evaluation department

evaluation ANALYSIS

# Evaluation of CHARP

## July 2002

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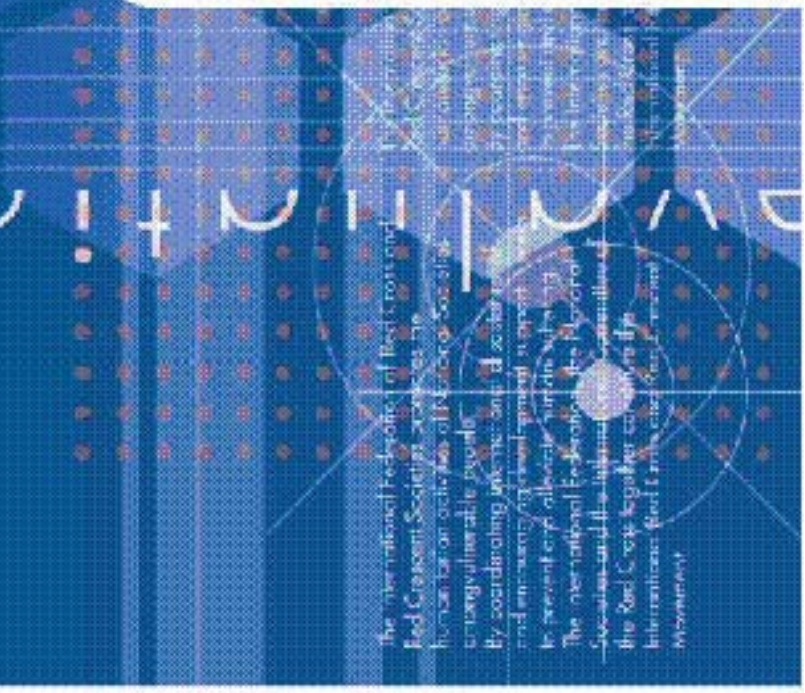

International Federation
of Red Cross and Red Crescent Societies

# *International Federation of the Red Cross and Red Crescent Societies*

## Monitoring and Evaluation Division

*Evaluation of support by the International Red Cross and Red Crescent Movement to the Chernobyl Humanitarian Assistance and Rehabilitation Programme (CHARP)*

Belarus, Russia, Ukraine 21.4.-1.5.2002

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## Acknowledgements

The Evaluation Team would like to thank all those who gave so generously of their time and expertise to give a comprehensive overview of the Chernobyl Humanitarian Assistance and Rehabilitation Programme (CHARP) programme. It is hoped that the findings of this evaluation will contribute to a strengthening of the programme.

Dr Brenda Corcoran
Team Leader
April 2002

Dr Lelia Urkel, the Ultra sound doctor from Gomel Mobile Diagnostic Laboratory performing a thyroid ultra-sound examination

## Executive Summary

The fourth evaluation of the support by the International Red Cross and Red Crescent Movement to the Chernobyl Humanitarian Assistance and Rehabilitation Programme (CHARP) took place between 21 April – 1 May 2002.

Following the accidental explosion at the fourth reactor of the Chernobyl nuclear power plant in northern Ukraine in April 1986 millions of radionuclides were dispersed largely to the surrounding areas in Belarus, Russia and Ukraine. An estimated 160,000 people were evacuated from the most severely contaminated areas and over seven million people were affected by the accident. The life expectancy in the three countries has declined since the accident. This is largely due to socio-economic conditions and has been seen throughout the countries of the former Soviet Union.

To date the only pathology scientifically attributable to radiation exposure from the accident is an increase in thyroid cancer among children. This increase in thyroid cancer is only seen in those children who were 0-18 years at the time of the accident (i.e. those born between 1968 and 1987) and it is predicted that the incidence will peak between 2006-2020.

The CHARP programme was set up in 1990 initially screening food supplies and the surrounding environment for radioactivity. From 1992 onwards six mobile diagnostic laboratories (MDLs) based in highly affected regions in Belarus, Russia and Ukraine screened background radiation and examined adults and children in remote rural areas.

From 1996 the programme was modified to meet the following objectives

- The annual medical screening for up to 15,000 persons by each mobile team (90,000 in total annually) focusing on high risk groups such as those who were children at the moment of the accident
- The provision of multivitamins to children and needed medicines to thyroid cancer patients

In 1997 a further element of the programme was introduced

- The development of rehabilitation work and psychosocial support in order to strengthen the stability and resources of the affected population to cope with stress and anxieties.

Staff from the mobile teams has carried out annual medical screening on those living in remote rural parts of the highly contaminated areas in the six regions. All children and those adults who wish to attend are invited to attend for medical screening, which consists of a questionnaire to determine any medical complaints. Most people also undergo blood and urine examinations. The majority of those screened are found to be "sick" with vague complaints and about half of these are referred to the nearest hospital for further examination. It is unclear how many go for this examination or what the results are.

In addition all those screened have an ultra sound examination of the thyroid gland. If this is abnormal they are referred to the nearest specialised centre to for a biopsy to

diagnose cancer. Since 1994 the MDL specialists have screened over 550,000 people and detected 334 cases of thyroid cancer, which were confirmed by specialised institutions. The number of cancers diagnosed has increased every year with 120 diagnosed in 2001. It is unclear how many of those screened were in the target group i.e. aged 0-18 years at the time of the accident.

However only about half of those with abnormal scans actually go to the specialised centre for the biopsy. This has been improved in two regions by having specialists travel from the centres to the field or by training the MDL staff to carry out the biopsy on site.

It is estimated that about 60,000 people living in the affected areas have received psychosocial support (PSS) within CHARP. The focus of PSS is to give accurate information and education to those affected by the disaster. Due to financial constraints the PSS has been limited since 2000.

From 1990 to the present CHARP has provided 114 million multivitamins to children living in the contaminated areas. These were supplied between January and June to supplement the diet, which is deficient in fresh vegetables and fruit. Recent funding difficulties resulted in no vitamin supply in 2000 and only CHARP regions in Ukraine received vitamins in 2001. The programme has also supplied thyroid medicines for those who had cancer surgery. Since 2000 these have only been supplied in Belarus because of the funding problems.

Since 1999 the programme has been financed by a number of donor Participating National Societies (PNS) although from 2001 there have been funding shortages which has not affected the medical screening but has led to a reduction in the programme staff, the supply of multivitamins and medicines and the delivery of the psychosocial support.

The evaluation found that the programme has gained unique expertise in how to support an affected population following a nuclear accident. The cooperation between the National Societies (NSs) and the governments is strong but there is no evidence of any formal cooperation between NSs and United Nations agencies and non-governmental organisations involved in post-Chernobyl activities.

The staff of the MDLs is highly motivated and carry out a huge volume of medical and laboratory examinations. However screening should only be carried out for thyroid cancer and the priority target group should be those who were 0-18 years old (born between 1969-1987) and living in highly contaminated areas at the time of the accident. Different possibilities should be pursued to ensure that the follow up for individuals with abnormal thyroid scans is improved.

The programme is filling a gap in primary health care, which is limited in the remote rural areas. Until the government health systems provide primary health care services, the MDLs should carry out the diagnosis and treatment of ailments as long as the thyroid screening has been adequately done.

The psychosocial support aspect of the programme should be focused to delivering accurate information about the long-term health effects of the accident. As it is

recommended that children born after 1987 would not be screened and many are malnourished these children living in contaminated areas should be provided with multivitamins for the winter months.

In order to secure the long term sustainability of the programme there should be ongoing discussions with the regional governments with the aim of their taking increasing financial responsibility for thyroid cancer screening and the distribution of multivitamins.

As the peak of the incidence of thyroid cancer has not yet been reached and it is not known what new pathologies may emerge related to radiation, it is essential to follow up scientific research that might change the objectives of the programme. It is therefore recommended that another evaluation should be carried out in three years to assess any changes.

