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Effects of atomic radiation

Sustainable development

Strengthening of the coordination of humanitarian and disaster relief assistance of the United Nations, including special economic assistance

Letter dated 27 April 2006 from the Permanent Representative of Belarus to the United Nations addressed to the Secretary-General

I have the honour to bring to your attention the summary of the international conference on the theme "Chernobyl 20 years after: strategy for recovery and sustainable development of the affected regions" (Minsk, 19-21 April 2006) (see annex).

I should be grateful if you would have the present letter and its annex circulated as a document of the General Assembly at its sixty-first session.

(*Signed*) Andrei **Dapkiunas** Ambassador Extraordinary and Plenipotentiary Permanent Representative of the Republic of Belarus to the United Nations

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Annex to the letter dated 27 April 2006 from the Permanent Representative of Belarus to the United Nations addressed to the Secretary-General

[Original: Russian]

International Conference

"Chernobyl 20 years after: strategy for recovery and sustainable development of the affected regions" 19-21 April 2006 Minsk

The present Conference was convened in order to achieve the following objectives:

- Dissemination of experience of the consequences of the Chernobyl accident and elaboration of recommendations for an action strategy for the coming decade;
- Consideration of the results of scientific research and practical recommendations for the effective management of the situation following the Chernobyl accident;
- Exchange of positive experience of pursuing a socially oriented policy and the fostering of cooperation with international organizations, Governments and non-governmental organizations to implement a new strategy for solving the problems of Chernobyl, aimed at the full restoration of living conditions in the contaminated regions;
- The support of the international community for the efforts of the affected countries to establish a normal way of life in the regions concerned;
- The involvement of new partners in the international Chernobyl-related cooperative effort, the introduction of new international Chernobyl-related programmes and projects and the attraction of funds from the international donor community for the rehabilitation of the contaminated regions.

Twenty years after the Chernobyl accident, it is possible to weigh up in a relatively full and balanced way its consequences and the effectiveness of countermeasures taken.

In the immediate aftermath of the accident, the absence of data on the level of radioactivity and of knowledge about the effect of radiation on the human body and radiation safety prevented many specialists and, even more, ordinary people, from grasping its true impact. As a result, the subjective perception of the consequences of the accident and the specific actions flowing from it did not always reflect the real state of affairs.

In recent years, in parallel with the conduct of large-scale protective measures, the environmental contamination by radionuclides was studied in detail; the doses received by the population were ascertained; and a large volume of often contradictory data was presented concerning the consequences of the Chernobyl accident for people's health. Despite the continuing disputes, today it has become clear that the Chernobyl accident radically changed the lives of many people, especially in Belarus, the Russian Federation and Ukraine. Such occurrences as relocation, restrictions on agricultural and industrial output and the release of contradictory information about the possible consequences of the accident, coupled with the decline of the economic situation and the collapse of the USSR, changed their way of life and made a negative imprint on their psychology and outlook. All this, taken together, turned the accident into a true catastrophe for millions of people.

Having heard and considered the contents of national reports and surveys, the outcome of sectional meetings and the conclusions of international organizations that studied the consequences of the Chernobyl disaster, the Conference reached a joint understanding of the consequences of the accident, the effectiveness of the reaction and the persisting problems, and drew up the following conclusions and recommendations:

1. The accident at the Chernobyl nuclear power plant caused radioactive contamination of the environment that greatly exceeded acceptable levels of radiation safety over a vast area. The contaminated area covered:

46,500 sq. km (23 per cent) of the territory of Belarus;

43,500 sq. km (7 per cent) of the territory of Ukraine;

59,700 sq. km (1.5 per cent) of the territory of European Russia.

The fallout of radionuclides was extremely irregular in terms of content, time and place. The effect of short-lived radionuclides (iodine-131, barium-140 and lanthanium-140) lasted for a relatively short period (weeks) after the accident. Even that, however, accounted for a significant part of the radiation doses of the population. Contamination by iodine-131 was observed over a vast area, including territory situated a significant distance from the Chernobyl nuclear power plant. The Baltic countries, Poland, Hungary, Georgia and other countries all suffered. This iodine "assault" led to a marked growth in diseases of the thyroid gland, especially in Belarus, Ukraine and Russia.

