



International Atomic Energy Agency

GENERAL CONFERENCE

GC(41)/INF/8
2 September 1997

GENERAL Distr.
Original: ENGLISH

Forty-first regular session
Item 13 of the provisional agenda
(GC(41)/1)

MEASURES TO STRENGTHEN INTERNATIONAL CO-OPERATION IN NUCLEAR, RADIATION AND WASTE SAFETY

1. This document, which may be regarded as a successor to document GC(40)/INF/5 (issued last August) and its predecessors, presents an overview of measures to strengthen international co-operation in nuclear, radiation and waste safety. It focuses on recent Agency activities concerned with such measures, but also touches on a number of important initiatives taken outside the Agency. Some of the activities during 1996 are discussed in other General Conference documents, notably the Agency's Annual Report (GC(41)/8) and the Nuclear Safety Review 1997 (GC(41)/INF/5). This document is therefore also intended to provide supplementary information, such as more detailed accounts of specific subjects and updates on activities in the first half of 1997.

2. The Attachment to this document on recent Agency activities follows a similar general pattern to that adopted in 1996, whereby activities were reported in three main areas:

- A. Legally binding international safety agreements such as various conventions which have been adopted or are still being developed;
- B. Non-binding international safety standards which have been developed mainly under the auspices of the Agency; and
- C. Provisions for the application of those standards.

In addition, Part D of the Attachment summarizes the conclusions of an international peer review, conducted in January 1997, of the work of the Department of Nuclear Safety, which is the Department in the Agency responsible for the majority of the work in the above areas.

3. Part A of the Attachment deals with:

- the status of, and recent developments concerning, the *Convention on the Physical Protection of Nuclear Material*, the *Convention on Early Notification of a Nuclear Accident* and the *Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency*;
- the implementation activities following the entry into force of the *Convention on Nuclear Safety*; and
- the work under way on developing a *joint convention on the safety of spent fuel management and on the safety of radioactive waste management*.

4. Part B of the Attachment concerns the *establishment of non-binding international safety standards* by the Agency, often in collaboration with specialized agencies of the United Nations and with other international bodies, and describes the Secretariat's strengthened process for safety standards preparation and review.

5. Part C of the Attachment describes how the Agency has been *providing for the application of safety standards* through:

- the provision of safety-related assistance under the Agency's technical co-operation (TC) programmes and by other means;
- the fostering of safety-related information exchange; and
- the rendering of safety-related services.

6. In Part C, Annex C-1 describes recent developments in the *provision of safety related assistance through TC programmes* and Annex C-2 deals with a particular area of safety related assistance; the *provision of assistance related to the safety of nuclear power plants in eastern Europe and the former Soviet Union*. Annex C-3 describes recent efforts to *foster safety related information exchange* and Annex C-4 addresses an important aspect of such information exchange; the *promotion of education and training in nuclear, radiation and waste safety*. Annex C-5 describes the status of a number of *safety related services* rendered by the Agency to Member States, while Annex C-6 provides information on some *radiological safety assessments* carried out by the Secretariat in rendering such services.

7. Part D describes the background to, and the main conclusions of, an international peer review group convened in January 1997 to review the work of the Department of Nuclear Safety. The scope of this review therefore included most of the work described in the other sections of the Attachment.

PART A

LEGALLY BINDING INTERNATIONAL SAFETY AGREEMENTS

Background

1. Four legally binding international safety agreements aimed at strengthening international co-operation in nuclear, radiation and waste safety have been developed and adopted by the international community and are now being implemented by the parties to them, with the support of the Agency:

- the *Convention on the Physical Protection of Nuclear Material* (which was opened for signature on 3 March 1980 and entered into force on 8 February 1987);
- the *Convention on Early Notification of a Nuclear Accident* (which was opened for signature on 26 September 1986 and entered into force on 27 October 1986);
- the *Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency* (which was opened for signature on 26 September 1986 and entered into force on 26 February 1987); and
- the *Convention on Nuclear Safety* (which was opened for signature on 20 September 1994 and entered into force on 24 October 1996).

2. Work is well advanced towards another such agreement: a *joint convention on the safety of spent fuel management and on the safety of radioactive waste management*.¹ The present situation regarding these various conventions is described below.

¹ Another convention for which the Director General performs depositary functions is the Vienna Convention on Civil Liability for Nuclear Damage. The subject of liability for nuclear damage is dealt with in another document being prepared for the General Conference.

Convention on the Physical Protection of Nuclear Material - INFCIRC/274/Rev. 1

3. As of 31 July 1997, there were 57 parties (56 States and EURATOM) to the Convention. These are listed in the following table, which also shows the parties to the Convention (and the non-parties) that have made known to the Secretariat their contact points for the purposes of the Convention.

CONVENTION ON THE PHYSICAL PROTECTION OF NUCLEAR MATERIAL (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound^a	Entry into force	Contact point made known
Antigua and Barbuda ^b		04-08-93	03-09-93	No
Argentina	28-02-86	06-04-89	06-05-89	Yes
Armenia		24-08-93	23-09-93	Yes
Australia	22-02-84	22-09-87	22-10-87	Yes
Austria	03-03-80	22-12-88	21-01-89	Yes
Bangladesh ^c				Yes
Belarus		09-09-93	14-06-93 ^d	Yes
Belgium	13-06-80	06-09-91	06-10-91	Yes
Brazil	15-05-81	17-10-85	08-02-87	Yes
Brunei Darussalam ^{b,c}				Yes
Bulgaria	23-06-81	10-04-84	08-02-87	Yes
Canada	23-09-80	21-03-86	08-02-87	Yes
Cape Verde ^{b,c}				Yes
Chile		27-04-94	27-05-94	Yes
China		10-01-89	09-02-89	Yes
Colombia ^c				Yes
Croatia		29-09-92	08-10-91 ^d	Yes
Czech Republic		24-03-93	01-01-93 ^d	Yes
Denmark	13-06-80	06-09-91	06-10-91	Yes
Dominica ^{b,c}				Yes
Dominican Republic ^c	03-03-80			No
Ecuador	26-06-86	17-01-96	16-02-96	Yes
Estonia		09-05-94	08-06-94	No
Finland	25-06-81	22-09-89	22-10-89	Yes
France	13-06-80	06-09-91	06-10-91	Yes
Germany	13-06-80	06-09-91	06-10-91	Yes
Greece	03-03-80	06-09-91	06-10-91	Yes
Guatemala	12-03-80	23-04-85	08-02-87	No

CONVENTION ON THE PHYSICAL PROTECTION OF NUCLEAR MATERIAL (as of 31-07-97)

State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force	Contact point made known
Haiti ^c	09-04-80			No
Holy See ^c				Yes
Hungary	17-06-80	04-05-84	08-02-87	Yes
Indonesia	03-07-86	05-11-86	08-02-87	No
Iran, Islamic Republic of ^c				Yes
Ireland	13-06-80	06-09-91	06-10-91	Yes
Israel ^c	17-06-83			No
Italy	13-06-80	06-09-91	06-10-91	Yes
Japan		28-10-88	27-11-88	Yes
Jordan ^c				Yes
Kazakhstan ^c				Yes
Kenya ^c				Yes
Korea, Republic of	29-12-81	07-04-82	08-02-87	Yes
Liechtenstein	13-01-86	25-11-86	08-02-87	Yes
Lithuania		07-12-93	06-01-94	Yes
Luxembourg	13-06-80	06-09-91	06-10-91	Yes
Malta ^{b,c}				Yes
Mexico		04-04-88	04-05-88	Yes
Monaco		09-08-96	08-09-96	Yes
Mongolia	23-01-86	28-05-86	08-02-87	No
Morocco ^c	25-07-80			No
Netherlands	13-06-80	06-09-91	06-10-91	Yes
Niger ^c	07-01-85			Yes
Norway	26-01-83	15-08-85	08-02-87	Yes
Panama ^c	18-03-80			No
Papua New Guinea ^{b,c}				Yes
Paraguay	21-05-80	06-02-85	08-02-87	Yes
Peru		11-01-95	10-02-95	Yes
Philippines	19-05-80	22-09-81	08-02-87	Yes
Poland	06-08-80	05-10-83	08-02-87	Yes
Portugal	19-09-84	06-09-91	06-10-91	Yes
Romania	15-01-81	23-11-93	23-12-93	Yes
Russian Federation	22-05-80	25-05-83	08-02-87	Yes
Slovakia		10-02-93	01-01-93 ^d	Yes

CONVENTION ON THE PHYSICAL PROTECTION OF NUCLEAR MATERIAL (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound^a	Entry into force	Contact point made known
Slovenia		07-07-92	25-06-91 ^d	Yes
South Africa ^c	18-05-81			No
Spain	07-04-86	06-09-91	06-10-91	Yes
Sweden	02-07-80	01-08-80	08-02-87	Yes
Switzerland	09-01-87	09-01-87	08-02-87	Yes
Tajikistan ^b		11-07-96	10-08-96	No
The former Yugoslav Republic of Macedonia		20-09-96	17-11-91 ^d	No
Tonga ^{b,c}				Yes
Tunisia		08-04-93	08-05-93	No
Turkey	23-08-83	27-02-85	08-02-87	Yes
Ukraine		06-07-93	05-08-93	Yes
United Kingdom	13-06-80	06-09-91	06-10-91	Yes
United States of America	03-03-80	13-12-82	08-02-87	Yes
Uruguay ^c				Yes
Yugoslavia	15-07-80	14-05-86	08-02-87	No
EURATOM/EC	13-06-80	06-09-91	06-10-91	Yes

a Instrument of ratification, accession, acceptance, etc.

b Not an IAEA Member State.

c Not a party to the Convention.

d Effective date of entry into force.

Convention on Early Notification of a Nuclear Accident - INFCIRC/335

4. As of 31 July 1997, there were 77 parties (74 States and three organizations) to the Convention. These are listed in the following table, which also shows the parties to the Convention (and the non-parties) that have made known to the Secretariat their contact points for the purposes of the Convention.

CONVENTION ON EARLY NOTIFICATION OF A NUCLEAR ACCIDENT (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force	Contact point made known
Afghanistan ^c	26-09-86			No
Albania ^c				Yes/U ^e
Algeria ^c	24-09-87			Yes
Andorra ^{b,c}				Yes/U ^e
Argentina		17-01-90	17-02-90	Yes
Armenia		24-08-93	24-09-93	Yes
Australia	26-09-86	22-09-87	23-10-87	Yes
Austria	26-09-86	18-02-88	20-03-88	Yes
Azerbaijan ^{b,c}				Yes/U ^e
Bangladesh		07-01-88	07-02-88	Yes
Belarus	26-09-86	26-01-87	26-02-87	Yes
Belgium ^c	26-09-86			Yes
Belize ^{b,c}				Yes
Bolivia ^c				Yes
Bosnia and Herzegovina ^c				Yes
Brazil	26-09-86	04-12-90	04-01-91	Yes
Brunei Darussalam ^{b,c}				Yes
Bulgaria	26-09-86	24-02-88	26-03-88	Yes
Cameroon ^c	25-09-87			Yes
Canada	26-09-86	18-01-90	18-02-90	Yes
Cape Verde ^{b,c}				Yes
Chile ^c	26-09-86			Yes
China	26-09-86	10-09-87	11-10-87	Yes
Colombia ^c				Yes
Costa Rica	26-09-86	16-09-91	17-10-91	Yes
Côte d'Ivoire ^c	26-09-86			Yes
Croatia		29-09-92	08-10-91 ^d	Yes
Cuba	26-09-86	08-01-91	08-02-91	Yes
Cyprus		04-01-89	04-02-89	Yes
Czech Republic		24-03-93	01-01-93 ^d	Yes
DPR Korea ^{b,c}	29-09-86			Yes

CONVENTION ON EARLY NOTIFICATION OF A NUCLEAR ACCIDENT (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound ^d	Entry into force	Contact point made known
Democratic Republic of the Congo ^c	30-09-86			Yes/U ^e
Denmark	26-09-86	26-09-86	27-10-86	Yes
Dominica ^{b,c}				Yes
Dominican Republic ^c				Yes/U ^e
Ecuador ^c				Yes
Egypt	26-09-86	06-07-88	06-08-88	Yes
Estonia		09-05-94	09-06-94	Yes
Ethiopia ^c				Yes
Finland	26-09-86	11-12-86	11-01-87	Yes
France	26-09-86	06-03-89	06-04-89	Yes
Gabon ^c				Yes
Georgia ^c				Yes/U ^e
Germany	26-09-86	14-09-89	15-10-89	Yes
Ghana ^c				Yes
Greece	26-09-86	06-06-91	07-07-91	Yes
Grenada ^{b,c}				Yes
Guatemala	26-09-86	08-08-88	08-09-88	Yes
Guinea ^{b,c}				Yes/U ^e
Guinea-Bissau ^{b,c}				Yes
Haiti ^c				Yes/U ^e
Holy See ^c	26-09-86			Yes
Hungary	26-09-86	10-03-87	10-04-87	Yes
Iceland	26-09-86	27-09-89	28-10-89	Yes
India	29-09-86	28-01-88	28-02-88	Yes
Indonesia	26-09-86	12-11-93	13-12-93	Yes
Iran, Islamic Republic of ^b	26-09-86			Yes
Iraq	12-08-87	21-07-88	21-08-88	Yes
Ireland	26-09-86	13-09-91	14-10-91	Yes
Israel	26-09-86	25-05-89	25-06-89	Yes
Italy	26-09-86	08-02-90	11-03-90	Yes
Jamaica ^c				Yes/U ^e
Japan	06-03-87	09-06-87	10-07-87	Yes
Jordan	02-10-86	11-12-87	11-01-88	Yes

