

PN-ACA-355

EAPS

ENVIRONMENTAL ACTION PROGRAMME SUPPORT PROJECT

**Environmental Action Programme Support
Contract DHR-0039-C-00-5034-0
United States Agency for International Development**

**SURVEY REPORT
on Workers' Occupational Safety Knowledge, Attitudes, and Practices
at ROMPLUMB Plant, Baia Mare, Romania**

**Submitted to:
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and
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**Prepared for:
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at ROMPLUMB Plant, Baia Mare, Romania
October 1996

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SURVEY REPORT

A. Introduction

A1. USAID/EAPS Description

The Environmental Action Program Support (EAPS) project, sponsored by the U.S. Agency for International Development, began providing technical, financial, and procurement assistance to Romania's non-ferrous metals industry in 1995. The activities supported through EAPS are designed to support USAID's strategic objectives, particularly *Strategic Assistance Area III: Social Stabilization* (ENI objective 3.3), "... reducing environmental risks to public health."

Specific work plans have been developed by an EAPS team, in cooperation with the Environmental Health Project and the U.S. Environmental Protection Agency, to assist three Romanian plants on improving industrial performance and workforce training in pollution prevention, occupational health and safety, business planning, and regulatory compliance.

A1a. Why ROMPLUMB?

The ROMPLUMB Plant in Baia Mare is one of the participating plants requesting support for a sustainable approach to remedying environmental problems. ROMPLUMB has high rates of reported lead intoxication in workers (65 clinical cases per year, on an average, during the last four years) while about 70 percent of the plant's personnel (970 employees) work in high exposure areas. EAPS is providing technical assistance to support ROMPLUMB's efforts to reduce industrial emissions and environmental risks to employees and surrounding communities.

The high rate of reported lead intoxication among the plant's workers is significantly related to their lack of adequate respiratory protection and improving occupational respiratory protection, is the first area of plant operations to be addressed. The program EAPS devised to improve respiratory protection is based on the results of the knowledge, attitudes, and practices (KAP) study presented in this report. That program consists of an on-site course and workshop, with follow up monitoring and technical assistance as needed. It should be noted that other non-respiratory pathways of oral and skin contamination are worth eventual consideration.

A1b. Purpose of Study

To determine the specific needs and requirements for the respiratory protection training program, plant operators and professionals exposed to respiratory hazards were interviewed to ascertain their knowledge of respiratory and other chemical hazard protection, their attitude toward chemical intake protection in the work place, and current workplace protection practices. The results will be used to improve the plant's respiratory protection training program and implement other occupational health and safety (OHS) behavioral and organizational changes.

A2. Objectives

1. To evaluate the current level of workers' awareness and understanding of the nature and significance of the work hazards, primarily the potential health consequences of exposure to chemicals.

2. To identify beliefs, attitudes, and motives, manifested in opinions and behaviors regarding the role and efficiency of institutional measures and individual equipment to protect workers against hazardous chemicals.

3. To determine the extent and regularity with which work safety regulations are observed. Of particular interest are the obstacles that prevent personnel from complying with the norms. Analyses of workers knowledge, attitudes, and dispositions about current safeguards will support the preparation of a specific Respiratory Protection Training Program and a training workshop for the staff at ROMPLUMB and other interested institutions.

4. To develop guidelines for future assessments of the program's efficiency in promoting workers' observance of OHS rules; this evaluation program will be implemented within the framework of the ongoing EAPS project at ROMPLUMB.

B. Methodology

Survey data were obtained by successive group discussions with personnel highly exposed to pollutants in four departments of the ROMPLUMB plant. The focus groups were conducted inside the plant by a professional psychologist, according to a dedicated thematic guide for focus group discussions previously prepared by the expert.