The greater part of the most dangerously radioactive long-lived radionuclides (strontium-90 and transuranium elements such as isotopes of plutonium and americium) was localized in the vicinity of the destroyed reactor. The population was evacuated from this zone, but the effects of the contamination will have a substantial impact on the ecosystems for many centuries. For an extended period, the return of the population to this area will be impossible, and extreme caution will have to be exercised regarding its use for agricultural purposes.

2. The predominant part of the radionuclides that fell on the ground currently lies in the top layers of the soil. The downward leaching of caesium-137 and strontium-90 occurs very slowly. The average speed is 0.3-0.5 cm/year, posing almost no threat to the water-bearing level.

In soils with a high content of clay, the proportion of caesium-137 that can be absorbed by plants has fallen since 1986 and does not exceed 5 per cent. In turf, podzols, sandy and peaty soils, the proportion is 10-20 per cent. Most of the radionuclides are in bound form. For strontium-90, the proportion in forms that can be absorbed amounts to 70 per cent in turf and podzols and 50 per cent in peat. The

absorbable forms of plutonium and americium account for 10 per cent and 13 per cent respectively.

Thus, over a significant area of Belarus, Ukraine and Russia there is a vast build-up of slow-moving radionuclides which, in the course of many decades, will seriously harm the environment and jeopardize agricultural production.

3. Most of the radioactive fallout occurred in the water-catchment areas of the Dnieper and Pripyat rivers and their tributaries. During the first few years after the accident, the flushing of radionuclides from these areas constituted the most significant secondary source of environmental contamination.

At the present time, now that the radiation situation has stabilized, the flow of radionuclides from water-catchment areas is significant only in the case of those rivers whose catchment areas lie partially or completely within the 30-km zone surrounding the Chernobyl nuclear power plant. The flow of radionuclides, especially strontium-90, is greatly increased in time of flood. Radionuclides are carried by the surface waters of the Pripyat river across the border into Ukrainian territory. In the case of the Iput' and Besed' rivers (Russia-Belarus), the cross-border flow does not exceed 1 per cent of the total caesium-137 content of their water-catchment areas.

Because of the water-transfer processes, the accumulation of suspended particles on the bed of water bodies and natural decay, caesium-137 concentrations in large and medium-sized rivers have greatly diminished. However, the radioactivity of caesium-137 and strontium-90 in the surface waters of most rivers being monitored still exceeds the levels preceding the accident.

In enclosed and slow-flowing, lake-type water systems, because of the flow of radionuclides from water-catchment areas, the total radioactivity of caesium-137 and strontium-90 in surface waters approximates to — but in a number of instances exceeds — the health standard (in the Republic of Belarus, for caesium-137, it is 10 Becquerels per litre (Bq/l), and for strontium-90, 0.37 Bq/l). Lakes, reservoirs and drainage systems are characterized by high accumulations of caesium-137 in bottom deposits (up to 49 kBq/kg).

At the present time, isotopes of caesium-137 and strontium-90 have not been found in groundwater boreholes being monitored in inhabited areas contaminated by radionuclides.

4. Radioactive contamination of air masses remains an urgent problem overall in the exclusion zone of the Chernobyl nuclear power plant and the surrounding area. An insignificant seasonal increase in radioactivity is observed in the lower stratum of the atmosphere when agricultural work is undertaken. A short-term increase in total radioactivity in the atmosphere is observed during fires.

5. The Chernobyl accident seriously contaminated forest ecosystems. In Belarus, the area of forest land with soil contamination by caesium-137 of at least 37 kBq/m^2 exceeds 20,000 sq. km.

During the period immediately after the accident, about 80 per cent of all radioactive fallout in forest areas was absorbed by those parts of the tree above ground level.