CONVENTION ON EARLY NOTIFICATION OF A NUCLEAR ACCIDENT (as of 31-07-97)

State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force	Contact point made known
Kazakhstan ^c				Yes
Kenya ^c				Yes
Korea, Republic of		08-06-90	09-07-90	Yes
Kuwait ^c				Yes
Kyrgyzstan ^{b,c}				Yes
Latvia		28-12-92	28-01-93	Yes
Lebanon	26-09-86	17-04-97	17-05-97	Yes/U ^e
Libyan Arab Jamahiriya ^c				Yes/U ^e
Liechtenstein	26-09-86	19-04-94	20-05-94	Yes
Lithuania		16-11-94	17-12-94	Yes
Luxembourg ^c	29-09-86			Yes
Madagascar ^c				Yes/U ^e
Malawi ^{b,c}				Yes
Malaysia	01-09-87	01-09-87	02-10-87	Yes
Maldives ^{b,c}				Yes
Mali ^c	02-10-86			Yes/U ^e
Malta ^{b,c}				Yes
Mauritius		17-08-92	17-09-92	Yes
Mexico	26-09-86	10-05-88	10-06-88	Yes
Moldova ^{b,c}				Yes/U ^e
Monaco	26-09-86	19-07-89	19-08-89	Yes
Mongolia	08-01-87	11-06-87	12-07-87	Yes
Morocco	26-09-86	07-10-93	07-11-93	Yes/U ^c
Mozambique ^{b,c}				Yes/U ^e
Myanmar ^c				Yes
Namibia ^c				Yes/U ^e
Nepal ^{b,c}				Yes/U ^e
Netherlands	26-09-86	23-09-91	24-10-91	Yes
New Zealand		11-03-87	11-04-87	Yes
Nicaragua		11-11-93	12-12-93	Yes
Niger ^c	26-09-86			Yes
Nigeria	21-01-87	10-08-90	10-09-90	Yes
Norway	26-09-86	26-09-86	27-10-86	Yes

CONVENTION ON EARLY NOTIFICATION OF A NUCLEAR ACCIDENT (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force	Contact point made known
Pakistan		11-09-89	12-10-89	Yes
Panama ^c	26-09-86			Yes/U ^o
Papua New Guinea ^{b,c}				Yes
Paraguay ^c	02-10-86			Yes
Peru		17-07-95	17-08-95	Yes
Philippines ^c				Yes
Poland	26-09-86	24-03-88	24-04-88	Yes
Portugal	26-09-86	30-04-93	31-05-93	Yes
Qatar ^c				Yes
Romania		12-06-90	13-07-90	Yes
Russian Federation	26-09-86	23-12-86	24-01-87	Yes
Samoa ^{b,c}				Yes
Saudi Arabia		03-11-89	04-12-89	Yes
Senegal ^c	15-06-87			Yes
Sierra Leone ^c	25-03-87			No
Singapore ^c				Yes
Slovakia		10-02-93	01-01-93 ^d	Yes
Slovenia		07-07-92	25-06-91 ^d	Yes
South Africa	10-08-87	10-08-87	10-09-87	Yes
Spain	26-09-86	13-09-89	14-10-89	Yes
Sri Lanka		11-01-91	11-02-91	Yes
Sudan ^c	26-09-86			Yes
Sweden	26-09-86	27-02-87	30-03-87	Yes
Switzerland	26-09-86	31-05-88	01-07-88	Yes
Syrian Arab Republic ^c	02-07-87			Yes
Tanzania ^c				Yes
Thailand	25-09-87	21-03-89	21-04-89	Yes
The former Yugoslav Republic of Macedonia		20-09-96	17-11-91 ^d	Yes/U ^o
Tunisia	24-02-87	24-02-89	27-03-89	Yes
Turkey	26-09-86	03-01-91	03-02-91	Yes
Turkmenistan ^{b,c}				Yes
Uganda ^c				Yes/U ^o

CONVENTION ON EARLY NOTIFICATION OF A NUCLEAR ACCIDENT (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound^a	Entry into force	Contact point made known
Ukraine	26-09-86	26-01-87	26-02-87	Yes
United Arab Emirates		02-10-87	02-11-87	Yes/U ^c
United Kingdom	26-09-86	09-02-90	12-03-90	Yes
United States of America	26-09-86	19-09-88	20-10-88	Yes
Uruguay		21-12-89	21-01-90	Yes
Uzbekistan ^c				Yes/U ^c
Venezuela ^c				Yes/U ^e
Viet Nam		29-09-87	30-10-87	Yes
Yemen ^c				Yes
Yugoslavia	27-05-87	08-02-89	11-03-89	Yes
Zambia ^c				Yes
Zimbabwe ^c	26-09-86			Yes/U ^e
FAO		19-10-90	19-11-90	Yes
WHO		10-08-88	10-09-88	Yes
WMO		17-04-90	18-05-90	Yes
ILO ^c				Yes
IMO ^c				Yes
UN-DHA ^c				Yes
UNEP ^c				Yes
UNESCO ^c				Yes
European Commission ^c				Yes
Arab Atomic Energy Agency ^c				Yes

- a Instrument of ratification, accession, acceptance, etc.
b Not an IAEA Member State.
c Not a party to the Convention.
d Effective date of entry into force.
e Notification is unofficial, or is not specific to this Convention.

Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
- INFCIRC/336

5. As of 31 July 1997, there were 73 parties (70 States and three organizations) to the Convention. These are listed in the following table, which also shows the parties to the

Convention (and the non-parties) that have made known to the Secretariat their contact points for the purposes of the Convention.

CONVENTION ON ASSISTANCE IN THE CASE OF A NUCLEAR ACCIDENT OR RADIOLOGICAL EMERGENCY (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force	Contact point made known
Afghanistan ^c	26-09-86			No
Albania ^c				Yes/U ^e
Algeria ^c	24-09-87			Yes
Andorra ^{b,c}				Yes/U ^e
Argentina		17-01-90	17-02-90	Yes
Armenia		24-08-93	24-09-93	Yes
Australia	26-09-86	22-09-87	23-10-87	Yes
Austria	26-09-86	21-11-89	22-12-89	Yes
Azerbaijan ^{b,c}				Yes/U ^e
Bangladesh		07-01-88	07-02-88	Yes
Belarus	26-09-86	26-01-87	26-02-87	Yes
Belgium ^c	26-09-86			Yes
Bolivia ^c				Yes
Bosnia and Herzegovina ^c				Yes
Brazil	26-09-86	04-12-90	04-01-91	Yes
Brunei Darussalam ^{b,c}				Yes
Bulgaria	26-09-86	24-02-88	26-03-88	Yes
Cameroon ^c	25-09-87			No
Canada ^c	26-09-86			Yes
Chile ^c	26-09-86			No
China	26-09-86	10-09-87	11-10-87	Yes
Colombia ^c				Yes
Costa Rica	26-09-86	16-09-91	17-10-91	Yes
Côte d'Ivoire ^c	26-09-86			No
Croatia		29-09-92	08-10-91 ^d	Yes
Cuba	26-09-86	08-01-91	08-02-91	Yes
Cyprus		04-01-89	04-02-89	No
Czech Republic		24-03-93	01-01-93 ^d	Yes
DPR Korea ^{b,c}	29-09-86			Yes

CONVENTION ON ASSISTANCE IN THE CASE OF A NUCLEAR ACCIDENT OR RADIOLOGICAL EMERGENCY (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force	Contact point made known
Democratic Republic of the Congo ^c	30-09-86			Yes/U ^e
Denmark ^c	26-09-86			Yes
Dominica ^{b,c}				Yes
Dominican Republic ^c				Yes/U ^e
Ecuador ^c				Yes
Egypt	26-09-86	17-10-88	17-11-88	Yes
Estonia		09-05-94	09-06-94	No
Ethiopia ^c				Yes
Finland	26-09-86	27-11-90	28-12-90	Yes
France	26-09-86	06-03-89	06-04-89	Yes
Gabon ^c				No
Georgia ^c				Yes/U ^e
Germany	26-09-86	14-09-89	15-10-89	Yes
Ghana ^c				Yes
Greece	26-09-86	06-06-91	07-07-91	Yes
Guatemala	26-09-86	08-08-88	08-09-88	No
Guinea ^{b,c}				Yes/U ^e
Haiti ^c				Yes/U ^e
Holy See ^c	26-09-86			No
Hungary	26-09-86	10-03-87	10-04-87	Yes
Iceland ^c	26-09-86			No
India	29-09-86	28-01-88	28-02-88	Yes
Indonesia	26-09-86	12-11-93	13-12-93	Yes
Iran, Islamic Republic of ^c	26-09-86			No
Iraq	12-08-87	21-07-88	21-08-88	No
Ireland	26-09-86	13-09-91	14-10-91	Yes
Israel	26-09-86	25-05-89	25-06-89	Yes
Italy	26-09-86	25-10-90	25-11-90	Yes
Jamaica ^c				Yes/U ^e
Japan	06-03-87	09-06-87	10-07-87	Yes
Jordan	02-10-86	11-12-87	11-01-88	Yes
Kazakhstan ^c				Yes

CONVENTION ON ASSISTANCE IN THE CASE OF A NUCLEAR ACCIDENT OR RADIOLOGICAL EMERGENCY (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force	Contact point made known
Kenya ^c				Yes
Korea, Republic of		08-06-90	09-07-90	Yes
Kyrgyzstan ^{b,c}				Yes
Latvia		28-12-92	28-01-93	Yes
Lebanon	26-09-86	17-04-97	17-05-97	Yes/U ^e
Libyan Arab Jamahiriya		27-06-90	28-07-90	Yes/U ^e
Liechtenstein	26-09-86	19-04-94	20-05-94	No
Lithuania ^c				Yes
Madagascar ^c				Yes/U ^e
Malawi ^{b,c}				Yes
Malaysia	01-09-87	01-09-87	02-10-87	Yes
Mali ^c	02-10-86			Yes/U ^e
Malta ^{b,c}				Yes
Mauritius		17-08-92	17-09-92	Yes
Mexico	26-09-86	10-05-88	10-06-88	Yes
Moldova ^{b,c}				Yes/U ^e
Monaco	26-09-86	19-07-89	19-08-89	Yes
Mongolia	08-01-87	11-06-87	12-07-87	No
Morocco	26-09-86	07-10-93	07-11-93	Yes/U ^e
Mozambique ^{b,c}				Yes/U ^e
Myanmar ^c				Yes
Namibia ^c				Yes/U ^e
Nepal ^{b,c}				Yes/U ^e
Netherlands	26-09-86	23-09-91	24-10-91	Yes
New Zealand		11-03-87	11-04-87	Yes
Nicaragua		11-11-93	12-12-93	Yes
Niger ^c	26-09-86			No
Nigeria	21-01-87	10-08-90	10-09-90	No
Norway	26-09-86	26-09-86	26-02-87	Yes
Pakistan		11-09-89	12-10-89	Yes
Panama ^c	26-09-86			Yes/U ^e
Papua New Guinea ^{b,c}				Yes

CONVENTION ON ASSISTANCE IN THE CASE OF A NUCLEAR ACCIDENT OR RADIOLOGICAL EMERGENCY (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force	Contact point made known
Paraguay ^c	02-10-86			Yes
Peru		17-07-95	17-08-95	Yes
Philippines ^c				Yes
Poland	26-09-86	24-03-88	24-04-88	Yes
Portugal ^c	26-09-86			Yes
Romania		12-06-90	13-07-90	Yes
Russian Federation	26-09-86	23-12-86	26-02-87	Yes
Samoa ^{b,c}				Yes
Saudi Arabia		03-11-89	04-12-89	Yes
Senegal ^c	15-06-87			No
Sierra Leone ^c	25-03-87			No
Singapore ^c				Yes
Slovakia		10-02-93	01-01-93 ^d	Yes
Slovenia		07-07-92	25-06-91 ^d	Yes
South Africa	10-08-87	10-08-87	10-09-87	Yes
Spain	26-09-86	13-09-89	14-10-89	Yes
Sri Lanka		11-01-91	11-02-91	Yes
Sudan ^c	26-09-86			Yes
Sweden	26-09-86	24-06-92	25-07-92	Yes
Switzerland	26-09-86	31-05-88	01-07-88	Yes
Syrian Arab Republic ^c	02-07-87			Yes
Tanzania ^c				Yes
Thailand	25-09-87	21-03-89	21-04-89	No
The former Yugoslav Republic of Macedonia		20-09-96	17-11-91 ^d	Yes/U ^e
Tunisia	24-02-87	24-02-89	27-03-89	No
Turkey	26-09-86	03-01-91	03-02-91	Yes
Uganda ^c				Yes/U ^e
Ukraine	26-09-86	26-01-87	26-02-87	Yes
United Arab Emirates		02-10-87	02-11-87	Yes/U ^e
United Kingdom	26-09-86	09-02-90	12-03-90	Yes
United States of America	26-09-86	19-09-88	20-10-88	Yes
Uruguay		21-12-89	21-01-90	Yes

CONVENTION ON ASSISTANCE IN THE CASE OF A NUCLEAR ACCIDENT OR RADIOLOGICAL EMERGENCY (as of 31-07-97)				
State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force	Contact point made known
Uzbekistan ^c				Yes/U ^c
Venezuela ^c				Yes/U ^c
Viet Nam		29-09-87	30-10-87	Yes
Yemen ^c				Yes
Yugoslavia		09-04-91	10-05-91	No
Zambia ^c				Yes
Zimbabwe ^c	26-09-86			Yes/U ^c
FAO		19-10-90	19-11-90	Yes
WHO		10-08-88	10-09-88	Yes
WMO		17-04-90	18-05-90	No
ILO ^c				Yes
IMO ^c				Yes
European Commission ^c				Yes
Arab Atomic Energy Agency ^c				Yes

- a Instrument of ratification, accession, acceptance, etc.
- b Not an IAEA Member State.
- c Not a party to the Convention.
- d Effective date of entry into force.
- e Notification is unofficial, or is not specific to this Convention.

