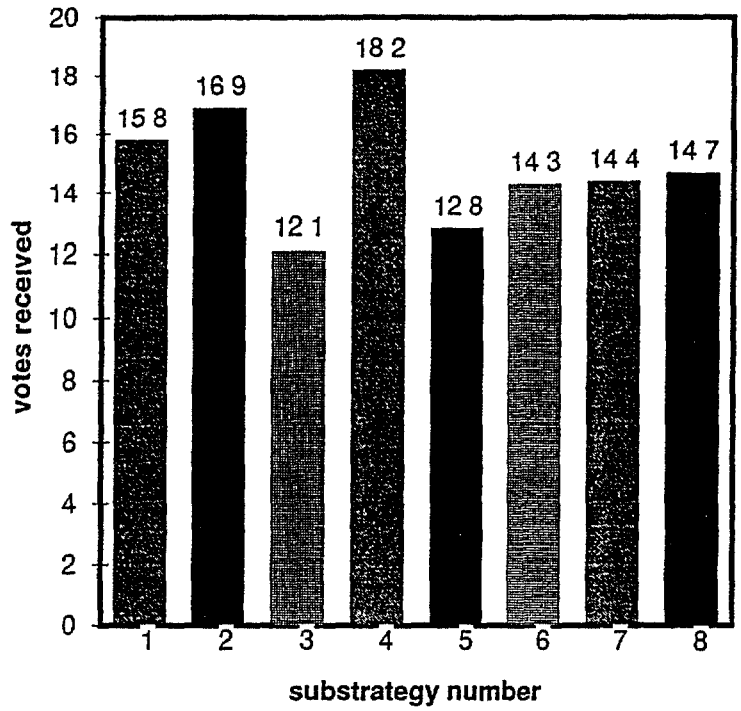
Substrategies	Obstacles on the strategy
- installation of new water meters in every household, - control of the removal of leaks by the workers at the Water & Sewerage Company, - designing a program for discovering new sources, - implementation of the Lovech water program, and, - review of the sanitation zones	- lack of funds - lack of producers of water meters of a new type - lack of information - conservatism in the work of WSC and of those in charge of water issues - lack of public initiative - lack of ecological water programs - unclear property status - hampers the creation of sanitary protected zones - the question who will control SPZ is still unsettled

2 4 RANKING OF SUB-STRATEGIES UNDER "TECHNICAL INNOVATIONS"



Substrategies	Obstacles on the strategy
- construction of equalizers, - catchment of new sources, - change of the city aqueduct, - construction of purifying plants, - construction of chlorinating and fluoridating plants, - construction of sewage system in regions with open-air water catchment; - change of the locations of certain water catchments, - cleaning up the water main inspection shafts and the reservoirs, - implementation of anti-erosion programs and incentives in the water supply zones, - introduction of GIS system and training of a team for work with this system, - proposal for working out water meters of a new type, - recycling of drinking water in industry; and, - production of mineral water for drinking	- lack of technologies - lack of funds - inefficient organization of the work of WSC - lack of technical information at the fluoridating plants - lack of underground cadastre of water supply and sewerage systems - lack of annual technical program in the municipal WSC - lack of the appropriate equipment for GIS - lack of specific laws - lack of leak detecting devices and of people trained to work with them - lack of high-quality materials for the water supply system - lack of water meters along the water main for estimation of losses

2 5 RANKING OF SUB-STRATEGIES UNDER "REGULATIONS"



Substrategies	Obstacles on the strategy
- adoption of regulations related to use of drinking water by industrial facilities only in cases of proven necessity, - regulations for controlled use of drinking water, - control of the implementation of regulations, - proposal for change of ownership on natural resources, - proposal for change of the Bulgarian state standards related to water quality, and bringing them in conformity with European standards, - public and local parliamentary control of the local Water and Sewer Company, - regulating and announcing to the public the water regime, and, - ending of wood cutting in the water supply areas	- lack of specialists for elaborating the specific legislative regulations about Troyan municipality - lack of good Parliament for elaborating good laws - shortcomings in the national legislation - procedural weaknesses in the work of the Municipal Council - public passivity and lack of enough interest on behalf of the environmental committee at the Municipal Council - lack of information about the laws - insufficient education of the municipal counselors in respect to environmental protection and the necessary actions in this field

B ISSUE PROFILE AIR POLLUTION

1 PROBLEM SUMMARY

a/ air pollution as a result of use of fuel for heating,
b/ air pollution as a result of traffic, and,
c/ air pollution as a result of industrial technologies

I OBJECTIVES

1 1 To reduce air pollution caused by fuel and burning of waste,
1 2 To reduce air pollution caused by motor transportation, and,
1 3 To reduce air pollution caused by certain industrial technologies

II STRATEGIES

2 1 Education of the public,
2 2 Economic incentives,
2 3 Municipal programs,
2 4 Technical innovations, and,
2 5 Legislative regulations

2 1 EDUCATION F THE PUOBLIC

Substrategies	Obstacles on the strategy
- ecological school, - involving school students in the commission, - travelling schools, - educational articles, - pamphlets, - water and air carnival, - radio information, - fuel saving program, - introduction of ecology as optional subject at school, - posters, - ecological training at school, - involving the young generation, - ecologists' club, and, - information bank for general use	- lack of funds - lack of access to laws and regulations

2 2 ECONOMIC INCENTIVES AND SANCTIONS

Substrategies	Obstacles on the strategy
- establishment of local heating systems near industrial facilities, - use of lead-free gasoline and gas devices in motor vehicles, - insulation of houses, - incentives for gas heating and use of high-calorie coal, - penalties for pollution caused by private furnaces, - penalties for private heating boilers, - banning the use of motor vehicles emitting gases with quantity and quality violating the standards, and, - material incentives for owners of motor vehicles using catalytic converters	- lack of funds - lack of access to technologies

2 3 COMMUNITY PROGRAMS

Substrategies	Obstacles on the strategy
- elaboration of gasification program, - use of solar energy and wind energy systems, - use of water mini-turbines, - elaboration of a new local urbanization plan dealing with railroad stations, bus stations, fuel selling organizations, industrial facilities in the central city area, - natural gasification program for Troyan, - compost gathering program, - days for collecting old tires and other garbage, - change in the city transportation routes, - alternative to the city transportation - trolleybuses, - use of smoke-free briquettes, - development of tourism, - planting of trees and shrubs, and, - alternative system for use of solar energy	- lack of funds - lack of access to laws and regulations

2 4 TECHNICAL INNOVATIONS

Substrategies	**Obstacles on the strategy**
- more refined household heating systems, - heating plants using household waste, - construction of plants for purifying the air polluted by the local heating systems and steam heating plants, - introduction of catalytic converters for heating systems, - air purifying systems in the industrial facilities, - planting of trees and shrubs, - use of lead-free gasoline, and, - designating a place in the private yards for plant compost	- lack of funds - lack of access to technologies - lack of technical innovations - lack of social activity

2 5 REGULATIONS

Substrategies	**Obstacles on the strategy**
- ban on burning meadows, pastures, stubble-fields, - education on banning the burning of household waste, - regulations for monitoring the air in the community, - fines on industrial facilities polluting the air with carbon monoxide, - banning the burning of stubble-fields, - setting up sanitary zones around the stock-breeding farms, - collecting compost, household waste, and others' wastes, and, - development of Beklemeto resort	- lack of social activity

C INFORMATION ON THE STRATEGIES

A group consisting of representatives of the Citizen Committees from the Troyan Environmental Action Project, the Troyan Municipality, the Ecoglasnost National Movement, and the Ministry of Environment visited a number of state, regional, and municipal services, public organizations, companies, and environmental protection facilities primarily in Vermont, USA, between February 19 and March 8, 1993, with a goal of gathering new information on the strategies outlined by the Troyan commissions

The visits were designed to provide an opportunity for participants to become familiar with the principles, approaches, and practices adopted in the United States and Canada and focused on the high-priority problems identified in the Environmental Action Plan

- protection and effective utilization of water resources,
- effective energy use with a view to protecting atmospheric air and the natural resources,
- waste treatment, including utilization and neutralization, and,
- environmentally sound structuring and restructuring of the economy (industry, agriculture, forestry, tourism, and recreation)

The program was extremely intensive, sometimes two or three meetings had to be held simultaneously

The visits and some brief comments about them can be grouped as follows

FEDERAL (STATE) INSTITUTIONS

1 Public Facilities Division at the Vermont Department of Environmental Conservation, Waterbury, Vermont

The Department has elaborated and is implementing a program for the protection of water basins This includes a permit program which defines the restrictive parameters and reports on the extent with which these parameters have been complied In addition, the Department oversees a program for disbursing state and federal grants and loans to municipalities and stipulating conditions for the release of these funds

2 Vermont Department of Public Safety Waterbury, Vermont

We became familiar with the automated controlling and coordinating center, where a Council headed by the Governor meets in case of a real or simulated alarm, together with the directors of the Center, representatives of the institutions for public security and order, health services, public facilities, public utilities, the Red Cross, agriculture, transport, the police, the National Guard, people responsible for natural resources, and fish and wildlife

There is one nuclear power plant in the State of Vermont Both the State and each municipality have detailed plans for action in case of a nuclear accident in the power plant, as well as in other emergencies (e g involving radioactive emissions)

3 Vermont Environmental Board, Montpelier, Vermont

The Board coordinates the work of nine regional commissions which examine requests and grant permissions under Act 250, which is a wide-ranging law on land use (outside the confines of city planning) The regional commissions consist of volunteers who consider the applications and decide on them, as well as a secretary and a secretariat

Each proposed development is evaluated according to a number of criteria, including

1 Water and air pollution,
2 Water supply,
3 Impact on existing water catchments,
4 Soil erosion and water retention,
5 Transport and communication problems,
6 Impact on community educational activities,
7 Aesthetics, influence on historical or natural sites, wildlife habitats, rare or threatened species,
8 Compliance with the plan for the development of the settlements and the region, the soil diversity, the underground resources and their effective utilization, energy conservation, communal activities, etc , and,
9 Compliance with other local or state plans

A total of 28 officials and 50 volunteers appointed by the Governor are working under Act 250 in the State of Vermont (with a population of 560,000) Their budget is $1,500,000, 65% of which is raised from the fees collected on submitting the applications, the remaining 35% - from other local taxes and fees

4 Department of Forest and Parks in Vermont, Waterbury, Vermont

Four federal, four state, and several privately financed programs are working both independently and in cooperation with the Fish and Wildlife Department, to create, manage, and protect forests, parks, natural sites, wildlife habitats, and rare and threatened species

5 Water Supply Management Division, Vermont Department of Environmental Conservation, Waterbury, Vermont

The Department exercises sanitary control, organizes preliminary technical and investment studies, and issues permits for the construction of water treatment installations for drinking water

6 Department of Public Health Education, Medical Center Hospital of Vermont, Burlington, Vermont

Work is being done on comprehensive and partial health programs aimed at reducing the health care costs, raising the working ability, reducing absenteeism for health reasons, and boosting worker morale The health risk to workers in the various companies and jobs is also evaluated

MUNICIPAL AND REGIONAL SERVICES

7 Public Facilities Department, City of Montpelier, Vermont

The research, design, finance, and construction of the waste water treatment plant for the town of Montpelier is organized in cooperation with the town of Berlin The actual plant was visited and is described separately Each family pays an annual fee of $220 for drinking water and $188 dollars for the waste water treatment

Out of the 8,000 inhabitants of Montpelier, 160 houses have not been included in the sewage network They have to comply with specific requirements for on-site septic systems

The municipality has purchased the land surrounding the lake from which the drinking water is taken, in order to be able to guarantee its purity According to the law, all citizens of the state own the water resources

8 Massachusetts Water Resources Authority Boston, Massachusetts

Water is supplied either entirely or partially to regions with a total population of about two million, i e water is supplied to some districts or municipalities by two companies Large-scale, non-profit programs for water conservation are introduced in the residential, commercial and industrial areas The projects and the programs for new water catchments are approved by the state and federal authorities only after the implementation of comprehensive programs for effective water use and after it has been proved that all other resources have been exhausted

Families with restricted income are supplied with water saving devices for their kitchen sinks, washstands, and showers free of charge (by specially selected companies) Studies of the water consumption in industrial enterprises, large commercial, and public institutions are organized with a view to minimizing waste of water More than 50 seminars have been organized so far, jointly with the Chamber of Commerce and Industry, involving a broad range of specialists and students However, no subsidies have been envisaged for complete programs in the companies because businesses finance their own investments due to economic incentive from accurate pricing to reduce water consumption

9 Champlain Water District, South Burlington Vermont

The District manages the drinking water supply system for many of the towns

surrounding Burlington Water is taken from Lake Champlain, which is the sixth largest lake in the United States, with economic significance for two states and Canada Water intake is 23 meters below the surface and 800 meters offshore After treatment and filtration, eight towns and ten water supply systems, a total of 55,000 inhabitants, receive water from the lake The price of the water is $180 per family annually Sediments are removed through an extensive filtration system, and the sediments are controlled according to eight parameters and are deposited in sanitary landfills The system is self-supporting The budget - and hence the price for water paid by the population - are approved by a public Board

10 Two Rivers Regional Commission, Woodstock, Vermont

The commission serves 26 communities, each of which has its own representative on the Board It offers technical assistance to the municipalities to prepare their plans related to agriculture, transport, communications, housing construction, and natural and historical sites The Commission prepares the general regional plan

Community plans serve as the basis for drafting five municipal budgets for public construction, water supply, sewage, waste collection, etc A procedure has been opened for preparing plans, which are publicized in the press and at public meetings Opinions are heard and questionnaires are sent out to the population

Each commission uses a geographic information system (GIS), and they exist as non-profit organizations Their activities are financed as follows 50% by the state, 25% by the municipalities and 25% through contracts with private individuals and companies

11 Upper Valley Solid Waste Management District, Hartford, Vermont

An association of 12 Vermont communities with a total population of about 25,000 people, have joined together to develop and implement solid waste policy to enforce the regulations concerning the treatment of waste The Center

- accepts certain waste materials which can be recycled (metals, paper, plastic materials, and glass) and then guarantees their secondary use,
- accepts biological waste originating from food or agricultural production and the maintenance of the green parks and then produces and distributes compost produced there,
- accepts second-hand goods and organizes their selling through its own store,
- accepts hazardous waste from the households and from small commercial companies (paints, poisons, pesticides, asbestos, corrosive chemicals, petroleum, and oil products), organizes their classification and their submitting to be neutralized in special centers, and,
- organizes the publicity for the waste disposal program among the population, gives consultations to interested individuals and

institutions, and disseminates brochures and leaflets At the Recycling Center there is an attractive Visitors' Center for adults and children, with training and educational programs

Each community contributes to the maintenance of the Center proportionally to its population

The Center keeps full computerized documentation on the materials submitted for recycling, as well as on the non-recyclable materials deposited A fee of $60/ton is charged for waste deposition

12 Chittenden Regional Solid Waste Management District, Colchester, Vermont

The District comprises 16 communities with a total population of 130,000 and was formed in 1987 for joint management of

- the construction and utilization of a modern waste disposal facility,
- the closing down of eight old local landfills,
- providing waste deposit locations which would guarantee the region for at least twenty years ahead,
- utilization of a waste admission center, similar to the one described earlier,
- acceptance of leaves during the fall,
- compost production, and,
- acceptance of the hazardous waste materials from households

The department also has a mobile installation for collecting these waste materials, which is not in operation during the winter A Plan has been prepared until the year 2000

It should be noted that the solid waste districts in Vermont are responsible only for the disposal of the waste and for the implementation of the recycling programs Each inhabitant signs an individual contract with a private company for the collection of waste There are 25 such private companies in the 16 communities in Chittenden The inhabitants may also bring their non-recycled waste to the Center, paying only the fee for depositing them

13 Mayor of Burlington, Municipal Representatives of Community Planning and Efficient Energy Use

Until that day, the largest city in the state of Vermont was governed for twelve years by a political coalition that differed from either the Republican or the Democratic Party

The community held a referendum and refused to implement the program for increased energy production, opting instead for very ambitious programs for effective

energy efficiency, savings, and protection of the natural resources

The plans for the development of the community are widely discussed by specialists and citizens Special citizens' committees investigate public opinion The plans and programs are adopted after all views have been discussed

14 Underhill Town Meeting, Underhill, Vermont

Community meetings of the population are held throughout Vermont to examine the report of the municipalities, to endorse the budget and the annual plan, and to elect the community officers by secret ballot All materials for the meeting are distributed in the form of a 67-page brochure to the population one month in advance

15 Meeting with the Shrewsbury Commissions on Community Planning and on Environmental Protection, Shrewsbury, Vermont

The commissions assist and control the activities of the town selectboard The members in these commissions are elected at the general meetings and participate in them on a voluntary, unpaid basis

PRIVATE COMPANIES AND INSTITUTIONS

16 BEN AND JERRY Ice Cream Factory, Waterbury, Vermont

Ben and Jerry's has a waste water treatment facility with experimental solar-greenhouse-water installation The treatment of the water, until it meets the standards for flowing into the city collector, takes place in parallel systems of cascades in which water tanks alternate with micro- and macroflora and fauna systems Natural photosynthesis is used instead of artificially produced energy and chemicals The installation is still experimental, and will be monitored by the Vermont Department of Environmental Conservation, before it is finally approved

17 River Watch Network, Montpelier, Vermont

A non-profit organization working with volunteers It implements projects for monitoring and observing the status of surface waters, which are actually individual programs for the enforcement of the federal Clean Waters Act of 1972 Forty rivers in thirteen states have ben investigated

18 Water Works Company, Boston, Massachusetts

Under contract from the municipal water supply company, this private company is responsible for the distributing and installing of water-saving devices in the houses

19 Intervale Foundation, Burlington, Vermont

A non-profit organization working on projects for the restoration and

stabilization of rural farms in the severe climatic conditions of that state, use of waste for obtaining compost and energy, as well as training of children and farmers

20 Champlain Valley Weatherization Service, Burlington, Vermont

A non-profit organization established in 1968 After the oil crisis during the 1970s, they are working according to a program with low-interest loans to attain additional thermal protection of the houses and optimization of the heating installations for families with low incomes

We visited a wooden two-family house in which the burner of the boiler of the heating installation was replaced, as well as the insulation of the heat-distributing network, and additional thermal insulation of the surrounding construction was introduced (using material obtained from scrap paper) and for filling cracks and crevices A device used to test the airtightness of the building was demonstrated

