



## **PUBLIC ACCEPTANCE AND ASSESSMENT OF COUNTERMEASURES AFTER THE CHERNOBYL ACCIDENT**

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**General Background.** Previous studies confirmed that the main reason of the psychological stress after Chernobyl was a worry about radiation influence on personal health and health of children [1,2,3]. This "Chernobyl stress" is typical "information" or emotional stress resulting from mass media information on radioactive contamination and exposure but not from direct personal visual or auditory and other impression for 5 million population. The population was not able to define the radiation danger by direct sensual perception without measuring equipment but was obliged to change their life-style and diet as a remedial action and to follow the radiation protection requirements and advices.

Therefore the anxiety was related not only to information about the accident but also to implemental countermeasures, which changed the everyday life. The countermeasures became the first real sign of the accident.

**Methods.** In 1988-1994 studies based on population interview of about 5 thousand residents and questionnaires were carried out on contaminated (15 - 40 Ci/km<sup>2</sup>) territories, adjacent and distant areas. The following information was used:

- population knowledge of protective measures;
- sources of information about radiation and level of trust;
- assessment of the effectiveness and reasons of non-satisfaction of the protection measures;
- compliance and involvement of population in countermeasures including effects of life-style changes and behavior;
- public opinion on priority for financial expenditure for mitigation of accident consequences.

### **Results**

Questionnaire contains the list of 25 types of protective measures. The main ones were the radionuclide control of food, decontamination of areas and structures, improvement of the food stuffs quality, improvement of medical services, improvement of conditions of life and economic support.

The study of public information indicated, that population has no complete knowledge on the protective measures implementation and their effectiveness. In 1992, 75 - 95% respondents knew about decontamination, repairment of roads, medical supervision; 35 - 58% of them were informed of dosimetry control, use of special facilities; only 26% persons knew about other protective measures. Surprisingly only 27% knew about the limitation and prohibition of private land use and food production introduced during first months after the accident.

Table I. Public Awareness of Protective Actions.

Action	Relative (%) number respondents			
	contaminated areas		control areas	
	1988	1992	1988	1992
Correct:				
- cleaning of dress and shoes	96.7	26.4	97.6	17.6
- frequent washing	95.1	26.4	92.3	17.6
- closing windows and doors	78.6	43.9	87.2	46.4
- stable iodine profilaxis	43.2	20.0	59.4	22.4
Noncorrect:				
- frequent outdoors walk	35.7	6.0	31.2	4.8
- extensive home ventilation	34.9	6.0	34.8	4.8
- alcohol drinking	18.3	16.0	23.1	18.8

At present public knowledge of consequent compliance with the countermeasures and prohibition diminished (Table.I) except the limit of the time of out-door staying.

In 1988 (Table II) population complied with such protective measures, as the change of nutrition. Half of the respondents improved their diet. In comparison with the above mentioned data the new results indicate that more respondents (55%) have noted the improvement of economic situation. Improvement of meal quality observed only 13% interrogated on contaminated territories. Nutrition changes after the 1986 remained for many years, and in 1993 this fact was stated by 10% of the respondents even from the remote clean areas.

The results of the survey in 1988-1994 show constantly, that the population in contaminated areas had changed the lifestyle. It is mentioned above, that the 23 - 33% of the population started to stay and work more often at home, 36 - 50% were separated from relatives and friends. Separation from close friends and relatives is one of the important negative consequences of the Chernobyl accident.

Table II. Public Assessment of Compliance with Protective Measures at the Contaminated Areas

Answers	Relative (%) of respondents	
	1988	1992-93
Better meal	57	13
Better economic situation	36	55
More often stay at home	33	23
Have their vacations in other locations	46	41

In 1992 definite positive or negative evaluation of protective measures (Table III) was given by the equal number of interviewed. Contradictory, at the same time the positive evaluation by the respondents was given to such particular measures, as exception of contaminated products (72% questioned), systematic radionuclide control, repairment of the

roads, relocation, decontamination of the territories, medical services (from 32 to 47% of respondents).

Table III. Public Evaluation of Countermeasures at Contaminated Area in 1992.

Evaluation	Relative (%) number of respondents	
	activities of scientists and specialists	protective actions
Negative	24.9	41.0
Positive	25.6	40.7
Don't know	49.5	19.8

Later in 1994 each third respondent at contaminated territories noted the importance of radiological control of food; approximately the same number of interrogated considered, that the measurements had not any sense; other have preferred not to know about measurements of agricultural alimentary products, though during interviews dosimetry was permanently performed.

In 1994 the regulatory dosimetry control, obviously protective measure, was not perceived by population as an obligatory and effective and only every 3-rd respondent from contaminated area considered that radiometric control of food provide "very substantial" or "substantial" benefit. This is true also for removal of private stock which was not considered by population as a positive protective measure. Probably this action was a tragic symbol of "substantial" benefit. This is true also for removal of private stock which was not considered by population as a positive protective measure. Probably this action was a tragic symbol of an accident situation.

In 1992, 22% of the respondents considered the payments of "compensation" as a cause of anxiety. The contamination of territories, special medical and radiological control increased the anxiety in 9-11% of interviewed. Public distress by relocation for all groups was 55%.

Contradiction in assessment of protective measures was expressed by the fact that in answers to doubling questions no one from respondents was in favor of cessation of protective countermeasures.

In 1993 the absolute majority of respondents from the restricted and non restricted areas did not feel themselves and their family protected from radiation in a case of another nuclear accident.

Table IV. Public Assessment of financial expenditures in 1993

Money should be used for:	Relative (%) respondents	
	contaminated area	control area
direct payment	52.8	29.2
decontamination	48.0	71.2
new house-building	37.2	31.6
social rehabilitation	20.8	40.8
community services development	21.2	12.4

In 1993 (Table IV) population on contaminated territories evaluated Chernobyl money fairly cash and decontamination of territories as the highly important protective measures (half of all interrogated on contaminated territories). The population considers financial compensation as one of the most important measures. As a social rehabilitation measure the improvement of health care is considered to be the first priority. All interrogated persons (98%) on contaminated territories in 1993 have noted lack of improvement of medical services during the last year.

### Conclusions.

1. The different perception of various countermeasures was noticed. The population positively accepts decontamination, improvement of medical care, financial compensation and some other measures. The change of a lifestyle, limitations of private householding and land use are main consequences negative rated.
2. Contradictory evaluation of countermeasures result from misunderstanding of their aims and partly from psychological perception of remedial action as a "symbol" of a hazard in everyday life.
3. With time the public forget some protective measures and would not be able to use it in future.
4. Therefore no significant positive changes of psychological and emotional tension could be expected resulting from protective and rehabilitation actions for limitation of radiation exposure without some special measures of psychological support.
5. Countermeasures effectiveness definitely depends on their psychological "acceptance" by population and active public participation. Promotion of these activities requires:
  - further development of special public education programs on countermeasures aim and significance,
  - definition of priority measures for population benefits (t.g. improvement of health care),
  - promotion of mutual understanding, actions and trust of public, experts and administration.

### References

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