In subsequent years, while self-cleansing of the tree crown has continued, radionuclides of caesium-137 and strontium-90 have increasingly been absorbed by the tree via the roots. At the present time, 5-7 per cent of the total accumulation of caesium-137 is in forest lands. According to predictions, over the next 10 years, up to 10-15 per cent of radionuclides will accumulate in the trees above ground level. This will present serious problems for forestry, including the question of radiation safety of workers. For the inhabitants of surrounding communities, there are continuing problems with the gathering of berries and mushrooms and the preparation of herbal remedies; warnings aimed at restricting such activities have gone unheeded.

6. The plant world as a whole has shown itself to be resistant to radiation. For most species, no significant changes have been observed in the contaminated zone. The effects of radiation on plant growth have been manifest only where there were abnormally high densities of contamination (above $3,700 \text{ kBq/m}^2$) in the direct proximity of the destroyed reactor. These effects include curvature, deformation, thickened stalks, asymmetry and curling of leaves, increased growth of sideshoots, dwarfism, bushy growth, gigantism, reddish wood and also defects at the cell level (rupture of chromosomes).

7. The accumulation of radionuclides in fauna corresponds to the irradiation of the areas of their habitat.

The cessation of farming in the areas of exclusion and evacuation has been reflected in the range of types and numbers of birds and of mammals for hunting and commercial use. Thanks to the abundant food supply and the absence of pressure from hunting, the number of wolves has risen 4-5 times. There has been a redistribution of the communities and structure of the mammal population, the numbers of which have in recent years tended to diminish. In the drainage areas, there has been growth in the variety of types and numbers of amphibians, reptiles and birds inhabiting the marshlands, forests and scrubland. In terms of wildlife in general, the numbers of some rare animal species have expanded.

The situation regarding parasites requires attention. The variety and numbers of parasites infesting wild birds and small mammals and inhabiting their nests and blood-sucking two-winged insects are higher in the areas contaminated by radionuclides than in neighbouring areas. With the passage of time, a further increase is expected in the number of types having epidemic and epizootic significance.

8. Food products gathered in the forests (mushrooms, berries and nuts) or derived from hunting and fishing traditionally make up a significant part of the diet of the inhabitants of rural areas in Belarus, Russia and Ukraine. In the contaminated areas, the radioactivity of radionuclides in such products may exceed health standards many times over.

The radionuclide content of mushrooms and berries (blueberries, cranberries and strawberries) exceeds these standards even in areas with insignificant (less than 37 kBq/m^2) soil contamination. The specific radioactivity of caesium-137 in berries and fresh mushrooms may exceed 20 kBq/kg, in dried mushrooms, 150 kBq/kg, and in the meat of wild animals, 250 kBq/kg, which is hundreds of times above acceptable levels. The concentration of caesium-137 in fish living in lakes and

reservoirs may be of an exceedingly high level, reaching 300 kBq/kg in the case of predatory species.

During the next few years, the radionuclide content of the above-mentioned food products is not expected to fall substantially. Yet, the contribution of these products to the radiation doses absorbed internally by part of the population may reach 70-80 per cent, which presents a serious radiological problem.

9. Persons who participated in clean-up operations following the Chernobyl disaster and those living in areas contaminated by radionuclides received additional doses of radiation ranging from single figures to hundreds of millisieverts (mSv) and, at the same time, as in the past, are subject to chronic radiation in small doses. In 2005, the majority of the population received up to 80 per cent of the dose they might have been expected to receive during their whole lives.

An excessive accumulation of radioactivity in the whole body amounting to 200 mSv in Belarus was observed in the inhabitants of 214 villages who were 1-2 years old at the time of the accident. In 968 villages, the accumulated dose exceeded 70 mSv in this same age range.

The most significant contribution to the aggregate accumulated effective radiation dose was from radionuclides of iodine-131, which depended to a large extent on the person's age at the time of the accident. The contribution of iodine radionuclides to the aggregate accumulated effective radiation dose was up to 80 per cent.