21 Vermont Energy Investment Corporation, Burlington, Vermont

A non-profit organization working together with the municipality to prepare and implement its energy program, to evaluate the energy services, to finance energy-saving projects, training, and consultations with legislators The organization negotiates with banks and provides to the citizens low-interest or interest-free credits and tax benefits for repairs to their houses that would promote energy-saving

We also visited a 13-story municipal building which houses municipal services on the 1st floor and retired citizens having low incomes on the remaining floors Measures for effective utilization of the thermal and electrical energy, through a co-generation heating system, have been installed in this building

22 Vermont Gas System Company, Burlington, Vermont

A company receiving natural gas from Canada and distributing it to consumers The company works to implement the program for energy effectiveness through consumption management and control When permissions are being granted for a new gas line to pass through the state, an analysis is made of the demand and possibilities, and conditions are raised for satisfying local needs as well

23 Le Groupe Teknika, Sherbrooke, Quebec, Canada

An engineering company engaged in research, design, and consulting in the field of water preparation, as well as water and waste treatment Consultations are made available to the local and central authorities on the programs and new standards

PUBLIC ORGANIZATIONS

24 Vermont Public Interest Research Group, Montpelier, Vermont

A nongovernmental organization having 26,000 members working on environmental problems and waste recycling, taking a stand on the legislation that is being prepared, and publishing educational and training materials for the general public It selects problems that can be solved with their participation and with the active involvement of the population

25 Vermont Natural Resources Council, Montpelier, Vermont

The Council is a similar organization to the one above, dealing with the following specific problems agriculture, transport communications, water basins, and forests, as well as with waste and energy production, but only insofar as these problems are relevant to their principal scope of activities At present they are particularly highly mobilized, because the economic recession predisposes towards lower environmental protection standards and norms

26 Shelburne Farms Education Center, Shelburne, Vermont

A large farm transformed into a training center for children A non-profit organization that has education as its main business (in the words of its director) Each student in the region spends one day a year on the Center In the form of games and various experiments, an attempt is made to explain to the students the problems to nature caused by civilization, as well as to cultivate an active attitude to these problems

27 Other Visits

In addition to the visits listed above, we also met congressmen from the state, members of the Vermont Legislature Committees on community development and natural resources in Montpelier, faculty members from Vermont Law School in South Royalton, the secretary of the municipality and businessmen from Sherbrooke, Canada, the Marine Museum in Boston, the Nature Visitors' Center in Sherbrooke, a private house in which most up-to-date ideas on effective energy consumption have been applied, the Food Coop Center - a public cooperation for the promoting, production, and sale of environmentally sound foodstuffs, as well as the largest pig-breeding farm in Vermont (with 500 swine) for environmentally pure production Representatives from the Institute for Sustainable Communities in South Royalton, EPA, the Association for Rural Development in Burlington, Amy Vickers from Boston, Maria Pavlova from New York, and Alexandra Kantardjieva from Le Groupe Teknika, led brief seminars on effective water use and water economy, risk identification and evaluation, and analysis of the results of the visits and elaboration of the problems identified by the Commission for Ecological Actions in Troyan We also visited the following municipal facilities a waste water treatment plant in Montpelier, a station for the preparation and purification of drinking water with high-

speed filters in Champlain district, a waste-water treatment installation and an installation for purification of drinking water in the town of Sherbrooke in Canada

At the same time, the training course and visit constituted an intensive and useful form of gaining an insight into the democratic approaches to solving environmental problems in the context of a free market economy, the processes of drafting and implementation of municipal and regional programs for action on the basis of in-depth research, taking into account the state norms and the local conditions, and with the active involvement of the public and the population After the programs have been drafted and endorsed, they do not have the characteristics and significance of a law, but they outline the policy, and - developed further in concrete projects - they generate or define the tools and the possible institutions for their implementation

D RANKING OF STRATEGIES

The profile of each problem includes a maximum number of strategies for its resolution Evidently, not all of them can be implemented because of the limited funds, shortcomings in the respective laws, lack of suitable structures, etc That is why the task of the committees was to use a procedure for selecting strategies for which a plan for implementation could be worked out The selection was made in compliance with the eight criteria approved by the Committees

CRITERIA

1 Completion term	**5 Total cost**
2 Environmental effect	**6 General benefit**
3 Flexibility	**7 Equality**
4 Efficiency	**8 Public approval**

At the same time however, taking into account the fact that not every criterion is of equal importance to the implementation of strategies and sub-strategies, the committees weighed the criteria differently in regard to the individual strategies and sub-strategies For instance, under strategy 1, criterion 1 received 15%, while the ecological impact - criterion 2 received 25% However, for strategy 2 the same criterion received respectively 13% and 20% In order to take into consideration the personal views of the voters as well, and in order to avoid the situation when everybody votes for all strategies and sub-strategies because he/she likes them and believes that they are all good, every member received only 10 votes for each sub-strategy, which he/she could use as he/she wanted

The Committees voted separately for the strategies and for each of the sub-strategies After the discussion and the ranking session the committees ranked the Ecological Education with 20 1% in their classification, the Leaks Control with 37 6%, and the Acts & Regulations which ranked high as a whole

IMPLEMENTATION PLAN

QUANTITY AND QUALITY OF DRINKING WATER

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SECTION I PROBLEM DESCRIPTION - DRINKING WATER USE AND NEW WATER SOURCES

Introduction

Drinking water in Troyan is a valuable resource, as everywhere else, which needs to be conserved, restored, and protected from pollution The specific problem of the municipality is both the risk from all pollutants found in the drinking water of Troyan, as well as the problems caused by its inadequate quantities during certain periods of the year The results from the work done by the Committee on establishing, analyzing, and ranking the environmental problems in the framework of the Troyan Environmental Project, as well as the opinions of the Troyan public, show that the drinking water is the most serious problem

The Committees of the Troyan Environmental Action Project conducted a detailed study of the drinking water problem in the Municipality by gathering, sorting and analyzing enormous amount of information These studies led to determining the three aspects of the problem low quality, insufficiency of water, and unfair and irrational distribution of water resources

Water Quantity Issues

The drinking water suppliers at present are state companies and the water sources are open river catchments (Cherni Osam, Kraevitsa, Vurtyazhkata), Karst - (Steneto) and underground - in the larger part of the villages On the municipal territory the inner water-pipe network is 253 km long, and the outer water-pipe network is 110 km long There is no information about what percentage of the network is made of iron, asbestos-cement, or plastic pipes

The quantity and quality of drinking water is greatly affected by the high percentage of leaks along the water-main This presents an additional pollution risk and increases drinking water losses The recorded leakage rate in 1992 was 43%, but in fact (due to the lack of effective equipment, qualified specialists and underground cadastre in the outskirts and the industrial enterprises), this percentage may be even higher

The drinking water supply problem involves the larger part of the municipality In some regions it has a continuous effect and in others - seasonal or sporadic There is an evident need both for improving water quality by building water treatment plants and for seeking new water sources to increase their volume

Many hydrological studies have been conducted in the municipality, but the first systematized studies were made by the company "Geoprouchvane" - a former geological research enterprise in Yambol during the period 1971-91 As a summary they point out the following areas worth mentioning as potential new water sources

1 The region between the upper reaches of the rivers Kraevitsa and Beli Osam with 62 square km of supply area and dynamic storage of 370 litre/sec

2 The region of Terziisko-G Zhelyazna with dynamic storage of 150 l/sec and supply area of 24 square km

Another possibility is mentioned by Prof Christo Andonov - hydrologist, who thinks that if a new catchment is made 150 meters below the dam of the Cherni Osam river there may be found an enormous underground karst water basin with an area of approximately 55 sq km, which can fully provide the municipality with water supply of 1000 l/sec

There is a third possibility - in many places there are catchments which have been abandoned for some reason or another These have to be renovated and put to use

With the establishment of private farms and companies, there will be a need for finding private water sources by digging wells, drilling, and collecting water in small catchments which will lead to using cheaper water and reduced consumption from the water-main One of the alternatives for solving the problem is the use of mineral springs in the municipal area, some of which have been tested and their healing properties proven The bottling of these waters and distribution in the commercial network is an additional water source for the population This is a popular practice in many countries, some of which have greater water resources than Bulgaria

One of the most important aspects of the problem is the ineffective use of drinking water The data show that some industrial enterprises in Troyan, Lovech, and Pleven use too much water for industrial purposes and some farmers use too much for irrigation purposes It is worth mentioning the low environmental awareness level of the population, and the lack of information and equipment for effective water use and conservation There is no environmental education in the local schools, which could help increase school childrens' understanding of the importance of drinking water, or public education to change the attitude towards water resource problems at the local level

The drinking water problem in the Troyan municipality is directly related to the lack of an efficient system of regulatory measures which could provide effective control over drinking water use and establish a differentiated approach towards water consumers as well as to encourage the search for new water resources The present legal basis does not afford great opportunities for flexible interaction among the state and municipal authorities concerning the maintenance and use of the local water resources

It is well known that many households use much larger amounts of water during water-supply restrictions by storing it and pouring it out, and thus is used irrationally

Water Quality Issues

There are quite a few sources of pollution in Troyan They depend to a large extent on the source of drinking water The pollutants may be of natural or anthropogenic origin and they include biological pollutants (pathogens), as well as a large diversity of chemicals The residents of the Troyan municipality using water from open river catchments and underground water sources are more likely to be exposed to pathogens and chemicals accompanying the chlorination It can also be found that the drinking water has a bad, taste, peculiar mechanical composition of solid particles, incidence of bacterial pollution and an outbreak of epidemics during water-supply restrictions These problems as a whole depend directly both on the lack of water treatment plants for drinking water and on the old and worn-out pipe-line and water-supply restrictions

The residents using private water sources and ground water sources (springs, wells, and small catchments) may be exposed to pollutants from farms, pathogens, and less often to chemicals, fuel oil, floods, and landfills

The data from the Health Inspectorate in Lovech about the bacteriological is brief The full chemical analyses of the drinking water for 1989, 1990, and 1991 of the open river catchment of Cherni Osam Mirevskoto, with a sum of 50 liters per second, indicates that there are not any great diversions from the standards

Apart from the Health Inspectorate studies, an additional independent study was carried out upon the request of Ecoglasnost/Troyan The results confirmed the Health Inspection studies Besides, it was found that the indicator for residual chlorine is almost 0,00 due to uneven and inconstant chlorination

The catchment area is very large and it includes the villages of Cherni Osam and Oreshak, in which the direct discharge of the residential sewage and the larger part of the industrial enterprises and animal farms is done straight into the Cherni Osam River As a result of this, the natural filtration system within the catchment area is heavily loaded In case of an accident related to emergency discharge of petroleum products or other chemical substances in the river, they are totally blocked The reliability of the filtration fields and the drainage system cannot be guaranteed 100%, and there is no way to predict the moment when they will stop functioning effectively

The data about the other river water catchment - Vurtyazhkata shows that in a bacteriological analysis only 66% of the samples are within the standards Nevertheless, there are serious fears among the population that the Health Inspectorate studies are not accurate and this leads to misbelief about the drinking water quality from the various sources Based upon the limited number of protocols submitted by the Lovech Health Inspectorate, including Neshkovtsi and Kraevitsa, we conclude that the water quality is within the standards

Besides these controlled water sources, there are others like Dryanskata Cheshma, Mondeshkata Cheshma, the fountain behind the gas station and the Springs which are tested once every six months The rest of the unchlorinated sources are not tested at all This presents a real danger of epidemic outbursts

Several thousands of residents of the Troyan municipality drink chlorinated water, therefore they are exposed to the low and sometimes (when the water turbidity is higher due to precipitation) higher concentration of the side products of the chlorination It has been proven that these products cause cancer in lab-tested animals and people The concentration of the side products is not controlled, therefore there is no precise and full information

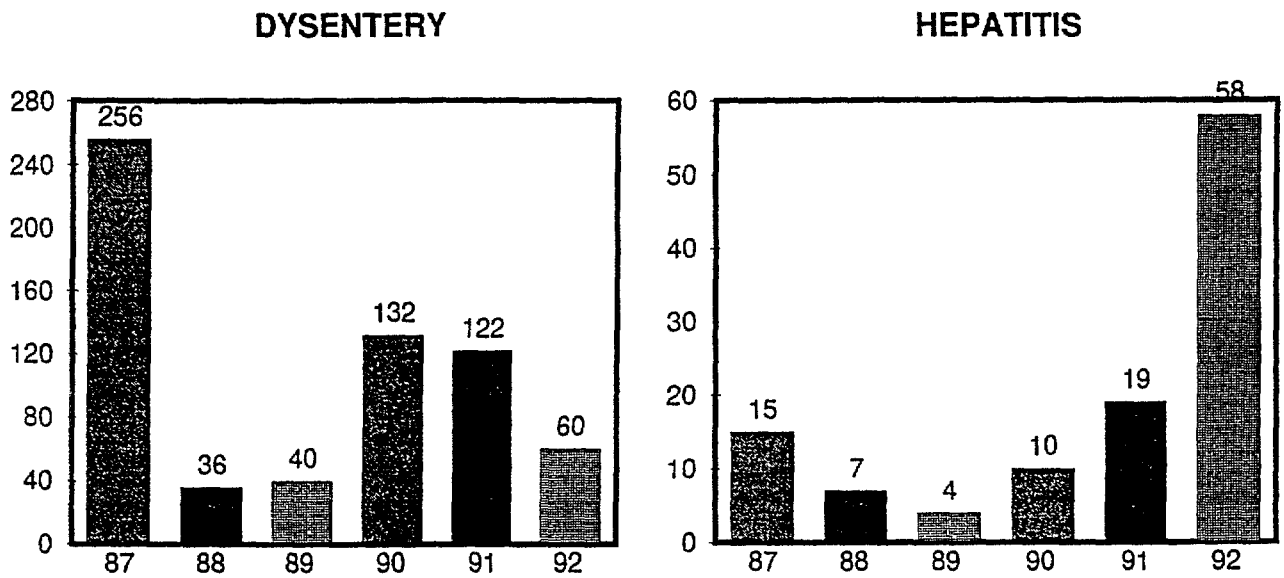
The pathogenic microorganisms - most often enterobacteria, cholera vibrion, tuberculosis agents, tularemia, and/or poliomyelitis virus, which can be found in the fecal waters, if not adequately disinfected, present an epidemic danger On the territory of the municipality, the

enteroviral infections are found most often The latter, in contrast to some bacteria, are not reproduced in water but are more resistant and preserve their activity longer in the waste water and deposits Even in chlorinated and purified water there is a chance of finding enteral viruses

According to the health treatment data in the infectious department of the Troyan municipal hospital in 1987 there were 256 cases of hepatitis, and in 1990 and 1991 - 132 and 122 respectively In 1992 (till Dec 8) dysentery cases were 57 from the City and in Troyan municipality they were over 100 According to the same data of the Troyan municipal hospital, in 1989 there were 105 cases of gastroenterocolitis In principle, the data are accurate but incomplete, because some of the sick remain at home, and are treated as outpatients and others remain hidden - because of the light condition of the illness

As recommended by the Regional Health Inspectorate during water-supply restrictions and turbidity, the water must be boiled before consumption There aren't any data about the consumption of bottled water by the population Due to the lack of iodine and fluoride in the drinking water, dental caries and endemic goiter are widely spread among the population

Data about the patients at the municipal hospital - isolation ward



The lack of drinking water and the water-supply restriction imposed presents a health hazard for the municipal residents, causing real danger of epidemics The data given by the Water and Sewage municipal company in Troyan show that in 1991 drinking water consumption was 85 l/day, which is far below the sanitary minimum This increases the risks of incidence of bacterial pollution, as well as creating prerequisites for using uncontrolled sources

There is no doubt that the quality of drinking water is affected by the water-main of the municipality reducing the mechanical and chemical composition The water-main consists of

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iron, asbestos-cement, and plastic pipes There is a risk of polluting the drinking water with fine particles of asbestos from running water containing large amounts of solid grit, which serves as abrasive element

The drinking water in itself is an ecosystem In this sense, the disinfectant measures have an effect on the micro-flora and micro-fauna There is a reduced water flow and volume of the surface waters in the open river catchments which lead to changes in the ecosystems connected with the territories along the river stream

Finally, the drinking water problem in Troyan has an overall effect on the prosperity and quality of life of the people It reflects on some economic aspects of the municipal development, i e its budget, additional expenses on water-main maintenance and of households, i e purchase of mineral water and drinking water supply for the households from other places as well as boiling and additional water purification

SECTION II. PROPOSAL FOR IMPLEMENTATION TO ADDRESS THE PROBLEM OF QUANTITY OF DRINKING WATER IN THE TROYAN MUNICIPALITY

The Committee chose to focus on drinking water supplies to develop a detailed list of strategies and sub-strategies within the framework of the Project These strategies were grouped into five basic categories

1 Education and involvement of the public,
2 Economic incentives and sanctions,
3 Municipal programs,
4 Technical applications, and,
5 Acts and regulations

Having in mind the limited financial resources of the Project, the Committee analyzed and carefully ranked the strategies identified in the "Issue Profile," and chose the following three strategies

1 Control and repair of the leaks in the water-main of the town, municipality and factories,

2 Create new local regulations which will encourage the effective use of drinking water and sanction those who waste water, and,

3 Set up a program for environmental education of the children

We hope to achieve the following goals through the above strategies

1. Reduction of water losses and partially solving the problem of water shortage,
2. Meet the drinking water needs of the population to some extent,
3. Encourage consumers who effectively use drinking water and sanctioning those who waste it,
4. Raise environmental consciousness,
5. Update and create (where there is none) cadastre of the water-main,
6. Practical payment for the water supply services,
7. Fair distribution among households and industrial water users, and,
8. Fair distribution of the water resource within the region (Lovech district)

II 1 Leak Detection and Repairs

The Citizens Committee plans the following activities

1. Establishment of a structure for the fulfillment of the program,
2. Site selection for the program,
3. Detection of the leaks,
4. Selection of priority leaks for repairs,
5. Creation of an underground cadastre of the factories,
6. Accurate reporting of water consumption,
7. Repair of leaks,
8. Develop a plan for self-support,
9. Develop a program for leak repair in the factories, and,
10. Develop a program for leak repair in the households