# INDEX

# 1. Introduction

The Chernobyl Nuclear Power Plant situated in the Kiev region in the north of Ukraine close to the Ukrainian Belarusian border started producing power in 1977. The fourth of a planned six reactor units began operation in 1983. On 26 April 1986 the explosion of the fourth reactor of Chernobyl Nuclear Power Plant triggered the worst disaster ever of the civil nuclear industry. The accidental explosion during a safety test destroyed the core of the unit and resulted in a massive fire, which lasted for about ten days. This led to the dispersion of millions of radionuclides from the fuel rods.

The radioactive nuclides distributed by the accident in the environment have different characteristics as well as biological impacts. Four types can be identified and they are as shown in Table 1.

**Table 1: The characteristics of the radioactive nuclides**

| Isotope | Half Life Period | Biological effects | Areas affected |
|---|---|---|---|
| $^{131}$ *Iodine* | 8 days | Captured by the thyroid gland. Causes thyroid cancer. | Worldwide dispersion, "Chernobyl cloud" |
| $^{137}$ *Caesium* | 30 years | Integrated in food chains and concentrate in wild foods such as mushrooms and berries. In the human body, caesium is found particularly in the muscles. Its turnover is about 2 to 3 months. | 21,000 km$^2$ of land in Belarus, Ukraine and Russia affected. Belarus soil 30% contaminated. |
| $^{90}$ *Strontium* | 28 years | Accumulated in the bones. Emits beta rays, which have a potential for biological effects essentially on bone marrow. | 80% in the "Zona" |
| $^{239}$ *Plutonium* | 23,000 years | Emits cancer-causing alpha rays. | Nearly 100% in the "Zona" |

*(Adapted from Professor Pierre Pellerin)*

The most significant component of the waste was radioactive iodine, which has a short half-life period, and after three months it had nearly all disappeared by natural decay. Due to the huge geographical dissemination and the short half-life period, no map is available showing the total areas contaminated by this nuclide.

The major pollutant of the accident was $^{137}$Caesium. The territory is considered contaminated if the $^{137}$Caesium level exceeds 1 Ci/ km$^2$ (curie per square kilometre). The highly contaminated areas have caesium levels between 15 and 40 Ci/ km$^2$. At present 150-200 000 people live in these areas. It is forbidden to live in areas where the contamination density is higher than 40 Ci/ km$^2$

Following the explosion an estimated 160,000 people were evacuated from the most severely affected area - a thirty-kilometre zone around the plant ("the Zona"). Clean up work such as burying debris and contaminated equipment, washing off buildings

and streets and removing top soil was carried out by up to 600,000 "liquidators" – firemen, soldiers and plant workers. In addition a concrete sarcophagus or shelter was constructed over the destroyed reactor to prevent further release of radioactivity.

The three remaining reactors were shut down after the accident and after stringent safety checks restarted in October-November 1986. However following safety concerns from the G 7 countries of the international community the Chernobyl Plant ceased production of nuclear power in 2000. Five thousand people still work at the plant monitoring the estimated 200 tons of nuclear fuel located under the sarcophagus, building a new shield around the now leaking old sarcophagus and dismantling the three previously functioning reactors.

After the accident the then Soviet government instituted a system of compulsory and voluntary resettlement involving 350,000 people. Some were evacuated immediately and some several years later. In addition legislation was enacted for a policy of compensation for victims of Chernobyl. This was largely in the form of welfare payments and annual health screening for liquidators and those living in contaminated areas.

When the former Soviet Union collapsed in 1991 the three republics most affected by the Chernobyl accident were formed – Belarus, Russian Federation and Ukraine. In all three countries transition to the market economy and political reforms were followed by a severe economic crisis. This resulted in high inflation rates and spiralling unemployment leading to an increasing proportion of the population living below the official poverty line. The population has been falling since 1992 with the death rate exceeding the birth rate. The birth rate has fallen sharply largely due to economic factors.

Basic demographic indicators for the three countries are shown in Table 2.

**Table 2: Demographic indicators for Belarus, Russia and Ukraine**

| | Belarus | Russia | Ukraine |
|---|---|---|---|
| Population | 9.95 million | 147 million | 49.5 million |
| Land mass | 207,595 sq km | 17,100,000 sq km | 603,700 sq km |
| Life expectancy males | 63 years | 59 years | 60 years |
| Life expectancy females | 74 years | 71 years | 72 years |
| Population growth rate | -0.12% | -0.34% | -0.60% |
| GDP per capita | US$ 2990 | US$ 1880 | US$ 870 |

The Chernobyl nuclear accident exacerbated the adverse economic situation in the three countries largely due to the cost of the clean up and radiation monitoring, the resettlement programme and welfare payments. It is estimated that over seven million people were affected by the accident.

At the present moment the only pathology scientifically attributable to radiation after the accident is an increase in thyroid cancer among children. This increase in thyroid cancer is seen in those children who were 0-18 years at the time of the accident (i.e. those born between 1968 and 1987). The peak of the incidence is still ahead; most experts believe this is expected between the years 2006-20.

## 2. Background to the Programme

Following the Chernobyl accident a large number of UN agencies and NGOs arrived in the affected area. Based on an International Federation of the Red Cross and Red Crescent Societies (IFRC) survey carried out by international experts in January 1990 it was recommended that IFRC and the Russian Alliance of Red Cross and Red Crescent societies launch an emergency appeal for funding. The major objectives were

- The provision of accurate information to the people directly affected by the accident
- Counselling to help alleviate psychological problems apparent in much of the population living in the affected areas
- Provision of Red Cross workers of the equipment required to ensure daily control of contamination levels in the affected areas
- Supply of medical equipment should sufficient support be forthcoming from participating national societies (PNS).

Funding was secured and since 1990, the joint IFRC / Red Cross National Societies of Belarus, Ukraine and the Russian Federation long term programme known as Chernobyl Humanitarian Assistance and Rehabilitation Programme (CHARP) started in the most affected areas.

Initially the programme concentrated on screening food supplies and the surrounding environment through radiometric testing with funding from German and British RC from 1990 to 1993. ECHO funded the programme then for 5 years (1994-1999) together with Japanese RC, British RC, Netherlands RC, Danish RC French RC and Icelandic RC.

From 1992 onwards six mobile diagnostic laboratories (MDLs) based in six highly affected regions screened background radiation and examined adults and children in remote rural areas. The regions selected were Gomel and Mogilev in Belarus, Bryansk and Kursk in Russia, Rovno and Zhitomir in Ukraine. Later in 1997, the structure of regions was rearranged. As Kursk region was comparatively less affected by the disaster the MDL there was phased out. Instead another laboratory was set up in Brest region in Belarus.

The MDLs distributed basic health information on measures to minimise the impact of radioactive contamination on general health. In addition the children in the contaminated areas received milk powder, multivitamins and iodine as nutritional support. Levothyroxine medication used in the treatment of people whose thyroid has been removed was also provided.

In 1996, the CHARP programme was modified and adapted to meet new needs. Since the radiation situation stabilised the radiation monitoring part of the programme was discontinued. The whole body radiation equipment was donated to the regional health authorities. The number of people targeted for medical screening was increased from 60,000 to 90,000 per annum, with a special focus on children and people who were children at the moment of the accident.

In June 1997, six new MDLs, redesigned to facilitate the increase in examinations, replaced the old ones. The international management in the delegation level was reduced and local management was successfully introduced, which resulted in a significant reduction in the costs of the programme.

A further element of the revised CHARP was the introduction of a Psycho-Social Support Programme, which started in Belarus in 1997 and expanded to Ukraine in 1998 and then to Russia in 1999. MDL staff, Red Cross workers and volunteers were trained in psychosocial support techniques.

The International Federation of Red Cross and Red Crescent Societies is an active member and participant of the UN Inter-Agency Task-Force. The UN Report "The Human Consequences of the Chernobyl Nuclear Accident: A Strategy for Recovery" (2001) proposes, that the international community should adopt a new developmental approach in a second, ten-year, recovery phase of initiatives to tackle the problems caused by the Chernobyl accident. The approach should aim to give individuals and communities control over their own futures. The Report underlines that the international community must accept a share in the responsibility for the future well being of those whose lives have been blighted by the Chernobyl accident.

Three previous evaluations of CHARP were carried out in 1993, 1996 and 1999. The UN Report referred to above was used as a basic document for this evaluation.