The contribution of strontium radionuclides to the aggregate radiation dose after the Chernobyl accident is not significant (1-4 per cent of the aggregate radiation dose) and that of transuranium elements even less (0.1-1 per cent of the aggregate dose).

A calculation of the radiation doses absorbed by the thyroid gland indicated that the mean doses varied over a wide range from hundreds of grays (Gy) to tens of grays. The maximum radiation doses in the thyroid gland were received by people who were children and adolescents at the time of the accident. These categories of people constitute a group at high risk of developing radiation-induced thyroid cancer.

10. For the period 1986-2004, among people who received radiation in the 0-18year age range, there were 2,430 cases of thyroid cancer, 2,399 of which were diagnosed since 1990. The highest incidence among children occurred in 1995-1996. During those years, sickness among them was 39 times the figure for 1986. The link between absorbed doses of radiation of the thyroid and the increased rate of thyroid cancer among children and adolescents has been scientifically proved. All those who developed cancer of the thyroid were successfully treated in specialized clinics, as a result of which the death rate has not exceeded 1 per cent. As before, however, these people run a health risk linked with the lifetime taking of hormone preparations. Hence the quality of their lives differs significantly from that of healthy people.

During the period 1986-2004, the rate of thyroid cancer in the adult population increased more than six times, from 1.9 cases per 100,000 inhabitants in 1986 to 12.7 cases per 100,000 in 2004. The latest scientific data indicate that, among those

who were adults at the time of the Chernobyl disaster, as among children and adolescents, the dose-effect relationship was of a linear nature.

11. Research has so far not succeeded in establishing a direct link between increased frequency of localized malignant tumours, other than thyroid cancer, and the effect of the initial radiation. This situation stems from the little time that has elapsed from the end of the theoretical minimal latent period, the insufficient lifespan of the population at risk from irradiation and, probably, the peculiarities of the carcinogenic processes resulting from chronic radiation in small doses.

However, it has been noted that the most irradiated groups of disaster relief workers exhibit an excessive rise in illness from cancerous tumours of the lungs, bladder, skin and stomach compared with the control group. The risk of developing malignant tumours in any part of the body among the disaster relief workers is 23 per cent higher than among the unirradiated population. The risk of stomach cancer is 15 per cent higher, colon cancer 33 per cent higher, lung cancer 26 per cent, bladder cancer 65 per cent, kidney cancer 24 per cent and thyroid cancer 2.6 times higher.

There is concern over the statistically significant increase in breast cancer among women living in areas contaminated by radionuclides; the risk of their contracting breast cancer is 25 per cent higher than among the control group. In the contaminated areas, researchers have noted a significant lowering of the age at which breast cancer is contracted. The peak in numbers of cases is reached 15 years earlier and corresponds to the 55-59-year age group, whereas among women of the control group, the age range is 70-74 years. There is a linear correlation between the accumulated radiation dose and the realized relative risk of developing breast cancer.

12. Data indicate a rapid growth of non-oncological illnesses in various categories of the population affected by the disaster, especially among the disaster relief workers. These are autoimmune thyroiditis, cataract and blood-circulation diseases, which (except for cataract) were not, according to existing perceptions, caused by radiation.

13. A statistically reliable excessive incidence of birth defects in the affected regions has not been observed; however, the number of cases registered that require strict monitoring is double that of the pre-accident period.

14. The effects of the Chernobyl disaster on the health of the population are not confined to purely radiological illnesses. The disaster fostered among part of the population of the contaminated areas a false perception of the radiation risk, leading to persistent psychological distress. Anxiety regarding the radiation effects on health is not diminishing. Indeed, it is spreading among broader sections of the population, including those living outside the contaminated areas.

The state of health of children has evoked particular concern in society, and parental anxiety is passed on to the children. In the affected regions, negative demographic trends are emerging. There is a falling birth rate, a rising death rate, and a diminishing number of able-bodied workers.