The idea is to detect and eliminate leaks in the water-main of the territory of the municipality, town, and industrial enterprises The overall detection of the municipal water-main should be done every three years, and the town water-main every two years The industrial enterprises will be forced to conduct their checkup and control every two years The starting date of the program is September 30, 1993

There are many problems involved in the starting up and carrying out of the program, such as, who will be the executor, what will be the organization structure, and where to start the program

В ОБЩИНСКИЯ СЪВЕТ

ОБЩИНАРИТЕ "НАГАЗИХА" В ДЪЛБОЧИНАТА НА ПРОБЛЕМА ВОДОСНАБДЯВАНЕ"

АКЦЕНТИ ОТ ЗАСЕДАНИЕТО

НОВИНА НА СЕДМИЦАТА

АКТУАЛНО

ЗА ЕФЕКТИВНО ИЗПОЛЗВАНЕ НА ПИТЕЙНАТА ВОДА

ВЪЗМОЖНОСТИ

АКТУАЛНА ТЕМА

ПРЕЧАТ НА ТРОЯНЦИТЕ ДА ПИЯТ ОТ СОБСТВЕНАТА СИ ВОДА

ПРИЕТИТЕ РЕШЕНИЯ НА СЕСИЯТА

НА РАБОТНО ПОСЕЩЕНИЕ ВЪВ ВЕРМОНТ, САЩ

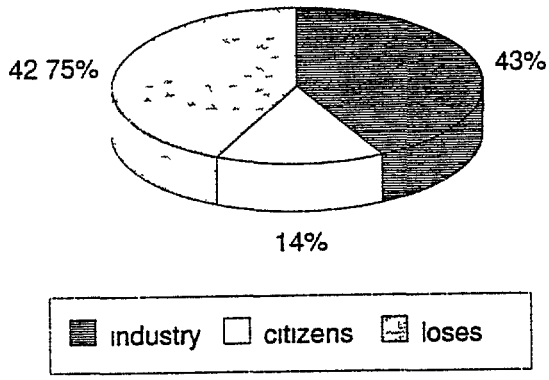
The Committee believes a "Team" should be organized for detecting and repairing the leaks by the municipal Water and Sewage Company Their activities should start with studying the water-main cadastre Data can be obtained about the status of the water-main - where it is old and worn out, improperly used and where the probability of leaks exists After this preliminary study, site studies may be initiated, taking into consideration the leaks with greatest importance for the town water-main The leaks should be repaired in the fastest possible way The leakage sites have to be categorized and selected by volume of flowing water and by significance, because there may be far too many leaks which cannot be repaired in a short time

Reporting the Team's activity may be difficult As soon as a leak is found, it should be registered in a book and its debit litre/sec/day marked

At the end of the quarter all reported and repaired leaks should be summed up The amount will show the result of their work The Team would report to the Director of Water and Sewage Company

The idea is to have this Team continue its work, after the one-year period, to evolve into a self-supporting unit This can be accomplished by payment for each service rendered to the factories and private individuals

Distribution of drinking water between industry, leaks and residents



After discussing the whole range of strategies and sub-strategies that the Committee developed, the Committee decided to concentrate on removing the leaks in the water-main Our choice was not accidental and the reasons for selecting this strategy are as follows

1 The Town and Municipality suffer from constant and acute shortage of water,
2 Despite the shortage, enormous amounts of water are wasted,
3 Between 50% and 60% of the available water is lost before it reaches the user,
4 The industries use 75% of the drinking water, and,
5 There are water losses in the households as well

Other reasons for selecting this strategy were

1 The huge amount of drinking water lost in the water-main before it reaches the user According to the Water & Sewage specialists, this amount is 30% of the water entering the beginning of the water-main Unofficially, this amount may be much larger and reach 50%, and in some branches of the water-main it may be 75% The large number of leaks is due to the wear and tear of the network, incorrect use, construction, etc

Some examples can prove the great drinking water losses in the water-main If in some part of the pipeline there is a leak with 1/4 inch in diameter, in one day 14,952 gallons or 56,593 litres of water will be lost, and if the leak cannot be discovered within 35 days the loss will be over half a million gallons (19,000 c m) plus water pollution or underground digging

We can give a true example from Troyan Presently, each municipal resident uses 85 litres a day If we agree that all leakages are repaired -- which are estimated at 30% losses according to the Water and Sewage Co -- this means that each resident will have an additional 25 litres of water per day for a total of 110 l/day, which is very close to the sanitary minimum of 125 l/day determined by the Health Inspection

We can mention New York as a promising example of the great effect from repairing leaks in the water-mains From 1989 to 1992, 10 8 million meters of pipes were inspected and the loss of 337 million leva ($ 05) per day was prevented The Environmental Protection Board in the New York City Council estimates that leaks represent 10% of the total water consumption The economies from the reduced water use were estimated at 32 cents per cubic meter The elimination of leaks will prevent the infiltration of water into the sewers and will prevent the increase of waste waters, according to the spokesman of the Environmental Protection Management in the City Council of New York There is a similar example for Boston We are only talking about 10% losses in these cosmopolitan cities What will be the effect in Troyan with 30% water losses?

2 The funds available for the project are limited and our wish is to gain maximum effect with minimum funds We think it is more reasonable to keep the water-main in good condition, rather than seek new water sources and build additional pipe lines If all leaks are eliminated, there will be at least an additional 20 l/sec of water per day per household Compared to spending funds searching for new sources of water, the funds from the Project would be enough for the construction of 800 meters of new water pipes However, what will be the effect of building these 800 meters of new pipe if the water source is not reached? When can the effect of a newly constructed water-main be felt? This can happen only when the new water source is completed and put to use What will be the environmental load along the water-main layout?

We don't think that the leak repairs will solve the water supply in Troyan, but at least we can avoid the water supply restrictions during the peak periods

3 Environmental target of the leakage problem It is well know by experience that Bulgaria has, among the countries in Europe, one of the lowest figures for quantity of water

resources consumed per person Each Bulgarian citizen uses 2,750 c m per year, for Yugoslavia it is 12,250 cubic meters (c m), Austria 7800 c m , Greece 3,200 c m , Romania 10,400 c m It is evident that water resources are not endless, therefore the way of thinking should be changed We have to provide a natural environment for our children The leak detection program lays the basis for the new attitude of the Troyan citizen towards his/her water sources

4 The leak detection may be viewed as a large-scale program of the Water and Sewage Co for replacing and maintaining the water-main The leak repair is an obligation of the W&S Co , but due to funding problems they could repair only larger leaks on the surface There is lack of modern leak detection equipment

5 The leak repairs will result in improving the quality of water, especially if there are temporary cuts of water supply there won't be contaminated waters in the main from leaking sewage pipes

II 2 Legal Requirements

The package of regulations includes the following

II 2 1 Proposal on Changing the Ownership over the Natural Resources

PURPOSE	REASONS FOR SELECTION OF THE STRATEGY	DEADLINE FOR IMPLEMENTATION
Preparation of a municipal proposal to the Council of Ministers for managing the water sources on its territory	The basic motive is that the citizens of the municipality should be the owners of the water and should be able to sell it, which will increase the economic incentives to conserve water This regulation ranked first in the ranking package of "Regulations " This regulation ranked high under the criteria of proposal impact, the effectiveness and municipal benefits	immediately after the approval of the plan by the Municipal Council of Troyan

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II 2 2 Regulations for Control of Drinking Water Usage

PURPOSE	REASONS FOR SELECTION OF THE STRATEGY	DEADLINE FOR IMPLEMENTATION
This documents deals with the control of the use of drinking water in the household and industry and aims at organizing a periodic survey of the water-main a) an overall survey of the water-main shall be performed on the territory of the industrial companies every year (on their account), which shall be reflected in a three-party protocol municipality - Water & Sewage Co - industrial enterprises b) the same survey shall be conducted every 2 years for the territory of the Town of Troyan c) the same survey shall be conducted every 3 years for the territory of the Municipality of Troyan	Large quantities of drinking water on the territory of the Municipality are unaccounted for An improved system of accountability through a more comprehensive metering system is essential to understand where and how much water is being lost. As a whole, this regulation concept was second in the ranking session for the "Regulations" category based upon the criteria of effectiveness, term of completion, and environmental impact.	One month after the adoption of the Plan by the Troyan Municipal Council

II 2 3 Regulation for Drinking Water Usage by Industries Only by Proven Necessity

PURPOSE	REASON FOR SELECTION OF THE STRATEGY	DEADLINE FOR IMPLEMENTATION
This document aims at limiting water consumption by the industry, encouraging the use of private water sources, and introducing water recycling	Industries use an estimated 70% of the drinking water in Troyan Estimates are that a significant portion of this water could be reduced through more efficient usage and recycling, restricting drinking water use for industrial processes which require drinking water quality, and encouraging industries to develop their own sources of water The results from strategy ranking sessions indicate that a regulation addressing industrial usage ranked third in the "Regulation" category based upon the criteria of effectiveness, shortest term of implementation, and impact of the project	6 months after the adoption of the Plan by the Troyan Municipal Council

II 2 4 Other Strategies

* Stopping the cutting of wood in the water-supply areas The basic purpose is to preserve the natural water balance in these areas, which will influence indirectly the quantity of water from the surface catchments

* Regulation and publicity of the water-supply restriction, the purpose is timely information to the public about the restriction schedule

* Public and local parliamentary control over the Water and Sewage Co The purpose is to receive periodic reports about the Water and Sewer Company's activities

* Proposal for changes in the Bulgarian water quality standards in conformance with European standards to test for more parameters affecting drinking water quality

* Control of regulatory applications, such as fines and contractual arrangements

II 3 Educational Programs

INTRODUCTION From a structural perspective, environmental education involves the subject and object of education, the methodology, and a system of activities for forming environmental culture and behavior From a functional perspective, the environmental education system involves the subject-object relationships Education is an open system, and students are taught and trained not only at school, but are influenced by society as a whole

The following challenges are faced in improving environmental education from both a theoretical and practical perspective

1 In order to build up an environmental education system we have to know the current environmental situation - the reasons, the essence, and the ways to prevent environmental problems We need to know the global, national, and regional environmental status The children have to understand the global effect of protecting the regional environment

2 We have to study the scientific problems related to environment This involves problems on the subject of ecology and its interrelations with other sciences We have to differentiate between ecology and environmental protection, i e between the fundamental scientific field and its applied activity

It is important to know the curriculum and methodology of training in each subject so that environmental education is an integral part of the educational system The tutorial content in itself does not educate, what educates is the activities related to the learning process and turning the knowledge into a code of behavior

PURPOSE To improve the environmental culture, consciousness, and behavior

Environmental education is a long-term process which may be successful if it involves the family, kindergarten, and all school activities

REASONS FOR SELECTION OF THE STRATEGY If people on the Earth want to win in their struggle for conservation of nature, each citizen on the planet has to be brought up to respect and understand the delicate complexity of the sun, soil, water, air, and living organisms which comprise the biosphere of the earth Because sociologists estimate that the adults' view of life is formed before they turn six years of age, we believe it is particularly important to start with young children

DEADLINE Establish an environmental education program within one year of adoption of the plan The problems of environmental education are not short-term ones The establishment of an environmental education system is a priority for all of us, and is related to protection of life on the Earth and human civilization

SECTION III WORK PLAN FOR THE SELECTED STRATEGIES

III 1 Leakage Control

The "Steneto" Water and Sewage Municipal Company manages the entire water-main of the municipal territory, consisting of 253 km of inner water-main network and 110 km of outer (input) water-main One of the most difficult problems to solve is the reduction of drinking water losses due to leakages along the mains and poor leak detection equipment

Therefore, we are recommending the formation of a "Team" within the municipal company to assure that functions associated with leak detection and control become an integral part of the company Comprised of two specialists - an engineer of W&S Co and a technical staff employee -- the team's initial responsibility would be to detect and register the leakages and damages to the water-main and update the underground cadastre At a later date, the team should be expanded to include the leakage repairmen with their equipment Priority should be given to the main water pipe-line maintenance Another activity, which should be developed by the W&S Co , is rendering services to its private and industrial customers

Within two or three years this team should become a basic structural unit of the company, accomplishing a target of 15% reduction of drinking water loss The company should be provided with an office equipped with a computer and a plotter, plans of the underground cadastre, and two detection instruments for the water-main

III 2 Legal Requirements

III 2 1 Proposal for Regulations

Legal assessment has been requested for accomplishing the strategies listed in three basic and five additional items All strategies are related to the problems of quality, quantity and control of water usage in the Troyan municipality

In solving this task it is necessary to coordinate the various legal instruments using administrative requirements, fulfilling contractual obligations, and the prerogatives of the environmental protection laws available in the municipalities

Having in mind the availability of detailed study of the basic industrial water pollutants in Troyan, we have also used part of the evaluations and conclusions contained in Engineer Alexandra Kantardjieva's report on "Preliminary Audits of Five Industries in Troyan " The strategy has been created with the view of the most practical way of achieving the goals

a) Adoption of a regulation for drinking water use by industrial enterprises only by proven necessity

There are two sides of the problem First, what is the industrial drinking water portion from the total water use in the Troyan municipality Second, what are the rules for using drinking and non-drinking water

In principle, the National Water Council prepares and proposes rates and criteria for using the water resources in various branches of economy (Art 5 of the Regulation on the structure and activity of the National Water Council with the Council of Ministers and its central management) On the other hand, the Minister of Environment in collaboration with the respective ministers adopts rates for the renewable and non-renewable natural resources (Art 24, para I, item 7, a of the EPL) Nothing has been mentioned in those texts about drinking water, which is a natural resource

But on the other hand, in a regulation about the drinking water use adopted by the Ministry of Building and Architecture (State Gazette #48, dtd June 18, 1971) the district councils may determine consumer rates considering the available water quantities remaining after reserving the household water supplies for the population (Art 3 and 4 of the Regulation)

After the enforcement of the Law on Local Self-Government and Local Administration (Art 5) it is clear that the municipality, as a basic administrative unit of local self-government will be able to solve the problems addressed to the former district councils Furthermore, Art 21, item 5 of the law authorizes the municipal council to determine the specific requirements about the activities of the industrial enterprises, organizations, and offices in the municipality

The procedure should be as follows first, information should be gathered from the National Water Council about water use in the various branches Second, information should be obtained by the Ministry of Environment about the rates of water use in the various industrial branches in the Troyan municipality

In case such requirements have not been established, a diagram should be developed for the amount of water to be used by the industrial enterprises, a diagram about the types of pollutants emitted by the factories, and correlation of the existing pollution to the water debit (scientific criteria about the limits of pollution) After the development of this diagram, a proposal may be offered to the Minister of Environment for fixing the hazardous emission

water rates for the industrial enterprises pouring their waters into the Beli Osam and Cherni Osam rivers (as stipulated in art 24, para 1, item 7b of the EPL), as well as rates of concentration of the hazardous substances along the above rivers (which rates are also fixed by the Minister of Environment) This is in fact the third action to be taken whether or not the MoE will supply the information about the water rates to be applied to the industrial branches

After the preparation of the water usage diagram, the total amount of water turned over, and the rates of emission concentrations of the hazardous substances, there will be a clear picture in the municipality about the type and mobility of the pollution

It should be indicated that the emission rates may be considered as specific requirements about the industrial activities on the municipal territory and in this sense they are subject to approval by the municipal council (see art 1, para 5 of the Law on local self-government and local administration (LLSGLA)

Therefore, if the MoE cannot impose its rates for emission and concentration, the Municipality may undertake actions on imposing those rates

It should be mentioned that the problem of differentiating between the prerogatives of the Minister and the Municipality are not yet clarified in theory and legal practice The act of the municipality, if it decides to determine the emission rates, will be correct according to art 21, para 5 of the LLSGLA and especially after the approval of the Minister of Environment

The development of the water resource and pollution diagram is important also in contracting the admissible pollution, the measures for removing the pollution, and the terms and penalties to be applied if obligations for the reduction or suspension of pollution are not met

If the emission and concentration rates are one of the means of control over the industrial enterprises, it should be mentioned that currently this is the weaker means of control Normally the polluters prefer to pay the fines, and the penalty of temporary discontinuance of a profession or activity is not included in Regulation No 2 for environmental protection of Troyan municipality Even if such a penalty is provided, the administrative measure of closing the industrial activity would not have any effect since there is a higher priority - keeping the jobs of the population

Therefore, the information gathered would be valuable primarily for determining the water use fees, especially in determining the contract clauses which the municipality would sign with the enterprise-polluters

In determining the fees for the use of water and sewage systems, the Minister of Environment determines the rates for natural resource use He also determines tariffs for fees for using the natural resources and the admissible pollution There is no doubt that the water resources are natural resources and the fee for water use should be determined by the Minister

At the same time article 65 of the LLSGLA points out the way of determining the fees on the water and sewage system This is an exclusively favorable text for the municipality because by changing para 7 and item 1 and 7 in particular, the water and sewage system belong to the municipality

This combination of texts gives the municipalities a chance to determine the actual expenses for the maintenance of the water-supply and sewage infrastructures (and why not the expenses on water treatment plants on their territory - they are also considered maintenance)

Instead of determining the fees for water use, which is a prerogative of the Minister of Environment, the municipal council may put pressure on the enterprises-polluters to pay their local fees for water and sewage system use This is also mentioned by Eng Kantardjieva (item 6, para 6, first *)

This expose so far is based on the relation in the administrative law, where the enterprise is subordinated to the municipal and state authorities

In her report Eng Kantardjieva mentions on several occasions the contracting approach which should replace the one using fines and administrative sanctions (i e item 4, para 15, item 5, para 7, item 6, para 5, item 6, para 6, 4* - all from the basic exposition)

The contracting approach requires very good knowledge of the actual pollution status and the chances of reducing the damages It is also important to know the financial status of the industrial pollutants in order to determine the limits of their abilities when selecting water treatment technologies

Therefore, it is impossible to list all applicable contracting techniques Multilateral contracts should also be considered, which include the municipality and several industrial enterprises-pollutants When signing contracts penalties should be negotiated so that the funds raised should be used for constructing or renovating water treatment plants Eng Kantardjieva indicates the idea of competition when selecting water treatment equipment

When preparing the technical documentation the instructions given in Eng Kantardjieva's report (Appendix B) should be taken into consideration