Convention on Nuclear Safety — INFCIRC/449

6. On 26 July 1996, the Director General received the 25th instrument of ratification, acceptance or approval, that instrument being the 17th from a State having at least one nuclear installation that has achieved criticality in a reactor core. In accordance with Article 31, the Convention entered into force 90 days later, on 24 October 1996.

7. As required by Article 21 of the Convention, a Preparatory Meeting was held in Vienna on 21–24 April 1997 of the 31 Contracting Parties. Three other States that had deposited instruments of ratification, acceptance or approval less than 90 days before the meeting — Argentina, Brazil and Luxembourg — were accepted by the Contracting Parties

as participants in the Preparatory Meeting. The meeting — which was chaired by Mr. L. Högberg of Sweden — discussed, inter alia, rules of procedure for the conduct of meetings, financial rules, and guidelines for the preparation and review of national reports. Dates were also agreed for future meetings; an Organizational Meeting will be held from 29 September to 2 October 1998², and the first Review Meeting is scheduled to begin on 12 April 1999.

8. As of 31 July 1997, 39 States had deposited an instrument of ratification, acceptance or approval, 25 of which have at least one nuclear installation that has achieved criticality in a reactor core. Of the 27 further States that have signed the Convention but are not Contracting Parties, six — Armenia, India, Kazakhstan, Pakistan, Ukraine and the USA — have at least one nuclear installation that has achieved criticality in a reactor core. The following table shows the signatories to the Convention.

CONVENTION ON NUCLEAR SAFETY (as of 31-07-97)			
State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force
Algeria ^c	20-09-94		
Argentina	20-10-94	17-04-97	16-07-97
Armenia ^c	22-09-94		
Australia	20-09-94	24-12-96	24-03-97
Austria ^c	20-09-94		
Bangladesh	21-09-95	21-09-95	24-10-96
Belgium	20-09-94	13-01-97	13-04-97
Brazil	20-09-94	04-03-97	02-06-97
Bulgaria	20-09-94	08-11-95	24-10-96
Canada	20-09-94	12-12-95	24-10-96
Chile	20-09-94	20-12-96	20-03-97
China	20-09-94	09-04-96	24-10-96
Croatia	10-04-95	18-04-96	24-10-96
Cuba ^c	20-09-94		
Czech Republic	20-09-94	18-09-95	24-10-96
Denmark ^c	20-09-94		
Egypt ^c	20-09-94		

² The first day of the Organizational Meeting, 29 September 1998, is also the deadline for submission of the first national reports.

CONVENTION ON NUCLEAR SAFETY (as of 31-07-97)			
State/Organization	Signature	Deposit of expression of consent to be bound ^a	Entry into force
Finland	20-09-94	22-01-96	24-10-96
France	20-09-94	13-09-95	24-10-96
Germany	05-10-94	20-01-97	20-04-97
Ghana ^c	06-07-95		
Greece	01-11-94	20-06-97	18-09-97
Hungary	20-09-94	18-03-96	24-10-96
Iceland ^c	21-09-95		
India ^c	20-09-94		
Indonesia ^c	20-09-94		
Ireland	20-09-94	11-07-96	24-10-96
Israel ^c	22-09-94		
Italy ^c	27-09-94		
Japan	20-09-94	12-05-95	24-10-96
Jordan ^c	06-12-94		
Kazakhstan ^c	20-09-96		
Korea, Republic of	20-09-94	19-09-95	24-10-96
Latvia		25-10-96	23-01-97
Lebanon	07-03-95	05-06-96	24-10-96
Lithuania	22-03-95	12-06-96	24-10-96
Luxembourg	20-09-94	07-04-97	06-07-97
Mali	22-05-95	13-05-96	24-10-96
Mexico	09-11-94	26-07-96	24-10-96
Monaco ^c	16-09-94		
Morocco ^c	01-12-94		
Netherlands	20-09-94	15-10-96	13-01-97
Nicaragua ^c	23-09-94		
Nigeria ^c	21-09-94		
Norway	21-09-94	29-09-94	24-10-96
Pakistan ^c	20-09-94		
Peru	22-09-94	01-07-97	29-09-97
Philippines ^c	14-10-94		
Poland	20-09-94	14-06-95	24-10-96
Portugal ^c	03-10-94		
Romania	20-09-94	01-06-95	24-10-96
Russian Federation	20-09-94	12-07-96	24-10-96
Slovakia	20-09-94	07-03-95	24-10-96

CONVENTION ON NUCLEAR SAFETY (as of 31-07-97)			
State/Organization	Signature	Deposit of expression of consent to be bound^a	Entry into force
Slovenia	20-09-94	20-11-96	18-02-97
South Africa	20-09-94	24-12-96	24-03-97
Spain	15-11-94	04-07-95	24-10-96
Sudan ^c	20-09-94		
Sweden	20-09-94	11-09-95	24-10-96
Switzerland	31-10-95	12-09-96	11-09-96
Syrian Arab Republic ^c	23-09-94		
Tunisia ^c	20-09-94		
Turkey	20-09-94	08-03-95	24-10-96
Ukraine^c	20-09-94		
United Kingdom	20-09-94	17-01-96	24-10-96
United States of America^c	20-09-94		
Uruguay ^c	28-02-96		

Note: States listed in **bold type** have at least one nuclear installation that has achieved criticality in a reactor core.

a Instrument of ratification, accession, acceptance, etc.

c Not a party to the Convention.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

9. An open ended group of legal and technical experts, under the chairmanship of Professor A.J. Baer of Switzerland, has met three times since the last General Conference — once in Pilansberg, South Africa and twice in Vienna — to identify the main legal and technical elements necessary in an ‘incentive convention’ on the safety of radioactive waste management, and to develop the text for such a convention using the Convention on Nuclear Safety as a model. The following table lists the States and international organizations represented at the seventh and final meeting of the Group of Experts.

JOINT CONVENTION ON THE SAFETY OF SPENT FUEL MANAGEMENT AND ON THE SAFETY OF RADIOACTIVE WASTE MANAGEMENT		
States and Organizations Represented at 7th Group of Experts Meeting		
Argentina	India	Portugal
Australia	Indonesia	Romania
Austria	Iran, Islamic Republic of	Russian Federation
Belarus	Iraq	Saudi Arabia

JOINT CONVENTION ON THE SAFETY OF SPENT FUEL MANAGEMENT AND ON THE SAFETY OF RADIOACTIVE WASTE MANAGEMENT States and Organizations Represented at 7 th Group of Experts Meeting			
Belgium	Ireland	Slovakia	
Brazil	Israel	Slovenia	
Bulgaria	Italy	South Africa	
Canada	Japan	Spain	
Chile	Kenya	Sudan	
China	Korea, Republic of	Sweden	
Croatia	Lebanon	Switzerland	
Cuba	Luxembourg	Thailand	
Czech Republic	Mexico	Tunisia	
Denmark	Morocco	Turkey	
Estonia	Netherlands	Ukraine	
Finland	New Zealand	United Kingdom	
France	Norway	United States of America	
Germany	Pakistan	European Commission	
Greece	Peru	OECD/NEA	
Holy See	Philippines		
Hungary	Poland		

10. A major issue in the discussions has been to identify how the safety of spent fuel management should be addressed in the draft Convention. Although all members of the group agreed that the safety of spent fuel and radioactive waste needed to be addressed, some Member States had serious difficulties to accept that spent fuel and radioactive waste be addressed in a single instrument, and some were similarly opposed to alternative structures, such as a convention on radioactive waste management with a protocol concerning spent fuel. It became apparent, however, that most members of the Group of Experts favoured a single convention covering spent fuel and radioactive waste. Agreement was eventually reached, albeit with some reservations, on suitable wording to address two other issues that had caused much discussion, namely the role of the Convention with regard to radioactive waste from military operations and the safety of transboundary movements of radioactive waste.

11. Following the final meeting of the Group of Experts, the Board of Governors, at its meeting on 11 June 1997, authorized the Director General to convene a Diplomatic Conference in Vienna on 1–5 September 1997 for the purpose of adopting the Joint Convention on the basis of the draft text.

PART B

ESTABLISHMENT OF INTERNATIONAL SAFETY STANDARDS

Background

1. Under Article III.A.6 of its Statute, the Agency is authorized to establish or adopt standards of safety in collaboration with the competent organs of the United Nations and with the specialized agencies concerned. Since soon after the Agency's inception the Secretariat has been involved in developing and setting such standards.
2. The Board of Governors first approved radiation protection and safety measures in March 1960.¹ Those measures were subsequently revised on the basis of the experience gained from applying them to projects carried out by Member States under agreements concluded with the Agency, the revised version being approved by the Board in 1976.²
3. Important early Agency safety standards were the *Regulations for the Safe Transport of Radioactive Material* (the Transport Regulations), the first version of which was published in 1961 (IAEA Safety Series No. 6). The Transport Regulations underwent comprehensive revision in 1964, 1967, 1973 and 1985, and most recently in 1995.
4. The Board of Governors first approved basic radiation protection and safety standards in 1962 (*Basic Safety Standards for Radiation Protection*, IAEA Safety Series No. 9). Revised versions of those standards were issued in 1967 and 1982, and in 1994 the Board approved the *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources* (the so-called Basic Safety Standards), which had

¹ *The Agency's Health and Safety Measures*, INFCIRC/18.

² *The Agency's Safety Standards and Measures*, INFCIRC/18/Rev.1.

been sponsored jointly by — in addition to the Agency — FAO, ILO, OECD/NEA, PAHO and WHO.³

5. In 1974, the Agency launched a Nuclear Safety Standards (NUSS) programme for the purpose of establishing internationally agreed nuclear safety standards for land based thermal neutron power reactors. Over a period of about ten years, a set of five Safety Standards documents (known as Codes) and 55 Safety Guides was produced on (i) Governmental Organization, (ii) Siting, (iii) Design, (iv) Operation and (v) Quality Assurance. All five Codes and some of the Safety Guides have since been revised.

6. In 1991, the Agency established a Radioactive Waste Safety Standards (RADWASS) programme for the preparation of standards in the following subject areas: (i) Planning, (ii) Pre-disposal, (iii) Near-surface disposal, (iv) Geological disposal, (v) Uranium/thorium mining and milling waste and (vi) Decommissioning.

7. In 1996, the Secretariat introduced a uniform preparation and review process for safety standards. To this end, it created a set of advisory bodies with harmonized terms of reference to assist it in preparing and reviewing all documents - namely, the *Advisory Commission for Safety Standards* (ACSS), the *Nuclear Safety Standards Advisory Committee* (NUSSAC), the *Radiation Safety Standards Advisory Committee* (RASSAC), the *Waste Safety Standards Advisory Committee* (WASSAC) and the *Transport Safety Standards Advisory Committee* (TRANSSAC). It assigned to each of these bodies a Scientific Secretary, who co-ordinates the work of the body with the relevant Agency policies and programmes, and appoints a Technical Officer for the preparation of each document in accordance with recommendations made.

³ IAEA Safety Series No. 115. The Board approved the Basic Safety Standards on 12 September 1994; for PAHO, the Pan American Sanitary Conference endorsed them on 28 September 1994; the Director General of FAO confirmed the FAO's technical endorsement of the Basic Safety Standards on 14 November 1994; WHO completed its adoption process for the Basic Safety Standards on 27 January 1995; the ILO's Governing Body approved publication of the Basic Safety Standards on 17 November 1994; and the OECD/NEA Steering Committee approved them on 2 May 1995.

International basis for the Agency's safety standards

8. The Agency establishes its safety standards on the basis of advice provided by its International Nuclear Safety Advisory Group (INSAG), of studies by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and of recommendations made by a number of international bodies, principally the International Commission on Radiological Protection (ICRP).⁴

The hierarchy of Agency safety standards documents

9. In 1989, following a major expansion of the Agency's safety related activities, the Secretariat introduced a hierarchical structure for IAEA Safety Series publications, which were divided into Safety Fundamentals, Safety Standards, Safety Guides and Safety Practices.

10. In order to clarify the status of the different documents, this structure was modified in 1996, the single Safety Series being replaced by:

- the **Safety Standards Series**, comprising those documents issued by the Agency pursuant to Article III.A.6 of its Statute; and
- the **Safety Reports Series**, to contain more descriptive documents of the type previously issued as Safety Practices, which are issued by the Agency for the purpose of safety related information exchange.

The Safety Standards Series documents fall into three categories; **Safety Fundamentals**, **Safety Requirements** and **Safety Guides**. The categories of Safety Fundamentals and Safety Guides remain from the previous system, but the new category of Safety Requirements was introduced to avoid ambiguity, allowing the term Safety Standards to be used in a broader sense to describe the whole Safety Standards Series.

Safety Fundamentals

11. Publications in the Safety Fundamentals category, which are primary texts for other IAEA Safety Standards Series publications, state the basic objectives, concepts and principles

⁴ In *The Agency's Health and Safety Measures*, INFCIRC/18, it was stated that "The Agency's basic safety standards ... will be based, to the extent possible, on the recommendations of the International Commission on Radiological Protection (ICRP)".

involved in ensuring protection and safety in the development and application of atomic energy for peaceful purposes. They thereby provide the reasons why such activities must fulfil certain requirements, but do not state what those requirements are or provide technical details and generally do not discuss the application of principles.