## 3. Methodology of the Evaluation

The evaluation took place from 22 April – 1 May 2002 and the team consisted of
Dr Brenda Corcoran, Independent Public Health Consultant and Team Leader
Dr Terhi Heinasmaki Senior Health Officer, Federation Secretariat Health Department
Dr Toshiharu Makishima, General Director, International Medical Relief Department, Department of Surgery, Japanese Red Cross Medical Centre
Mr Nikolay Nagorny, Co-ordinator of CHARP

The methodology of the evaluation involved

- A critical review of IFRC/ National Society documented materials including previous evaluation reports.
- An assessment of the degree to which recommendations from previous exercises have been agreed and implemented and identify unanticipated constraints to their implementation.
- Interviews with National Societies and the Federation Delegation programme team and other key stakeholders – Ministries of Health.
- Visits to five regions to interview regional and district Red Cross staff, visit federal administrations, meet with staff from the regional and district hospitals, and visit mobile diagnostic laboratories on site.

Five of the six regions implementing the programme were visited – Gomel and Brest in Belarus, Zhitomir and Rovno in Ukraine and Bryansk in Russia. The remaining district, Mogilev was not visited due to time and distance constraints. In total the evaluation team travelled 3000 kilometres by car in eight days.

# 4. Findings

## 4.1. National Societies

The Red Cross Societies of Belarus (BRC), Russia (RRC) and Ukraine (URC) have extensive nationwide networks and a long history of active involvement in health programmes and social support to vulnerable population groups. Belarus and Ukraine have a strong Visiting Nurses Service (VNS), who provide professional medical and social assistance to the vulnerable people either at home or in the medico social rooms (MSR). In Russian region of Bryansk the VNS ceased functioning in 1997 due to lack of funds. The level of Red Cross activity in each CHARP oblast is shown in Table 3.

**Table 3: Level of contamination of oblast and activities of Red Cross**

| Oblast | Number of Caesium Contaminated rayons | Number of VNs | Funded by RC/local Administration | Number of Volunteers |
|---|---|---|---|---|
| Brest | 3 | 39 | 39/0 | 122 |
| Gomel | 11 | 50 | 14/36 | 100 |
| Mogilev | 6 | 63 | 43/20 | 170 |
| Bryansk | 7 | - | - | 18 |
| Rovno | 7 | 155 | 0/155 | 3000 |
| Zhitomir | 8 | 178 | 0/178 | 960 |

When CHARP started, an International Chernobyl Coordination Committee (ICCC) was set up consisting of the Presidents of the affected National Societies and the Head of the Federation Delegation. This committee deals with all decisions concerning the programme. The ICCC met regularly until the funding difficulties began in 2000 and will meet after this evaluation to endorse any changes.

## 4.2 Health consequences of Chernobyl accident

It is difficult to assess the health effects of the Chernobyl accident due to a combination of factors. Much is still not known about the biological effects of radiation. Ionising radiation can cause additional cancers and non-cancer mortality and morbidity. Some effects may be delayed for many years after the exposure due to the long lead-time for the development of some cancers.

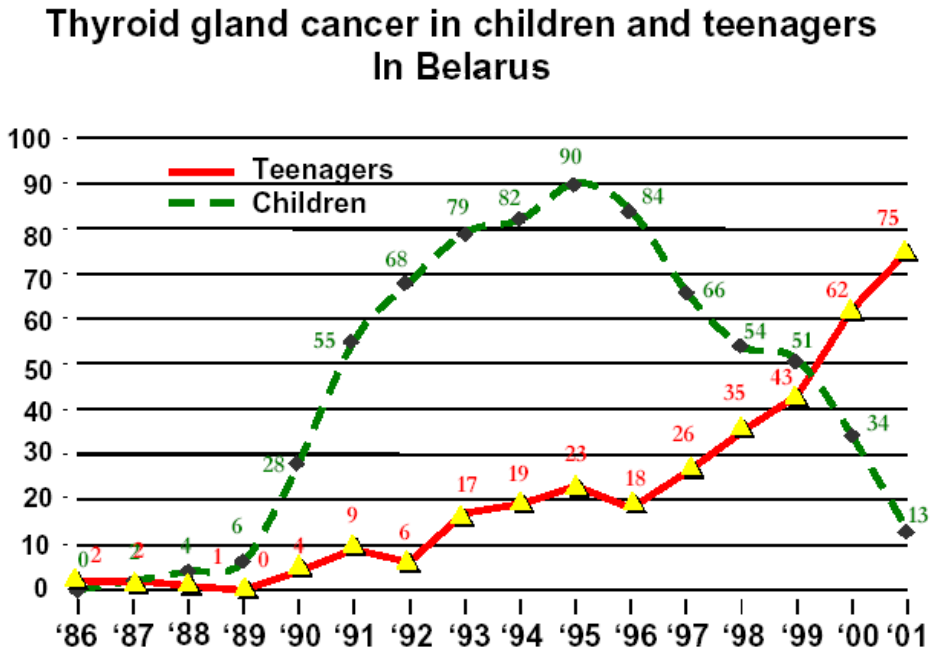
The former Soviet Union was responsible for the initial response to the medical effects of the Chernobyl accident. Registries of affected people were set up but epidemiology was poorly developed. Annual mass medical screening was carried out and a wide range of health complaints entitled an individual to be classified as a victim of Chernobyl thus being eligible for pensions and benefits. This resulted in scarce resources being allocated largely on the basis of people's complaints rather than actual medical need and led to an over awareness of ill-health. The large scale screening for those from affected areas that does not take place in the rest of the population has resulted in conditions being detected that may not otherwise have been found.

In addition the life expectancy in the three countries has declined largely due to a combination of socio-economic conditions and poor diet coupled with excess alcohol and tobacco usage - this has been seen throughout the countries of the former Soviet Union.

However there has been a documented increase in the incidence of thyroid childhood cancer in those children who were 0-18 years at the time of the accident. Leading experts in the research institutions visited by the evaluation team confirmed this (Professor Demidchik in Belarus and Professor Tronko in Ukraine). Childhood thyroid cancer was extremely rare prior to 1990 but a recent United Nations Scientific Committee on the Effects of Atomic Radiation report said that up to 1998 there had been 1800 cases of thyroid cancer in children living in the affected area at the time of the accident. Conservative estimates predict there will be 8000 cases of thyroid cancer occurring over the lifetimes of those exposed in childhood with the peak of the incidence between 2006-2020.

Thyroid cancer is associated with exposure to radioactive iodine, which concentrated in the thyroid gland. The high incidence of endemic goitre (lack of iodine in the thyroid as a result of poor diet) contributed to the large increase in the number of cases. There has been no increase in the incidence of thyroid cancer in those children born after the accident.

*Figure 1: The incidence of thyroid cancer in Belarus in teenagers (15-18 years) and in children (<14 year) by year of diagnosis.*




To date there has been no other documented increase in any other forms of cancer specifically in the affected areas but the future is still unclear and ongoing monitoring of the situation is essential. In addition there has been no evidence of increase in non-cancer morbidity and mortality attributable to the ionising radiation but this also needs to be followed up. Many of the institutions visited are collaborating with international

bodies and this work has been acknowledged in various UN reports. In one institution visited the evaluation team learnt of cytogenetic studies on apparently healthy people living in contaminated areas at the time of the accident and a greater than expected number showed genetic abnormalities. The implications of this are as yet unknown.

Legislation for the annual screening of all those in the affected areas includes a questionnaire, physical examination and blood and urine tests exists in all three countries. This is the responsibility of the Dispensaries of Radiation Medicine who report 80-90% of the population are screened. However these figures were doubted by many of those interviewed by the team, as there are limited financial resources and also because many of the affected population live in isolated areas up to 100 km from hospitals.

The UN report states that "broad-based screening consumes scarce financial and human resources and may reinforce the idea that ill-health is the norm… However, the screening of proven risk-groups plays an important part in preventing and curing disease."

### 4.3 Funding

Funding for CHARP has been provided by different PNS since 1999 as shown in Table 4.