The different approaches may be applied only after the municipality is clear about the administrative and contract characteristics when determining the pollution

b) Regulation for Control of Drinking Water Use

This deals with the control over the water-main Currently, in fact and by law, the municipal water and sewage companies maintain the water-main Therefore, all clauses for control may be incorporated as part of the managerial contract, which the municipality signs with the manager of the Water and Sewage Co In all cases it should be expected that the fulfillment of those clauses may become a reason for termination of the contract or even some property liability of the W&S Company manager (it is very important to figure out the exact

penalties, as well as the legal mechanism of the municipality to control the fulfillment of the contract)

c) Proposal for Changes to the Ownership of the Natural Resources

In evaluating the problem of natural resource ownership the changes in para 6 and especially para 7 of the transit and conclusive regulations of the LLSGLA should be considered Para 7, item 1 of the TCR of LLSGLA determines as municipal property the water resources, including underground and mineral waters used only by the municipality, along with the equipment and pipe-lines Therefore, the municipality should determine which of the water resources correspond to the definition given in para 7, item 1 and how to use those resources

Concerning the rest of the water resources, a change in the way of use should be sought by contracting with the respective government authorities

d) Prohibition of Wood-Cutting in the Water-Supply Areas

First of all, the statute of the locality should be checked if in doubt about unauthorized cutting Second, it should be checked whether there are special forest management projects around the water resources as required by art 43, para 4 of Regulation No 2 After discussions with municipal representatives, it is clear that the locality does not have a forest management project

There is no text in Regulation No 2 which obligates a person to prepare a forest management project for the management and use of forests in the sanitary protected zone Nevertheless, there is an impression that the municipal council has special authorities and maybe a central role in announcing and applying the protection rules in these zones The municipality may prepare such a project determining more severe measures for forest conservation There is also an opportunity for the municipality to request correction of the boundaries of the respective zone or the restriction in use

When talking about measures to be applied in land and forest use in the sanitary protected zones special rules may be adopted for fertilizer and pesticide applications, or the upper limit of the number of cattle per hectare or number of people who may stay in a cottage (rest home) on the territory of the sanitary protected zone, or forcing the managers to use only a certain brand of washing detergents, or limitation or prohibition of car access to cottages

The measures should be determined after careful assessment of the pollutants and sources of pollution Art 3 of Regulation 2 should be considered

e) Publicity on Water-Supply Restrictions

This is a purely technical problem - the point is how the municipality communicates with the citizens The legal problem is whether there should be a clause in the managerial contract with the municipal company which stipulates that the company is obliged to inform the municipality in advance about the water-supply restrictions Subsequently, the municipality will inform the public

There may be a stipulation about the W&S Co to inform the public at its own expense about the water-supply restrictions - through the local radio or newspaper The choice of means of announcing the restriction belongs to the local authorities

f) Proposal to Change the Bulgarian Water Quality Standards in Conformance with European Standards

There are European standards for various kinds of water - for drinking, bathing, etc Currently the adoption of stricter requirements concerning water quality by the municipal authorities is not definitely stated Therefore, even if stricter standards are adopted there is a chance that the violators may claim the local standards illegitimate

Considering the above, it is better to sanction the violators according to the orders of Art 11, 12, 20, 20a, and 21 of the Law on Air, Water, and Soil Pollution Protection In case there is no judicial assistant to draw up acts in the municipality, it is recommended to have a list of pollutants prepared for later use

g) Control of Regulatory Applications

This involves the administrative and contract approaches The control authorities should be completely knowledgeable about the requirements in drawing up the acts to avoid revocation of the penalties on a legal basis - due to non-observance of the legal requirements in drawing up the acts

The imposing of fines may be recommended even if the penalty is appealed in court The most serious violations will inevitably be appealed in court, therefore the attention of the court should be drawn on the environmental problems of the municipality

When signing contracts with industrial enterprises, it is useful to incorporate clauses for regular (monthly or quarterly) submissions of information on municipal problems The routine submission of information will indicate the existence of control on the part of the municipal authorities, as well as self-control on the part of the industrial pollutants

At present, with the lack of information about the intentions of the local authorities and the specific rules which they intend to apply, it is difficult to prepare the text of a regulation or a contract Therefore, we suggest that the municipal authorities define their problems and adopt emergency measures for the municipality

The formulation of specific resolutions is an easy task because this material indicates the texts from the law on the basis of which decisions may be made

The closest solution of the Municipal Council is to assign a group of specialists (two or three people) to undertake the practical formulation of the current environmental problems within a month or two The drawing up of the legal document will be the next stage

III 2 2 Effective Control System of Water Use and Waste Waters from the Large Industrial Enterprises and Companies in Troyan Municipality

The system will be technical application of the laws and regulations As an advantage, it

will ensure routine control on wastewaters from the industries (quantity, composition, etc)

On the basis of preliminary water audits of each enterprise, a program for control over the large drinking water consumers and the town water treatment plant users will be worked out By means of a computer system, the inspection authorities will be able to watch the water use of each enterprise or company connected to the system A similar system has been prepared by the Vodocanal Engineering Co for Sofia and Plovdiv

DEADLINE FOR IMPLEMENTATION Four months after execution of the contract with Vodocanalengineering

CONTROL Municipal environmental protection authorities

USE Part of the Team on leakage control with the Steneto W&S Co

III 3 Educational Programs

III 3 1 Status of Environmental Education and Information Center

The first step in building a system for environmental education in our municipality is the establishment of an "Environmental Education and Information Center" (EEIC)

The following statute has been proposed for the EEIC with the Municipal Children's Complex (MCC)

SECTION I GENERAL CONDITIONS

1 An EEIC, with the MCC, is established at the suggestion of the Environmental Action Project to the Troyan Municipal Council, the Troyan Municipal Department of Education, the Council of Ministers, and the Environmental Inspection with the Troyan Municipality It is approved by the Troyan Municipal Council

2 Goals and Objectives

* To organize and conduct environmental education,
* To collect, process and submit environmental information, and,
* To maintain working contacts with government and non-government environmental organizations in the country and abroad

Since the future activities of the EEIC will be expanded on the entire municipal territory, the Committee believes that establishment of the EEIC should be the outcome of the joint efforts and initiative of all parties concerned

The problem of improving the environmental culture of the population and the environmental education of the youth is important to the whole community and directly affects the Department of Education, the Regional Environmental Inspectorate, and the Citizens Committee's activities in the Troyan municipality Therefore, the goals and

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objectives of the EEIC should respond to the needs of the above institutions for timely and accurate information about the environmental situation both in Troyan and the whole country, as well as environmental education of the whole population

SECTION II ORGANIZATION AND MANAGEMENT

1 EEIC is a working team in the structure of MCC

2 EEIC functions according to an annual work program approved by the manager of the MCC

a) The collective body consists of representatives of schools, kindergartens, environmental government and non-government organizations and sponsors in the Troyan municipality

b) The collective body is approved by the Mayor and the Chief of Education Department with the municipality

c) The collective body exercises public control over the program and budget of the Center

3 The Center is managed by a municipal coordinator who

- is selected after a competition by a committee appointed by the mayor and members of the collective body,
- works according to approved job description by the same committee,
- is terminated by the mayor under the suggestion of the Chief of Education Department, in conformance with the Labor Code
- a committee selected by the Mayor from the collective body must appoint a municipal coordinator for the EEIC by competition

MCC is an active structure for work with children, which is directed to the development of children's abilities

4 The EEIC Collective Body must be elected at a general assembly of representatives from all educational institutions, government, and non-government environmental organizations and industrial enterprises

SECTION III RIGHTS AND RESPONSIBILITIES OF THE COORDINATOR

1 To observe the laws, regulations, and orders of the Mayor, the chief of the Education Department, and the MCC manager

2 To coordinate the communication among the schools, kindergartens, environmental organizations, and the education department

3 To keep informed about new materials and instructions

4 To collect and organize all the information received and send it to the parties concerned

5 To collect information by visiting enterprises, institutions, and ministries

6 To promote the environmental education goals and to inform the public about the Center's activities

7 To organize the environmental education of teachers, students, and children from the kindergartens

8 To maintain contacts with environmental organizations in the country and abroad and exchange experiences

9 To report his/her activities to the Manager of the EEIC and the collective body

The above duties may be included in the coordinator's job description

3 3 2 Environmental School in the Village of Cherni Osam

Pertaining to the request of the Mayor of Cherni Osam, the Head Master of the V Levski school in Cherni Osam and Ecoglasnost/Troyan (see letter in the attachments), the Committee decided to assist the residents of Cherni Osam in establishing a second center for environmental education

The school board has the ambition to approach the Ministry of Education, Ministry of Environment, and the Troyan Municipal Council to set the foundations of the first Eco-School in Bulgaria during the 1993/94 school year

SECTION IV BUDGET FOR IMPLEMENTING OF STRATEGIES

TOTAL EAP BUDGET

	Expenditures	Revenues	Sources
1 Leak control	1,100,000 lv	945,000 lv	ISC - USA
2 Laws and regulations	246,000 lv	94,500 lv	Troyan Municipality
3 Environmental education	257,000 lv	400,000 lv	W&S Co - Troyan
		163,500 lv	Others (mentioned above)
TOTAL	**1,603,000 lv**	**1,603,000 lv**	

IV 1 Leak control

IV 1 1 Financial resources needed for 12 months

	Expenditures	Revenues	Sources
1 Salaries and social security taxes	120,000leva	700,000 leva	ISC - USA
2 Purchase and maintenance of the detection quipment	100,000 leva	300 000 leva	W&S Co
3 Office equipment	80,000 leva		
4 Office maintenance	20,000 leva		services to
5 Office supplies	30,000 leva	100,000 leva	other
6 Leak repairs only along the trunk water-main	750,000 leva		investors
TOTAL	**1,100,000 leva**	**1,100,000 lv**	

IV 2 Laws and regulations

IV 2 1 Budget for preparation of regulations and standard contracts

	Expenditures	Revenues	Sources
Consultants	50,000 leva	20,000 leva 30,000 leva	ISC - USA From the Troyan municipal budget
TOTAL	**50,000 leva**	**50,000 leva**	

IV 2 2 Effective control system budget

	Expenditures	Revenues	Sources
I Stage - preparation of audits and software product - studies, lab research, summary of data, software for 10 companies from Vodocanalengineering	96,000 leva	96,000 leva 60,000 leva	ISC - USA from W&S co (as part of the future control team
II Stage - system implementation - for technical equipment - for salaries and taxes for 1 operator	40,000 leva 60,000 leva	40,000 leva	from the budget of MC
TOTAL	**196,000 leva**	**196,000 lv**	

TOTAL FROM REGULATIONS **246,000 leva**

IV 3 Environmental education

IV 3 1 EEIC Budget

PART I - Anticipated expenditures for the EEIC activities in 1993/94

	Expenditures	Revenues	Sources
1 Technical equipment	18,000 leva		
2 Additional equipment	7,000 leva		
3 New action programs	13,000 leva		
4 Supplies	10,000 leva	75 000 leva	ISC - USA
5 Consultants, translations and logistical support	15,000 leva		
6 Printing, copying, subscriptions, etc	12,000 leva		
TOTAL	**75,000 leva**	**75,000 leva**	

Revenues

The expenditures in this section are covered for 1 year from the funds supplied by the ISC-USA as per the municipal contract The salary and office expenses of the coordinator are not included We suggest that the coordinator's salary and taxes be provided from the 10% municipal dues, approximately 55,000 leva, which represent approximately 6% of the municipality's contribution and be transmitted as beyond-the-budget expenses of the education department The office maintenance expenses should be absorbed by the MCC, since EEIC is part of its structure and we suggest that the environmental committee grant certain amount of funds to MCC for covering the budget

Phase II - LOCAL FINANCING

	Expenditures
1 Coordinator's salary and tax expenses	55 000 leva
2 EEIC office expenses	20 000 leva
TOTAL	75 000 leva

After the expansion of the EEIC activities we expect to provide the basic funds from self-financing, the MCC budget, environmental fund, foundations, sponsors, and donations During the first year, there will be two or three sources of EEIC financing In the future the sources will be mainly self-financing of EEIC, as well as budget funds based on government requests

The self-financing will be an important element in the EEIC activity Additional funds may be obtained from services rendered to private individuals and organizations, by developing original environmental training programs, making audits, analyses, and organizing seminars We can attract more sponsors through publicity campaigns There

is a chance in the future that the EEIC will become a legal entity

Phase III - FINANCIAL STIPULATIONS FOR THE USE OF THE RESOURCES PROVIDED BY THE ENVIRONMENTAL ACTION PROJECT AFFECTING FUTURE EEIC ACTIVITIES

The stipulations below spell out the procedure for the EEIC acquiring and using the resources acquired during the course of the Environmental Action Project These resources are comprised primarily of computer, printer, fax machine, and other office equipment and supplies, and office files and reference materials

1 The Environmental Action Project (EAP) submits to the EEIC

a) Available information and contacts through the Environmental Fund,

b) Children's environmental training programs and video materials, and,

c) Financial credits (see section I)

2 The EAP offers the computer from the Project office with all available information stored to the Troyan municipality for use by the EEIC The value of this equipment (30,000 leva) will cover the rest of the amount due by the municipality as part of the 10% match requirements stipulated in the Memorandum of Agreement with ISC

a) The EAP suggests that all available information and financial assets be granted to and left in trust and control of the Environmental Fund Committee,

3 The EAP decides

a) If the Project for Implementation of the Environmental Education Strategy is approved and accepted at the Troyan municipal council session, but the actions related to the establishment of the EEIC and selection of a coordinator do not take place by September 15, 1993, the Citizens Committee reserves the right to redirect the above assets to another area, and,

b) Besides the funds granted to the Chemi Osam school, the rest of the funds intended for the EEIC with the Troyan MCC should also be given according to item 3 of this section and according to an additional agreement between the Citizens Committee and school representatives

In view of the expedient and rational use of the available information, training aids and financial sources the Citizens Committee offers the trusteeship to the Environmental Fund Committee According to us it is the best guarantee (as a collective body) for the reasonable use of the funds, as well as securing access to all available information upon request by all interested parties

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4 3 2 BUDGET FOR V LEVSKI SCHOOL IN CHERNI OSAM

	Expenditures	Revenues	Sources
1 Salary and taxes of a supervisor	52 200 leva	44 000 leva	ISC- USA
2 Utilities	school budget		
3 Technical equipment	15 000 leva		the school budget,
4 Methodical materials and translations	8 000 leva	53 200 leva	museum and town
5 Supplies	7 000 leva		council
6 Printing, copying, subscriptions	10 000 leva		
7 Lecturers, consultants, etc	8 000 leva	10 000 leva	ECOGLASNOST
8 Practice and transportation	7 000 leva		and sponsors
TOTAL	**107 200 leva**	**107 200 leva**	

TOTAL BUDGET FOR ENVIRONMENTAL EDUCATION 257,200 lv

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V. ATTACHMENTS

V.1. Letters from Troyan Enterprisese

ELMA-TROYAN

telephones 2 841, 2 25 01, fax 2 23 50

Ref # 525 TD 7/1/93

To.
The Environmental Action Committee
Troyan

Referring to Water consumption on the territory of the municipality Troyan

We accept as a whole the acts and regulations and the technical and economic analysis concerning the exploitation and potential for development of the efficient use of the water sources on the territory of Troyan municipality

Our company would accept foreign aid in terms of suitable equipment for the detection of damages of the underground water-main system This would also help the creation of an underground cadastre of the main grounds of the company

Our company has the potential of solving the problems with the human resources and the supplies by itself

Head Manager
(eng P Adurski)

VITEX-TROYAN

Bulgarıa, 5600 Troyan, 87 gen Kartzov str ,
phone (+359 670) 2 24 28, fax (+359 6700 2 35 44

REF #232 dtd 7/6/93

To
The Town Councıl,
Department "Envıronment"
Troyan

Referrıng to the suggestıons you made on the problems of drınkıng water, our answer ıs as follows

-Re ıtem 2-1 - Acts concernıng the control of the use of drınkıng water We agree an overall ınspectıon of the water supply system to be done for only a year, and to be reported ın a three party statement, Munıcıpalıty - Water and Sewers Plant - enterprıse Dependıng on the effect of the ınspectıon we wıll decıde for the next years

-Re tem 3- A proposal for a change ın the ownershıp of the Natural resources We agree on gıvıng the munıcıpalıty the managıng rıghts for the water sources on ıts terrıtory

-Re ıtem 4 - We agree on all the rest of the strategıes

-Re he technıcal plan, we agree that everythıng possıble should be done for the elımınatıon of leakages, reductıon of the extra expenses and the acute shortage of drınkıng water

-Re he fınancıal plan, we agree on an analysıs of the efficıency, the acual expenses and evaluatıon of the effect

Manager
(eng Dıtchevskı)

LESOPLAST-LTD TROYAN

telephone 0670/ 2 21 94, postal code 5600 Troyan

STATEMENT

from eng Dımıtar H Veleshkı

Referrıng
A proposal for ımplementatıon of the strategıes "Regulatıons" on the problem of drınkıng water and new sources
I belıeve that the project "Regulatıons" wıll be of bıg help for the restrıctıon of the use of drınkıng water for ındustrıal purposes, and for the control of the use of drınkıng water by the populatıon
"Lesoplast" company, Troyan, agrees the workıng group to execute regular control of the leakages of drınkıng water on the terrıtory of the enterprıse

eng Veleshkı

W A T E R A N D S E W E R S P L A N T - S T E N E T O Ltd

T R O Y A N

Ref #215 TD 6/29/93

To
The Environmental Action project
Troyan

INFORMATION

from the manager of 'Water and Sewers Plant - Steneto"Ltd, Troyan

Referring to realization of the actions on the chosen strategy

1 Human Resources

For the realization of the project we need a team for the search and detection of leakages The team should consist of a Water and Sewers Plant expert and a technical executor

2 Material resources needed to be purchased

- an automobile or a jeep with high passability
- Two hearing appliances

3 Structure and status of the working team - the working team will be integrated in the structure of the company and will be subordinated to its manager The financial accountancy of the team's work will be executed by the company's financial section

4 Financial ressources for 12 months

-working team's salary, taxes incl - 120,000 Lv

-equipment for the working place

-purchase and maintenance of the hearing appliances - 155,000 Lv

5 Deadline for implementation - 9/30/93

6 In case of normal functioning of the project, efficient work of the team and development of the activities, the losses from the leakages can be reduced by 10% in 3-4 yea,s