The thematic guide (revised version, see Annex) consists of topics associated with risk perception, attitudes toward OHS measures, obstacles to individual protection, and best motivators for an efficient OHS training program. The topics were orientative (selected from a previous 18 topic version of the guide) and became more detailed as discussions progressed, reflecting the new ideas and suggestions elicited in an approach that combines semi-structured collective interviews with a spontaneous "brain-storming" session.

The thematic guide, including bibliographic references, OHS norms, and in-the-field observations, was completed and presented to ROMPLUMB's OHS manager, accompanied by brief documentation regarding the objective, methodology, and time-schedule of the investigation.

On October 11, 1996, an initial trial group discussion provided an opportunity to test the guide and to familiarize the EAPS team with discussion group procedures. Another six discussions followed at a common rate of one per day, lasting for 60 to 80 minutes each, between October 14 and 18, 1996. Each group was made up of six to 13 persons, selected because of the similarity of their work conditions and occupational hazards. A neutral, relaxed atmosphere was maintained during the discussions, encouraging bilateral communication.

A record was kept of each group discussion, and participants were encouraged to make notes of the ideas, remarks, and opinions expressed during the discussions. These notes were collected at the conclusion of each meeting and tabulated according to conceptual categories. This format permits plotting ideas and opinions according to the frequency with which they arose during discussions, the measure of support each idea or opinion attracted within the group, and the degree of each plant department's active involvement in the discussions.

The resulting opinion clusters were analyzed and short syntheses were drafted. These form the basis of this report.

C. Survey Results

C1. General

Employment at the ROMPLUMB lead manufacturing plant has declined from 1,342 employees in 1991 to 970 employees as of October 1996. At present, about 670 workers are directly exposed to chemical work hazards, distributed among the following production and maintenance departments: Smelting, 313 workers; Agglomerating, 195 workers; Casting, 33 workers; and Mechanical and Energy, 130 workers. Most of them work six hours a day in four daily shifts.

The primary risk factors consist of exposure to sulphur gas and lead compound particulate matter released into the indoor air and surfaces of plant buildings. Workers are exposed to other hazards as well, usually related to smelting processes and machinery operating environments.

The plant is not heavily mechanized and direct manual intervention and transportation is required throughout the production process.

Discussion groups were composed of a sampling from the departments with high chemical exposure, and this sampling was based largely on the daily availability of personnel. Ultimately, a sample of 60 workers resulted, distributed among a variety of occupational categories (smelters, casters, mechanics, locksmiths, ore preparators, electricians, engineers, unskilled workers, etc.). Departments were represented as follows: Foundry, 25 personnel; Agglomerating, 14 personnel; Casting, 14 personnel; Maintenance, seven personnel.

Participants ranged in age from 19 to 54 years old, with a mean age of 33 years. Sixty percent of the subjects had worked at least 15 years at the plant, and 40 percent had worked in their respective departments for 10 years or more. Each focus group contained at least two employees from each department. It was found, however, that each department shared common work conditions and exposure risks, thereby reducing the significance of department affiliation on workers' attitudes toward respiratory health and safety.

C2. Working Conditions

C2a. Existing Difficulties as Seen by the Workers

This introductory discussion offered a chance to test the discussion guide and acquaint the EAPS team with the group discussion procedures. Free remarks on the material and functional working conditions, occupational hazards, and work safety issues in the plant were collected. Opinions on work management, timetable, group relations, and legal aspects of employment were also requested. After concluding the survey, we carefully selected and distributed this information to appropriate plant officers, as most of the above issues were discussed in a more systematic and detailed way later during each meeting.

We maintain the present topic headings. Presented here are a few perceptions of the workers on the effectiveness of institutional measures to reduce work site contamination, workers' exposure, pollutant intake, and pollutant absorption:

- The plant ventilation system is highly ineffective
- The technical condition of the production equipment is poor, increasing lead intake

- The personal protective equipment is seriously deficient in design, quality, and supply
- The personal hygiene materials are short in supply, or are completely missing
- The lavatories are in poor condition, discouraging proper personal hygiene
- The plant canteen is in poor hygienic condition (fines have been levied) and serves improper meals

C2b. Suggesting Priorities for Improvement

Workers suggested remediation measures, largely matching the above shortcomings. The detailed discussion is presented in paragraphs C4 and C5. The collected proposals reveal the subjects' insight (although intuitive) on the interrelations between contamination, exposure, intake, and adsorption of chemicals.