12. The fundamental aspects of protection and safety relevant to the safety of nuclear installations, to the safe management of radioactive waste and to radiation protection and the safety of radiation sources are discussed in the three Safety Fundamentals publications issued since 1993; *The Safety of Nuclear Installations*, *The Principles of Radioactive Waste Management* and *Radiation Protection and the Safety of Radiation Sources*.⁵ In response to suggestions made in the Board of Governors, INSAG is preparing a ‘top tier’ document that will identify the basic concepts and principles with which the Safety Fundamentals documents should be consistent.

Safety Requirements

13. Publications in the Safety Requirements category specify requirements that must be satisfied in order to ensure safety for particular activities or application areas. These requirements are governed by the basic objectives, concepts and principles that are stated in Safety Fundamentals. The publications in this category do not contain recommendations on, or explanations of, how to meet the requirements.

14. The written style used in Safety Requirements accords with that of regulatory documents since the requirements which they establish — and which are mandatory as far as the Agency’s own operations are concerned — may be adopted by Member States, at their own discretion, for use in national regulations. Regulatory requirements are expressed as ‘shall’ statements.

⁵ *The Safety of Nuclear Installations*, IAEA Safety Series No. 110, 1993 (or GOV/2664); *The Principles of Radioactive Waste Management*, IAEA Safety Series No. 111-F, 1995 (or GOV/2783); and *Radiation Protection and the Safety of Radiation Sources*, IAEA Safety Series No. 120, 1996 (or GOV/2798).

Safety Guides

15. Publications in the Safety Guides category supplement Safety Requirements by presenting recommendations, based on international experience, regarding measures to ensure the observance of safety requirements.

16. Safety Guides may also establish specific requirements that follow from a basic requirement of a Safety Requirements document. In addition, they may provide recommendations on measures to fulfil such subsidiary requirements, the recommendations being presented as 'should' statements.

17. Safety Guides may be less formal in written style than Safety Requirements and may contain more explanatory and background information. They may consist largely of such information when this is necessary for the interpretation of a Safety Requirement.

Safety Reports

18. Safety Reports give examples and descriptions of methods which can be applied in implementing both Safety Requirements and Safety Guides. They are not regulatory documents but rather documents for fostering information exchange — hence the Secretariat's decision to separate them from the Agency's Safety Standards Series.

Role and Activities of the Advisory Bodies

Advisory Commission for Safety Standards (ACSS)

19. The Advisory Commission for Safety Standards (ACSS) is a standing body of senior government officials holding national responsibilities for establishing standards and other regulatory documents relevant to nuclear, radiation, waste and transport safety. The ACSS has a special overview role with regard to the Agency's safety standards and provides advice to the Director General on the overall safety-standards-related programme.

20. The functions of the ACSS are:

- to provide guidance on the approach and strategy for establishing the Agency's safety standards, particularly in order to ensure coherence and consistency between them;

- to resolve outstanding issues referred to it by any Advisory Committee involved in the Agency's safety standards preparation and review process;
- to endorse, in accordance with the Agency's safety standards preparation and review process, the texts of the Fundamentals and Standards to be submitted to the Board of Governors for approval, and to determine the suitability of Guides and Practices to be issued under the responsibility of the Director General; and
- to provide general advice and guidance on safety standards issues, relevant regulatory issues and the Agency's safety standards activities and related programmes, including those for promoting the worldwide application of the standards.

21. The ACSS, chaired by Dr. A. Bishop of the Atomic Energy Control Board, Canada, has met twice since the 1996 session of the General Conference. The first phase of the Commission's work — identifying priority safety standards, assigning lead Advisory Committees for their development, and approving a unified procedure for the preparation of safety standards — has been completed. The second phase of the work of the ACSS — reviewing and endorsing safety standards forwarded to the Commission by the Advisory Committees — will begin at their next meeting, scheduled for June 1998.

**Nuclear Safety Standards Advisory Committee (NUSSAC),
Radiation Safety Standards Advisory Committee (RASSAC),
Waste Safety Standards Advisory Committee (WASSAC) and
Transport Safety Standards Advisory Committee (TRANSSAC)**

22. Each of the four Advisory Committees is a standing body of senior regulatory officials with technical expertise in the relevant area of safety. They provide advice to the Secretariat on the overall safety programme in their respective areas of expertise, and have the primary role in the development and revision of the Agency's safety standards in that area.

23. The functions of each Advisory Committees are:

- to recommend the terms of reference of all Safety Standards Series documents in the Agency's programme in that Committee's area of expertise, and of the groups involved in the development and revision of those documents, in order

to promote coherence and consistency among those documents and between them and other Agency Safety Standards Series documents;

- within each Committee's area of expertise, to agree on the texts both of Safety Requirements to be submitted to the Board of Governors for approval, and of Safety Guides to be issued under the responsibility of the Director General, and to make recommendations to the ACSS, in accordance with the Agency's safety standards preparation and review process;
- to provide advice and guidance on a continuous programme for reviewing and revising the Safety Standards Series documents;
- to provide advice and guidance on safety standards, relevant regulatory issues, and activities for supporting the worldwide application of the Agency's safety standards; and
- to identify and advise on any necessary activities in support of the safety programme.

24. **NUSSAC**, under the chairmanship of Mr. P. Govaerts of AIB Vincotte-Nucléaire, Belgium, met twice during the year and has agreed a plan of work covering the next three to four years. This involves a programme for revision and updating of the existing NUSS documents in the areas of nuclear power plant operation, design and siting (in that order of priority), and some work on the research reactor standards. NUSSAC is also the nominated lead Committee for the revision of the standards on governmental organization, revision of which has also begun. The first priority document, the Safety Requirements for NPP Operation, has been sent to all Member States for their review and comment.

25. The aim of NUSSAC is to have a completely revised set of documents by the end of the year 2000. This process is the main focus of NUSSAC's work, as it is vital that these standards are updated for internal Agency use in providing safety review services, and for assistance to Member States through the TC programme (see Part C). The revision has also been given added impetus by the entry into force of the Convention on Nuclear Safety; it seems likely that Agency standards will eventually be referred to in the Contracting Party discussions.

26. **RASSAC**, under the chairmanship of Mr. S.L. Creswell of the Nuclear Installations Inspectorate, United Kingdom, has made steady progress in rationalizing the preparation of radiation safety publications.

27. Documents which provide guidance on implementing the requirements of the Basic Safety Standards (BSS), and which are written in a regulatory style, are being prepared for the new Safety Standards Series. Six draft Safety Guides in this series are nearing completion, including guidance on radiation safety for occupational exposure, on consumer products containing radioactive material, on the safety of radiation sources, and on planning for response to nuclear or radiation emergencies. It is expected that the drafts will be sent to Member States for comment in the second half of 1997. Other, non-regulatory style documents are being prepared for the new Safety Reports Series. The Committee has also agreed to the dissemination of some documents as 'Working Material' where there is an urgent need for interim guidance. Examples include a glossary of terms used in radiation safety, intended to provide a common terminology for all other documents in preparation, and a guidance document on establishing regulatory infrastructures for radiation safety to assist a major technical co-operation programme.

28. **WASSAC**, chaired by Mr. P. Metcalf of the Council for Nuclear Safety, South Africa, has met twice in the past year. The first priority for 1997 was the finalization of the Requirements and Guides on near surface disposal and predisposal, including decommissioning. At its meeting in May 1997, the Committee approved (for sending to Member States for comment) drafts of a Requirements document on near surface disposal and Guides on safety assessment for near surface disposal, on the decommissioning of medical, industrial and research facilities and of NPPs (subject to some modifications), and on the control of discharges into the environment (subject to RADWASS approval).

29. Special emphasis is being given to the development of strategies and criteria for very low level waste, including the clearance of waste and material from nuclear regulatory control. A subgroup to the Advisory Committee is exploring possible proposals for a unified approach to this subject. Developing consensus on issues relevant to the long term safety of geological repositories is the subject of another subgroup of the Advisory Committee. The results of this subgroup are an essential basis for the drafting of standards for the geological disposal of radioactive waste.

30. **TRANSSAC**, under the chairmanship of Mr. W. Collin of the Bundesamt für Strahlenschutz (Federal Office for Radiation Protection), Germany, met in Vienna in March 1997. The Committee noted the publication of the 1996 Edition of the *Regulations for the Safe Transport of Radioactive Material* as ST-1 — the first publication in the new IAEA Safety Standards Series, and the first to have the new status of Safety Requirements — and received a report on progress towards the publication of supporting documents. A draft of the *Advisory Material for the Regulations for the Safe Transport of Radioactive Material* (ST-2) was reviewed, and a timetable was agreed for comments from TRANSSAC members and for Secretariat responses to those comments. It is intended that TRANSSAC will be in a position to forward the document to the next meeting of the ACSS (scheduled for June 1998).

31. A review is also under way of the process by which the regulations are to be revised in future. A Technical Committee Meeting was held in June 1997 in Vienna to formulate recommendations concerning the schedule of, and operating procedures for, the various meetings involved in the revision process, and on criteria to be applied in judging proposed revisions. The recommendations will be considered by future TRANSSAC meetings.

STATUS OF SAFETY STANDARDS IN PREPARATION — NUSSAC			
ID	Proposed Title	Committee(s)	Status
NS 179	Requirements for the Safety of NPPs; Operation	All	With MS for comment.
NS 180	Requirements: National responsibilities for controlling nuclear and radiation safety	All	Under preparation. To be sent to ACSS and 4 Acs in Sept. 97.
NS 181	Requirements on the Safety of NPPs: Design	NUSSAC	1st draft to go to NUSSAC, July 97.
NS 182	Safety Guide: Dispersion: Combination of SG-S3, S4, S6, S7	NUSSAC	1 st draft being prepared.
NS 183	Safety Guide: Extreme meteorological events in NPP siting	NUSSAC	1 st draft being prepared.
NS 184	Safety Guide: Operations - policies, procedures	NUSSAC	1 st draft with NUSSAC for review.
NS 187	Safety Guide: Operational management of radiation protection & radioactive waste in NPPs	RASSAC, WASSAC, NUSSAC	Preparing first draft for submission to ACs
NS 247	Safety Guide: Organization and staffing of the regulatory body for nuclear facilities and activities	All	DPP being reviewed.
NS 248	Safety Guide: Conduct of regulatory review and assessment of nuclear facilities and activities	All	DPP being reviewed.
NS 250	Safety Guide: Operating organization	NUSSAC	1 st draft complete to be sent to NUSSAC.
NS 251	Safety Guide: Modifications	NUSSAC	DPP under NUSSAC review.
NS 252	Safety Guide: Instrumentation and control for systems important to safety in NPPs	NUSSAC	DPP under NUSSAC review.
NS 253	Safety Guide: Design verification and safety assessment	NUSSAC	DPP under review.
NS 258	Safety Guide: External man induced events in relation to NPP siting	NUSSAC	DPP approved. 1 st draft under preparation.

STATUS OF SAFETY STANDARDS IN PREPARATION — RASSAC			
ID	Proposed Title	Committee(s)	Status
NS 4	Safety Guide: Radiation Protection Glossary	RASSAC	Working material approved for interim use of drafting groups (RASSAC3); comprehensive glossary being prepared by SC section as GS (General Safety) document
NS 12	Safety Guide: Assessment of external radiation exposure for occupational protection	RASSAC	Draft to go to Member States (September 1997) after final editing (RASSAC3).
NS 17	Safety Guide: Radiation protection of workers in the mining and milling of radioactive ores	RASSAC	Draft reviewed by RASSAC3; status as Safety Guide unresolved. Secretariat to propose next step.
NS 19	Safety Guide: Operational radiation protection: A Guide to optimization	RASSAC	Published in 1990 as SS101. Still valid, but to be reviewed in 1998 for consistency with the BSS and to include more practical guidance.
NS 21	Safety Guide: Occupational radiation protection in the decommissioning of nuclear facilities	RASSAC, WASSAC, NUSSAC	On hold. The need for this guide has been questioned (RASSAC1) and its status will be reviewed in the light of the final draft of NS69: Occupational Radiation Protection.
NS 22	Safety Guide: Radiation protection in the medical exposure of patients	RASSAC	Outline prepared in collaboration with PAHO, but not yet seen by RASSAC. Needs DPP.
NS 25	Safety Guide: Regulatory control of radioactive discharges into the environment	RASSAC, WASSAC	WS (Waste Safety) document for which RASSAC has the lead. Final draft to be sent to RASSAC members (September 1997) for clearance to go to Member States (RASSAC3).
NS 31	Safety Guide: Consumer products containing radioactive substances	RASSAC	Draft almost finalized apart from review of consumer-product-specific exemption levels. Explanation paper to be circulated to RASSAC members (June 1997) before approval to go to Member States (RASSAC3).
NS 32	Safety Guide: Extension of the principles of radiation protection to sources of potential exposure	RASSAC	Published in 1990 as a Safety Report, SS104. Valid, but to be updated in due course.