15. The harmful impact of the Chernobyl disaster on the economy of the countries affected, and especially Belarus, Ukraine and Russia, has been enormous. There has been a marked drop in the utilization of forest, mineral, raw-material and other

those in operation have suffered severe losses from the reduction of output, underutilization of buildings, installations, equipment, drainage systems and production capacity and a lack of qualified workers and managerial staff. Losses of fuel, raw materials and supplies have been substantial.

16. The economic losses incurred from the effects of the Chernobyl disaster for Belarus alone are calculated at US\$ 235 billion (assessed over a 30-year period), which is equivalent to 32 times the country's budget for 1985, the year preceding the accident. This includes the loss related to the contamination of the mineral, raw-material, agricultural, water, forest and other resources suffered by industry, agriculture, construction, transport and communications, forestry, housing, municipal services and other branches of the social sector; losses related to the deterioration of the health of the population, as well as additional expenditure incurred in overcoming the consequences of the disaster and ensuring safe living conditions for the population.

17. Agriculture and forestry have been most severely affected. The area under crops has been sharply reduced, crop capacity and gross harvests have declined, and the total number and productivity of livestock have decreased significantly.

More than 1.8 million hectares of arable land in Belarus (about 20 per cent of the total area) were exposed to radioactive contamination with caesium-137 in concentrations greater than 37 kBq/m². Of this land, 265,000 hectares have been taken out of agricultural production, forcing the closure of 53 collective and State farms. The losses from this alone exceed US\$ 700 million per annum. The annual production shortfall is 641,000 tons of fodder, 256,000 tons of milk, 24,000 tons of meat from large-horned cattle and 24,000 tons of pork (live weight).

Up to 70 per cent of the radionuclides that fell on Belarusian territory are concentrated in the country's forests. Of the 95 forestry-sector establishments, 53 are contaminated to varying degrees. More than 2 million cubic metres of ripe and mature timber stocks are in areas contaminated with caesium-137 in soil concentrations exceeding 555 kBq/m², and this figure will reach 3.5 million cubic metres by 2010. In Gomel and Mogilev oblasts, timber harvesting is subject to significant restrictions in areas contaminated with caesium-137 in concentrations exceeding 555 kBq/m², and a number of requirements must be fulfilled.

18. The accident at the Chernobyl nuclear power plant left the former Soviet Union and the three most affected republics — Ukraine, Byelorussia and Russia — facing exceptionally complex tasks, first and foremost, ensuring the radiation safety of the population. Addressing these tasks required the immediate mobilization of significant resources, the formulation of an appropriate, priority-based action plan and the clear and systematic organization of both emergency and long-term measures. Large-scale measures were taken to deal with the aftermath at the nuclear power plant itself, decontaminate the areas adjacent to it and evacuate the population. Overall, the response during the initial phase of the accident was appropriate and effective. However, the extraordinary nature of the situation also led to a number of errors or delays, particularly where iodine prophylactic measures are concerned.

The scale of the accident called for the development and implementation by the State of a costly long-term programme of urgent measures to address its consequences. This Union-Republican programme was carried out in the years 1990-1992.

19. The collapse of the Soviet Union forced its former constituent republics to address the problem of dealing with the aftermath of the Chernobyl accident independently.

In Belarus, where the effects of Chernobyl were greatest in relative terms, three centrally financed State programmes for addressing the consequences of the Chernobyl accident have been carried out since 1993; implementation of the next programme, for the period up to 2010, has begun. The problem of Chernobyl and the health and living conditions of the population in the affected areas are a focus of attention of the legislative and executive authorities and the President of the Republic. A special government body, the Committee on Problems relating to the Consequences of the Accident at the Chernobyl Nuclear Power Plant under the Council of Ministers of Belarus, is coordinating all activities under way.