C3. Hazard Awareness

C3a. Knowledge of Worksite Risk Factors

Most of the subjects were nominally aware of the chemical hazards associated with the plant's production process and able to specify the name of toxic elements (but not its compound) or gas compounds. Subjects seldom identified the critical phases or points of increased emission or exposure and then only when questioned.

The subjects identified two major chemical hazards at ROMPLUMB:

1. Airborne particulate matter, definitely the main health injuring agent, consisting of lead, arsenic, silicon, copper, and zinc compounds.
2. Irritant or toxic gases such as sulphur dioxide, carbon dioxide or monoxide, all considered harmful, with little distinction made on which gas is toxic or irritant.

These hazards become harmful mainly by being inhaled around the smelters or foundry vat at the Agglomeration or Forming Departments, around the melted lead transportation tubs or while transporting containers with hot dust. A few participants, sometimes only one per group, specified these circumstances, while others agreed or remained neutral.

Three subjects identified the ventilation chamber as a site where gas and dust are inhaled because maintenance personnel are usually poorly protected.

Additionally, the participants identified less threatening non-chemical hazards:

- The danger of thermal burns with incandescent matter
- The exposure to high temperature, with no clear health consequences
- The eye damage that could result from looking with naked eyes at the smelting flame
- The risk of spinal hernia when lifting heavy weights around the WJ smelter

C3b. Knowledge of Health Consequences

Employees exhibited a range of knowledge about the consequences of exposure to hazardous materials. Some simply identified "intoxication" as a result. Others offered more detailed descriptions of various symptoms of exposure.

According to discussion group participants, primary symptoms of lead intoxication include:

- Chronic saturnism or lead poisoning, acute or chronic saturnine colic, neck pains, hair loss (statements in three groups)
- Destroyed nerves, damaged liver, tooth decay, joint/stomach pains (three groups)
- Anaemia, dizziness, nausea, headaches, vomiting, drowsiness, gastric ulcer (2 groups)
- Lung problems, varicose veins (onegroup)

Three subjects identified "silicosis" as resulting from general exposure to dust, while exposure to zinc leads to "smoke fever"—an acute, transient clinical condition or syndrome caused by inhaling smelting or welding gas mentioned by one subject. No other comments were made.

C3c. Knowledge of Occupational Morbidity

The awareness of being clearly at risk is common among the interviewed workers. Acute episodes of intoxication requiring immediate medical attention occur every month within the plant. According to the participants, patients are transported from the worksite to hospital for treatment.

A frequent disagreement within each group concerned the incidence of intoxication and the prevalence of occupational chronic diseases in the factory:

- "Approximately one-third of the exposed workers are chemically intoxicated"
- "Approximately 20 percent have silicosis, more than 50 percent have saturnism or increased lead adsorption"
- "Between 25 and 50 percent are ill, approximately 70 percent, probably 90 percent are already lead intoxicated"
- "Approximately 50 percent within a shift are ill, some may get 100 days of sick leave a year and the management is short in manpower"
- "Approximately 80 percent had saturnine colic, 90 percent have chronic saturnism"

The large range covered by these percentages suggests the informal sources—personal observations, rumors, anecdotes—of workers' information on this issue. The lack of accuracy may result from the fact that disease rates are not made public combined with a general tendency to exaggerate.