STATUS OF SAFETY STANDARDS IN PREPARATION — RASSAC			
ID	Proposed Title	Committee(s)	Status
NS 33	Safety Guide: Principles for the exemption of radiation sources and practices from regulatory control	RASSAC	Published in 1988 as SS89. Still valid, but to be updated (starting late 1997) for consistency with the BSS and to include exclusion and clearance (RASSAC3). Will need DPP.
NS 43	Safety Guide: Methods for the development of emergency response preparedness for nuclear or radiological accidents	RASSAC NUSSAC	Published in 1988 as SS89. Still valid, but to be updated (starting late 1997) for consistency with the BSS and to include exclusion and clearance (RASSAC3). Will need DPP.
NS 44	Safety Guide: Intervention criteria in a nuclear or radiation emergency	RASSAC	Published in 1994 as SS109. Still valid. Status to be reviewed in the light of experience with NS43 (TECDOC-940).
NS 51	Safety Guide: Application of the principles of radiation protection to chronic exposure situations	RASSAC WASSAC	Not started. Will need DPP.
NS 61	Safety Guide: Prevention, detection of and response to illicit trafficking in radioactive materials	RASSAC TRANSSAC	An outline has been prepared. DPP expected July 1997.
NS 62	Safety Guide: Source and environmental monitoring for radiation protection of the public	RASSAC WASSAC	An outline has been prepared. DPP expected June 1997.
NS 67	Safety Guide: Organization and operation of a national regulatory infrastructure governing protection against ionizing radiation and the safety of radiation sources	RASSAC	To be published (June/July 1997) as a TECDOC for interim use. Feedback from its application will be used in developing a guide (if necessary) to the draft GS (General Safety) Safety Requirements document on National Responsibilities for Controlling Nuclear and Radiation Safety for which NUSSAC has the lead.
NS 69	Safety Guide: Occupational radiation protection	RASSAC	Draft to go to Member States (September 1997) after final editing (RASSAC3).
NS 73	Safety Guide: Qualification and training requirements qualification for radiation protection	RASSAC	Not started. Will need DPP.
NS 85	Safety Guides: Assessment of internal radiation exposure for occupational protection	RASSAC	Draft to go to Member States (September 1997) after final editing (RASSAC3).
NS 99	Safety Guide: Medical handling of	RASSAC	Outline being prepared but not

STATUS OF SAFETY STANDARDS IN PREPARATION — RASSAC			
ID	Proposed Title	Committee(s)	Status
	accidentally exposed individuals		yet seen by RASSAC. Needs DPP.
NS 113	Safety Guide: Quality assurance in radiation protection	RASSAC	Not started. On hold pending overview of QA.
NS 114	Safety Guide: Safety and security of radiation sources	RASSAC	Draft reviewed by RASSAC3. Revised draft to be sent (3rd quarter 1997) to RASSAC members for clearance by correspondence to go to Member States.
NS 115	Safety Guide: Regulatory control of radioactive discharges into the environment	RASSAC WASSAC	Reviewed by RASSAC3 and WASSAC3. Revised draft to be sent to committee members for clearance by correspondence to go to Member States.
NS 187	Safety Guide: Radiation protection and the safe management of radioactive waste during operation of nuclear power plants	RASSAC NUSSAC WASSAC	NS (Nuclear Safety) document for which RASSAC has the lead. Existence of draft noted by RASSAC3 but the need for the document to be a Safety Guide was questioned. Technical Committee Meeting scheduled for June 1997. Secretariat to propose next step.

STATUS OF SAFETY STANDARDS IN PREPARATION — WASSAC			
ID	Proposed Title	Committee(s)	Status
NS 153	Safety Requirements: Near surface disposal of radioactive waste (111-S-3)	WASSAC	Approved with comments at May 97 mtg. Will circulate to MS after in-house revision.
NS 154	Safety Requirements: Geological disposal of radioactive waste (11-S-4)	WASSAC	DPP to be prepared in 1998, along with review document to be issued by subgroup on P & C
NS 159	Safety Guide: Predisposal management of low and intermediate level waste from nuclear fuel facilities (111-G.2./G2.3)	WASSAC	Draft available - further consultation with WASSAC required before transmission to MS.
NS 160	Safety Guide: Predisposal management of radioactive management from medicine, industry and research (111-G.2.2)	WASSAC	Draft available - further consultation with WASSAC required before transmission to MS.
NS 163	Safety Guide: Predisposal management of high level waste (111-G-2.4, 111-G-2.5)	WASSAC	DPP approved at May 97 mtg. Development of document with CSM & TCM in 97
NS 165	Safety Guide: Design, construction, operation and closure of near surface repositories (111-G-3.2)	WASSAC	Draft available - further consultation with WASSAC required before transmission to MS.
NS 166	Safety Guide: Safety assessment for near surface disposal (111-G-3.3)	WASSAC	Approved with comments by WASSAC May 97 mtg. Will circulate to MS after in house revision.
NS 168	Safety Guide: Design, construction, operation and closure of geological repositories (111-G-4.2)	WASSAC	DPP to be prepared in 1998 along with review document to be issued by subgroup on P & C.
NS 169	Safety Guide: Safety assessment for geological disposal (111-G-4.3)	WASSAC	DPP to be prepared in 1998 along with review document to be issued by subgroup on P & C.
NS 170	Safety Guide: Siting, design, construction, operation and closeout of facilities for the management of waste from mining and milling of U/Th (111-G-5.1)	WASSAC	Draft available. Further consultation needed in Autumn 98.
NS 172	Safety Guide: Decommissioning of nuclear fuel cycle facilities (111-G6.3)	WASSAC, NUSSAC	Revision of document with CSM June 97. Consideration for approval at Dec. 97 mtg. For circulation to MS.
NS 173	Safety Guide: Decommissioning of medical, industrial and research facilities (111-G-6.2)	WASSAC	Revision of document with CS June 97. Consideration for approval at Dec. 97 mtg. For

STATUS OF SAFETY STANDARDS IN PREPARATION — WASSAC			
ID	Proposed Title	Committee(s)	Status
			circulation to MS.
NS 256	Safety Requirements: Predisposal management of radioactive waste (111-S.2)	WASSAC	CSM in Oct. 97 to redraft document in line with WASSAC comments. Consideration for approval at Dec. 97 mtg. For circulation to MS.
NS 257	Safety Guide: Decommissioning of nuclear power and large research reactors (111-G6.1)	WASSAC/ NUSSAC	CSM in June 97 and possible consideration for approval at Dec. 97 mtg. for circulation to MS.

STATUS OF SAFETY STANDARDS IN PREPARATION — TRANSSAC			
ID	Proposed Title	Committee(s)	Status
NS 245	Safety Guide: Advisory material for the regulations for the safety transport of radioactive material	TRANSSAC	A revised draft on the basis of MS comments. To be considered by TRANSSAC in 2 nd half of 1997.
NS 246	Safety Guide: Emergency response planning and preparedness for transport accidents involving radioactive material	TRANSSAC	A revised draft on the basis of MS comments. To be considered by TRANSSAC in 2 nd half of 1997.

PART C

PROVIDING FOR THE APPLICATION OF SAFETY STANDARDS

1. Article III.A.6 of the Statute authorizes the Agency to provide for the application of standards of safety to its own operations and, at the request of a State, that State's activities in the field of atomic energy.
2. The Secretariat discharges this function in a number of ways, as follows:
 - by providing safety related assistance;
 - by fostering safety related information exchange; and
 - by rendering safety related services.
3. Annex C-1 describes recent developments in the *provision of safety related assistance through TC programmes* and Annex C-2 deals with a particular area of safety related assistance; the *provision of assistance related to the safety of nuclear power plants in eastern Europe and the former Soviet Union*. Annex C-3 describes recent efforts to *foster safety related information exchange* and Annex C-4 addresses an important aspect of such information exchange; *the promotion of education and training in nuclear, radiation and waste safety*. Annex C-5 describes the status of a number of *safety related services* rendered by the Agency to Member States, while Annex C-6 provides information on some *radiological safety assessments* carried out by the Secretariat in rendering such services.

ANNEX C-1

PROVISION OF SAFETY RELATED ASSISTANCE THROUGH THE AGENCY'S TECHNICAL CO-OPERATION PROGRAMME

Background

1. The Agency, pursuant to its Statute, helps Member States to comply with its safety standards through — inter alia — technical co-operation (TC) programmes, and in doing so it attaches high priority to the establishment and strengthening of nuclear, radiation and waste safety infrastructures in Member States.

2. Under its TC programmes, the Agency provides safety related technical assistance in the form of experts' services, equipment and training. The current safety related TC programme includes about 150 national, regional and interregional projects (representing total resources of approximately US \$12.5 million), of which about one third are devoted to nuclear safety and two thirds to radiation and waste safety. In addition, each year about 25 national, regional and interregional workshops and training courses are organized and about 300 fellowship applications are evaluated (see Annex C-4 and GC(41)/4).

3. The projects relate, inter alia, to:

- the improvement of national capabilities in the areas of:
 - siting,
 - severe accident management,
 - fire safety,
 - safety related ageing management,
 - probabilistic safety assessment,
 - safety culture,
 - periodic safety reviews, and
 - plant modernization;
- the enhancement of research reactor safety;

- the provision of nuclear safety review services;
- the adoption and updating of legislation, regulations and codes of practice on the basis of the international *Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources* (the Basic Safety Standards), the IAEA Nuclear Safety Standards (NUSS) series, and other safety related documents;
- the establishment and strengthening of regulatory bodies;
- the establishment of systems for the notification, registration and licensing of radiation sources;
- the design, control and safe use of radiation sources;
- the enhancement of radiation dosimetry services;
- the protection of workers exposed to ionizing radiation in medical and industrial applications;
- the strengthening of programmes for radiation protection of the public (including persons being exposed to radiation for medical diagnosis and treatment purposes) and the environment; and
- the establishment of emergency planning and preparedness programmes and procedures.

Nuclear Safety

4. The main effort in this area continues to relate to the safety of nuclear power plants in the countries of eastern Europe and the former Soviet Union; this work is described separately in Annex C-2.

5. Among the other TC projects in the nuclear safety area warranting special mention have been:

- a continuing project for strengthening nuclear safety regulatory bodies, with more than a dozen training courses attended by over 200 participants from the countries of eastern Europe and the former Soviet Union, on — inter alia — the regulatory control of nuclear power plants, the provision of regulatory

information to the public, safety culture and periodic safety reviews (see Annex C-4);

- a project through which ten countries of eastern Europe benefited from OSART, ASSET and other services and received assistance with nuclear power plant safety assessments, the promotion of technical information exchange in the region, the preparation of safety guidelines, the organization of peer reviews and the evaluation of plant safety improvements (see Annex C-5);
- Model Projects on 'Strengthening the nuclear regulatory body' in Armenia, Romania and Ukraine, building on the success of a similar project on Slovakia.

6. A major development in the past year has been the launch of the Agency's Integrated Strategy for Assisting Member States in Establishing and Strengthening their Nuclear Safety Infrastructure. An international advisory group, including representatives of 20 Member States, met in Vienna in December 1996 to review proposals for such a strategy developed jointly by the Departments of Nuclear Safety and Technical Co-operation. The advisory group concluded that the Agency's initiative in trying to develop a more systematic and logical approach to the identification and prioritizing of Technical Co-operation (TC) assistance programmes would ensure that the IAEA's safety related assistance would be more focused, solution oriented and cost effective.

7. The overall proposal agreed by the advisory group was that, following an initial approach from a Member State for nuclear safety assistance and an expression of willingness to be involved in the programme, a systematic review of the actual situation in the Member State would be carried out against a predefined and accepted international model 'reference situation' based upon the Safety Requirements documents in the IAEA's Nuclear Safety Standards Series programme. This review would be carried out jointly by the Agency and the Member State to identify the areas where assistance may be appropriate. An agreed Action Plan would then be jointly formulated, based on the Member State's priorities and the Agency's ability to provide suitable and effective assistance to the Member State. Once this was completed the Member State would then formally request the specific assistance in accordance with the normal practice of the Agency.

8. Advice on the implementation of the Integrated Strategy was developed further by a consultants' meeting held in Vienna in May 1997. The consultants involved came from seven different Member States, and six of them had participated in the advisory group. The meeting concentrated upon the definition of the 'reference situation' against which a Member State's existing situation would be evaluated, and the design of a questionnaire to facilitate this initial evaluation. It was recognized that to represent all of the requirements in all five of the Requirements documents — government organization, siting, design, operations and quality assurance — would produce a very extensive questionnaire, but it was nevertheless considered by the group to be feasible that all requirements could be evaluated by means of questions requiring only simple 'yes or no' answers.

Radiation and waste safety

9. An awareness of the importance of radiation and waste safety has been achieved in most of the countries where the Agency, pursuant to its Statute, has helped to ensure the "adequacy of proposed health and safety standards for handling and storing materials and for operating facilities". However, in the absence of systematic follow-up, that awareness has often not led to the establishment of adequate national radiation and waste safety infrastructure, i.e. infrastructure in line with the requirements derived from the Basic Safety Standards.

10. Consequently, the Secretariat has developed a strategy — approved by the 1994 Technical Co-operation Policy Review Seminar, and adjusted and strengthened for the 1996–97 programme cycle — for establishing and assessing such infrastructures. The aim of this strategy is to achieve adequate national radiation and waste safety infrastructures in most participating countries by the year 2000.

11. The strategy is implemented through an interregional Model Project INT/9/143, 'Upgrading Radiation and Waste Safety Infrastructure', which currently involves the following 53 countries:

Countries participating in the Model Project 'Upgrading Radiation and Waste Safety Infrastructure'			
Africa	West Asia/East Asia	Latin America	Europe
Cameroon	Afghanistan	Bolivia	Albania
Côte d'Ivoire	Bangladesh	Costa Rica	Armenia
Democratic Republic of the Congo	Kazakhstan	Dominican Republic	Belarus
Ethiopia	Kyrgyzstan *	El Salvador	Bosnia and Herzegovina
Gabon	Lebanon	Guatemala	Cyprus
Ghana	Mongolia	Haiti	Estonia
Madagascar	Myanmar	Jamaica	Georgia
Mali	Qatar	Nicaragua	Latvia
Mauritius	Saudi Arabia	Panama	Lithuania
Namibia	Sri Lanka	Paraguay	Moldova
Niger	Syrian Arab Republic		The former Yugoslav Republic of Macedonia
Nigeria	United Arab Emirates		
Senegal	Uzbekistan		
Sierra Leone	Viet Nam		
Sudan	Yemen		
Uganda			
Zimbabwe			

* Not a Member State of the Agency.