20. Expenditure on Chernobyl programmes in Belarus has accounted for a significant proportion of the State budget each year: from 5 to 17 per cent. This has allowed a number of the most important problems to be effectively resolved:

- A legal and regulatory framework has been established covering all aspects of efforts to address the consequences of the accident;
- A significant increase in morbidity among disaster relief workers and members of the public affected by the accident has been prevented thanks to thorough medical examinations, which approximately 1.6 million persons undergo each year, as well as a series of measures to improve the quality of medical care and a large-scale programme of treatment for affected persons at sanatoriums and health resorts;
- The transfer of approximately 138,000 persons out of the most contaminated districts has been virtually completed, and 4.6 million square metres of housing has been built or acquired for the persons transferred, who have now been resettled in new places of residence;
- A system of social protection has been put in place for all categories of the affected population.
- Protective measures in the agroindustrial complex and forestry ensure that production meets radiological standards;
- An effective system has been established for monitoring radiation levels in produce and in the environment;
- Necessary measures are being taken to maintain alienated lands, including the 30-km zone around the Chernobyl nuclear power plant, which is now a State radioecological reserve;
- A system has been developed for training and retraining personnel and educating the public about problems of radiation safety;
- Efforts have been organized and are being implemented in the scientific field to deal with the aftermath of the Chernobyl accident. New scientific research centres and institutes have been established and are operating successfully;

- Modern instruments for measuring and monitoring ionizing radiation have been developed and put into industrial production;
- Significant efforts have been made to attract the attention of the international community to the problems posed by the effects of the Chernobyl disaster for the most affected countries.

Nevertheless, the financial capacity of the State is not sufficient to address all the problems in the near future. In order to make good the losses, estimated at 32 times the average annual budget prior to the accident in 1985, Belarus was able to mobilize the equivalent of approximately twice the budget, or about US\$ 18 billion.

21. Among the problems that need to be further addressed, the most important is ensuring the radiation safety of the population. The radiation situation in a number of affected regions remains complicated to this day. There are settlements in which the average annual effective doses of additional radiation received by the population as a result of fallout from Chernobyl exceed 1 mSv, which, in accordance with national legislation, calls for further protective measures to be taken. The so-called critical population groups, which may receive radiation doses in excess of 1 mSv and which exist even in relatively safe settlements, require special attention.

22. Large-scale protective measures are still warranted in contaminated districts — without such measures, produce from those districts would not meet radiological standards.

Currently, agricultural production is taking place in Belarus on 1.1 million hectares of arable land contaminated with caesium-137 radionuclides in concentrations of 37 to 1,480 kBq/m². This land is owned by 633 agricultural enterprises in 61 administrative districts of the Republic. In addition, in 276 of these enterprises, covering an area of 375,000 hectares, the soil is simultaneously contaminated with strontium-90 in concentrations exceeding 5.5 kBq/m².

The radiation situation called for the introduction of special rules, recommendations and restrictions with respect to agricultural production, safe farming practices and production of crops that absorb radionuclides.

23. The strategic goal of the next phase of work is to ensure the radiation-related and environmental rehabilitation of the contaminated areas; to achieve sustainable socio-economic development in those areas, unfettered by restrictions on economic activities owing to the radiation factor; and to create conditions in which persons affected by the Chernobyl accident who live in areas contaminated by radionuclides feel more protected from a social and medical standpoint and enjoy a level of health no lower than that of the general population.

Efforts to achieve the main aim of rehabilitation — genuine economic recovery and sustainable development — must involve continuous monitoring of the environment for radiation, the restoration of the economic potential of affected districts, the introduction in the agroindustrial complex and forestry of advanced production technologies and the enhancement of the well-being of persons living in those districts. This will require the improvement of national approaches and international assistance in restoring the social infrastructure of the affected regions and of areas with high concentrations of evacuated persons.

There remains a pressing need to create favourable conditions for mobilizing domestic and foreign investment and for pursuing in the contaminated regions innovative social policies that promote economic development, the establishment of small and medium-sized businesses, self-employment and job creation.

Sustainable development in the contaminated areas is impossible without serious support from the State and assistance from international and national partners aimed at improving rural dwellers' personal plots. The development of such plots and of self-employment will contribute to the emotional and psychological recovery of rural communities, increase entrepreneurial activity among villagers, enhance their capacity to adapt to market conditions, raise incomes and reduce dependency on social assistance from the State.