One worker mentioned that the periodic urine lead (*d-ALA* level) analyses in workers do not seem valid in many cases. A program of lead analyses took place this year but no results were ever communicated from the Medical Centre in Cluj. Others agreed that even the periodic medical check-ups do not reflect the poor clinical health status of some individuals. Another subject suggested that paid sick leaves are selectively granted, often to people less entitled to them, while some "really" sick individuals do not enjoy such a right at the proper moment. These claims are unverified, but if true, feelings of injustice could discourage people from observing individual safety rules or even participating in preventive medical check-ups in the future.

C4. Institutional Safety Measures as Seen by the Workers

C4a. Safety Measures In-Place

Each focus group agreed that the OHS measures taken by plant management to reduce worksite contamination, workers' exposure, pollutant intake, and pollutant adsorption were inadequate. In fact, only three major measures were referred to by the participants, with emphasis on the first. The opinions, perceptions, and beliefs of the interviewed workers were the following:

- The recently installed dust ventilation system, built with international aid, has several shortcomings; most of the participants mentioned the low efficiency of the system:
 - The system may prevent release of dust outside the plant, but the indoor environment is more polluted now than it was seven or eight years ago (when 1,500 tons of lead were produced monthly instead of the current output of 400 tons).
 - The blower motors are weak and aspiration power is low; only dust, not gas, is exhausted.
 - The system is designed for dry particulate matter; the real dust is damp, clogs undersized pipes, and obstructs bag filters that become wet.
 - The aspiration hoods are not properly positioned and additional hoods are necessary in some locations.
 - The system is poorly maintained. The motors may fail immediately after repair; some electric motors are directly exposed to rain water; the system suffers repeated interruptions, which increase indoor pollution within the plant.
- Fewer subjects mentioned the personal protection/safety equipment provided by the plant, mainly in the negative context of its poor quality and the necessity of being replaced frequently.
- The preventive medical assistance (the periodic medical check-ups) was mentioned only in terms of occasional blood lead analyses performed during the year, with no results communicated to workers. Except for a city clinic occupational physician, traditionally perceived as devoted to the health of the workers, most employees expressed significant distrust of the plant's medical assistance.

C4b. Needed Measures Suggested by the Workers

Participants identified several OHS measures that could be taken, improved, or modified by plant management that might reduce contamination, exposure, pollutant intake, and absorption by workers.

The "idea clusters" relating to safety improvements include:

1. Redesigning or supplementing the ventilation system to ensure proper aspiration power in some critical work places; installing and maintaining more powerful and better protected

motors, new hoods, and suitable pipes; improving the filtering equipment to match the quantity and properties of the dust to be exhausted.

2. Some low-cost technological and no-cost managerial improvements should be considered for reducing the workplace contamination and workers' exposure:

- Improve maintenance of some elements or systems of the industrial equipment (i.e., procuring proper repair parts and materials, replacing used convey belts, tools, chains, dust bins, and transporting vats) that could disperse toxic substances and decrease pollutant intake by workers, and reduce the number and frequency of hazardous exposure resulting from equipment malfunctions, especially maintenance workers' erratic search for improvised replacement parts.
- Enclose or shield some additional manufacturing processes (for example, sand mixture preparation); build a wall to separate the refinery hall from the smelting hall; repair the roof and replace broken windows to ensure proper air flow (for dust collection) and maintain a better indoor climate during the "flu season."
- Unclog and maintain the plant sewerage system, to enable current wet cleansing operations.
- Ensure standard quality of smelting equipment components (this may also avoid some additional operations, resulting in increased dust dispersion).
- Properly isolate, pressurize, and heat the crane operators' cabins.
- Provide employees appropriate tools (shovels, for example), thereby reducing each worker's exposure to hazardous materials and avoiding dust and gas absorption by workers who are temporarily inactive due to tool and equipment shortages ("one man works and another stands by").
- Avoid the use of fragmented slag for anti-skidding purposes on the public roads close to the plant—a custom that increases environmental contamination by hazardous compounds.
- Use a water-filled ditch at the exit gate of the plant to automatically wash ore and other hazardous substances from the tires of out-going cars and trucks, thus protecting roads from contamination.