**Table 4: CHARP funding 1998 –2001**

| Participating National Society | Funding period | Amount (CHF) |
|---|---|---|
| Japanese Red Cross | 1999-2001 | 854,938 |
| British Red Cross | 1999-2001 | 645,650 (Earmarked for Belarus) |
| Danish RC | 1999 | 50,000 (for PSS) |
| Icelandic RC | 1999-2001 | 26,500 |
| German RC | 1999 | 80,000 |
| Netherlands RC | 2001 | 5,914 (for PSS workshop) |
| Austrian RC | 1999, 2001 | 385,555 (Earmarked for Ukraine) |
| Finnish RC | 2000 | 81,310 |

In 2000-01 the Finnish, Netherlands British, Japanese, Iceland, German and Austrian RCSs supported the programme. However in 2001 the level of funding dropped significantly. The programme maintained the number of medical checkups, with a focus on thyroid gland examinations but some posts were unfilled in the MDL teams. Supplying multivitamins and levothyroxine was essentially reduced. Psycho-social assistance to the population could not be expanded. The personnel working full time in CHARP in the delegation in Minsk was diminished from nine to four.

At the time of the evaluation the Japanese and British Red Cross Societies have committed to fund CHARP for the next three years. The amount of support is as yet unknown.

Fund raising in CHARP countries is not large-scale and most branches get their funds from membership fees. Enterprises get no tax refund from humanitarian donations, which limit their willingness to fund RC activities.

Regional governments have taken financial responsibility of the programme to some degree. In Ukraine the government pays for the Visiting Nurses, who are essential in informing the population about the arrival of MDL and their activities and also carry out psychosocial support to the affected population. In all countries the authorities take part in some running costs like rent of RC offices, fuel or vehicle maintenance. In Bryansk the regional administration provided MDL staff with transport while the RC vehicle required repair.

### 4.4. Findings as per the objectives for 2002

**Objective 1:** *Annual screening for up to 15,000 persons by each mobile team (90,000 in total annually) focusing on high risk groups such as children and young people who were aged 0-18 at the moment of the accident*

The mobile diagnostic laboratory (MDL) is a minibus equipped with laboratory and ultrasound equipment, which travels to remote rural areas to carry out health screening. The staff of the MDL consists of. three medical doctors (an endocrinology specialist, an ultrasound specialist and a general practitioner), two laboratory technicians, a medical registrator and a driver The regional government generally pays their salaries and CHARP provides additional financial support as well as per diems when the team are in the field. However in some sites the government salary is not paid to the MDL staff when they are in the field. The vehicles, equipment and transport costs are funded by CHARP.

The area that each MDL covers is agreed with the local health administration and is in the remote rural part of the highly contaminated areas. Screening is carried out on the population of one village at a time in a village premises e.g. school or feldsher point. The residents of the village are given information as to where and when the screening will take place and all children and those adults who wish to are invited to attend. Each MDL examines about 15000 persons a year, which means approximately 70 persons per every working day.

The MDL staff received initial training for a month from the Dispensary of Radiation Medicine and they use protocols and manuals to follow standardised procedures. Ongoing training for staff has not been held since 2000 due to funding constraints.

The medical examination includes a questionnaire about general health, clinical examination of thyroid gland and symptomatic organs and ultrasound of the thyroid gland. Most also undergo blood and urine examinations. Blood from a finger-prick sample is analysed using a micropipette analysis and dipstick testing of urine is carried out using an automatic device. Glucose can be measured from peripheral blood if urine tests suggest blood-sugar disturbances. There have been no shortages of reagents to carry out the laboratory tests.

The following tests are carried out on blood and urine
**Blood** Haemoglobin, Haematocrit, Leucocytes, Granulocytes (abs, %), Lymphocytes Monocytes (abs, %), Thrombocytes,
**Urine** Glucose**,** Ph, Protein, Urobilinogen, Nitrates, Bilirubin, Ketones, Gravity, Leucocytes, Blood.

Table 5 shows the number of screening tests carried out by each MDL in adults and children. An adult is defined as anyone over 18 years of age at the time of the screening. Anyone with any vague complaint on the questionnaire or any abnormality detected is defined as sick. Those who are defined as sick have complaints such as headaches, heart pain, anaemia, abdominal and breathing problems. The examining doctor refers about half of those deemed sick to the nearest diagnostic centre for further investigation, which is free of charge. However it is not known how many go for further investigation or what the results of such investigations are.

**Table 5: Adult and child screening and amount of ill health detected 2001**

| Oblast | Total number screened | Number of adults screened | Number of sick adults detected (%) | Number of children screened | Number of sick children detected (%) |
|---|---|---|---|---|---|
| Brest | 15,466 | 10,714 | 6,659 (62.2%) | 4,752 | 3,039 (64.0%) |
| Gomel | 15,756 | 5,781 | 3,794 (65.6%) | 9,975 | 6,084 (61.0%) |
| Mogilev | 16,212 | 10,238 | 9,587 (93.6%) | 5,974 | 5,435 (91.0%) |
| Bryansk | 15,048 | 7,662 | 5,920 (77.2%) | 7,386 | 4,938 (66.9%) |
| Rovno | 15,031 | 6,555 | 5,170 (78.9%) | 8,476 | 6,644 (78.4%) |
| Zhitomir | 15,074 | 7,032 | 5,348 (76.1%) | 8,042 | 6,962 (86.6%) |
| **Total** | 92,587 | 47,982 | 36,478 (76.0%) | 44,605 | 33,102 (74.2%) |

The data relating to the examinations carried out is collected by the medical registrator and entered onto to a laptop computer. However those screened are only recorded as adults or children and much of the data is not analysed to show any changes since the programme started.

All those attending for screening have an ultrasound examination of the thyroid gland and if this is found to be abnormal they are referred to the nearest diagnostic centre where a thyroid biopsy is carried out to diagnose thyroid cancer. Since 1994 the MDL specialists have detected 346 cases of thyroid gland cancer (286 cases in adults and 60 cases in children), which were confirmed by specialized institutions. Thyroid screening has been carried out on more than 550,000 people affected by the accident. The detection of thyroid cancer essentially improved starting from 1997 after the MDLs were equipped with new ultrasound machines.

Table 6 shows the numbers of thyroid cancer detected by each MDL since 1997.

**Table 6: Number of thyroid gland cancer cases detected by MDLs in 1997-2001**

| Region | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|
| Brest | 1 | 22 | 30 | 25 | 46 |
| Gomel | 0 | 3 | 5 | 12 | 12 |
| Mogilev | 4 | 14 | 30 | 22 | 34 |
| Bryansk | 4 | 3 | 12 | 17 | 12 |
| Rovno | 1 | 6 | 6 | 2 | 10 |
| Zhitomir | 0 | 0 | 1 | 2 | 6 |
| **Total** | **8** | **48** | **84** | **80** | **120** |

In 2001 personnel from the MDLs carried out 91,000 thyroid examinations and detected 2051 abnormal thyroid scans. Following biopsy 120 thyroid cancers were confirmed. This is shown in Table 7, which also shows that there appears to be quite a marked variation in the number of abnormal examinations by oblast. It is known that the increased rate of thyroid cancer only occurs in those aged 0-18 years at the time of the accident but it is not known how many of the examinations carried out were in people in this age group.

**Table 7: Details of thyroid examinations 2001**

| Oblast | Caesium-137 Contamination density Ci/km2* | Number of thyroid Examinations | Number of abnormal thyroid cancers examinations | Estimated percentage of attendance for biopsy | Number of thyroid cancers confirmed |
|---|---|---|---|---|---|
| Brest | 1-5 | 15 466 | 90** | 80-85% | 46 |
| Gomel | 1-20 | 15 756 | 120 | 80% | 12 |
| Mogilev | 1-15 | 16 212 | 440 | 50% | 34 |
| Bryansk | 1-20 | 15 048 | 125 | 50% | 12 |
| Rovno | 1-5 | 15 031 | 639 | 50% | 10 |
| Zhitomir | 1-20 | 15 074 | 47 | > 50% | 6 |
| **Total** | | 92,587 | 2051 | | 120 |

.* Note that contamination with caesium does not correlate with incidence of thyroid cancer, but it is used to describe the level of radiation in an area.