24. The rehabilitation of affected persons is hindered by their psychological state and the fact that they are still ill-informed. Further work needs to be done to improve the system of informing and educating the public about the radiation situation, the effectiveness of countermeasures and other issues; this would help the inhabitants of contaminated areas understand scientific and medical recommendations on safety in daily life. It is important to overcome the "Chernobyl victim" syndrome, which impedes the active involvement of the public in socioeconomic activities.

25. The laws and regulations governing, inter alia, the system of social protection of affected persons and the creation of favourable economic conditions for the development of contaminated areas need to be improved and refined, taking account of international recommendations.

26. Given the complexity and diversity of the problems arising from the Chernobyl disaster, a high level of appropriate scientific research should be maintained. The current priorities are set out below.

In order to clarify the role of the radiation factor in the possible increase in oncological disease, it is necessary to conduct carefully planned, long-term radioepidemiological studies. There remain significant difficulties in reconstructing the individual doses to which disaster relief workers were exposed. The problem of the increase in non-oncological diseases (cataracts, cardiovascular diseases, etc.) in relief workers and in affected members of the public should also be studied.

Work is continuing on the development of organizational, agrochemical and farming-related measures and technologies designed to ensure that agricultural produce from personal plots, private farms and the public sector meets non-contamination standards.

A scientifically sound strategy for the maintenance and possible exploitation of evacuated areas is needed.

To date, no thorough study has been conducted of the biological effects of small radiation doses, the combined effect of radiation and other factors and the impact of the current situation on the environment and biota.

The Polesye State radioecological reserve in Belarus requires greater attention. It is the only site used for research into the impact of radiation on natural biocoenoses and the self-purification processes of natural communities. The data obtained should be used to forecast the consequences of the prolonged action of radionuclides on wildlife and to develop rational ways of protecting the environment and planning economic activities in rehabilitated areas.

The characteristics of the distribution and behaviour of radionuclides of plutonium and americium in ecosystems require clarification for the purpose of assessing the state of the natural environment and forecasting the radiation situation.

27. The dose monitoring system needs to be improved by making the best use of instrumental measurements of the radionuclide content of objects in the environment and radionuclide levels in the human body, and by identifying critical areas and population groups.

Metrological support for the radiation monitoring system needs to be developed in accordance with the international standards of the International Organization for Standardization (ISO) system, including programmes for assuring the quality of radiation measurements. The current objective is to re-equip the system with modern instruments that meet the requirements of the most stringent existing and emerging regulations for the radionuclide content of produce, and also to ensure a high level of accuracy of measurements, in accordance with the international system for the certification of produce.

28. Effective international cooperation is an important component of efforts to overcome the consequences of the Chernobyl nuclear power plant disaster. The Conference notes the international community's significant contribution to those efforts and the fresh impetus given to the work in recent years.

The most influential and significant documents on international cooperation with regard to Chernobyl are the resolutions of the United Nations General Assembly. The Conference notes the positive nature of resolution 60/14, "Strengthening of international cooperation and coordination of efforts to study, mitigate and minimize the consequences of the Chernobyl disaster", adopted by the General Assembly on 14 November 2005 at its sixtieth session. A total of 69 States sponsored the draft resolution — the clearest indication of the importance which the international community attaches to addressing the problems of Chernobyl.

29. The Conference supports the initiative of the Republic of Belarus regarding the declaration of a United Nations "decade of rehabilitation and sustainable development of Chernobyl-affected areas", to be coordinated by the United Nations Development Programme (UNDP).

30. The Conference notes the substantial experience accumulated by Belarusian experts in overcoming the consequences of the Chernobyl disaster and the volume of scientific data on the impact of nuclear radiation collected and systematized by Belarusian scientists. It also welcomes the participation of Belarus in the work of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR).

The Conference proposes that the General Assembly should consider expanding the membership of UNSCEAR.