3. Personal protection/safety equipment is provided to workers on a regular basis, however:

- Because of poor quality and design, some essential safety items quickly wear out, such as gloves and work suits. Workers find others, like the personal respirators, simply unbearable. A few workers suggested that OHS equipment supplies are not ordered from vendors offering products with the best price-to-quality ratio. Items such as gloves, boots, and other necessary work gear should be replaced sooner than current schedules permit.

- Defective safety equipment is not promptly replaced and often kept through its projected useful life, resulting in unnecessary and avoidable exposure. Replacements require authorization that is notoriously difficult to secure (“100 pages of documents and a lot of signatures,” according to many workers. “You may need to run around a whole week for this...”). Necessary items are unavailable or in short supply for long periods, and supervisory personnel need to pay more attention to ensure that quality safety equipment is ordered in the proper sizes and quantities to meet workers’ protection needs.
- There are work sites where additional safety items are necessary but not provided (gas respirators, protective leather coats, improved leggings), while other items such as padded coats or heavy wool long coats seem to be granted to employees not at risk of hazardous exposure.

4. Personal hygiene materials such as hand towels are in short supply and of poor quality, a condition that should be remedied, and some mandatory and previously granted items, such as toothpaste, toothbrushes, and nail brushes should be provided to the employees again.

5. The daily warm meal served at the plant canteen and milk provided as an “anti-toxic” agent imposes real financial burdens on the plant, but many workers reject the meals, and the “warm meal objective” of decreasing toxic substances absorption is not attained because:

- The nutritional value of the meal is seriously diminished by inedible pork and chicken in greasy, unhealthy sauces—a practice that should be discontinued.
- Many dishes, forks, and knives are broken and should be replaced, as these are potential sources of infections, accidents, or injuries.
- A thorough cleaning of food storehouses, including vermin eradication, is necessary (fines were already applied for violations of sanitary laws).

6. Clogged sewerage systems, degraded showers and taps, and dirty toilets prevent workers from using these facilities, which workers believe are essential for personal hygiene and health. Roughly speaking, only one third of the facilities are functional; the sewerage system requires regular maintenance and the fittings must be repaired; drinking-water pipes and wash bowls should be installed as near as possible to the work sites.

7. Plant indoor climate should be improved by fixing heaters that already exist and by mounting new window glasses in the production halls.

8. The medical consulting room should be located within the plant perimeter; workers’ access to the present one is during a limited period of the day and permitted only by special approval that is difficult to obtain (“a 10 km circular walk in the plant”). Work departments must be provided with medical emergency kits that are regularly missing for long periods of time.

C4c. Obstacles to Institutional Measures

Few specific remarks were made during this component of group discussions. Workers offered a few reasons to explain why OHS regulations are not rigorously observed, including:

1. Lack of funding is a general problem for workers and management. One participant observed that, at present, the plant is only "a phantom" compared to what it used to be. Production has decreased, prices are government-regulated, and the plant has many debtors—particularly state-owned companies—that are not able to pay on time. To meet production costs, management makes dubious cuts such as altering smelting prescriptions, and reducing the budgets for additives, equipment, safety measures, and technical improvements that may be necessary.

2. Plant foremen or provisioning officers are uninterested and often incompetent in safety matters, dismissing safety problems in the context of the present insurance law that does not impose responsibility for workers' health. Negligence is found in managing and administering work tasks, and things go wrong even where funding is already provided within the planned budget and no extra money is necessary.

3. Instead of promoting the legal interests of trade union members, union leaders are more concerned with identifying and communicating to the chief executives the names of dissatisfied individuals who disclose irregularities or claim their rights to low-end managers (foremen, etc.). On these occasions, "repressive" replies were probably formulated, including indirect threats or actual lay-offs, and criticism ceases with time, resulting in a climate of negligence and selective responsibility at the upper levels of the management. In fact, the interrelations are rather complex, allowing room for further assumptions.