7 Budget,

-incomes - 31,500$ = 850,000 Lv

expenses -850,000 Lv

from the project-

from services-

from Water and Sewers Plant-

Manager
(eng I Dudev)

TO
The Citizens' Committee
Environmental Action Project
Troyan

Gentlemen,

The "Education and Culture" department of municipality Troyan joins in the Environmental Action Project We create an environmental training group as part of the extracurricular activities plan for the children of the community The responsibility for the salary of the group's coordinator will be taken by the municipality The group will work with all the schools in Troyan as well as all the villages in the municipality

After school, under the guidance of good teachers, specialists, children will learn about the environmental problems of their home town

eng N Dachev
Head of "Education and Culture"

TO
The Environmental Action Project
Troyan

Dear ladies and gentlemen,

We are writing to you in order to ask you for assistance for the creation of an Environmental Training center in the school at the village of Cherny Osam

Our motivations for this proposal are first of all the existing conditions in the school and its Natural Science Museum, and second of all the love for nature and the environmental traditions in Cherny Osam existing for more than thirty years A result of these traditions is the Natural Science Museum at the school, created be teachers and students with the cooperation of many of the local people This museum is an educational and interpretative center not only for the children but also for he thousands of visitors from Bulgaria and the world

Besides, the people from this village managed on their own to solve a very serious environmental and economical problem, the survival of the valley of Cherny Osam depended on this
Since that time they are also trying and suggesting ways of solving the problems with the drinking water of Troyan, Lovech and Pleven

On the other hand the water supplying system "Cherny Osam" is the main source of drinking water for the three towns People's awareness of how to preserve the mountain, the forest, nature is extremely significant for the conservation of water and keeping it clean

This could be best achieved with the children, the future citizens of our planet, who will most acutely feel the shortage of water and clean air

This is why we suggest to you to include in your project the creation of an environmental training center for the children of Troyan municipality, based in the school and the museum in Cherny Osam, we also suggest that you provide financial and methodical assistance to this center

The museum will be the basis of the Environmental Training Center Students can have classes from the educational plan for optional classes twice a week as special eco-classes Besides, students from the whole municipality will be able to come to the center for the eco-classes They will study according to previously created programs the vitally important lessons on which the survival of the Earth and mankind depends

If the Environmental Action Project in Troyan accepts this idea, it will become the basis for a real environmental education of the students from Troyan municipality The administration of the school in Cherny Osam will write the necessary proposals to the Ministry of Education and Science, the Ministry of the Environment, the Town Council in Troyan and to other institutions interested in the project, so that the school in Cherny Osam during the school year 93/94 can become the first eco-school in Bulgaria

The authorities of the school in Cherny Osam have had this idea of such a school for a long time and have come into line with

the Town Hall of Cherny Osam, the Natural Science Museum and NGO Ecoglasnost, Troyan They will cooperate and are joining in with this project suggested to you

Mayor of Cherny Osam
(eng Tc Ganevski)

Dean of school LEVSKI, Cherny Osam
(M Zankovski)

NGO Ecoglasnot, Troyan
(chairman R Minkov)

Draft-Budget

Expected expenses	Leva	Source of funding
1 Rent, electricity, heating	-	the school budget and the museum
2 Salaries and taxes	52,200	the school budget
3 Books and translations	20,000	EAP, Troyan*
4 Supplies	5,000	EAP, Troyan
5 Additional equipment	20,000	EAP, Troyan
6 Printing, photocopies, subscriptions	10,000	EAP, Troyan
7 Lecturers, consultants and others	5,000	Ecoglasnost,Troyan
8 Transportation, practice	5,000	Ecoglasnost, Troyan

* EAP - Environmental Action Project

9/23/93

TROYAN CITIZEN COMMITTEES

FINAL EVALUATION

1 Do you think that the project has achieved its initial objectives? Please rank one 1-5 (with 5 being the highest) and state why?

5 - it woke up some municipal decision-makers,
3 - it did not finish all the work,
4 - it could have developed specific strategies for the other problems as well,
5 - the project succeeded in building a model where the residents of the municipality (on the one hand) and the citizen committees (on the other hand), take into account public opinion and the limited funds, managed to define, analyze, and prioritize the environmental problems,
4 - it is popular among the citizens of the municipality,
5 - it will really address some environmental problems by implementing the action plan,
4 - it is not clear who will be responsible for implementation, sufficient information is not exchanged with other municipalities,
4,
5,
3,
5 - the public is now aware of the importance of environment,
4 - public awareness is higher, we learned to work in a team, we learned much about a whole new sphere of life, public pressure was exerted on the local authorities and not only them for more efficient solutions to problems,
5 - the project achieved its initial objectives with its successful completion,
5 -

2 How do you evaluate your contribution (on a scale of 1-5)? What is it and why do you evaluate it so?

4 - modest, but positive,
2 - I was often absent due to objective reasons,
2 - I have recently joined the committee and my contribution could be seen only in the ranking as a citizen of the community,
4 - as a member of the Technical Committee, I wrote 3 problem statement and participated in the writing of the rest I was not very helpful in the last stages,
3 - I didn't have enough background knowledge,
4 - I have done everything I can to help the project and to popularize it among the public,
4 - in the last stage it was physically impossible for me to be fully involved,
3,

3 - by making suggestions,
1 - I joined late, much has already been done,
4 - much was unclear to me at the beginning Now I see that I have also contributed something,
4 - mostly by trying to resolve conflicts and organizing things the project used up much of my personal time,
5 - I participated from beginning to end and took part in the development of problem statements
3- 3 5 - I still feel that I need to do more to be fully useful,

3 What did you gain from the project?

- Besides the specific strategies included in the plan about to be implemented, the municipality gained by focusing public attention on environmental problems, as well as the attention of national and international agencies and the chance to attract funds
- Future for nature, i e life
- I learned about the way Americans think and live Troyan became more aware of its environmental problems,
- The municipality gained a lot with this project and the areas where it should focus its efforts are clear for at least one year
- The beginning is always very important Personally I gained faith that people care about environment and can work without ulterior motives
- I gained the extremely useful knowledge how to work in a team, how to take into account public opinion, and mostly I gained the opportunity to see that some environmental problems are really addressed,
- Training is always useful,
- I learned much more about environmental problems in the municipality and could suggest solutions,
- As a member of the public I started thinking in a better way about environmental problems and I expect to see the actual impact of the project As a person I learned to restrain myself better, to organize people, to accept other opinions easier, to work more effectively, to consult with others for better and more democratic decisions, and I learned much more than I knew about environment,
- I will be happy that I participated if the city benefits, positive gains
- I learned about some specific Troyan problems,
- The municipality gained from the project - its major problems were put on the agenda,
- I became a richer person (intellectually),
- I gained experience and knowledge

Troyan Citizen Committees' Evaluation of Troyan Environmental Action Project

- I learned to work in a way different from the commonly known,

4 How do you evaluate ISC assistance?

5 - very positive
4
5 - without it nothing would have started or reached this point,
5 - We couldn't have managed without it even if we had known the methods, but I also think that we helped you too
5 - it was sufficient
5 - Without it we couldn't have organized ourselves and done the whole work They helped us in all different ways - methodologically and financially They even helped us change our thinking
5 - timely, competent, tolerant,
5 -
5 -
3 -
5 -
5 - Very much to the point and unobtrusive I recommend it to the future, too,
5 - Very good and excellent, without ISC assistance we would not have achieved these results,
5 -

5 What would you recommend other municipalities about similar projects?

- More attention be paid to group process - encourage skills for independent decision-making,
- To get acquainted with our work first so that they avoid some mistakes inevitable for every beginning,
- To recruit more professionals to the citizen committees In this way they will avoid many conflicts and difficulties
- To listen more often to the public To involve more people with different backgrounds,
- I can't think of anything for the time being,
- To draw from our experience,
- Some selection of participants with more relevant backgrounds,
- To involve more professionals - engineers, medical doctors, dentists, biologists, chemical engineers, etc
- To go ahead,
- To make decisions about their future first, i e to be clear what they should do after the data analysis,

- After they define their obvious problems, to develop more complete and thorough problem statement which can easily become profiles,
- Very careful selection of participants (it is difficult), full support of the executive power (not only in words),
- To implement the Troyan project
- I would recommend to the municipal councils and mayors to support such projects not only in words but in deed

6 Do you think that they project will really make a change? Why and how?

3 - By the future implementation, "really" is still a question of the future, the three strategies for implementation, identified with US assistance, are already a reality and a premise for real impact, I believe that minds have been set in motion in this town, the strategies will be really implemented,

1 and 5- first because the plan has not been implemented yet, and second - it is natural to expect a change after implementation,

4 - right now only the Center for environmental education has been set up, leak detection has just started But we have learned to work in a team

4 - we are not mature enough for democracy We act small

2 -

5 -

Yes - Even people who have not been involved in the project started caring about the environment The attitude of the local government has somewhat changed, too

4 - People are already aware of the environment, and there will be a change, but we need to keep working,

3 - in Bulgaria changes require a lot of time We do no longer treat as political issues that objectively are not political,

yes- the project will change the attitude to environmental protection, it has made a real change

3-3 5- For me the very fact that it has been done is already an achievement It is necessary however to see the strategies' implementation and then I will rank it higher,

SELECTED ARTICLES

FROM

TROYAN

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Troyanski Glas, 27 January 1993, No 4/1993

ECOLOGY
AN ENCOUNTER WITH THE FUTURE

ALEXANDRA KANTARDJIEVA was born in Sofia, where in 1970 she graduated the Higher Institute of Civil Engineering, and then went to Canada with her husband There she worked in her special field of water supply and sewerage After a two-year course at the University of Minnesota, USA, she received her Ph D in civil engineering and environmental protection Since 1972, she has been working at the TECHNICA engineering and consulting company for environmental projects on problems related to the purifying of domestic and industrial waste waters In 1987 she was elected Board member of the company and was the first lady to become a shareholder in that company Member of several associations dealing with problems of water supply and sewage, engineering and environmental protection both in Canada and in the USA Numerous publications on the treatment of industrial effluents.

This is an appropriate name for the meeting organized between the managers of industrial enterprises in Troyan and engineer Alexandra Kantardjieva, in view of the problems discussed with her Mrs Kantardjieva was invited by the municipal authorities because she is one of the leading experts on the treatment and effective use of waters in Canada During the time which she spent in our town, she visited several industrial enterprises, selected by the municipal authorities, where she made her ecological evaluation of the waste waters On January 15, she conducted a training seminar at the Municipal Council for people working there, and in the industrial enterprises The topic of the seminar was "Possibilities for reducing the amount of waste waters from industrial production "

SOMETHING FOR NOTHING

The time has come at last to re-assess certain things which we considered to be useless Is it indeed necessary to offer something for nothing? At the seminar Mrs Kantardjieva explained her idea that waste waters and other industrial effluents not only inflict irreparable damage on Nature and human health, but they also entail losses for the industrial enterprises which throw away materials that can be re-utilized It is necessary to understand that the time of cheap resources and energy, coupled with inadequate environmental legislation, will never come back Industrial enterprises will be forced in one way or another to undertake steps to reduce the amount of waste waters released by them They will be coerced into doing this by the new environmental legislation, on the one hand, and by the requirements of the free market - on the other

TWO LOCAL EXAMPLES

The first example came from the representative of *Troyanski Kolbas* [Troyan Sausage Company], who suggested to the municipal authorities to build an incineration installation, so that the bones can be utilized Bones are currently being offered free of charge to the incineration plant in Shoumen,

although one kilogram of bone meal costs 300 dollars!

The second example was cited by the General Manager of the Regional Environmental Inspectorate in Pleven, Engineer Angelov, and it is directly relevant to the drinking water problems of our community There is a city water-treatment plant in Pleven and all industrial enterprises are compelled to send their waste waters there For a charge, naturally However, *Mlekoprerabotvane* [the dairy industry] raised objections against the enormous sums, claiming that they had to pay much more than the other industrial enterprises On inspection, it proved that they had much bigger leakages of drinking water which simply flowed into the sewers. In this way, they not only paid much more, but they also paid double once to the Water and Sewage company for the drinking water supplied to them, and a second time to the water-treatment plant for the cleaning of the waste water, a part of which was actually drinking water

WHAT DID WE LEARN?

From the clear and very analytical lecture of Mrs Kantardjieva we learned what we knew already, though we considered it to be unimportant Moreover, Mrs Kantardjieva presented a scientifically analysed and substantiated methodology of audits What is an AUDIT? This is an in-plant investigation of waste waters, which should be conducted by each industrial company This is the first step towards reducing the amount of waste waters and towards surmounting pollution-related problems The audit is a detailed analysis of selected industrial productions, technologies and types of waste, with a view to minimizing and even eliminating waste waters in the production processes

What are the advantages of reducing waste waters? In the first place, there is less loading with waste, lower water consumption and reduced probability of having to defend oneself in court for environmental damage inflicted Moreover, efficiency, revenues and relations with the community are improved

At least this is the situation in Canada We are left with the only hope that the managers of industrial enterprises in Troyan will do their best for this situation to materialize in Bulgaria as well

May it happen so that if not we, at least our children could see the waters of the Ossum river flow clean below Troyan!

Radyu MINKOV
(our correspondent)

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Troyanski Glas, 31 March 1993, No 13/1993

IMPERFECTIONS IN THE LEGISLATION PREVENT THE PEOPLE OF TROYAN FROM DRINKING THEIR OWN WATER

The special commission established at the last session of the Municipal Council on the problems of the town's water supply, which is to defend the interests of the community before the higher-ranking authorities and would insist on a reallocation of the quotas received from the Cherni Ossum water-catchment group, gave a press-conference to the representatives of the mass media on March 24 The solving of the problem of the reallocation of the water is not the only issue on the Commission's agenda It is seeking ways of alleviating, at least initially, the grave problems of the population by building the water reservoirs at Stoychevski Rut and Shamaka, by investigating the possibility of receiving additional water quantities from the Beli Ossum river Specialists are to decide whether the latter project involves a danger of drying of the river-bed, which in turn could have unpredictable consequences

An appeal was launched at the press-conference to the inhabitants of Troyan to manifest a higher public involvement by signing their names below a petition for a fair reallocation of the water among Lovech, Pleven and Troyan Since negotiations carried out so far with the higher-ranking institutions failed to produce any effect, the representatives of the newly-established commission declared that they would accompany the petition with a demand addressed to the competent ministry to reconsider the quotas, allocating to Troyan at least 25-26 %, instead of the 17 6 % which it receives at present They will insist before the government to submit the problem of the reallocation to be discussed at some plenary session of the Bulgarian Parliament in the nearest future

It has become clear that Pleven has found additional water sources and has solved almost completely its drinking water problem Pleven receives only 12 % from the Cherni Ossum water supply group, unlike Lovech which relies exclusively on this water supply system, all the more that construction of the dam in Golyama Zhelyazna has been suspended When journalists asked whether indeed all opportunities at the level of the three municipalities have been exhausted after the several conversations held, coupled to the option of Lovech seeking its own additional water sources, they received the answer that negotiations could be resumed, but they would hardly produce any favourable result

There are three laws affecting the fair allocation of water resources According to the Law on Local Governments and Local Municipal Administration, the people of Troyan have every reason to hope that justice and fairness will triumph, though the Law on Water and the Decree on Water Use immediately deprives them of this privilege Or, to use the Bulgarian saying, we are treading in water and still going about thirsty, because these laws are simply contradictory, however strange this might appear

Magdalena SUBCHEVA

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Troyanski Glas, 10 February 1993, No 6/1993

SEVERAL OPTIONS
FOR IMPROVING THE WATER SUPPLY
PROPOSED BY ENGINEER IVAN DOUDEV, MANAGER OF THE "STENETO" WATER AND SEWAGE LIMITED LIABILITY COMPANY

Water is supplied to the town of Troyan from three sources with surface waters entirely (rivers) and without any water-treatment installations The main water source is the Cherni Ossum - Pleven group, from which our town receives 17 61 % of the total amount, allocated in this way according to Letter No 8128 of 25 October 1967 of the Ministry of Architecture and Urban Development, whereby although the maximum capacity of the water pipeline is 1100 litres/sec, the flow rate is 193 litres/sec Troyan needs at least 280-300 litres/sec The rest of the water is taken from the other two water catchment systems the irrigation-drainage system in Mirevsko (50-80 litres/sec) and the river catchment from Vurtyazhka river 930-110 litres/sec)

With minimum flow rate of the principal water source of 200-300 litres/sec in September, October and November, sometimes in January and February as well, depending in the amount of precipitation, the group sends to our town only 40-50 litres/sec, so that together with the minimum flow rates from Mirevsko and Vurtyazhka the total amount of water which the town receives is 105-110 litres/sec, i e about 30 % of the water needed

Last September-October we witnessed exactly the same situation in Troyan, when the water supply to the country could be qualified as catastrophic, because the water economy regimes imposed could not regulate even the minimum water consumption needed for sanitary and hygienic needs But water is needed in industry as well, especially in the food industry

On the other hand, the primitive river catchment systems, without water-treatment installations, severely damaged the water pipelines (deposition of solid sediments, blocking of the deviations or bends in the pipelines and near the water meters, especially for the major consumers), which was felt very acutely under conditions of water economy regimes, all the more that the water supply stops altogether when the rivers become muddy after heavy rains

Our company suggests several projects for water supply of settlements to be included in the annual investment policy of the Troyan municipality for 1993, in addition to several options for the solving - albeit partial - of this burning problem

The river water catchment in Balkanets is built on the rivers of Vurtyazhka and Zhalna On instructions from the Ministry of Health, due to the unsatisfactory results of the tests of the waters of Zhalna, the use of its waters was not allowed The motivation cited was that the water-catchment area is polluted by the tourist settlement Beklemeto The next step was an order from the former administrative authorities in the Regional Council of Lovech, the Municipal Council in Troyan and the Regional Environmental Inspectorate in Pleven, imposing the obligation on all institutions and private houses at Beklemeto to build their own purifying installations with biological filters and seepage wells This put an end to the

that the water-catchment area of the river Zhalna near the tourist settlement Beklemeto is already safe and does not allow contamination of the waters Therefore, we insist before the Ministry of Health to make the necessary tests again and to allow the use of the waters of Zhalna by the town water supply system, by providing the necessary environmentally sound minimum for the waters in the river According to our estimates, Zhalna can give at least 25-30 litres/sec to the town