12. As part of the strengthening of the programme, the Department of Technical Co-operation has appointed four 'regional field managers', posted in Addis Ababa, Ethiopia (for the African group), Beirut, Lebanon (for the West and East Asian group), San José, Costa Rica (for the Latin American Group) and Bratislava, Slovakia (for the European group).

13. Assessment of countries' radiation and waste safety infrastructure is based on the country safety profiles information system — a computerized database, plus an assembly of hard copy information, containing all of the relevant data known to the Agency. The safety profiles system is dependent on the regional field managers and country safety officers providing the information to keep it up to date.

14. For all participating countries, assessments have been made by the regional field officers and by technical officers in the Division of Radiation and Waste Safety to identify weaknesses in infrastructure. Identified weaknesses included, for example, inadequate (or a complete lack of) information on the radiation sources in the country, and deficiencies in radiation and waste safety legislation and regulations, personnel dosimetry services and the calibration and state of repair of equipment. Shortcomings were discussed by regional field managers with the national authorities as part of the process towards producing detailed safety action plans. In over 90% of the participating countries, these plans have been finalized and agreed between the Agency and the country concerned, and a start made on their implementation.

15. The first milestone for countries in the Model Project is the establishment of systems for the control of radiation sources (including inventories of such sources). To this end, the Secretariat has devised a generic system — adaptable to the conditions in different States — for the notification, registration and licensing of radiation sources and for follow-up inspections of the sources. Later steps will cover protection of workers, patients receiving medical treatment and the public from environmental releases, emergency plans, transport arrangements and other areas. Specific activities are tailored to each country's particular needs, such as personnel training or the provision of necessary equipment.

16. The complete system in support of the model project is targeted for implementation by the end of 1997. It will provide the IAEA with a fully documented on-line system for assessing the current status of any country with respect to its radiation and waste safety infrastructure and a prioritized and agreed set of needs that should form the basis of future technical assistance projects. There will also be enough data to assess the capacity of the country to assure the safety of other developments of technology or requested items of equipment that could pose radiation hazards. Over time, the system should provide a firmer basis for the IAEA's co-operative work with its Member States and provision of technical assistance in areas of radiation and waste safety.

ANNEX C-2

PROVISION OF ASSISTANCE RELATED TO THE SAFETY OF NUCLEAR POWER PLANTS IN COUNTRIES OF EASTERN EUROPE AND THE FORMER SOVIET UNION

Background

1. The Agency has been providing nuclear power plant (NPP) safety assistance to countries of eastern Europe and the former Soviet Union under subprogramme H.1.04 ('Safety of WWER and RBMK plants') of its programme for 1996–97. This subprogramme includes the provision of technical support to interregional, regional and national TC projects. The activities in question have been funded from the Agency's Regular Budget, from technical co-operation (TC) resources and from extrabudgetary contributions.
2. In addition to the assistance being provided under subprogramme H.1.04, at the request of WWER and RBMK operating countries the Secretariat has been providing site specific assistance and advice through, for example, the Operational Safety Review Team (OSART) service, the Assessment of Safety Significant Events Team (ASSET) service and the International Peer Review Service (IPERS) for Probabilistic Safety Assessments.

Programme Completion

3. In December 1996 an Advisory Group — including countries both providing and receiving assistance in the framework of the IAEA Extrabudgetary Programme (EBP) on the Safety of WWER and RBMK NPPs — agreed that the objectives set for 1996 had been achieved in a transparent and effective way.
4. Member States that have supported the EBP during the past years welcomed the overall achievements and requested a successful, well documented completion of the EBP in 1998. Therefore a comprehensive final report will be prepared, including a summary of the achievements and the safety issues which require further investigation.

5 The Advisory Group recommended that during 1997-1998, the extrabudgetary part of the IAEA activities should concentrate on topical meetings addressing the generic safety issues, and on completion of the list of safety issues and rankings for 'small series' WWER-1000 plants and RBMKs of first and second generation. Special consideration should be given by the Agency to ensure a balance between the remaining activities of the EBP on the safety of RBMK and WWER reactors, ensuring that the highest priority is given to the successful completion (or effective transfer) of remaining work on these older design reactors into the Agency's regular programme or other international programmes. Further activities are also needed to:

- promote safety culture;
- exchange experience on implementation and regulatory assessment of safety modifications;
- finalize guidelines for, and maintenance of, the database on the plant specific status of safety improvements; and
- provide assistance to the G-24 Nuclear Safety Assistance Co-operation (NUSAC).

During this period, the IAEA assistance should provide an additional technical basis for the preparation of plant specific Safety Analysis Reports by the operating organizations, and review and approval by the national regulatory bodies of each country.

6 Some Member States have already made in-kind and cash contributions to the EBP for 1997 and 1998. It is, however, of the utmost importance that Member States continue providing voluntary contributions to the EBP during 1998 to ensure the successful completion of the last phase of the programme.

7 Remaining work will need to be adequately undertaken. This means identification of issues needing further work which will need to be completed beyond 1998 in the frame of IAEA regular programme, national, bilateral or other international programmes, in co-ordination with G-24 NUSAC. The aim of this further work should be to help in finalizing Safety Analysis Reports for all NPPs and their review by the relevant Regulatory Authority. Work will also continue to keep up to date the database of safety issues and plant specific status of safety improvements in WWER and RBMK NPPs.

8 An international conference will be convened by the IAEA in 1999 to review results of ten years of International Assistance to Improve Nuclear Safety in Eastern Europe and Countries of the former Soviet Union.

WWER Safety Issues

9. Insights from an IAEA review of South Ukraine NPP Units 1 and 2 in 1996 indicate that the issues previously identified for WWER-1000/320 plants are generally applicable to the older 'small series' plants. In addition, there are some other safety issues which are specific to the 'small series'.

10. In March 1997, a technical visit to Novovoronezh NPP Unit 5 compiled information on the safety upgrading already implemented and other improvements being implemented or planned. This information, together with the results of the review in South Ukraine, will be used to complete in 1997 the list of safety issues and their ranking according to safety significance.

11. In May 1997, a workshop organized jointly by the IAEA and the Government of Bulgaria provided a forum for exchange of information on the results of the work carried out to demonstrate Kozloduy Unit 1 reactor pressure vessel integrity.

RBMK Safety Issues

12. The scope of the postulated accidents analyses included in the Technical Justifications of Safety (TOBs) — performed according to the national regulations in effect at the time when these TOBs were prepared — was found to be limited in comparison to current international practices and usually lacked a clear description of the assumptions used in these analysis.

13. Work is under way on the preparation of guidelines for accident analysis of RBMK NPPs. A first draft report was issued and is currently under review. The final report is due in 1997.

14. Workshops have been organized to provide a forum for senior managers to exchange national and international experience on factors influencing safety culture, to better understand these factors and to further promote safety culture.

15. A Senior Managers' Workshop on International Promotion of Safety Culture for the NPPs with RBMK reactors was organized within the framework of the IAEA Technical Co-operation Regional Europe Project (RER/9/035) and the IAEA Extrabudgetary Project on WWER and RBMK Safety — in co-operation with the Swedish International Project on Nuclear Safety (SiP) — at the Forsmark NPP, Sweden, from 1 to 4 October 1996. A second workshop was organized by the IAEA, and co-ordinated with the SiP and the US Department of Energy, in May 1997. Participants considered the workshops very useful.

16. In May 1997, a technical visit to Leningrad NPP reviewed the status of safety improvements carried out and planned for Unit 2. Use was also made of the results from the second phase of the International RBMK Consortium's assessment of the RBMK reactor type, sponsored by the European Commission. The results of this visit will also be used by the IAEA later in 1997 to consolidate and rank a list of safety issues specific to RBMKs of early generations.

Database on WWER and RBMK Safety Issues

17. The IAEA database on WWER and RBMK safety issues and plant specific status of safety improvements is being distributed to Member States participating in the Programme through nominated national co-ordinators.

IAEA/G-24 Co-ordination

18. The Secretariat continues to participate as a technical advisor to the G-24 Nuclear Safety Assistance Co-ordination in G-24 reviews in Brussels, carried out for the purpose of identifying gaps and overlaps in assistance activities. All G-24 projects are being coded against the list of IAEA safety issues; the IAEA has already completed the coding of its own projects and submitted it to the G-24.

Regional Technical Co-operation Projects

19. Three Regional Europe Technical Co-operation Projects have been initiated in 1997. The work plan for these projects was agreed in February 1997 at a meeting in Vienna between the IAEA and the country co-ordinators. The projects deal with 'Nuclear Safety Regulatory and Legislative Infrastructure', 'Capacity for Assessment of Operational Safety of

NPPs' and 'Support for Safety Assessment of NPPs'. The project activities are closely coordinated with those of the Extrabudgetary Programme and complement each other.

ANNEX C-3

FOSTERING OF SAFETY RELATED INFORMATION EXCHANGE

Background

1. Fostering the exchange of information on nuclear, radiation and waste safety is an integral part of the Agency activities aimed at providing for application of the Agency's safety standards. Moreover, Article III.A.3 of the Agency's Statute authorizes the Agency to foster the exchange of scientific and technical information on peaceful uses of atomic energy.

Publications

2. All Agency publications issued in 1996 are listed in the Annual Report (GC(41)/8); a list of safety related publications issued so far in 1997 is provided below.

AGENCY PUBLICATIONS ON NUCLEAR, RADIATION AND WASTE SAFETY JAN-JULY 1997	
Safety of Nuclear Installations	
Reviewing the safety of existing nuclear power plants (Proceedings of a Symposium, Vienna, 8–11 October 1996)	STI/PUB/1005
Generic component reliability data for research reactor PSA	TECDOC-930
Pilot Study on the Management of Ageing of Instrumentation and Control Cables	TECDOC-932
Organizational Factors Influencing Human Performance in Nuclear Power Plants	TECDOC-943
Guidelines on pressurized thermal shock analysis for WWER nuclear power plants	EBP-WWER-08
Radiation and Waste Safety	
The Basic Safety Standards on Diskette (Safety Series No. 115)	STI/DAT/2
Regulations for the safe transport of radioactive material — 1996 Edition (Requirements)	Safety Standards Series No. ST-1
Radiation and society: Comprehending radiation risk (Addresses, papers and summaries of technical and forum discussions of the IAEA Conference, Paris, 24-28 October 1994)	STI/PUB/959 Vol. 3
Planning and operation of low level waste disposal facilities, Symposium Proceedings, Vienna, 17–21 June 1996	STI/PUB/1002
Predicted Radionuclide Release from Marine Reactors Dumped in the Kara Sea	TECDOC-938

AGENCY PUBLICATIONS ON NUCLEAR, RADIATION AND WASTE SAFETY JAN-JULY 1997

Method for the Development of Emergency Response Preparedness for Nuclear or Radiological Accidents TECDOC-953

Generic Assessment Procedures for Determining Protective Actions during a Reactor Accident TECDOC-955

National competent authorities responsible for approvals and authorizations in respect of the transport of radioactive material. List no. 28. 1997 edition NCAL-28

3. Two public information booklets on safety related subjects have been issued:

- *The IAEA/NEA Incident Reporting System: Using Operational Experience to Improve Safety*, a simple account of the purpose and implementation of the IRS (see below); and
- *Ten years after Chernobyl: What do we really know?*, a simplified and illustrated account of the main conclusions from the IAEA/WHO/EC International Conference in Vienna, April 1996.

Electronic information systems

4. The Secretariat has for some time been using electronic network systems (especially e-mail) to communicate with Member States. Owing to the limitations of e-mail as a means of exchanging scientific and technical information, however, the Secretariat has been exploring other electronic communication systems, the principal aim being to make available to Member States — especially those which are developing countries — direct access to nuclear, radiation and waste safety information.

5. In particular, pages have been created on the Agency's World Wide Web (WWW) site to make information on safety more readily available to Member States. Some examples of safety related information are currently available at:

- <http://www.iaea.org/ns/rasnet/> (radiation and waste safety, including some basic interactive training modules);
- <http://www.iaea.org/exp/nusafe/> (safety of nuclear installations);
- <http://www.iaea.org/worldatom/program/safety/nens/> (safety of WWER and RBMK reactors);

- <http://www.iaea.org/worldatom/thisweek/preview/chernobyl/> (1996 Chernobyl Conference);
- <http://www.iaea.org/worldatom/glance/legal/> (safety related Conventions).

6. Another initiative in this area is the publication of major Agency documents in electronic form, allowing the inclusion of powerful search and cross-referencing facilities. The first example of this was *HYPERTRANS*, an electronic version of the Agency's Transport Regulations and supporting documents published in 1994.¹ In 1997, the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (Safety Series No. 115) were made available on computer diskette. A Windows program, called *SS115*, enables the user to search for and retrieve any topic directly through the Table of Contents tree, with access based on keyword searches, a subject index or cross-referencing. Definitions of the main concepts from the Glossary can also easily be accessed.

Conferences, seminars and meetings

7. An important means of fostering the exchange of safety related information is the organization of scientific and technical meetings, ranging from large meetings (such as conferences, symposia and seminars) with broad participation to smaller, specialized meetings (such as Technical Committee meetings) with the participation of selected experts. Information exchanged at such meetings is subsequently made available by the Agency in priced publications such as conference proceedings, or in unpriced ones such as technical documents (the IAEA TECDOC series).