C5. Individual Protection—Practices and Attitudes

C5a. Current Practices

Workers are provided personal protective equipment that consists of very basic items, including uniform overalls, leather boots, and protective gloves. Many subjects declared that the gloves deteriorate quickly: the thin leather and seams tear, reducing their protective properties. Workers seldom wear the generally provided hard hat. Additionally, some workers wear a poor quality work shirt. Its design does not include a collar, allowing hazardous dust to get to the skin. During the cold season, a short waist coat completes the personal protective equipment. Selectively, according to their work place and the nature of work hazards they face, employees wear aprons, protective eyeglasses, and rain mantles.

Up to five personal safety items (out of those 11 to 13 items that are usually provided) have an indefinite utilization period, while others are "consumables" and are replaced at different intervals (from one month to four years). Management appears not to care whether or not workers comply with personal protection guidelines or wear protective equipment.

Fewer than 10 percent of the workers wear passive respirators for particulate matter. These are very uncomfortable, give off a bad rubber odor, cause excessive perspiration, and irritate the face. Usually, these respirators do not fit properly and the filters become clogged too quickly, seriously impeding normal breathing. As fresh filters are sometimes in short supply, the respirator is simply put aside during work operations.

The participants in three groups recalled the valuable model of some French-made respirators, the JIM model, used in the factory in the 70's. This model enjoyed three advantages: it was soft and thoroughly fitted the face; it was washable and immediately reusable; and it was pleasant smelling and reasonably efficient. "Why is it not used again?"—was a common question.

Some workers had heard about the few active respirators with powered ventilators that were brought into the plant, but “nobody is using them; they stay quietly in the plant’s storehouse. We don’t know how many were already bought.”

Personal hygiene materials are restricted to two items: between 400 to 600 grams of hand soap per month, and one bath towel provided twice a year. Both were criticized: their supply is irregular most of the time and the bath towel is a “mock” of a towel, being very small and thin, and not lasting through the end of its regular replacement period.

One female subject mentioned that providing the workers with hand wiping cloths made out of contaminated work-overalls is a common, improper practice within certain departments. Dirty suits should not be reused in this hazardous way, which increases the contamination of the individual using such wiping cloths.

C5b. Obstacles to Proper Individual Protection

Except for the respirator and the hard hat, all the protective items are thoroughly accepted and considered necessary. No negative attitudes against the OHS norms were otherwise noticed.

Considering the high pollution level present within the plant, there is a general feeling among the workers that wearing the protective items will not decrease significantly their exposure: “...you can’t escape the chemicals.” The workers seem aware of the hazards they face and still accept the health risks, partially because they have no chance to secure better employment elsewhere. Being commonly of poor health, they know they may be rejected from most of the few available work positions in town. Those who come from rural areas do not perceive the countryside or agricultural employment as presenting better living opportunities for them.

In sum, workers identified several obstacles to individual protection against exposure to hazardous materials. While these could not be verified through group discussions, they include:

Characteristics, quality, and management of the personal protection equipment and hygiene materials:

- The respirator is unbearable, gets quickly stuck, and prevents normal breathing. It induces perspiration, irritates the face, and may be inefficient because it does not fit properly.
- The protective gloves and the work suits are of poor quality and deteriorate long before the end of the expiration period; the soles of the leather boots may be burnt or may detach easily, and the procedure of replacing the items is cumbersome.
- The collarless work shirts are improperly and ineffectively designed. They permit dust to access the skin, are irritating, and provide inadequate protection.
- Boots and other safety clothing are not provided in necessary sizes, small sizes are unavailable for a long time, and, consequently, some workers wear inappropriate footwear at work.

- Boots and worksuits are illegally sold by some workers. Returning used clothing and footwear is not required at the time of regular replacement. Some items are stolen from the wardrobe closets and, in these cases, no replacements are approved or supplied.
- The plant laundry is closed and work suits remain dirty for long periods.
- Personal hygiene materials are provided irregularly and bath towels are fragile and inferior; toothpaste, toothbrushes, and nail-brushes are no longer provided.