It is also imperative to continue the investigations on the problem related to the water supply of Troyan from Chiflik, which had started in the past The water catchment installations there have been built, pipes have been laid from the reservoir at Shamaka to Beli Ossum (the detour to Shipkovo)

One should not overlook yet another possibility According to information provided by the Councillor of the Regional Governor, the 45 % which Pleven takes from the Cherni Ossum group accounts for 12-13 % of the total water supply system of Pleven Partial water economy regimes are imposed in some areas of the town during critical periods We believe that if at least 25 % of the water amount from the group is allocated to Lovech and Troyan, this would save the thirsty population of these towns, subjected to severe water economy regime The Ministry of Territorial Planning, Construction and Housing Policy should reconsider the quotas allocated for the water supply of the three towns by the group, which would alleviate the situation in Lovech and Troyan at least during the critical periods

We propose the investment programme of the municipality for the current year to include also the construction of the water reservoir at the Stoychevski Rut locality for the water supply of Troyan, because work on this project has already started, the building of a circulatory connection from the market square, across Markovski bridge, along Spas Balevski Street to Hristo Botev Street, investigating also the possibilities for additional water supply through reconstruction of the Vurtyazhka water catchment area, reconstruction of the water pipelines in Staro Selo and Golyama Zhelyazna, research on additional water supply to Borima, Shipkovo, Dobrodan and Oreshak, supply of sludge-cleaning equipment

Editorial note We expect to hear also the views of the competent authorities from the Municipal Council, which we shall report immediately to our thirsty readers Let us hope that the different institutions would stop passing the ball from one department to another, and would finally reach some real results

Troyanski Glas, 23 September 1992, No 38/1992

POSSIBILITIES FOR EFFECTIVE USE OF DRINKING WATER

This was the topic of the conference organized on September 11 in Lovech by the Institute for Sustainable Communities in Vermont, USA, the three municipalities of Lovech, Pleven and Troyan, and the National Movement ECOGLASNOST - Troyan ISC representatives took part in its work, as well as Andrew Jones from the Rocky Mountains Institute from Colorado, specialists on problems related to the water supply, and ECOGLASNOST representatives from Lovech, Pleven and Troyan

The aim of the conference was to identify the problems related to the water supply in the three regions, to pool ideas and to outline the necessary measures for solving this acute problem Initially this took the form of an animated discussion Interesting facts were reported concerning the supply of drinking water in the Troyan region, about the sources of drinking water, and about the amounts of available and consumed drinking water It was pointed out that economies of drinking water for industrial purposes and for agriculture have already been imposed, but domestic consumption has increased The conclusion reached was that the water supply regime was counterproductive, it did not lead to water-saving, because people made water reserves at home and then threw away the stale water which they could not use The need to complete the water-treatment installations at the Cherni Ossum water supply network as soon as possible was emphasized, because three regions receive their water from there and the currently existing grid is totally inadequate According to the representative of the Hygienic and Epidemiological Institute in Lovech, the quality of the drinking water is monitored regularly and in most cases the pollution does not exceed state norms and standards In the Troyan part of the water pipeline the drinking water is tested at six stations In some places ammonia or nitrites have been detected, which suggests direct faecal contamination Recommendations have been given to seek ways of building biological water-treatment facilities The water-saving regime entails other problems as well contaminated water might seep into the pipelines, threatening with epidemic outbursts When the leaves of the trees start to fall, all local people are only too familiar with the unpleasant carbolic smell According to some specialists, carcinogenic substances are also synthesized in these cases, in addition to the chlorine When the water quality becomes very poor, the Hygienic and Epidemiological Institute recommends to boil drinking water There was a discussion whether this was the best solution, because - according to other specialists - ammonia was obtained in such cases

The paper delivered by Andrew Jones evoked special interest He told the participants in the conference about the program used in the United States for effective utilization of drinking water and about the possibilities of its implementation in Bulgaria as well Using many examples and figures directly borrowed from American reality, he demonstrated that it is much less costly to offer water-saving technologies, rather than to seek new water sources, because if one-quarter of our bathtub is full of water, it is much more economical to maintain its level simply by putting the plug in place, instead of leaving the tap turned on all the time. The speaker suggested some very simple methods which have been successfully applied in the United States such as

stopping the leakages of flushing cisterns in the toilets and of various water taps, leakages along the pipelines, replacing showers with more economical designs, etc It is reported that 5 % of the drinking water in the USA is lost as a result of different leakages there is a small pool below each house, and a whole river is flowing under a town In certain cities, which are experiencing water-supply problems, the elimination of such leakages is done free of charge, because water supply companies have decided that such repairs would cost them much less than the building of a new water pipeline For example, 3,000,000 dollars were allocated in Colorado for the construction of a new water source, but the problem was solved more efficiently by offering free repairs to eliminate leakages in the various households for half that amount Water supply companies spend a considerable amount of money for publicity and advertising posters, ads in the press with appeals for water saving, re-use of water for industrial purposes, avoiding irrigation at times of peak consumption Water is rationally used in the commercial sector as well, where limits and different rates of payment are applied

The discussion on the problems of the rational and effective use of water continued in groups, then the results were summarized and some measures were outlined for improvement of the current situation The first suggestions put forward dealt with some changes in the norms and regulations It was considered necessary to seek new sources of drinking water, catching the water from all village sources and restoring some abandoned water sources in the towns, in addition to drilling for water Some other measures concerned the educating of people to adopt a more economizing attitude to water Economic measures were also proposed, notably competitive companies to start functioning, to separate the owner of the water from the company that would be supplying it, several suggestions for fund-raising were made, among them it was proposed to use even the potential of the government The problem of the limits and different rates to be paid for water consumed was not overlooked, and a suggestion was made to the Water and Sewerage Company to organize a free service and maintenance for water meters

However, the practical realization of many of the suggestions and the real changes in the water supply to the three regions require the setting up of committees in Lovech, Pleven and Troyan to coordinate their activities, as well as a radical change in the mentality of the people towards saving this rare natural resource The initiatives of the three municipal authorities are expected with keen interest, with a view to the faster solving of the problem

Magdalena SUBCHEVA

Troyanski Glass
Wednesday, 29 January, 1992

A MODEL FOR ENVIRONMENTAL BALANCE

by
Magdalena Sabcheva

An environmental protection agreement was signed between the Institute for Sustainable Communities in the state of Vermont, USA, the Troyan Municipality and the Municipal Independent Society "Ecoglasnost"

The Troyan municipality is the first community to be assisted by the Institute for Sustainable Communities, Vermont, USA, the Environmental Protection Agency, USA, and the Peace Corps in solving its environmental problems through democratic means and without coming into conflict with economic development This was conclusively decided after the signing of the agreement on January 21 under the previously approved project for environmental protection of the Troyan municipality From the American side the agreement was signed by the Executive Director of the Institute for Sustainable Communities in the state of Vermont, George Hamilton, and from the Bulgarian side - by the Mayor of the municipality, Konstantin Fichev, and by the Chairman of the Municipal Independent Society "Ecoglasnost", Milko Sapunjiev At the signing of the agreement, which took place in the hall of the community center "Nauka", were also present many citizens, who addressed many questions regarding the project implementation, as well as the protection of the environment, to the American guest, to the Chairman of the Board of Directors of the Independent Society "Ecoglasnost", Edvin Sugarev, and to the Head of Department at the Ministry of the Environment, Georgy Karagyozov

The agreement outlines the duties and responsibilities of the three parties, which are participating in implementation of the project

The Institute for Sustainable Communities, as a non-profit organization established by the former Governor of Vermont, Madelaine Kunin in 1991 with the purpose of providing assistance to Central and Eastern European countries in solving their environmental problems, will assist our community with training, technical and financial aid, and the municipal organization of "Ecoglasnost" with developing their capabilities in the implementation of the model program

The Troyan municipality will act as a local sponsor for the project and will undertake measures for its successful implementation, and the Independent Society "Ecoglasnost" will collaborate with the Institute, as well as with the municipality, so that the community would be better able to continue the work after the discontinuation of the aid, granted by the Environmental Protection Agency,USA, will inform on the project's progress and perform other educational activities

The implementation of the project for turning the Troyan municipality into a model of environmental balance shall continue for 18 months It will give a chance to its citizens to decide what action to take to protect the environment and to improve its quality in the region The protection of the environment and economic development should not get in each other's way, but they should compliment each other, so that the people from the municipality can enjoy good health, economic stability and good fortune

The project shall provide a model for decision making Its purpose is to help analyze the best available information, in order to make an argumented assessment on environmental risks, on their classification by degree of importance The two committees - on policy development and a technical committee, previously established to work on the implementation of the project shall have a special role The participants in the project shall be able to gather information from three similar projects implemented in the USA, as well as to exchange experience with two municipalities in Hungary

The results shall be announced through the mass media, through meetings and talks with other municipalities, who will take the road taken by the Troyan municipality A documentary film will also be made

The participants in the implementation of the project have the intention of showing, that a democratic process based on knowledge and consent is able to change the environmental conditions and to improve people's lives

TROYANSKI GLASS
Wednesday, 19 February, 1992

NEWS OF THE WEEK

THE VERMONT SENATOR (USA) GREETS PEOPLE

FROM THE MUNICIPALITY

The Mayor of the municipality, Mr Konstantin Fichev, received a letter from the senator of the state of Vermont, USA, Mr James Jeffers, who congratulates the people from the Troyan municipality with the signing of the joint agreement on environmental protection The letter reads "All people from the US support you in your struggle for freedom The people of Troyan contribute to this struggle and we hope that we will all live free in environmentally clean regions I support your efforts and I will follow your activities in the project implementation for transforming the Troyan municipality into a model for an environmentally clean area " - thus the senator ends his address to the people of Troyan

CHRONICLE

The first stage of the Project for environmentally clean municipality was completed with the seminar on March 28 and 29 Representatives of the two committees, the Director of the program for "Environmental Training", Jonathan Gibson, and the Director of the Bulgarian project, Paul Markovitz, took part in the the training organized by the Institute for Sustainable Communities in Vermont, USA

TROYANSKI GLASS
Wednesday, 15 April, 1992

A Subject for Discussion

THE AIR WE BREATHE

by engineer Lilian Katzarov
We Are Expecting Ideas for its Purification

There was a time, when the people of Troyan felt the strong smell of smoke and briquette only when they visited or went shopping in some of the larger cities and the capital Coming back after a short absence from the town, they breathed the fresh air with pleasure and enjoyed the mild Balkan climate.

These nostalgic reminiscences are long forgotten, because now in the cold winter nights biting smoke covers the town streets from the thousands home water boilers and the tens of thousands heaters Troyan is literally drowned in smoke from the burning of fuels by the population, according to data from the company "Fuel and Construction Materials" - 7 155 tons briquettes, 750 tons coal, 908 tons oil gas, 13 900 bottles natural gas and 23 000 cubic meters wood. To this we must add 30 00 tons mazut and 18 000 cubic meters wood pilings and waste, burned by the industrial plants. As a consequence, on the territory of Troyan harmful emissions of gases and soot have fallen out in one year as follows: Nitrogen Oxide - 90 tons; Carbohydrates - 137 tons; Carbon Oxide - 1 837 tons; Sulphur Dioxide - 223 tons, and dust particles - 92 tons.

Here we should add the harmful gases of automotive transport emitted per year: 10 tons Sulphur Oxide, 4 500 tons Carbon Oxide, 410 tons Carbohydrates, 150 tons Nitrogen Oxide

After succeeding in destroying in several decades what took nature million of years to create, now we will need much more time to restore what we have lost I propose to the municipal government, as well as to the two committees created to work on the Project for Environmentally Clean Troyan Municipality, the following:

To begin construction of a trolley bus network The town is especially suited for trolley bus transportation, and one of the streets it should pass through has been under reconstruction for three years now.

In order to stop the smoke coming out of 10 thousand chimneys, two small water powered power stations should be build, in the upper and lower part of town, or the existing steam power stations at the factories should be expanded to heat the neighborhoods around them.

The two activities can be accomplished at the same time with just one time disturbance of the street cover

TROYANSKI GLASS
Wednesday, 15 April, 1992

COMMENTS OF THE GUESTS FROM THE USA

BY

MAGDALENA SABCHEVA

As we have already informed the readers of Troyanski Glass, the first stage of activities under the Bulgarian-American project for environmental action in the Troyan municipality was concluded during the last days of March with a two day seminar On this seminar, a team from the Training Program from the USA provided valuable methodological assistance to the enthusiasts from the technical and policy committees, who are working voluntarily, together with the municipal group of the Independent Society "Ecoglasnost", on the implementation of the Project All participants from Troyan, with whom I talked, were unanimous, that in the process of training they received invaluable methodological assistance of practical significance, which would make their future work easier Therefore, we preferred to give the floor to the two American guests from the team of the Training Program, who were kind enough to disclose their opinions before a newspaper representative on the concluded first stage of the Environmental Action Project, as well as on the seminar conducted under their leadership

I AM SATISFIED BY OUR COLLABORATIVE WORK

Jonathan Gibson - Environmental Training Director at the Institute for Sustainable Communities.

He is a specialist in natural resources management and has worked for local, regional and national government and non-government organizations. Among his professional interests are environmental impact assessment, land use and forest use policies, and management of non-governmental organizations' activities. He and his family enjoy hiking in the countryside, gardening, swimming and classical music

Following the agreement signing ceremony, we met with the two committees at the Town Hall and they agreed with our Institute's proposal to hold a seminar on March 28 and 29 That is exactly what we did together I think, we are right on schedule We are very happy with the hard work that was done and with the Project's progress Krassimir Hristov's election as Coordination for the

municipality was very important I hope that Paul Markovitz and the others from the Environmental Protection Agency will find it a pleasure to work with him We will also work with pleasure with the new Chairman of the municipal group of the Independent Society "Ecoglasnost", Radiu Minkov, in order to continue our contacts with this organization. It was a great pleasure for us to meet with again our old friends from the town, as well as the new enthusiasts for the Technical and Policy Committees

In conclusion, I would like to say, that we had very good attendance at the seminar My impression was, that both the Bulgarians and we were able to learn a lot, not only on matters concerning the methodology of risk assessment, but also on the process of our joint work in correct decision making in the process of democratization The results from this training will become clear during the next months

I think, that the training program was very successful and we are eager to give new assistance to the project participants, if they inform us that they need it

THE TRAINING SESSIONS WERE SERIOUS, BUT WE TRIED TO MAKE THEM PLEASANT AS WELL

Paul Markovitz - the newly appointed Director of the municipal project in Bulgaria.

He has graduated with a major in economics with an area of concentration in economics of resources He specializes in the area of energy efficiency and recycling policies He has some experience as a Director of a non-profit organization, of a government agency and as a university Professor In his spare time he skies, does gardening and prepares bread, plays the harmonica and plays softball

Paul Markovitz was in Troyan for the first time and he continued his stay, providing methodological assistance to the separate committees and the created subcommittees, as well as to the municipal leadership of the Independent Society "Ecoglasnost". Here are his comments:

There are several reasons for me heading the project from the American side I have been interested in work abroad for a long time, and I have also gathered experience in the areas of environmental protection and in the structure of communities Over the last few years there has been a lot of talk about the democratization processes in the Eastern European countries We also have more information available on the environmental problems of theses countries

I find, that in your country they are much more complex and painful, than in the USA I want to give my assistance, as well as to continue in-depth my work on environmental protection in Bulgaria

I think, that the work on the project is progressing rapidly, and that the seminar was very successful as well I hope it gave people new ideas and guidance on how to address them in a new way The participants had to undergo many exercises in order to learn to determine precisely the environmental problems by importance We, the representatives of the Institute, had as our objective to acquaint the people with two things In the first place, we offered a methodology for decision making with a comparative risk assessment, and second, they were to learn to work in groups and take decisions collectively The work was quite difficult, but we tried to spend these two days pleasantly as well There were some fun moments with lots of laughter Our difficulties consisted in our desire to teach Bulgarians not to interrupt each other when they are talking, but we cannot change a whole culture, and it should not be necessary

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ТРОЯНСКИ ГЛАС

СЕДМИЧНО ИЗДАНИЕ НА ОБЩИНСКИЯ СЪВЕТ - ТРОЯН

АКТУАЛНО

ВЪЗМОЖНОСТИ ЗА ЕФЕКТИВНО ИЗПОЛЗВАНЕ НА ПИТЕЙНАТА ВОДА

ма беше състоялата се
ои в Ловеч конферен
на от Института за ус
и в щата Вермонт
щини Ловеч Плевен
Екогласност – Троян
ита работа взеха пред
нститута за устоичиви
рмонт Ендрю Джонс
институт Роки Маун
ти по проблемите на
то представители на
т от Ловеч Плевен и

конференцията беше
проблемите на водо

снабдяването в трите региона да се съберат идеи и да се набележат мерки за решаването на този болезнен въп рос Това първоначално стана под формата на оживена дискусия Бяха изнесени интересни факти за снабдя ването с питеина вода в Троянския регион относно източниците коли чеството на наличната и консумира ната питеина вода Отбелязано беше че се наблюдават икономии на питеи на вода за промишлени цели и в сел ското стопанство но е увеличена кон сумацията в отделните домакинства Направен беше извод че режимът на вода не води до икономии тъи като хората се запасяват и после поради негодност изхвърлят застоялата во да Изтъкнато беше че е наложително да се ускори завършването на пре чиствателната станция на черноосъм ската водоснабдителна мрежа от която черпят трите региона тъи като сг а съ

ществуващата решетка е съвсем недос татъчна Според представителката на ХЕИ Ловеч качеството на питейната вода се следи редовно и в повечето случаи замърсяването не надвишава държавните стандарти В троянската част на водопровода водата се из следва в 6 пункта На някои места е откривана наличност на амоняк и нитрити което говори за прясно фекал но замърсяване Препоръчано беше да се търсят възможности за изграж дане на биологична пречиствателна станция Режимът на водата води и до други неприятности засмукване във водопроводната мрежа на мръсна во да и опасност от епидемии При листо пад се получава известната на всички жители неприятна миризма на карбол Според някои от специалистите заедно с хлора в тези случаи се образуват канцерогенни вещества Когато каче ството на водата е влошено ХЕИ пре