8. From 8 to 11 October 1996, the Agency organized an International Symposium in Vienna to allow the exchange of experience and lessons learned from safety reviews and experience feedback systems at existing NPPs. It was intended through this symposium to make available to all those involved in maintaining the safety of NPPs (i.e. plant owners and operators, regulators, designers, technical support organizations and manufacturers) information on effective methods, practices and criteria for safety reviews and experience feedback systems. The Symposium noted that many past and ongoing safety review and

¹ It is intended that a new version of *HYPERTRANS* will be produced in due course based on the 1996 Edition of the Transport Regulations and its supporting documents.

feedback programmes can be applied to obligations that States are undertaking through the Convention on Nuclear Safety. Proceedings have been published by the IAEA.

9. A Public Information Seminar on *Safety of Nuclear Energy Applications* was held in Zagreb, Croatia on 25–26 March 1997, in co-operation with the Croatian Ministry of Economic Affairs and funded by Japan through an extrabudgetary public information programme. Participants included governmental representatives, nuclear communicators and invited journalists from Croatia and other countries in the region. The topics addressed included nuclear and radiation applications in various fields, the safety of nuclear power plants and waste management and Croatia's nuclear related experience in areas of nuclear medicine and scientific research.

10. The important issues of exemption, exclusion and clearance of radioactive sources that cannot, or need not, be subject to regulatory control were discussed by a specialists meeting in Vienna in May 1997. Working with other organizations, the IAEA has issued international guidance through the BSS on the concepts of exemption, exclusion, and clearance, and they have been discussed in the context of the draft convention on the safety of radioactive waste management now being prepared. Yet more work needs to be done to clarify definitions and extend the application of the concepts to practical problems of radiation protection and waste management. More than 60 people from 20 States and three international organizations participated in the meeting, and the material presented will be available from the Agency as Working Material.

11. A number of major safety related conferences sponsored or jointly sponsored by the Agency are taking place later in 1997:

- an International Conference on *Goiânia: 10 Years Later* in Goiânia, Brazil, 26–31 October 1997, jointly sponsored by the Comissão Nacional de Energia Nuclear (CNEN), IAEA, the state Government of Goiás and the Associação Brasileira de Energia Nuclear (ABEN);
- an International Conference on *Physical Protection of Nuclear Materials: Experience in Regulation, Implementation and Operations* in Vienna, 10–14 November 1997;

- a Symposium on *Upgrading the Fire Safety of Operating Nuclear Power Plants* in Vienna, 17–21 November 1997; and
- an International Conference on *Low Doses of Ionizing Radiation: Biological Effects and Regulatory Control* in Seville, Spain, 17–21 November 1997, jointly organized by IAEA and WHO, in co-operation with UNSCEAR, and with the support of a group of Spanish organizations.

The Contact Expert Group (CEG) on Waste Management in the Russian Federation

12. One of most complicated ecological problems in the Russian Federation (RF) is the management of radioactive waste accumulated as a result of past activities in production of nuclear weapons, use of nuclear energy for peaceful purposes, and as a result of the reductions in nuclear arms. About 6×10^8 m³ of radioactive waste has been accumulated in the RF, with a total activity of about 7×10^{19} Bq. In addition, around 8500 t of spent nuclear fuel, with an activity of around 10^{20} Bq is stored. More than 150 nuclear submarines have been taken out of service and are waiting to be defuelled and dismantled.

13. It became evident that it was necessary to intensify and extend contacts between RF and western experts and decision makers to better understand and assess the situation and to harmonize assistance in solving the problems. Therefore the Contact Expert Group (CEG) was established by a group of interested countries, with the Agency acting as the CEG Secretariat.

14. Eleven members (Belgium, European Union, Finland, France, Germany, IIASA, Norway, Russian Federation, Sweden, UK, USA) and three observers (ISTC, Japan, NEFCO) participate in the CEG activities.

15. The CEG's achievements in its first year of existence include:

- a database of 155 co-operation projects has been established;
- the projects have been arranged under 19 major topics, and considered from the point of view of potential overlap or duplication;
- the list of 'Russian High Priority Projects', prepared by Russian ministries involved, was considered by the CEG and recommended to its members to be taken into account in selecting projects for financial support and assistance;

- the CEG recommended that its members concentrate their efforts at this stage on co-operation in the field of spent fuel management as the most urgent current problem;
- the progress in negotiations on, and implementation of, the co-operation projects is regularly reviewed.

16. Most of the spent fuel and radioactive wastes of particular concern — from the point of view of safety and potential environmental impact, both to RF and its neighbours — are generated in the North-West region of the RF. Therefore the CEG focused consideration at its last meeting, in June 1997 in St. Petersburg, on the status of waste management programmes in the North-West region of the Russian Federation in the most important technical areas.

17. The CEG decided to present the results of its analysis to the Director General, with the request to submit it for the consideration of a Board of Governors meeting.

The Biosphere Modelling and Assessment (BIOMASS) Programme

18. The IAEA Co-ordinated Research Programme on biosphere modelling and assessment (BIOMASS) provides a major forum for international information exchange on a range of topical issues related to modelling the biosphere for assessments of waste safety. The programme is funded jointly by the Agency and participating organizations. Information exchange is achieved both through the publication of the results of BIOMASS studies, and less formally through the regular meetings of the Working Groups. A plenary session is also held each autumn in Vienna; the next of these is scheduled for 20–24 October 1997.

19. The programme currently supports ten Working Groups studying specific subjects within three ‘themes’:

- Theme 1: Radioactive Waste Disposal. The focus of this theme is on developing the concept of ‘reference biospheres’ into a practical system for application to the assessment of long term safety of repositories for radioactive waste;
- Theme 2: Environmental Releases. This theme is currently concerned with modelling the radiological consequences of past practices, with Working

Groups on assessment in the remediation of contaminated sites and dose reconstruction;

- Theme 3: Biosphere Processes. The work in this theme is concerned with particular aspects of modelling at the process level, and currently has Working Groups on environmental modelling of tritium, and on modelling fruit trees.

The Incident Reporting System (IRS)

20. The Incident Reporting System (IRS) is an international system jointly operated by the IAEA and the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD/NEA). Events reported to the IRS should be of safety significance for the international community in terms of causes and lessons learned. The IRS is based on the voluntary commitment of the participating countries who benefit from the exchange of information. The IRS relies upon Member States to select events to be reported to the IRS in accordance with the guidelines.

21. Armenia and Lithuania began participating in the IRS in 1996. This means that all 31 countries operating nuclear power plants are now participating in the IRS.

22. As of 1 August 1997, the IRS contains 2560 reports. The number of IRS reports received by the IAEA Secretariat per year is as follows:

1992	—	177 reports
1993	—	116 reports
1994	—	87 reports
1995	—	113 reports
1996	—	143 reports
1997	—	62 reports (to 1 August 1997)

The decline in reporting which appeared in 1994 was corrected and now the reporting frequency corresponds to 0.25–0.3 reports per unit year.

The Advanced IRS (AIRS) Database

23. In 1996, the Secretariat finalized the development of the advanced IRS database (AIRS) which contains full text reports and illustrations and gives more sophisticated

possibilities to nuclear safety experts for searching and retrieval of the IRS reports. Since 1996 the AIRS database has been distributed quarterly to participating countries on CD-ROM.

24. With the aim of simplifying the system, and to avoid duplication of work, it was agreed by the IAEA and NEA that the IAEA Secretariat will serve as a single focal point of the IRS, responsible for the database and its quality and for the collection and distribution of IRS reports.

Joint IAEA/NEA Guidelines

25. Based on the recommendations of the participating countries, the Advisory Committee on IRS prepared in 1996–97 a draft of the Joint IAEA/NEA Guidelines with Attachments. The main objective of the Joint Guidelines is to harmonize and replace the existing separate IAEA and NEA Guidelines and to strengthen the basic objective of the IRS, i.e. the exchange of detailed technical information on significant events with important lessons learned. During the preparation of the Guidelines the first important step forward (in the coding system) was performed with the aim to achieve compatibility with the WANO reporting system.

IRS Topical Studies

26. IRS topical studies on selected areas of safety concern are an important part of the IRS activities. Several topical studies have been carried out in 1996–97, including:

- *Events connected with vendors/contractors activities*

The study revealed that the causes of these events are connected with the following areas: correctness of the proposed design change, quality assurance programme of vendor/contractor organizations, insufficient training or supervision of contractor personnel, completeness of submitted documentation and verification of installation.

- *Events in the shutdown and low power operating modes*

Nearly 50% of the reports in the IRS database are connected with these operating modes. The study was focused on the events connected with the loss of heat removal capacity, spent fuel transport issues, fires and flooding, loss of redundancy, various

types of transient and human dominated events. The majority of assessed events was caused by insufficient preparation or training of operators or maintenance workers or unclear procedures.

- *Events related to foreign material intrusion*

The IRS database revealed noticeable increase of such events during the last years. These events may have significant safety impact and may influence various NPP systems and components, such as reactor core or steam generators. Corrective measures consist of more stringent procedural control, design changes or introduction of diagnostic and monitoring systems.

IRS Highlights

27. The IAEA prepared the IRS highlights for the period 1995–96, which summarized the most important new or existing safety issues received by the IRS during the last year. These include control rod insertion problems, steam generator tube leaks, blockage of emergency core cooling system strainers, human errors during maintenance, testing, appearance of unanalysed conditions, microbiologically induced corrosion, pressure locking and thermal binding of gate valves. Recurring safety problems underline inadequacies in the operational feedback process in terms of insufficient analysis or ineffective corrective measures.

28. A Joint IAEA/NEA meeting on the exchange of information about recent events at nuclear power plants was held together with the annual meeting of IRS national co-ordinators in Vienna, 26–30 May 1997.

The International Nuclear Event Scale (INES)

29. INES is now used by 59 countries (Lebanon joined in February 1997) for facilitating rapid communication between the nuclear community, the media and the public regarding the significance of nuclear events.

30. During the period July 1996 to June 1997, the Agency received and disseminated information relating to 58 events — 46 at NPPs and 12 at other nuclear facilities. The events received are tabulated as follows:

Out of scale (no safety relevance):	1
Level 0 (below scale, i.e. safety relevant, but of no safety significance):	23
Level 1 (anomalies):	17
Level 2 (incidents):	16
Level 3 (serious incidents):	1

31. Since the 1996 session of the General Conference, the following INES related activities have taken place:

- INES seminars have been held in South Africa, Hungary, Armenia and Spain;
- an annual meeting of INES National Officers has been held in October 1996, with the emphasis on national communication policies and practices;
- the INES computerized rating procedure has been finalized and will be validated by selected National Officers;
- in April 1997 a consultants' meeting was held to review the communication of nuclear events and the role of the Scale. The report of the meeting will serve INES National Officers to better understand and possibly improve reporting practices.

ANNEX C-4

PROMOTION OF EDUCATION AND TRAINING

Background

1. Education and training are essential in providing for the application of the Agency's safety standards. The IAEA, through its Technical Co-operation and Nuclear Safety Departments, promotes education and training by organizing, in collaboration with organizations in host countries, courses of an 'educational' nature covering a broad range of nuclear, radiation and waste safety issues, and more specialized training courses and workshops covering specific subject areas. The Agency also promotes education and training through other mechanisms, such as sponsoring fellowships and scientific visits and publishing educational and training materials.

Educational courses

2. A Regional Post-Graduate Educational Course in Radiation Protection and Nuclear Safety (in Russian) was held at Dubna and Obninsk, Russian Federation, from 19 August to 8 November 1996, with 20 Agency-sponsored graduates participating.¹ The course was designed to provide multidisciplinary theoretical and practical training related to existing international recommendations and safety standards and to their implementation. Such courses are aimed at young professionals from developing countries who need to acquire a sound basis in radiation protection and a knowledge of related nuclear safety fundamentals in order to become, in the course of time, qualified experts (decision-makers and/or trainers) in their home countries.

¹ Of these 20 participants, six attended only that part of the course dealing with radiation protection (from August to October, hosted by the Joint Institute for Nuclear Research, Dubna).

Specialized training courses/workshops

3. Listed in the table below are the interregional and regional training courses and workshops held within the framework of the Agency's technical co-operation programme during the first half of 1997; a complete list of training courses held in 1996 is included in the Annual Report (GC(41)/8). In addition, a number of national training courses, seminars and workshops took place within the framework of technical co-operation projects.²

Regional and Interregional Training Events January–July 1997		
Title	Host Country	Date
Radiation and Waste Safety		
Regional Training Workshop on <i>Legislation and Regulations for Radiation Safety</i>	Tanzania	March 1997
Regional Training Workshop on <i>Regulatory Compliance and Enforcement of Radiation Safety</i>	South Africa	May 1997
Regional Training Course on <i>Radiation Protection and Safety</i>	Uganda	June–July 1997
Radiation Protection and Nuclear Safety		
Regional Training Course on <i>Emergency Planning and Preparedness</i>	Finland	March 1997
Nuclear Safety		
Interregional Training Course on <i>Prevention and Management of Accidents at Nuclear Power Plants</i>	USA	February 1997
Interregional Training Course on <i>Managing Safety Aspects of Ageing in Nuclear Power Plants</i>	Canada/USA	May–June 1997
Regional Training Course on <i>Inspection Techniques</i>	Slovakia	June 1997
Regional Regulatory Workshop on <i>Periodic Safety Review of Nuclear Power Plants</i>	Hungary	June 1997
Regional Training Course on <i>Regulatory Control of Nuclear Power Plants</i>	Czech Republic	June–July 1997

4. Coinciding with the publication of the 1996 edition of the IAEA Transport Regulations, a training course on *Safe Transport of Radioactive Materials* was organized

² A forecast of interregional and regional training courses to be given during the period 1996-2000 was presented by the Secretariat in 1995 in document GOV/INF/774.

jointly by the Agency and the European Commission. The course was held at Mol, Belgium, from 7–24 October 1996, and included 30 participants from 18 countries, many of them representing their national transport safety Competent Authority. Further Agency courses are planned to assist with the implementation of the new Regulations.