** Brest MDL doctors perform the biopsies themselves and screen the slides with a microscope. This number stands for the patients, who were referred further as cancer was suspected after the biopsy slides were screened.

Those with abnormal thyroid scans need to travel to the nearest diagnostic centre for the biopsy. This may be up to 100 kilometres away and no transport costs are provided to encourage people to attend. No records are collated about the numbers who actually go for biopsy. Most of the MDL staff interviewed estimate that about half of those with abnormal scans do not go for further examination. This means that it is likely that there are at least an additional 120 thyroid cancers in the population who have been screened but who did not go for further testing. Early diagnosis of thyroid cancer is essential to ensure treatment as soon as possible.

The MDL staff in Brest discussed the issue of people not attending for biopsy with the staff from the diagnostic centre and agreed to conduct a pilot study with the aim of improving the rate of thyroid cancer diagnosis. The MDL staff was trained to carry out the thyroid biopsy in the field which has markedly increased the uptake and as can be seen from Table 8. Brest oblast has detected the largest number of cancers. Other MDLs are also aware of this problem and some suggested sending staff from the diagnostic centres to the rural areas to carry out the biopsies.

There are three steps in performing a fine needle biopsy

- The puncture of the thyroid gland with a fine needle and the aspiration of a specimen for analysis, which is carried out by a medical doctor. Training for this takes a few hours.
- The preparation of the slide from the biopsy specimen, which is done by a laboratory technician. Training in this requires a week.

- The microscopic reading of the slide carried out by a specialised doctor who requires a month of training and ongoing monitoring and supervision.

Even though the risk of thyroid cancer is not increased in children born after the accident the Belarusian health authorities think it is important to screen all children too, as it reassures the parents. In Russia the approach is more scientific and the MDL personnel suggested that these children should be excluded from screening and the focus should be on those most at risk of developing thyroid cancer. They also did not think the blood and urine tests are useful in screening as the only pathology associated with ionizing radiation is found in the thyroid gland.

The Bryansk team carried out a pilot programme screening in low radiation and so called "clear" areas and found out that the incidence of thyroid cancer was as high as in contaminated areas. However it is not known where those screened were living at the time of the accident. Most experts agree that the risk of developing thyroid cancer is dose related. The radiation maps show only the caesium and strontium as an indicator for contamination, whereas the radioactive iodine is long gone but continues to cause thyroid cancer in individuals who were exposed to it during the months following the accident.

The CHARP Co-ordinator is responsible for the activities of the MDL staff who send monthly reports. Monitoring and supervision visits to each MDL took place twice a year – due to funding constraints these visits now take place less than once a year

**Objective 2:** *Develop rehabilitation work and psychological support in order to strengthen stability and resources of the affected population to cope with stress and anxieties*

The IFRC Reference Centre for Psychological Support of launched the psychosocial programme (PSS) for the affected people by the Chernobyl disaster through the assistance of Danish Red Cross.

In May 1997, a workshop for training of trainers (ToT) was held in Gomel (Belarus) to train 17 Red Cross workers from Belarus as trainers for psychosocial support. In 1998-1999, the psychological support coordinator of Federation organized another three ToT workshops in the three countries. The participants were composed of chairpersons and other workers of Red Cross, doctors of MDLs and visiting nurses of Red Cross. In total 82 persons have been trained at the ToT workshops. In addition many refreshers courses and one-day workshops for Red Cross workers were organized. The main job of these Red Cross workers was to provide psychological support and social support to people who live in the affected area.

People were not informed about the accident until 2 May 1986 one week after the event, and also about the level of contamination of the land where they had lived for many years. The focus of the PSS is to give accurate information and education about effects of the disaster. People need correct and precise information about the influence of radiation on their health. Sometimes they suffer from excess anxiety about the effects of radiation due to lack of information or false beliefs. This anxiety in turn may cause psychological or psychosomatic symptoms.

The MDL staff and VNS provide essential information using leaflets produced by CHARP. Newsletters have also been published informing the general community and health care workers of CHARP activities.

It is estimated that about 60,000 people living in the affected areas have received psychosocial support within CHARP. However, due to lack of funds the PSS training was limited since 2000 and there is no longer a psychosocial coordinator attached to the programme. The most recent psychosocial workshop was organized in December 2001 in Minsk and was funded by the Netherlands Red Cross .

**Objective 3:**
*Supply multivitamins to children and needed medicines to thyroid cancer patients*

To achieve this it was planned that the Minsk delegation would arrange procurement and supply of multivitamins (containing B, C and D group with iron, folic acid and stable iodine) to be distributed to 40,000 children in the region between January - June (a period of high vitamin deficiency).

From 1990 to the present CHARP has provided 114 million vitamins to children living in the contaminated areas. However in 2000 the multivitamins were not supplied due to funding constraints. In 2001 in co-operation with the Ukrainian Red Cross the Austrian Red Cross supplied 720,000 tablets of multivitamins for children living in contaminated areas. No vitamins were supplied to CHARP regions in Belarus or Russia – in Bryansk the Department of Social Protection provided limited supplies.

There is ample evidence to show that many of the children living in affected areas have endemic iodine and other vitamin deficiencies due to poor diet especially in the winter season when there are less fresh vegetables and fruit. This leads to a variety of conditions such as anaemia which can be prevented by the addition of vitamins to the diet. This vitamin deficiency is as a result of poor socio-economic conditions and not as a result of exposure to radiation and is also seen in many other areas of the three countries.

The surgery for thyroid cancer usually involves total removal of the thyroid gland which produces essential hormones. As a result all those who have had this surgery must take replacement hormone tablets of levothyroxine daily for the rest of their lives. Levothyroxine was to be distributed through the local medical network and the Red Cross regional committees to people following surgery for thyroid cancer.

In 2000 and 2001 CHARP provided 400,000 tablets of levothyroxine from the French Red Cross, which was distributed among people in Belarus who had undergone surgery for thyroid gland cancer. Again due to funding constraints these tablets were not supplied to the CHARP regions in Ukraine and Russia. In Ukraine children receive these tablets free of charge from the government and adults must purchase the medicines themselves. In Russia the government pays for the first five years after surgery and then the cost must be borne by the patient.

# 7. Conclusions

## *Relevance*

This unique Federation programme has contributed towards better understanding of how to support an affected population following a nuclear accident, detect serious diseases early, improve quality of living and give necessary psychological support to the population. It has also highlighted the possible role(s) of Red Cross and Red Crescent in Humanitarian Aspects of Technological Disasters (HATD).

The CHARP objectives agree with the Strategy 2010 of the Federation by mobilising the resources in the community.. This initiative has now been running for twelve years and as the post Chernobyl situation has evolved new objectives have been formulated. The RC is providing essential support both in terms of disease screening and psychosocial needs to the most vulnerable in the community

All the Federation representatives dealing with the programme are from the national Societies adding relevance to the programme.

The Federation Secretariat has concentrated in sourcing funding for the programme, which has been difficult or late. More recently technical support from the Secretariat has been limited due to the long time span of the programme.

The Federation Secretariat has cooperated with UN in Geneva level in Chernobyl-related issues, but there is little evidence of formal collaboration with UN agencies in the field.

The staff of the MDLs are highly motivated and carry out a huge volume of medical and laboratory examinations. However, the only condition, which has been proven to be associated with exposure of radioactive iodine is thyroid cancer. Mass screening for other pathologies is neither relevant nor cost-effective.

PSS is an integral component of the programme. Activities in this area have been curbed due to funding constraints.

Due to lack of resources there has been no drug distribution (multivitamins, iodine and levothyroxine) since the beginning of 2001. There is evident malnutrition and iodine deficiency in some regions so multivitamins and iodine are required for children living in the contaminated areas during the winter season. The government cannot provide these to all in certain regions.

There has been no medical training of the MDL staff since the last evaluation.

## *Effectiveness*

The objective of annual medical screening for the required 90,000 people from the highly contaminated areas has been achieved.