порьчва тя да се превърява Дискути рано беше дали това е най-доброто решение тъи като в такива случаи спо ред други специалисти се получава амоняк

Особен интерес предизвика док ладът на Ендрю Джонс които запозна присъстващите с програмата по коя то се работи в САЩ за ефективното използване на питеината вода и въз можностите за нейното евентуално прилагане в България С много приме ри и цифри от американската дей ствителност тои показа че е много по евтино да се предоставят технологии за икономисване на водата откол кото да се търсят нови източници за водоснабдяване защото ако една чет върт от ваната ни е пълна с вода за да поддържаме нивото и много по ико-

/на стр 2/

ЕМЕДЕЛСКОТО ИЧЕСТВО Е ФАКТ

ВЪЗМОЖНОСТИ ЗА ЕФЕКТИВНО ИЗПОЛЗВАНЕ НА ПИТЕЙНАТА ВОДА

/от стр 1/

номично ще бъде вместо кранът да тече непрекъснато просто да запушим отвора и Тои предложи някои твърде прости методи прилагани с успех в САЩ като спиране на течовете от клозетните казанчета и други крановe течовете по водопроводите замяна на наконечниците на душовете с по-икономични В САЩ 5% от питеина та вода изтича от различни течове – под всеки дом се крие малко езерце а под целия град – тече река В отделни градове където има проблеми с водоснабдяването отстраняването на тези течове става безплатно за щото водоснабдителните компании са сметнали че за поправките ще дадат по-малко разходи отколкото да строят нов водопровод Така например в Колорадо са били отпуснати 3 000 000 долара за строителството на нов водоизточник но въпросът е бил решен като са направени безплатни ремонти в домакинствата за отстраняване на течовете за два пъти по-малка сума Не малко средства отделят водоснабдителните компании за рекламни плакати реклами за пестене на водата в пресата използване за промишлени нужди на оборотни води напоява нето се извършва само в подходящи часове Използването на водата става разумно и в търговския сектор прилага се и лимитното заплащане

Дискусията по въпросите за ефективното използване на водата продължи по групи а след това резултатите бяха обобщени и набелязани някои мерки за подобряване на сега съществуващото положение Първите предложения се отнасяха до някои промени на нормативните уредби Бе ше сметнато за необходимо да се търсят нови източници на питеина вода като се каптират всички водоизточници в селата и се възстановят някои вече изоставени в градовете търсене чрез сондажи Други от мерките се отнасяха до възпитанието на хората към икономично отношение към водата Предложени бяха и икономически мерки Сред тях да започнат да деиствat конкурентни фирми да се отдели собственикът на водата от фирмата която ще я доставя предложени бяха няколко начина за сдобиване със средства като сред тях беше предложено да се използват възможностите дори на дарителството Не беше подминато и лимитното заплащане на водата а на В и К бе предложено да създаде безплатен сервиз за поддържане на водомерите

Но да се осъществят много от предложенията и да настъпят наистина реални промени във водоснабдяването на трите региона ще трябва първо да се изградят отделни комисии в Ловеч Плевен и Троян които да координират своята деиност както и да се промени изцяло съзнанието на хората към пестене на този рядък природен ресурс Очаква се инициативата на трите общински ръководства за по бързото решаване на проблема

Магдалена СЪБЧЕВА

ЦВЕТАНКА АТАНАСОВА

КРЪГЪТ "МИСЪЛ"

Книгата Кръгът Мисъл на нашата съгражданка Цветанка Атанасова е забележително явление в нашата съвременна литературна наука За пръв път естетическата програма на знаменитата четворка д р Кръстев Пенчо Славейков Пею Яворов Петко Тодоров се разглежда цялостно в многообразните и аспекти с проникновение и завидна ерудираност

Посветила няколко години за изследване на естетическите принципи и на литературното творчество на тези обаятелни личности обединени в първата у нас литературна групировка Цветанка Атанасова убедително утвърждава гледището си за техния изключителен принос в националния литературен процес за кръга Мисъл като идеино художествено направление в българската литература

За пръв път авторката изследва кръга Мисъл не като изолирано явление родено от по високите изисквания към литературното творчество у нас през 90 те години на миналия век Тя прави обосновани паралели с възрожденската ни литература и с творчеството на Вазов и Ст Михайловски през 90 те години Не само това С верен литературоведски поглед тя до

ЗАБЕЛЕЖИТЕЛЕН НАУЧЕН ТРУД НА НАША СЪГРАЖДАНКА

Стари Върху гребена на времето Творци и публика За национална по дух литература В разработката на всяко подзаглавие откриваме анализи оценки обобщения които имат преносно значение

С умението на вещ изследовател авторката разглежда в нова светлина гледището на писателите от кръга Мисъл за човека като изтъква интереса им към индивида към нравственото усъвършенстване и възраждане на личността С проникновен анализ на творбикато Ралица Боико Фрина Cis moll Микел Анджело Сън за щастие на Пенчо Славейков на идилиите и драмата Зидари на Петко Тодоров на редица стихотворения на Яворов от първия и от втория период на творческото му развитие Цветанка Атанасова подчертава стремежа на тези талантливи творци да вникват във вътрешния свят на един нов тип герои да се вглъбяват в нравствените психологическите и философските проблеми които имат не само национална но и общочовешка значимост

Естествено авторката не може да не разгледа и схващането на П П Славейков за свръхчовека

През 40 те и 50 те години представители на нашата марксическа критика сипеха огън и жупел върху автора на Химни за смъртта на свръхчовека и върху Мисъл за тази идея като я тълкуваха тенденциозно идеологически и политически

Много аргументирано литературоведската доказва духовното съдър

лиз на литературни творби с ор ни научни обобщения да се р дат позициите на д р Кръстев вейков П Яворов и П Тодо съотношението между национал щочовешко между фолклорно и но между фолклорно и инди но Наблюденията на авторкат творби като Псалом на поета ца Боико Кървава песен Славейков върху Змеиова Раиски ключар Мечкар ва от П Тодоров върху Х песни от Яворов са образец ратуроведчески подход при и тацията на проблема за моде дивидуално творчество възни фолклорна основа

Сложен и многолик е ес кият свят на кръга Мисъл сложност Цветанка Атанасова ва с верен научен критерии с на методология Те и позво обясни сродното във възгледи забравимата четворка и да от дивидуалното и неповторимот ческия натюрел на всеки един

Без да робува на схеми с обективността на честен съвестен литературовед автор чертава както непреходното то и до наши дни в естетикат га Мисъл така и слабости ния които не могат да се Навсякъде откриваме конкр чен подход Този подход и критичността на изследо към справедливите обвине Кр П Славейков и П отправени към читателите н

ЗА ЕКОДОМИЧЕН ДОМ

Под тази рубрика ще публикуваме материали, които могат да ви помогнат в домакинството, за да спестите вода, електроенергия, да направите по-добра изолация на жилището си, да използвате перилни препарати, които да бъдат екологически чисти и други полезни съвети, за изграждането на един екологичен дом

ЗА ДА НЕ ПРЕСЪХВА КЛАДЕНЕЦЪТ

Съществуват два широкоизвестни метода за увеличаване на водоснабдяването Първо могат да се търсят нови източници Второ може да се пести съществуващото количество вода Икономичното използване е голям източник за задоволяване на нуждите защото е лесно и евтино А евтините и прости проекти обикновено са популярни

Невероятно количество питеина вода се хаби в едно средно домакинство Над 76 000 литра могат да се спестят всяка година във всеки дом ако затваряме кранчето навреме

*** 10 20 литра изтичат всяка минута, през която е отворен кранът,**

*** 20 литра изтичат, ако не спираме водата докато си мием зъбите,**

*** 115 литра се хабят ако миеме чиниите си при пуснат кран,**

*** 25 45 литра изтичат докато се бръснем при отворен кран,**

Всеки може да спести пари за семеиството си и вода за града с някои прости ефективни и безплатни действия

*** намокрете четката си за зъби а след това спрете кранчето Така ще спестите до 20 литра**

*** ако напълните и запушите мивката докато се бръснете можете да спестите до 55 литра**

*** ако напълните и запушите мивката докато си миете чиниите можете да спестите до 95 литра**

Банята и кухнята предоставят най добри възможности да спестите пари Да пари! И то като поддържате в изправност крановете и тоалетното казанче те чрез отстраняване на всички течове Така семеиството ви няма да хвърля пари на вятъра те в тоалетната като се има предвид че едно тоалетно казанче може да изхарчи 170 000 литра вода Представете си 170 000 едноли тров бутилки пепси кола напълнени с вода от вашето течащо кранче и в същото време си представете колко е ценен всеки литър когато спира водата Лесно е да откриете дали тоалетното ви казанче тече или не Поставете малко боя за сладки или калиев перманганат Ако след няколко минути чинията се оцвети това означава че казанчето ви тече

Едно течащо казанче може да предизвика загуба на вода от 200 литра за един ден За 6 месеца тези загуби ще възлизат на 340 000 литра питеина вода Ако само 5% от домакинствата в град като Троян имат течащи казанчета тогава загубите ще се окажат 7 650 000 литра за 6 месеца А цената на тези загуби е много по голяма от разходите за професионален ремонт на повредените

Водните ресурси са ограничени Хората се нуждаят от вода за да преживеят а пестенето и е процес прост и евтин и всеки може да го започне в своя дом

Българите си имате хубава поговорка Капка по капка вир става Те сигурно ще оценят и думите на Бенджамин Франклин Когато пресъхне кладенецът тогава разбираме цената на водата Като събираме капките по една като намаляваме разхищенията и използваме ефективно наличните водни ресурси ще сме сигурни че кладенецът няма да пресъхне

Данните са събрани в САЩ от Съвета за защита на природните ресурси в 50 прости неща които можем да направим за да спасим земята Те отразяват и фактите в България

Адам БРАМ
координатор на Проекта за екологична защита в Троян от Института за устойчиви общини -- САЩ

бр. 43, 28 октомври 1992 г.

ЗА ЕКОЛОГИЧЕН ДОМ

ИЗОЛАЦИЯТА

Всяка зима енергия равна на цялото количество нефт което тече в газопровода от Аляска за една годи на се изпарява през прозорците на американците но те си го плащат За това си струва да се замислим особено сега когато цените на електроенергията главоломно растат а парите не достигат как можем да спестим част от топлината у нас

Специалистите знаят че един от наи добрите начини за пестене на енергия е изолацията на жилищата но това не винаги е просто тъи като отнема време и пари

Добре е да знаете че

* Почти половината от енергия та която използваме вкъщи се по хабява Тя изтича през прозорците вратите които са единични или не са добре уплътнени а също през стените и особено през тавана ако те не са изолирани с подходящ изолационен материал стиропор минерална и стъклена вата керамзито бетон шистопорит перлит и други Трябва да се знае че като правило жилищата в България са много лошо изолирани

* При нашите климатични условия изолацията може да се изплати за две три години А кои може да каже колко ще струва тогава енергията

Предлагаме ви няколко съвета които могат да ви бъдат от голяма полза

* Ако нямате изолация в дома си вие струвате на себе си и на околната среда цяло състояние Ако имате проверете дали е достатъчна

* Направете проверка за да откриете неуплътнените места във вашия дом Това може да стане ако държите запалена свещ до рамката на прозореца или вратата В студен ветровит ден това става наи лесно

* Ако външните стени на жилището ви се овлажняват през зимата това значи че те не са много добре изолирани тоест материалът от които са направени е много добър проводник и вашата печка през голяма част от времето отоплява околните поляни

* Прегледайте внимателно входната врата на апартамента Една входна врата която не ляга плътно до прага и касата ще проветрява зимно време жилището каквото и да правите А може би е по изгодно да я смените?

* Изследванията показват че при многоетажните сгради наи голям е делът на загуба на топлина през прозорците а при малките сгради през стените Топлинните загуби нарастват значително при по горните етажи които се одухват от вятъра по интензивно

* Имаите предвид и това че колкото по висока е температурата в жилището толкова повече нарастват загубите

Сашо ИГНАТОВСКИ
координатор на общинския съвет за Екологичния проект

ЕКД „Екогласност“ и проект за екологично действие – Троян

Ви канят на 26 май (сряда) от 17.30 ч. в салона на Общинския съвет на

ОБЩОГРАДСКО СЪБРАНИЕ

на тема: ОТПАДЪЦИТЕ – СЪБИРАНЕ, ПРЕРАБОТКА И ОПОЛЗОТВОРЯВАНЕ

Ще имате възможност да задавате въпроси по темата, да споделите вашите идеи, да научите за опита на щата Вермонт в САЩ за събирането и оползотворяването на твърдите отпадъци

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SEMINAR REPORT

Vermont = Bulgaria Environmental Seminar
February 19 - March 8, 1993

Prepared by Paul Markowitz, Director, Bulgarian Community Projects

Introduction

In January 1992, the Institute for Sustainable Communities initiated a pilot project, funded by the U S Environmental Protection Agency (USEPA), in the Municipality of Troyan, Bulgaria to help the community address its environmental problems The Troyan Environmental Committees completed a ranking of environmental problems in early January 1993 This visit was a central part of their information collection activities - with an emphasis on the most severe environmental problems identified by their committees

A delegation of 11 Bulgarians traveled to Vermont, Massachusetts and Canada to share U S and Canadian experiences regarding community-based approaches to environmental problems (A list of Bulgarian participants is attached) The Bulgarians met with a diverse mixture of state and local government officials, representatives from business and non-government organizations, and visited various environmental facilities

During the 16 day seminar, the delegation participated in 35 different meetings and three different workshops The issues addressed included drinking water, air pollution and energy conservation, waste water, sustainable agriculture, solid waste, community planning, environmental planning, and natural areas and tourism

Site visits included drinking water treatment facilities, waste water treatment facilities, recycling facilities, a lined landfill, residential energy efficiency retrofit, residential water conservation retrofit, residential co-generation application, fish breeding facility, dairy and pig farms, logging operations, and natural gas distribution facility

The workshops addressed included environmental education and water conservation

Seminar Goals

The goals of the Vermont seminar were to

* collect information pertinent to identified environmental problems,

* provide an opportunity for the Bulgarians to interact with a diverse mixture of government, non-government and business representatives, and,

* begin the process of applying information on U S experiences to the problems of

Troyan

Comments of Bulgarian Participants

In the final evaluations, Bulgarian participants responded to the following questions (scale of 1 - 5 -- 1-lowest, 5-highest)

* Overall, how would you rate the Vermont seminar?
  4 people - 4, 2 people - 4 5, 4 people - 5

* How useful do you think the information you learned will be in your environmental work?
  6 people - 5, 3 people - 4, one person - 2

* How well do you think you were prepared, in terms of schedule and background information, for this trip?
  4 people - 5, 3 people - 4, 2 people - 3, 1 person - 2

(Responses to non-quantifiable questions are still being translated at this time A copy of the evaluation form is attached)

What Went Well

- Background Information Participants received briefing packets on Vermont's community-based approaches to environmental problems two weeks prior to the visit Thus, they were already familiar with many of the programs prior to meeting with people

- Preparation of Bulgarian Participants A draft itinerary was sent to Bulgarian participants three weeks in advance Changes were made to the itinerary as a result of input from the participants In addition, the Troyan participants were asked to undertake advance work on the two priority environmental problems drinking water and air pollution Thus, prior to the visit, the Bulgarian participants have developed goal statements, brainstormed potential strategies, and identified evaluation criteria

- Composition of Delegation The group was comprised of 7 people from Troyan (including the community coordinator, 1 Ecoglasnost/Troyan representative, 1 municipal representative, and 4 citizen committee members), 1 representative from the Ministry of Environment, 1 from the National Movement of Ecoglasnost, ISC In-Country Coordinator (Elena Petkova), and one translator A Bulgarian-American also joined the group and provided translation and transportation services

The Ministry of Environment representative -- Mihail Staynov -- was an essential member of the delegation, and he offered valuable insights during meetings As a

representative of a national ministry who will be providing assistance to local governments, the seminar provided him with a first hand opportunity to learn about the needs of Vermont municipalities and local citizen groups Future visits should continue the mix of local and national representatives, and perhaps accommodate even more representatives from the Ministry level

- Meeting Scheduling Potential Vermont participants were contacted by phone 2-3 weeks in advance of a proposed meeting date, a follow-up letter was sent 1 1/2 - 2 weeks in advance, and confirmation calls were made 2-4 days in advance of the meeting date to ensure that everything was in order Meetings were scheduled within a given geographic area to minimize travel time between meetings A 15-passenger van was used to transport the group

- Vermont Participant Preparation Vermont participants were sent a cover letter explaining the purpose of the Bulgarian visit with a list of specific questions, background information on the project, a list of participants, and an ISC newsletter Because the Vermont participants had a specific list of questions to respond to, they were usually very focused in their remarks The limitation with this approach was that I had to use my knowledge of the Bulgarian/Troyan situation to formulate the questions The question and answer period at each session allowed for the Bulgarians to pose their own unique questions

- Application of Knowledge The Bulgarians spent the last day of the visit applying the information they learned on water conservation here to potential strategies they had identified in Troyan This exercise was valuable because the Bulgarians identified the most salient lessons to their own situation

- Translators We brought over a Bulgarian translator, Vera Dramdarova, who did an excellent job It was helpful to have a translator travel with the group - especially to address any complications that might arise during travel We also had a second translator with the group, Vihren Bella-Mura, an American-Bulgarian who donated his time for the entire trip While he was not a professional translator, his presence allowed us to break up the group for two different meetings at the same time

- Expense Allowance $20/day/person seemed to cover their meals and other expenses ISC covered hotel bills and paid for some lunches and dinners

Suggested Changes

- More Time The schedule was ambitious and Bulgarian participants complained about needing more time to process what they had learned This means building time into the schedule at the end of each day to go over the highlights and main points covered This review was done - but at the end of each week Thus, many of the subtle points may have been lost

Also, more time should be provided at each meeting, between meetings and to start the day Meetings always took longer than planned

- Divide group more often Traveling with a group of 12 people can be tiresome for all participants We could have divided the delegation into two groups of six people more often, thus covering the same number of meetings, but allowing for more time at each meeting and a longer break between meetings Of course, this does increase scheduling responsibilities

- Lateness Because everything took longer than planned, we were often late to meetings A 25% time allowance should be provided above the expected time allocation

Evaluation Form

Vermont-Bulgaria Environmental Seminar
February 19 - March 8, 1993

(Please circle the one that applies 1 - lowest, 5 - highest)

1) Overall, how would you rate the Vermont seminar (entire program)?
1 2 3 4 5

2) Which meetings and/or site visits did you find were most valuable?
(please list)

3) Which meetings and/or site visits did you find were least valuable?
(please list)

4) How useful do you thing the information you learned will be in your environmental work?
1 2 3 4 5

4a) Please explain how it will be useful

5) How well do you think your were prepared, in terms of schedule and background information, for this trip?
1 2 3 4 5

5a) Please suggest ways in which ISC could have helped you be better prepared

6) What changes would you suggest for future Vermont seminars?
(please be specific)

7) Do you have any other comments?