31. In the period 1990-2001, the Chernobyl issue was included in the cooperation programmes of the major international organizations of the United Nations system, such as UNDP, the International Atomic Energy Agency (IAEA), the United Nations Children's Fund (UNICEF), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Bank and the World Health Organization (WHO), and others including the Organization for Security and Cooperation in Europe (OSCE), the Technical Assistance to the Commonwealth of Independent

States and Georgia (TACIS) programme of the European Union and the International Federation of Red Cross and Red Crescent Societies (IFRC).

Arrangements were made for cooperation with governmental and nongovernmental organizations in Switzerland, Italy, France, Germany, the United Kingdom of Great Britain and Northern Ireland, Ireland, the United States of America and Japan.

According to United Nations estimates, the aid provided to the Republic of Belarus by United Nations system organizations during the above-mentioned period amounted to about US\$ 45 million; more than US\$ 2 million was received under the TACIS programme, and a further US\$ 6.5 million from the European Community Humanitarian Office.

Through private channels, the Republic of Belarus has every year received, and continues to receive, foreign donations in the form of goods worth about US\$ 50 million (chiefly from Germany, Italy, the United States, Switzerland, China and a number of other countries).

However, aid to the most affected countries has primarily been provided as part of standard humanitarian operations in response to emergency situations.

32. Bilateral treaty relations have been implemented in a practical and consistent way only between the Republic of Belarus and the Russian Federation by carrying out programmes of joint activities to overcome the consequences of the Chernobyl disaster within the Union State.

These programmes are aimed at establishing and implementing a single policy for the two States on dealing with Chernobyl-related problems. In the course of programme implementation, objectives that complement the national programmes and that require the combined efforts of both States are being pursued. These include the development, enhancement and operation of a single system for the provision of specialized medical assistance to affected persons; the establishment and practical implementation of uniform approaches to the rehabilitation of people and land; the elaboration and implementation of uniform standards and of the most effective technologies; and the implementation of other measures with a sound economic basis.

The Conference participants from the Russian Federation and the Republic of Belarus note that the measures taken have been highly effective and they propose to push ahead with the elaboration of a new programme of joint activities to overcome the consequences of the Chernobyl disaster within the Union State.

The Conference emphasizes the need to intensify cooperation to deal with problems relating to the consequences of the disaster in the three most affected countries — the Russian Federation, Ukraine and Belarus — through joint programmes and projects, among other things.

33. Fundamentally new approaches to the provision of assistance to the affected States were set out in the report of a United Nations mission entitled "The human consequences of the Chernobyl nuclear accident: a strategy for recovery". For the first time, the report recommends a shift of priorities in international cooperation relating to Chernobyl, from the provision of emergency humanitarian assistance to a long-term process of promoting comprehensive rehabilitation in the affected areas. Such an approach should now be regarded as universally accepted at the

international level. This is confirmed by the findings of the international Chernobyl Forum, which were presented at a concluding conference held in Vienna on 6 and 7 September 2005, and by the outcome of the present Conference.

34. The Conference welcomes the innovative nature of the international technical assistance programme Cooperation for Rehabilitation (CORE), which is a new-generation programme incorporated in the United Nations strategy to support socio-economic development in the affected areas.

35. The Conference notes the emergence of a new area of post-Chernobyl international cooperation — a joint project involving the World Bank and the Government of Belarus for the rehabilitation of areas affected by the Chernobyl nuclear power plant disaster. The provision of a loan by the World Bank towards efforts to overcome the consequences of the Chernobyl disaster opens a new phase of cooperation, based on a transition from grant assistance to credit projects.

36. The Conference emphasizes the importance of maintaining active, targeted efforts to report on Chernobyl-related issues in the media so as to provide the public around the world with objective information about the consequences of the disaster and the problems that need to be addressed.

37. The Conference conveys greetings to the participants of the forthcoming international conference in Kyiv and proposes that it should endorse the main provisions of these conclusions and recommendations and consolidate efforts to overcome the consequences of the Chernobyl disaster.