The screening of thyroid cancer is not focused to the most susceptible group, namely those who were 0-18 years at the time of the accident. Cost-effectiveness of the programme is questionable as one third of the people screened for thyroid cancer are children with no increased risk for the disease.

Only about 50% of persons found to have thyroid abnormality go to the referral hospital for a biopsy to determine if they have thyroid cancer. The reasons for this are predominantly economical. In some regions e.g. Brest and Bryansk innovative ways have been implemented to improve the biopsy uptake rates.

There was no evidence of shortages of laboratory reagents or equipment. The ultra sound equipment is still functioning – this was purchased in 1996. The Ukrainian MDL received new ultrasound devices last year, but is not using them, because the old ones are still working.

The PSS training has been carried out but the effect is difficult to measure. Due to the workload the MDL staff do not have time to carry out effective PSS and the follow up is non-existent.

Altogether four leaflets/newsletters concerning radiation issues have been published and widely distributed. A leaflet dealing with pregnancy and radiation was published shortly after this evaluation ended.

CHARP has revived some of the RC branches and increased the visibility of RCS.

The RCSs in all three countries have close relations with the regional health authorities and there is mutual respect. The MDLs fill a gap in the health care in rural areas, where the primary health care is limited.

A huge amount of data has been collected during the years. However much of this data has never been analysed and relevant information was difficult to extract.

The ICCC and the preparing working group have not met since February 2001 due to lack of funds. The need for focusing the programme has existed for some time in the field, but the wishes have not reached the ICCC.

The cooperation between the National Societies and the governments is strong but there is no evidence of any cooperation between NSs and other organizations involved in Chernobyl-related matters.

## *Efficiency*

The programme has been efficient and working according to the former objectives in difficult circumstances.

Unexpected outcomes: the large-scale general health screening was performed. This has revealed a large number of symptomatic people with vague complaints whose sicknesses were not verified by laboratory examinations. These individuals were

however referred to local health posts most likely overcrowding them. Such screening without any treatment attempts seems inefficient.

Since 2000 there have been budgetary constraints and as a result the staff and activities have been reduced. In spite of this the MDLs have continued to function and even showed initiative in finding additional ways to function. The MDLs are providing the only health care in many areas.

Financial reports are done monthly and annually for the Secretariat. All present donors do not require regular financial reporting.

According to the current objectives the staffing and technical arrangements are sufficient. The laboratory and ultrasound equipments have exceeded their recommended workload but are still functioning. Several computers are non-functional and need to be replaced.

## *Sustainability*

In Russia and Belarus the regional government has provided minimal funding and equipment, in Ukraine the VNS are paid by the government thus demonstrating government commitment to CHARP.

The PNSs are awaiting the results of this evaluation to be able to decide about the continuation of funding. The drop in the budget since 2000 reflects the lack of information about the programme.

The long-term effects of the Chernobyl disaster are unclear. However, the only proven pathology is thyroid cancer and the peak of the incidence, in those aged 0-18 years at the time of the accident, is still ahead. At present the regional governments do not have the capacity to perform thyroid screening in all contaminated areas and they appreciate the RC effort.

The possible increase in other pathologies and malignancies caused by radiation cannot be ruled out in the future. As a result an exit strategy should not be formulated until other forms of funding (to screen for pathologies associated with exposure to radiation) are secured.

# 8. Recommendations

1. CHARP has shown, that RC/RC has a role in supporting an affected population following a nuclear accident. Such a programme is by nature long-term and evolves when new facts are found. For the moment neither the NS of the three affected countries nor the governments have resources to fully carry out the assistance to the people living in the contaminated areas. The programme has clearly been successful and it has revived the NSs and increased the visibility of RCS. The evaluation team recommends, that CHARP programme should be continued with the modifications suggested below. All possible efforts should be made to ensure the funding for the programme.

2. Screening should be carried out for thyroid cancer (palpation and ultrasound) and the priority target group should be individuals who were 0-18 years old (individuals born between 1969-1987) and living in highly contaminated areas at the time of the accident.

3. If the resources are not sufficient to screen all the highly contaminated rural areas once a year each area should be all screened before starting the round again.

4. If resources allow and providing the priority group above has been covered, consideration should be given to expand the screening into low radiation risk areas within the region to detect the affected people who were living in highly affected areas at the time of the accident.

5. As thyroid cancer would be the only pathology being screened, the possibility of increasing the numbers screened per day should be investigated.

6. Ultrasound devices should be replaced with new, preferably a Doppler one to increase the precision of thyroid ultrasound examination.

7. Different possibilities should be pursued to ensure that the follow up for the individuals with abnormal thyroid scans is improved, e.g.

- Providing a pathologist to perform the needle biopsies in a district hospital (like in the pilot project in Bryansk)
- To provide free transportation to the diagnostic centres.
- Training of MDL staff to carry out fine needle biopsy in the field (as in Brest MDL) and then send the biopsy slides for reading. The trainers could be national or international experts.

8. Although the primary focus must be on the screening for thyroid cancer it is recognised that the MDL teams provide a valuable primary health care service, which is limited in the remote rural areas. Until the government health systems provide primary health care services, the MDLs should carry out the diagnosis and treatment of ailments as long as the thyroid screening has been adequately done.

9. Blood and urine tests should not be used in routine thyroid screening because they do not reliably reveal radiation-induced emerging pathologies, they are not

effective in finding public health problems in non-selected population and they are expensive. However such tests should be available to aid primary health care.

10. As children born after 1987 would not be screened and many are malnourished, these children living in contaminated areas should be provided with multivitamins for the winter months. The multivitamins should contain B, C and D group with iron, folic acid and stable iodine.

11. The psychosocial support aspect of the programme should be focused to delivering accurate information about the long-term health effects of the Chernobyl accident. This will be of particular importance as the target group of CHARP is changing and the population will require reassurance, e.g. that the children under 14 years will not be screened because they have no increased risk of developing thyroid cancer. MDLs, volunteers and VNS should deliver this information during a transition period, e.g. one year (campaigns, lectures in schools, information to families).

12. In Bryansk VNS do not exists, even though they would be ideal in disseminating PSS. Also, VNS have been essential to the primary health care system for the most vulnerable. The Russian Red Cross should find ways of reviving the VNS, involving the local government in funding.

13. There should be regular meetings between the MDL staff from all the regions to exchange ideas and learn from differing experiences. Ongoing training of all staff should take place. In addition the CHARP Co-ordinator should carry out regular field visits to all MDLs.

14. Meetings of ICCC should be held at least once a year to monitor the progress of the programme.

15. In order to secure the long term sustainability of the programme there should be ongoing discussions with the regional governments with the aim of their taking increasing financial responsibility for thyroid cancer screening and the distribution of multivitamins.

16. The data collected during 12 years in CHARP should be analysed and preferably published to benefit all working in post-radiation circumstances. Publicising the success of the programme internationally would demonstrate the unique experience the Red Cross has obtained in the follow up after a nuclear accident.

17. The peak of the incidence of thyroid cancer has not yet been reached. In addition as it is not known what new pathologies may emerge related to radiation it is essential to follow up scientific research, which might change the objectives of the programme. It is therefore recommended that another evaluation should be carried out in three years to assess any changes.

18. Each of the recommendations from this evaluation should be reviewed by those implementing the programme and addressed. Changes in the programme should be reflected in the next CHARP appeal.

# Annex 1

# Terms of Reference for the Evaluation

> *Evaluation of support by the International Red Cross and Red Crescent Movement to the Chernobyl Humanitarian Assistance and Rehabilitation Programme (CHARP).*

*International Federation of the Red Cross and Red Crescent Societies*

*Monitoring and Evaluation Division*

### *1. Background*

In 1990 the IFRC responded to a request from the three affected National Societies for assistance. The Federation Chernobyl Humanitarian Assistance and Rehabilitation Programme was launched. Since 1990 the intervention has continued to be implemented through the operating National Societies of Belarus, Russian Federation and Ukraine, focussing activity at community level throughout the region affected by the Chernobyl nuclear accident. The response by the International Community to the challenge of Chernobyl has been unique and groundbreaking. The programme is the first of its kind and has generated significant amounts of information in the course of its implementation. The intervention has been implemented over a long period of time, and in the course of the 11 years this evaluation is the fourth of its type.
More than 15 years following the disaster the consequences continue to unfold. The socio-economic context has changed in the interim with the breaking up of the "old" Soviet system. The break-up has had a dramatic effect on the access, quality and delivery of health care in the region compounded by the additional challenges resulting from the disaster. Although the radioactive fallout continues to decrease since the onset of the disaster the potential impact of exposure to radiation continues to develop and exposure to certain nucleotides continues. International institutions have set acceptable exposure criteria for people living in the affected areas. These criteria have a significant effect on local demographics and subsequently on the implementation of CHARP. Coherence and complementarity is embodied through the UN interagency task-force of which CHARP is an active member and participant.