VERMONT - BULGARIAN ENVIRONMENTAL WORKSHOP

PARTICIPANT EVALUATION

QUESTIONS.

1 What is your overall rating of the Vermont seminar (the whole program)?

1 - lowest grade 5 - highest grade
Enclose a figure
1 2 3 4 5

2 Which meetings and/or visits do you think were the most useful?

3 Which meetings and/or visits do you think were the least useful?

4 How helpful will be the information offered for your business in the field of Environmental protection?

4a Please, explain in which way it will be helpful.

5 What is your rating of the preparations regarding the program and preliminary information for this journey?

5a Please, suggest ways in which ISC could have helped you to be better prepared

6 What things would you like changed for future seminars in Vermont? Please, be concrete

7 Additional comments

ANSWERS·

1
A 5
B 4
C 4 ½
D 5
E 4
F 4 ½
G 4
H 5
I 4
J 4

2 A
a) Shelburne farms
b) Energy conservation organizations
c) Dairy farms
d) Sunny house
e) Town meeting in Underhill
f) MWRA - Boston
g) Recycling center
h) Public security service
i) Some meetings with NGOs
j) All meetings with the people from Sherburg

B a) Vermont Energy investment corporation
b) River watch network
c) "Two rivers" - Qttauquechee Reg commission
d) The Hardford community for recycling
e) Chuttenden Regional Solid waste Man District

C a) Boston
b) Amy Vickers
c) Vermont gas
d) Energy conservation
f) All other meetings and visits without exceptions

D Almost all of them were useful

E. a) MWRA - Boston
b) Waste recycling center
c) Shelburne farm for teaching children
d) Everything about Energy conservation
e) River watch network
f) Water house in Canada

F. a) Amy Vickers
b) Water supply in Boston
c) "Two rivers"
d) Water treatment plant for drinking water
e) Shelburne farm
f) Dairy farm
g) Waste water treatment plant

G a) The workshop with Amy Vickers
b) VPIRT - John Mulhern
c) "Two rivers"
d) In the woods with the people from Barry forestry
e) Water supply in Boston
f) Intervale
g) Water treatment plants
h) Vermont gas
i) K Kevin Environmental Educational center

H a) Amy Vickers
b) Forest department
c) CtIS
d) Dairy farm
e) Recycling center
f) Meeting in Underhill
g) Shelburne farm

I a) Energy conservation meetings
b) Solid waste collection in Chitelden Dept
c) Town meeting in Underhill
d) Meeting with Mayor of Burlington

G a) MWRA
b) "Two rivers"
c) Energy conservation - all agencies
d) Department of Environmental conservation
e) Environmental board
f) Shelburne farm

3 **A** a) Montpelier senate
b) Benn and Gerry
c) Intervale Foundation
I wouldn't say the least useful, just curious and educational, but they wasted too much time.

B a) VANR - Public Facilities Division
b) Intervale Foundation - Burlington
c) Champlain Valley - office for EC opportunity

C. No one

D Most of the meetings with the NGOs

E The meeting with town councilors in Burlington, because we were tired.

F Planning Committees in Burlington

G a) Benn and Gerry
b) Green Mountain Club
c) Vermont Energy Investment Corporation
d) The meeting with Planning Committee in Burlington

H The meeting with town councilors, because we were tired

I a) The meeting with the representatives of the Local Government in Burlington - Planning Dept.
b) Meetings with some NGOs

J Treatment plants

4 **A.** 5
B 5
C. 5
D 4
E 4
F 4
G 2
H 5
I 5
J. 5

4a. **A** It gives me confidence, information and approach for decision making

B a) Project design.
b) Work with local services and public
c) Educational programs

C. I have changed my way of thinking Gives information to how the job has to be done.

D It gives answer and solutions of the problems I have had in Bulgaria and I had no opportunity to choose the most appropriate way for operation, because of the lack of information about the real state of affairs

E The new things we have seen and the new strategies we have supplemented to Troyan Environmental Action Project

F For building up strategies and carrying out real actions

G a) We will use highest experience for the things, which could be put in practice
b) It is not necessary to talk about inapplicable things

H Clarified lots of things for me Gave lots of ideas and proposals, although some of them are inapplicable, but probably there will be Bulgarian version too

I New ideas and ways for their implementation.

J New perspective to approaches, legislation, responsibilities, relations, etc between organizations, agencies, communities, citizens

5. **A** 2
B 5
C 4
D 4
E 3
F 5
G 4
H. 5
I. 3
J. 5

5a **A** Specific programs for specific goals Strategy elaborations

B

C We could receive the program earlier and discuss it

D To prolong the visit with 5-6 more days

E

F

G More essential information

H

I If the workshop didn't take place during the winter and the program had been given earlier, it could have been better

J

6 **A** Less meetings, more discussions

B. Change the schedule (for example) 5 hours for two visits and 2-3 hours for discussions and systematizing all we have learned and seen

C Less meetings with every day discussions on what we have learned, selection of the materials received

D At the end of the visits and meetings during th eday, we need more time for discussions and comparing notes with the other participants on what we have seen

E. In some water treatment plants and meetings many things were repeated The explanations of the technological processes could have been shorter

F Less meetings or more time Work up to 2-3 hours

G Not such an overloaded program Possibility to choose which meetings to attend according to interests of each person It is much better for people who are not interested in a meeting to rest in order to be fresh for the other contacts

H To have 1 - 1½ hour for discussion among us after each meeting

I See above! To have some personal time.

J More time to move from 1 place to another - a group of 12 needs 4-5 times more time to get on a van than an individual on a car

7 A Yes

B Congratulations to Paul for the organization

C No

D The program was quite overloaded, but very interesting and pleasant.

E.

F. The visit to Vermont is the most pleasant experience in my life I can hardly explain my respect and admiration to Paul for everything he has done for us.

G. Financial! There were unnecessary expenditures, such as traveling, expensive restaurants and s.o , which could save lots of money

H Excellent to Paul

I Thanks to everyone, who was with us during the workshop

J Good work, Paul Thanks

2/19/93

Preliminary Itinerary for Bulgarian Delegation for Vermont Environmental Seminar

Friday - February 19:

8 15 pm — Arrive at Burlington International Airport Stay at Comfort Inn in Berlin (near Montpelier) until February 25th
Comfort Inn, #802-229-2222, Contact Matt Capwell,

Saturday - February 20: Montpelier area

8:00 -12 00 — Orientation, review of upcoming schedule Work session a review of the steps in developing an environmental action plan
Meeting in conference room with coffee/pastries, lunch

12.00 - — Free time,

Sunday - February 21: Day in Berlin/Montpelier

9 00 - 4 30 — Work session Amy Vickers, a consulting engineer from Boston and specialist in water conservation program specialist, will lead a workshop on "Fundamentals in Developing a Water Conservation Program
Conference room with coffee/pastries, lunch

5 00 - 8 00 — Dinner/reception at Paul Markowitz's house with Institute for Sustainable Communities' staff

Monday - February 22: Day in Waterbury

8:00 - — Site visit at Ben and Jerry's Ice Cream Factory - waste water treatment facility (lagoon and solar aquatic treatment) Also, visit to ice cream factory Meet with plant operator Paul Zabriskie - 865-4460

10 00 - 12 00 — Meeting with representatives from State of Vermont Department of Environmental Conservation, Public Facilities Division Discuss state program of providing permits and grants to municipalities for wastewater treatment facilities Contact: Marilyn Davis - 244-8744, Gary Champey

12 00 - 1·00 Lunch

1 00 - 3·00 Meeting with representative from Department of Public Safety, Emergency Management Division to discuss emergency responses preparation and public notification in event of radiation releases Contact George Lowe - 244-6357

3 15 - 5:00 Meeting with representatives from State of Vermont Environmental Board in Montpelier Discuss Act 250 - Vermont land-use and development control law Discuss how environmental criteria can be considered at local level Contact Mike Zahner 828-3309

6 00 Dinners in Vermonters homes

Tuesday - February 23: Day in Montpelier

8·00-10 00 Meeting with representatives from Vermont Department of Forest and Parks on preserving and protecting natural areas. Contact Charles Johnson - 244-8715

10 30 - 12 00 Meeting with Montpelier Public Works Director about process for selecting and building secondary treatment facility. Contact Steve Gray - 223-9500

12 00 - 1 00 lunch

1 00 - 2·45 Site visit at City of Montpelier waste water treatment facility (activated sludge) Meet with plant operator Contact Ron Mercier

3.00 - 5 00 Meeting with representatives from Vermont Public Interest Research Group (VPIRG) VPIRG is an environmental non-government organization They can discuss what role environmental groups can play in promoting environmental protection Contact Joan Mulhern - 223-5221

5 30 - 7 00 Reception with VPIRG Board of Directors Contact Paul Markowitz

Wednesday - February 24: Day in Woodstock, South Royalton, Hartford Vermont

9 00 - 11 30 Meeting with representatives from the Two Rivers Regional Planning Commission This organization assists towns on planning issues They have developed plans for drinking water protection areas, on Act 250 (mentioned above), and Act 200 -

a town planning law. Contact Eric Edelstein - 457-3188

12·00 - 2:00 Lunch and reception at Vermont Law School. Bulgarians show slides See ISC offices Contact Jan Fields

2 30 - 4 30 Site visit at Town of Hartford Recycling Facility Visit modern drop-off recycling facility, solid waste educational facility, and household hazardous waste collection facility. Also, see curbside collection of recyclable materials. Meet with facility operator Contact Sami Izzo, Paul Alcantar - 295-3245

5 00 - 8.00 Montshire Museum a science and educational museum Family night Contact Karyn Bossen - 649-2200

Thursday - February 25: Day in Montpelier. Overnight in Shrewsbury.

8 00 -10 00 Meeting with representatives from Vermont Natural Resources Council This is another environmental non-government organization (NGO). They can talk about planning and development issues from an NGO perspective Contact: Steve Holmes - 223-2328

- Meeting with Governor Dean, Statehouse. Contact. Jean Marie - 828-3333

- Meeting with Tom Slayton, history of Vermont's environmental movement

12 00 -2 00 Lunch with with State Legislators Tour of Statehouse, observe legislative hearings Contact: Ann Seibert

2 30-4 30 Meeting with representatives from State of Vermont Department of Environmental Conservation, Water Supply Management Division Discuss state program of providing permits and grants to municipalities for drinking water treatment facilities Contact Jay Rutherford, Jim McCauley - 244-1562

6 30 - 9 00 Dinner and meeting with Town of Shrewsbury Planning Commission and Conservation Commission Planning and Conservation Commissions are citizen committees that advise the town council on planning and resource conservation issues. This will be an informal session to meet and discuss issues Contact: Jonathan Gibson, Deborah Walsh for putluck - 492-3572.

Stay at Maple Crest Farm Bed & Breakfast
Contact. Donna Smith - 492-3367

Friday - February 26: Day in Boston, Massachusetts

6 00 am — Leave for Boston, stop for breakfast on way - Chester Diner

9 30 - 5.00 — Meetings and site visit with representatives from Massachusetts Water Resource Association (MWRA) The MWRA has one of the most comprehensive water conservation programs in the eastern United States. Topics will include residential, commercial and industrial water conservation programs, leak detection in underground pipes, and water conservation education Site visit to see installation of residential water conservation equipment and materials. Contact· Barbara LaHage- 617-242-6000

5 30 -6·00 — Debriefing

6 00 - ?? — Dinner and recreation in evening. Jessica Bella Mura 617-321-4353.
Stay at The Chandler Inn, Contact Tom Rosenbaum - 617-482-3450

Saturday - February 27: Day in Boston

8 30 — Recreation Free time A U S citizen of Bulgarian descent has volunteered to take us around the City Possibilities include aquarium, marketplace, historical Boston Contact Jessica Bella Mura

5 00 — Return to Burlington Stay at the Ramada Inn in Burlington Contact Maureen Connor/Judy 800-876-0250

Sunday - February 28: Day in Burlington

9 00 - 1 00 — Work Session Review and evaluation of first week Preparing issue profile papers - what information do you need?
Meeting at Sheraton Conference Center, Kingsland Room, lunch included Contact Dan Dimille - 862-6576

1 00 - — Free time

7 00 - — Dinner reservations at Amigo's on Shelburne Road - 985-8226

Monday - March 1: Day in Burlington.

8.00 - 10.30 Slide show and meeting with representatives from Intervale Foundation, a non-profit, non-government organization promoting sustainable agriculture. Contact Andy Lee - 660-3508

1 30 - 5 00 Site visits with Champlain Valley Office of Economic Opportunity. This non-profit organization installs conservation materials in low-income Vermonters' homes. We will observe the use of equipment to detect energy loss and see installation of materials Contact. Scott Cambell -862-2771 (139 Elmwood Ave., Burl)

5 00 - 6 00 Debriefing

7 00 UVM Basketball game (game begins 7·30 PM)

Tuesday - March 2: Day in Burlington area

9·00 - 12.00 Attend Vermont Town Meeting day in Underhill. Town meeting day is the one day a year when citizens gather to approve local budgets and programs This is an opportunity to see democracy in action Contact Mrs Lou Farmer 899-4434 (Browns River Middle School)

2 00 - 5 00 Site visit at Champlain Water District drinking water treatment facility (direct rapid rate filtration facility) Meet with plant operator and managers Contact Jim Fay - 864-7454

5 00 - 6 00 Debriefing

- Dinner with Vermonters?

Wednesday - March 3:

8 00 - 10 30 Meeting with representatives from Medical Center Hospital of Vermont, Health Education Department This department conducts an education program to improve Vermonters' diet and health Contact Susie Jerger, Pam Farnham - 865-2838

1·30 - 5 00 Meeting and site visit with Vermont Energy Investment Corporation - a non-profit, private organization that promotes energy conservation investments They can discuss the programs they operate, including energy audits, low-interest loans, installing conservation materials. Site

visit to a natural gas powered co-generation heating plant for an apartment building (produces space heat and electricity at the same time) Contact Beth Sachs - 658-6060

Thursday - March 4: Day in Burlington

8 30-9:30 Meeting with Mayor of Burlington Contact· Michael Monte 865-7174

9 30 - 12 00 Meeting with representatives from City of Burlington, Planning Department Responsible for all city planning activities, including development of a city energy plan and building codes which require new buildings to meet certain energy efficiency standards Contact Ken Lerner 865-7190

1.00-5 00 Meeting with representatives from Vermont Gas Systems - a private company which operates a natural gas distribution system in Burlington They can talk about requirements for expansion of transmission and distribution lines, management issues; conservation programs Contact. Ray Jewitt, Mike Brian, Sherri Larson, 863-4511

5·00-6:00 Debriefing

Friday - March 5: Day in Burlington area

8.30 - 11.30 Mini-workshop at Shelburne Farms environmental education center Shelburne Farms conducts a comprehensive environmental education program We will participate in an educational practice session Contact. Megan Camp -985-8686, Sharon Behar, Kathleen Gavin

1 00 - 3 45 Site visit to Chittenden Solid Waste District - lined landfill The District, comprised of numerous municipalities, has the mission of managing solid waste and recycling They operate a state-of-the-art lined landfill, along with other programs - including recycling education Contact Tony Barbagallo - 655-9801

4 00 - 6.00 Roundtable discussion with representatives from EPA Office of International Activities Contact Anna Phillips, EPA
UVM, Waterman Bldg , Room #464

6 00 - ?? Institute for Sustainable Communities (ISC) Two-

MEMORANDUM
for coordinating actions
between Ministry of Environment, Ministry of Regional Development Housing and Building and other departments and organizations concerned in supporting communities in their environmental
activities for sustainable development

I Purpose of the memorandum

Establishment of a general policy of assisting the municipalities and the regions in Bulgaria in environmental protection and their sustainable development

II Main tasks

1 Information exchange on intentions, specific actions plus results
2 Define the ways to disseminate environmental status information
3 Provide assistance to the municipalities to form and deliver their environmental policy as well as for further joint actions if necessary
4 National and International Environmental Institutions coordination on sustainable development management

III Work pattern

To perform the tasks set up, both parties agreed on establishing Task Force The parties will assign their own representatives in the Task Force
The Task Force sessions will be held every last Thursday of the month at the Ministry of Environment according to an agenda approved on the last meeting The meetings will be chaired by the coordinators, taking rotary shifts
The coordinators jointly prepare minutes from the sessions including the suggestions made and submit them to their authorities for consideration and making a decision on the proposals

IV Terms

The agreement has no time limits

V Amendments

This Memorandum is prepared and adopted by the M O E and the Min of Reg Dev , Housing and Building but is open to further incorporation with other concerned departments and organizations, which accept the goals, objectives and the work pattern, assign their representatives and a coordinator, and sign the memorandum
Any amendments or additions to the terms of the agreement may be made only by a common authorities resolution on behalf of the parties

EXPECTED RESULTS AND BENEFITS

(from Cooperative Agreement between USEPA and ISC)

Bulgarian Community Environmental Action Project

At the project's conclusion, these accomplishments were expected at the community and national levels

Community-Level Results

1) Completion of a comparative risk process involving collection and analysis of data and prioritizing of risks

2) Development of an environmental risk reduction strategy and action plan

3) Initial action on a set of implementation measures

4) Community leaders will receive training in environmental decision making and public outreach

5) Public awareness of the key elements in environmental problem solving will increase, and citizens will be more capable of participating in environmental decision making

National-level Results

1) A developed and documented model of a comparative risk assessment process

2) A better understanding of state managed environmental programs in the United States

3) A national workshop and dissemination of reports

4) Strengthened technical and organizational capabilities of a national-level NGO Ecoglasnost

5) Improved techniques for data collection and analysis which can guide future investments in environmental protection