Functional state of the plant facilities:

- The lavatories, showers, and toilets are poorly maintained. These facilities are dirty and partially out of service.
- Hand washing facilities and drinking water sources are not located near the work place.
- The canteen offers poor meals in unsanitary conditions and with low nutritional value.

Improper communication with the management staff:

- Requests and complaints are “filtered” and sometimes discouraged.
- Team leaders, mainly more senior workers, provide poor personal examples. They are inert and cold-hearted. To some extent, new employees are socially and occupationally ostracized.
- Some working conditions and occupational environmental hazards do not meet legal standards. Under these circumstances, it is difficult to require workers to observe safety regulations.
- Often a sizeable portion of the workforce, between 50 and 70 percent of a normal work shift, fails to appear for its assigned shift being sick or otherwise unable to work, and team leaders and foremen do not enforce OHS norms with those personnel who do appear for regular work assignments.

C6. Occupational Health Training

C6a. Efficiency of the Existing Training

At the end of the discussions, a few of the participants mentioned that health protection should be mainly a concern of management, which first has to assure proper working conditions. Some ideas that emerged during the end phase of the focus group meetings include:

- Training is ineffective, since some employees do not perform their duties and the concentration of pollutants is high everywhere in the plant; “...forced ‘occupational health and safety training’ is likely to arouse hostility among us.”
- It is very difficult to enforce wearing uncomfortable protective items. The respirator is hated, the hard hat is heavy and considered unnecessary, and generally, one can’t escape

pollution: few workers agreed that wearing the protective equipment may decrease the exposure a little.

- The plant cleansing teams do not perform their duties. This fact is tolerated and “virtually nobody” (out of the auxiliary personnel) is fulfilling thoroughly his duties. So, “... why should we observe the norms more thoroughly,” said one worker.

C6b. What Works? Effective Arguments in OHS Training

A common idea expressed in this respect was that no arguments for complying with safety practices will be persuasive as long as working conditions do not improve.

A proper ventilation system will be the best evidence that management is concerned with work conditions. Worksite contamination represents the major source of workers' exposure, and “limiting the pathways through propaganda is not effective at all.”

However, more regular training (twice a month) would probably reinforce appropriate behavior, especially among younger, more recently hired workers.

Foremen must exert control and fines or apply other punishments when workers fail to comply with OHS norms (“accepting the employee at work only if he is properly equipped”). This should be the first step toward better individual protection.

D. Conclusions

The study of workers' occupational safety knowledge, attitudes, and practices based on semi-structured focus group discussions with 60 workers at ROMPLUMB Plant in Baia Mare resulted in the following conclusions:

1. Many workers possessed an accurate, well informed perception of specific hazards in the plant, naming quite complete lists of contaminants present at their work places.

They know the health consequences of the exposure to lead and other chemical hazards in the plant, specifying many symptoms of lead intoxication and exposure to gases such as sulphur dioxide. A significant number of workers already required medical assistance for work-related health problems, and the diagnosed occupational diseases they have contracted are of great concern to them.

2. The health risk presented by heavy metals contamination is generally accepted, with a feeling that little is to be done because of the present technical conditions of the plant. Some necessary improvements were specified: immediate technological improvements, redesigning the ventilation system, a proper supply and quality of personal protection equipment, fixing the lavatories, and improving the quality and serving conditions of warm meals.

3. Personal protective equipment is generally accepted, needed, and encouraged. Still a few items are rejected. For example, the dust respirators are very uncomfortable in various respects and supposedly ineffective. As a result, only about 10 percent of the exposed personnel occasionally wear them.