### *2: Reasons for the Evaluation*

The programme has been the subject of three previous interim evaluations from which recommendations emerged. The long duration of implementation has generated some interest in executing a major evaluation to assess the relevance, effectiveness, efficiency, sustainability and impact of the intervention to date while also assessing appropriateness of designing an exit strategy.

### *3: Scope and Focus of the evaluation*

### *3:1 Relevance:*

- *Assess the degree of continued relevance of the initiative for the International Federation including the National Societies;*
- *Assess the role of the Federation in the process;*

- *Review the continued relevance of the intervention in so far as its current design reflects problems identified by all the stakeholders e.g. Mobile Diagnostic Laboratories, drug and vitamin provision, Psycho-Social support, training etc.;*
- *Assess whether the intervention is compatible with and reflective of IFRC policies, guidelines and standards (Gender, HIV/AIDS, Organisational Development and Capacity Building);*
- *Identify any unexpected outputs from the intervention;*
- *Suggest alternatives, adjustment or appropriate action where necessary to improve its relevance.*

### *3:2 Effectiveness:*

- *Assess the degree to which the objectives of the intervention have been achieved;*
- *Determine the level of impact of the intervention on the demand, delivery and quality of health care and psychosocial support to beneficiaries,*
- *Assess the impact on National Societies in terms of Training and Capacity Building;*
- *Assess the connectedness the intervention has to the host health systems, the degree of ownership and integration;*
- *Identify any constraints to the achievement of intermediate and long term objectives specifically in relation to the availability of accurate baseline information and indicators;*
- *Assess the level of coherence, complimentarity and co-operation among all stakeholders (including PNS, UN System, Governments Systems, and others) involved in the intervention;*
- *Examine the effectiveness of the working arrangements and linkages with the National Society and PNS ;*
- *Where appropriate, make recommendations on increasing the effectiveness of the intervention.*

### *3:3 Efficiency:*

- *Examine the execution and management of the intervention and assess levels of efficiency;*
- *Examine the cost-effectiveness of the approach;*
- *Assess whether the inputs, budgets and costs for the intervention were adequate and reasonable in relation to the achievements of the intervention and in particular in comparison with the host health system;*
- *Assess whether systems of financial reporting and reconciliation are appropriate;*
- *Assess the technical quality of the intervention including staffing arrangements and other support mechanisms.*

### *3:4 Sustainability:*

- *Determine whether the intervention demonstrates financial, institutional and social sustainability particularly in terms of ongoing costs and any required capacity;*
- *Identify the factors that may influence sustainability in the short, medium and long-term;*
- *Determine the appropriateness, at this stage, of an exit strategy, reorientation or planning for future interventions.*

## *4 Methodology, Evaluation Team and Time Schedule*

### *4:1 Methodology*

- A critical review of IFRC/National Society documented materials including previous evaluation reports;

- An assessment of the degree to which recommendations from previous exercises have been agreed and implemented and identify unanticipated constraints to their implementation;
- Interviews and/or other approaches to a sample group of past and present programme beneficiaries selected on the basis of agreed criteria;
- Interviews and or workshops with National Society HQ and regional staff, as well as with the Federation Delegation programme team;
- Field visits to programme oblasts;
- Interviews with other key stakeholders - WHO, Ministry of Health, NGOs, UN Representatives, PNS;

### *4:2 Evaluation Team*

The team will consist of a maximum of 6 participants. This will include;

- One participant nominated by each National Society as their representative;
- One representative from the Federation Secretariat Health Department;
- The team leader who will manage the process and write the report;

A Consultant will be sought for the role of the team leader. The team leader will write the report and have significant expertise in development initiatives preferably within the health sector(s) and specifically within an Eastern European context. Detailed knowledge of the treatment regimes for post radiation exposure will be desirable. Identification and selection of the consultant(s) will be undertaken jointly by the Evaluation Department and the Health Department in consultation with the National Society. Selection will be based on the quality of response to the TORs, availability and cost.

### *4:3 Time Schedule*

The exercise will be implemented in April 2002. Consultant identification and selection will take place in late February. While the schedule will seek as far as possible to facilitate the logistics, administrative needs and participation of National Societies, IFRC Secretariat PNS and other stakeholders it will be guided by the decision making process in respect of future programme activity.

### *5: Reporting and Feedback*

The Consultant will be required to produce a draft report within two weeks return from the country visit. The team will produce an *aid-memoire* for discussion at a debriefing in each region prior to departure. The final report will be presented in electronic format and will include a stand-alone executive summary. The report will be brief and concise and meet the needs of all stakeholders. Final reporting to the IFRC secretariat may also include a presentation of findings and conclusions in Geneva.

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***Brian Wall***
***Evaluation Department***
***02-04-02***

# Annex 2

# List of Key Informants

***Belarus***

| Name | Position |
|---|---|
| **Federation Delegation** | |
| Mr Warwick Inder | Head of Delegation |
| Mr Sergei Boltrushevich | Programme Officer |
| Ms Kirsten Abdalla | Health Delegate |
| Ms Irina Zhukoskya | Financial manager CHARP |
| **Belarus Red Cross Central Committee** | |
| Dr Anton Romanovsky | President |
| **Belarus Ministry of Health** | |
| Mr Viktor Kolbanov | Deputy Minister of Health |
| **Council of Ministers** | |
| Mr Vladimir Tsalko | Chairman of the Committee on the problems of the consequences of the catastrophe at the Chernobyl |
| **National Academy of Sciences of Belarus** | |
| Professor Evgeny Demidchik | Head of Thyroid Cancer Centre |
| **Gomel** | |
| Ms Natalia Mazurenok | Chairperson of Oblast Red Cross Committee |
| Dr Vladimir Vorobei | Head Doctor of Dispensary of Radiation Medicine |
| Ms Alla Smolyak | Chairperson Novobelichi Red Cross |
| Ms Yelena Timoshenko | Visiting Nurse Novobelichi |
| Dr Helena Bandolik | Head doctor MDL |
| Dr Lelia Urkel | Ultra sound doctor MDL |
| Ms Svetlana Filimonova | Registration MDL |
| Ms Lube Polisado | Laboratory technician MDL |
| Mr Yuri Onischenko | Laboratory technician MDL |
| Mr Sasha Lyakh | Driver MDL |

***Russian Federation***

| | |
|---|---|
| **Russian Red Cross Central Committee** | |
| Mr Evgeny Markin | First Deputy General Manager |
| **Bryansk** | |
| Ms Raisa Lukutsova | Chairperson Regional Dep of Red Cross |
| Mr Alexander Bruyev | Deputy Chairperson Reg Dep of Red Cross |
| Dr Ludmilla Atrochenko | Chief of children's dep Novozybkov clinic |
| Dr Vladimir Doroschenko | Head doctor MDL |
| Dr Valentina Avericheva | Ultra sound doctor MDL |
| Dr Helena Chmutova | Endocrine doctor MDL |
| Ms Katerina Rozhdestvenskaya | Laboratory technician MDL |
| Mr Serhei Lobarev | Laboratory technician MDL |
| Ms Taisia Gukova | School director |
| Mr Vyackeslav Kobets | Aid to the Governor of Bryansk |
| Mr Victor Kurishev | Deputy Chief of Department of Health |
| Dr Anatoly Proshin | Chief Manager Bryansk Regional Diagnostic Center No 1 |
| Dr Alexander Silenok | Vice Head Doctor on medical treatment |
| Dr Nikolai Rivkind | Chief of Department of Dosimetry and Cytogenetics |
| Dr Alla Goncharova | Chief of Cytology Department |