Nevertheless, some protective items (gloves, suits, and boots) deteriorate quickly and are cumbersome. It takes a long time to get them replaced, if at all, when damaged or lost. The responsible personnel must ensure that equipment is the proper type, size, quantity, and quality, and meets the specifications of the law and the objectives of occupational health and safety measures.

4. Institutional safety measures have first priority and consist of reducing primary exposure to pollutants through improved ventilation and production technologies; a better supply of basic individual protection equipment and installing improved personal hygiene facilities within the plant come next.

5. Basic reasons for not thoroughly implementing some OHS improvement, particularly regarding the personal protection measures, include:

- The poor quality and the short supply of most personal protection items (respirators, gloves, work suits, boots) and related administrative or financial difficulties replacing these items when damaged, sold, or stolen
- Short and irregular supply of personal hygiene materials
- Little control over employee observance of protection norms
- Inadequate communication with the local management personnel who tend to disregard or discourage complaints
- Poor condition of plant lavatories

6. Efficient methods, arguments, and motivational elements of occupational health training were hardly considered by employees. A few workers maintained that:

- Any training has little effect because some people in the plant neglect their duties and nobody enforces properly the fulfillment of OHS-related tasks.
- Pollution levels are high and most of the people suppose that personal protection measures are not able to significantly reduce the exposure to pollutants or chemicals.
- Advocating personal protection measures while the worksite contamination is still so high is seen as half-a-measure and not effective at all.
- Regular control and punishments would have some educational effects.

ANNEX

THEMATIC GUIDE FOR FOCUS GROUP INTERVIEWS

14

ANNEX
THEMATIC GUIDE FOR FOCUS GROUP INTERVIEWS

Proposed Subject	Questions
1. Introductory moment	1. What is the profile of your work department? What does it produce? How many employees are there per shift?
2. Work conditions	2. What are the difficulties or the drawbacks related to the work conditions in the plant (department, workshop, individual work place) that you or your colleagues face? a. material work conditions, work hygiene and safety, chemical hazards, risk of accident b. equipping and organizing the work place c. work organizing and control, structure and sequence of tasks d. duration and rhythm of work, work timetable e. social relations in the workshop or work group f. lawful aspects of the work conditions: salary, risk- and other legal extra-payment, OHS regulations
3. Priorities at intervention	3. What should be the most urgent improvements to implement regarding the aspects mentioned above?
4. Risk factors	4. What health risks or hazards exist in your department?
5. Health consequences	5. What concrete consequences for your health may result from the exposure to such hazards?
6. Occupational morbidity awareness	6. Do you happen to know certain cases of disease due to this causes? Approximately how many cases of intoxication, hospitalization, medical treatment or job change related to work hazards occurred in the plant during the last year?
7. Awareness of actual institutional measures	7. What institutional safety measures were effectively taken in the plant for lowering or avoiding the occupational health risks?
8. Suggesting other institutional measures	8. What institutional safety measures should be taken in the future for lowering or avoiding the occupational health risks?
9. Actual obstacles to institutional measures	9. Why have such measures not been taken yet? What are the obstacles?
10. Individual protection	10. What individual protective measures do you personally take to avoid these risks?
11. Other individual protective measures	11. What other individual protective measures could you take to avoid these risks?
12. Obstacles to individual protection	12. Why didn't you take such individual protective measures by now? What were the obstacles?
13. Evaluating the applicability and efficiency of safety measures	13. Out of the methods and measures proposed during the occupational health and safety training sessions: a. which of them do you consider to be difficult to take and why? b. which of them have more inconveniences than advantages? c. which of them do you consider to have little practical efficiency?
15. Inefficient work-safety training methods	15. What are the OHS training and educational methods you consider to be less efficient?
16. Efficient arguments in OHS training	16. What arguments should be emphasized during training so that workers should more efficiently protect their health?
17. Adjustment and differentiation of training methods	17. How should these training methods be adapted to different categories of personnel, with respect to: a. age and gender b. years of work c. nature and complexity of work d. level of occupational training