***Ukraine***

**Federation Delegation**

| | |
|---|---|
| Ms Taya Postovoytinko | Financial Officer |

**Ukraine Red Cross National Committee**

| | |
|---|---|
| Dr Alla Khabarova | Executive Director |
| Dr Valeriy Sergovsky | Head, International Department |
| Ms Anna Mamotyak | International Department |

**Ukraine Institute of Oncology**

| | |
|---|---|
| Professor Vladimir Mdvedev | Deputy Director |
| Dr Nikolai | Medical Superintendent |

**Institute of Endocrinology, Academy of Sciences of Ukraine**

| | |
|---|---|
| Professor Mykola Tronko | Director |
| Dr Valeriy Tereshchenko | Deputy Director |

**Ukraine Ministry of Health**

| | |
|---|---|
| Olga Siderova | Dep of radiation protection and medical problems |
| Galina Purina | Dep of radiation protection and medical problems |
| Dimitry Petruk | Dep of radiation protection and medical problems |

**Zhitomir**

| | |
|---|---|
| Alexander Bogdan | Chairman, Zhitomir Red Cross |
| Igor Rafalskiy | Vice head, Zhitomir Health Administration |
| | |
| Dr Anatoly Knuch | Head doctor MDL |
| Dr Vasily Bershnoy | Ultra sound doctor MDL |
| Dr Ludmila Khomenko | Endocrine doctor MDL |
| Mr Ivan Nagoriy | Laboratory technician MDL |
| Mr Yuri Lavrenchyk | Laboratory technician MDL |
| Ms Viktoria Danovskaya | Registration MDL |
| Mr Victor Khomenko | Driver |

**Rovno**

| | |
|---|---|
| Vladimir Sokolenko | Chairman, Rivne Red Cross |
| Jaroslav Maslij | Head, Rivne health administration |
| Pjotr Tsymbala | Deputy Rivne health administration |
| Alexander Komov | Former med coordinator of CHARP |
| Sergei Shevchuk | Head, regional radiation protection dispensary |
| | |
| Bogdan Maksyutinskiy | Head doctor MDL |
| Ivan Nikiforuk | Ultra sound doctor MDL |
| Vladimir Kukhar | Ultra sound doctor MDL |
| Natalya Gil | Laboratory technician MDL |
| Irina Marchenko | Laboratory technician MDL |
| Rostislava Vyun | Registration MDL |
| Bogdan Lukashchik | Driver |

**Brest**

| | |
|---|---|
| Mr Grigori Provosbujik | Administrator |
| Dr Artur Grigorovich | Head doctor MDL |
| Dr Vladimir Sivuda | Ultra sound doctor MDL |
| Dr Alina Grigorovich | Endocrine doctor MDL |
| Ms Yelena Kuzmistskaya | Laboratory technician MDL |
| Ms galena Petrovich | Laboratory technician MDL |
| Ms Oksana Pirstyuk | PC Operator |
| Mr Mikhail Konzevich | Driver |

# Annex 3

# Programme

| | |
|---|---|
| Sunday 21 April | Arrive Minsk, Belarus |
| Monday 22 April | |
| 0900 | Briefing with Federation Delegation Staff |
| 1000 | Meeting at Ministry of Health |
| 1130 | Meeting at Council of Ministers |
| 1230 | Meeting with Head of Thyroid Cancer Centre |
| 1500 | Travel to Gomel |
| 1900 | Meeting with Gomel Red Cross staff |
| Tuesday 23 April | |
| 0900 | Meeting with Gomel Red Cross staff |
| 1030 | Meeting at Gomel Dispensary of Radiation Medicine |
| 1200 | Visit to medicosocial room Novobelichi district |
| 1300 | Visit to MDL in Vedka school, Gomel |
| 1530 | Visit to Novozybkov clinic, Bryansk |
| 1600 | Visit to MDL in Shelomi school, Bryansk |
| Wednesday 24 April | |
| 0900 | Meeting with Bryansk Red Cross staff |
| 1030 | Meeting with Oblast Health Adminstration |
| 1200 | Meeting at Diagnostic Centre |
| 1500 | Travel to Kiev,Ukraine |
| Thursday 25 April | |
| 0900 | Travel to Chernobyl |
| 1030 | Visit to nuclear power plant |
| 1430 | Travel to Kiev |
| 1630 | Meeting with Executive Director, Ukraine Red Cross |
| Friday 26 April | |
| 0900 | Meeting at Federation office |
| 1030 | Visit Kiev Institute of Oncology |
| 1430 | Visit Kiev Institute of Oncology |
| 1700 | Visit Ukraine Ministry of Health |
| Saturday 27 April | Reading and report preparation |
| Sunday 28 April | Departure of Brenda Corcoran, report preparation |
| Monday 29 April | |
| 1000 | Meeting with Zhitomir Red Cross |
| 1130 | Visit Zhitomir Health Administration |
| 1400 | Visit Zhitomir MDL |
| 1900 | Visit Rivne Administration |
| 2000 | Visit Rivne Radiation Protection Dispensary |
| Tuesday 30 April | |
| 1000 | Visit Rivne MDL |
| 1500 | Visit Brest MDL |
| Wednesday 1 May | |
| 0900 | Work in Minsk Delegation |

# Annex 4

## Glossary

| | |
|---|---|
| BRC | Belarus Red Cross |
| CHARP | Chernobyl Humanitarian Assistance and Rehabilitation Programme |
| CHF | Swiss francs |
| Ci | Curie (measure of radioactivity) |
| ECHO | European Community Humanitarian Organisation |
| Feldsher | Medical Officer (between a nurse and a doctor) |
| HATD | Humanitarian Aspects of Technological Disasters |
| IFRC | International Federation of Red Cross and Red Crescent Societies |
| ICCC | International Chernobyl Coordination Committee |
| MDL | Mobile Diagnostic Laboratory |
| MSR | Medical-Social Room |
| NGO | Non Governmental Organisation |
| Oblast | Region |
| PHC | Primary Health Care |
| PNS | Participating National Society |
| PSS | Psychosocial Support |
| Rayon | District |
| RC | Red Cross |
| RRC | Russian Red Cross Society |
| ToT | Training of Trainers |
| URC | Ukrainian Red Cross |
| VN | Visiting Nurse |
| VNS | Visiting Nursing Service |
| WHO | World Health Association |

## Annex 5

## Suggested new budget for CHARP (for 3 years)

| | **CHF** |
|---|---|
| **SUPPLIES** | **544,000** |
| Medicaments *(multivitamins for 10,000 children a year*) | 360,000 |
| Reagents for MDLs | 120,000 |
| Teaching materials *(books, brochures etc)* | 60,000 |
| Utensils and tools *( for MDLs)* | 4,000 |
| | |
| **CAPITAL EXPENSES** | **250,000** |
| Vehicles (*purchase of 6 new vehicles)* | 72,000 |
| Computes and telecom (6 *LapTops & software)* | 18,000 |
| Medical equipment *(4 ultrasound scanners, slides etc)* | 160,000 |
| | |
| **TRANSPORT & STORAGE** | **36,000** |
| | |
| **PERSONNEL** | **777,000** |
| Local staff *(42 people in Oblasts + 3 people in Del)* | 694,000 |
| Training *(for medical personnel)* | 78,000 |
| Scientific report | 5,000 |
| | |
| **GENERAL & ADMIN** | **258,000** |
| Assessing and monitoring | 15,000 |
| Travel | 36,000 |
| Information | 15,000 |
| Admin expenses | 72,000 |
| Workshop and seminars *(including PSS)* | 120,000 |
| | |
| **PROGRAMME SUPPORT** | **205,000** |
| | |
| **TOTAL** | **2,072,000** |

# Annex 6

# Map of areas affected by Chernobyl nuclear accident

**Figure 32**
**Radiation Hotspots Resulting From the Chornobyl' Nuclear Power Plant Accident, April 1986**