Other mechanisms

5. In addition to organizing courses and workshops, the Agency arranges for scientists and engineers from Member States to receive training through fellowships and scientific visits, and produces educational and training material.

Fellowships and scientific visits

6. During the period July 1996–June 1997, some 300 applications for fellowships and scientific visits in the fields of nuclear, radiation and waste safety were received from about 50 Member States and evaluated within the Secretariat. It is expected that approximately 70% of these applications will result in placements.

Educational and training material

7. The materials used for the Regional Training Courses on Regulatory Control of Nuclear Power Plants, in Prague, Czech Republic in June–July 1997 are being used to prepare a training manual for use by the Agency in conducting such courses in the future, and also for use by Member States for their own training programmes.

8. Standard syllabi are being prepared for courses on Notification, Licensing and Control of Radiation Sources and on Assessment and Inspection of Medical, Industrial and Research Facilities, for use in future courses.

9. Preparations are under way for the production of an IAEA video covering basic radiation protection issues, suitable for use as training material. The scope of the video will include types of radiation, quantities and units, sources of exposure, biological effects, dose assessment, ICRP Recommendations and the Basic Safety Standards.

10. Safety-related Agency publications — including the Basic Safety Standards and guides, technical reports, training and other practical manuals, and technical documents —

have continued to be used extensively, together with visual aids, at educational courses and specialized training events.

Outlook

11. In the light of recommendations made by the Advisory Group on Policy in Radiation Training in 1995, plans are being made for a meeting in December 1997 to start work on preparation of a document on qualification and training requirements for radiation protection. The document will include revised standard syllabi for specialized radiation protection training (a revision of Technical Report Series No. 280 published in 1988) in line with the requirements of the Basic Safety Standards.

12. An Advisory Group met in April 1997 to propose a forecast of training courses for 1998–2002. The recommendations of the Advisory Group were reviewed and adjusted by the internal Training Courses Programme Committee. The Committee produced a programme that envisages, subject to the Director General's approval, approximately 20 interregional and over 30 regional courses on nuclear, radiation and waste safety over the period 1998–2002.

ANNEX C-5

RENDERING OF SAFETY RELATED SERVICES

Background

1. The Agency provides a range of services to Member States related to nuclear installation safety, which are discussed in turn in this Annex:

- the Operational Safety Review Team (OSART) service;
- the Assessment of Safety Significant Events Team (ASSET) service;
- the Engineering Safety Review Service (ESRS);
- the International Peer Review Service (IPERS) for probabilistic safety assessments;
- the Integrated Safety of Research Reactors (INSARR) service;
- the Assessment of Safety Culture in Organizations Team (ASCOT) service;
and
- the International Regulatory Review Team (IRRT) service.

The provision of such services to developing countries is supported by the Agency's technical co-operation programme; for services to developed countries, the costs are borne by the countries themselves.

2. At present, the services are provided to Member States when they are requested. Discussions are under way, however, on the integration of these and other related services to provide a 'package' of services making the most effective use of the available IAEA resources and providing assistance to Member States in areas where they most need it.

The Operational Safety Review Team (OSART) Service

3. In the past twelve months, five OSART missions, two follow-up missions and three preparatory meetings for future missions have been carried out. Also, Operational Safety

Unit staff participated in an extended Pre-International Regulatory Review Team (IRRT) mission to Pakistan, and in technical exchange missions to Novovoronezh (Russian Federation). In addition one technical exchange visit to Laguna Verde (Mexico) and an OSART methodology seminar in Kiev (Ukraine) were conducted.

OSART mission findings

4. The five OSART missions were to Bohunice NPP (Slovakia), Daya Bay NPP (China), Dampierre NPP (France), Qinshan NPP (China) and Laguna Verde (Mexico). A common feature on all of these missions is that management was committed to the improvement of safety standards and that plant personnel demonstrated sincere openness and eagerness to improve during the reviews. Nineteen examples of good practice were identified in these missions, together with recommendations and suggestions offered by the team to improve nuclear safety. These will be made available to the nuclear industry through the OSMIR database.

3. Areas where the OSART missions identified a need for improvement are as follows:

- At some plants, field deficiencies were not always reported, and investigation of root causes and corrective actions as a result of regular analysis of events were not sufficiently addressed and adequately prescribed to prevent recurrences. Furthermore, in one plant the continuous monitoring of control room panels was in need of improvement;
- In some instances, continuing training was found to be in need of improvement. In one case, training in different plant operational areas was not well integrated and its effectiveness was not always assessed;
- Configuration management of the plant design and operation was a concern, with deficiencies in compliance with the use and modification of plant procedures and with lack of control of temporary installations in the plant;
- In some plants, upper management needed to reinforce the need for plant staff to adhere to policies and important safety related procedures. In one plant, a large number of procedures were in development, and plant management was urged to keep to the established schedule for completion; and

- Safety culture was found to be in need of improvement in one plant due to insufficient standards of performance. In another plant, upper management was not clearly presenting safety culture as an overriding priority. A recommendation was offered to another plant to improve managerial practices to integrate, co-ordinate and monitor corrective actions, making people accountable for compliance with programmes and procedures.

OSART follow-up visits

5. OSART follow-up missions are conducted as an integral part of the OSART process, approximately 18 months after the OSART mission. The OSART follow-up visits to the Leibstad NPP (Switzerland) and the Ignalina NPP (Lithuania) conducted since September 1996 demonstrated the effectiveness of the OSART service and the commitment of the plants to implement improvements recommended by the OSART team. The review of the actions taken by the plants to correct the issues identified revealed that 43% of the issues were totally resolved, in 43% the progress was considered satisfactory, in 13% the progress was considered insufficient and in 1% the issue was withdrawn. In some cases it was noticed that the corrective measures implemented went beyond the recommendations made.

Development in the OSART programme

6. As a result of the recommendations made by a consultants' meeting in the framework of the Project Performance Assessment System (PPAS), several actions are being implemented. The most significant are:

- the integration and co-operation of OSART with the other operational safety services (ASSET and ASCOT);
- the improvement of the preparation phase of OSART missions;
- the specific assessment of compensatory operational measures for plants with design deficiencies;
- appropriate consideration of cultural differences at several stages in the OSART process; and
- further communication and co-ordination with WANO.

Further initiatives include shortening the time to produce the final OSART reports, review of the OSART guidelines, increasing regulator and plant participation in the OSART process (training included) and providing assistance to the plant in the preparation phase and in implementing the recommendations.

Additional activities

7. Following the interest demonstrated by Member States, the IAEA has continued the development of a document on plant operational safety self-assessment programmes as a tool to enhance nuclear safety, establishing a common understanding of self-assessment principles and providing typical examples of current effective programmes. The OSMIR database containing all the OSART results is continuously updated for the benefit of NPP utilities and regulators. Member States have now requested additional seminars on the OSART methodology with the purpose of self-assessment of plants.

The Assessment of Safety Significant Events Team (ASSET) Service

8. From the start of the ASSET programme in 1986 to date, 57 ASSET missions have been carried out in 19 countries. In addition, 69 ASSET training seminars have been given in 28 countries to demonstrate the practical use of the ASSET analysis procedures and to familiarize plant staff with the ASSET guidance for self-assessment.

ASSET mission findings

9. Since the last session of the General Conference, there have been four ASSET missions (to the Czech Republic, the Russian Federation and Slovenia) and seven ASSET seminars (held in Bulgaria, China, Finland, Romania, the Russian Federation and Ukraine). The purpose of the seminars was to prepare plant staff to perform self-assessments, while ASSET missions carried out peer reviews of the self-assessments at the Balakovo and Smolensk NPPs in the Russian Federation, the Dukovany NPP in the Czech Republic, and the Krško NPP in Slovenia.

10. Some of the mission findings are set out below:

- among the safety problems identified were deficiencies in qualification and safety awareness of maintenance personnel, operators' actions in the main

control room and on the refuelling machine, reliability of electrical and I&C components of safety systems (e.g. ECCS, spray pumps and diesel generators), excessive control rod insertion time, foreign material intrusion, control of reactor power, review of load transients, and scheduling of procedure revisions;

- although some plants' safety culture has improved significantly since their last ASSET missions due to proactive initiatives implemented, several of the identified deficiencies were also noted in their last ASSET; for instance, quality of maintenance work, operator proficiency, and reliability of electrical and I&C components of safety systems. The effectiveness of the Operational Experience Feedback programme should be reviewed to enhance safety culture in the areas of identifying safety problems (reporting criteria), assessment of their significance (assessment capabilities) and learning the lessons;
- in order to obtain a larger population of events from which lessons can be learned, events of less significance should be included — i.e. broader event reporting criteria and lower event reporting thresholds — to ensure that the potential for the occurrence of safety significant events is reduced.

Development in the ASSET programme

11. At the annual workshop on ASSET experience in June 1997, it was recommended that the Secretariat:
 - continue to promote the use of self-assessments by NPP staff, together with a subsequent ASSET Peer Review;
 - incorporate into the guidelines the option of a plant using its own established Event Analysis system for self-assessment (instead of the ASSET system), provided that it addresses the basic ASSET questions. A flexible approach may encourage more Member States to undertake assessments and request peer reviews;
 - encourage plants to analyse a broader population of events to ensure that pending safety problems, including their precursors, are adequately identified.

12. More recently, a new trend among the requests from Member States seems to indicate the desire to apply the systematic self-assessment and the associated ASSET Peer Review process not only to nuclear power plants but also to research reactors and other nuclear facilities.

13. A computer database system ACCET (Analysis of Consequences and Causes of Events Tool) is now ready to store information on the operational events reviewed, the safety problems identified and the corrective actions proposed by ASSET. For this purpose a user's manual for ACCET is available. Currently event data of ASSET missions from 1994 to 1997 are stored in the ACCET database.

Outlook

14. In Member States where ASSET seminars and missions were held the ASSET analysis methodology has gained recognition from operating and regulatory organizations and is currently used for self-assessment of operational events reflecting safety performance.

The Engineering Safety Review Service (ESRS)

Siting aspects

15 In relation to the investigations begun in 1991 on the siting of the first Indonesian nuclear power plant on the Muria Peninsula, three ESRS site safety review missions were performed within the framework of the TC project INS/9/012. The objectives were to assist the national atomic energy agency BATAN in the review of the topical reports on the final stage of the siting studies, as prepared by an external engineering consultancy and a national technical team. The reviews covered the critical areas required to demonstrate the acceptability of the candidate site, at Ujung Lemahabang on the Muria Peninsula, from the point of view of external events on the plant (i.e. volcanology, geology and tectonics, seismic hazard assessment and geotechnical engineering) and to determine the corresponding design basis parameters. The main emphasis was given to the issues concerning the volcanic hazard assessment, the geological stability in the vicinity of the site, the seismic hazard at the candidate site in accordance with the specific local soil conditions, and the foundation feasibility. Since these studies have not yet been completed, a 'Confirmatory Study' phase will be initiated by BATAN.

Seismic aspects

16. Since the first IAEA seismic safety mission to Armenia, conducted in May 1992, a substantial number of technical assistance and co-operation activities in the seismic safety area have been implemented. Four further reviews were made to assist both the Regulatory Authority and the NPP in the development of technical guidelines for the seismic re-evaluation and upgrading programme for the plant on the basis of the seismic hazard determined in 1995. The floor response spectra and the corresponding building response to the revised seismic input were reviewed. Advice was given on the development of the list of essential systems, structures and components for safe shutdown. It should also be mentioned that a seismic monitoring system — using updated equipment, software and procedures in accordance with current criteria for plant response in case of earthquake — was defined and provided during the missions.

17. The final review of the seismic design basis parameters for the Belene NPP site in Bulgaria was performed. The seismic input value of 0.25g associated with a site specific response spectrum was assessed to be suitable for the site.

18. The site and seismic safety sections of the preliminary safety analysis report for the new 30 MW research reactor (under construction) was reviewed for the Egyptian Atomic Energy Authority. A set of recommendations were given to the EAEA and follow up is planned.

19. As a follow up of the mission performed in 1995, the seismic safety of the Almaty research reactor (10 MW) was reviewed to ascertain the implementation of the previous IAEA recommendations. The implementation showed progress but the work needs to be completed, in particular in the area of capable faulting assessment.

External events

20. A review of the external events PSA (including internal fire and flood) was performed to assist the Korea Institute of Nuclear Safety (KINS) for Ulchin NPP Unit 4, in connection with the IPERS mission which was in the Republic of Korea at the same time.

Workshops

21. A workshop was held in Romania on external events PSA (including internal fire and flood). This methodology will be applied by RENEL (the electrical utility) for the Cernavoda NPP.

22. In the Republic of Korea, an informal national Workshop was held at KINS (Taejon) to discuss the details of the methodology involved in the assessment of geological and seismic hazards for nuclear power plant sites. This was a follow up to a regional Workshop held in Taejon the previous year.

The International Peer Review Service (IPERS) for Probabilistic Safety Assessments

Missions

23. Three review activities were carried out during the last year: the IPERS pre-review workshop for the Ulchin NPP Units 3 and 4 PSA (Vienna, 7–11 October 1996), the IPERS review for the HIFAR research reactor PSA (Lucas Heights, Australia, 24 February–7 March 1997) and the IPERS main review mission for the Ulchin NPP Units 3 and 4 PSA (Taejeon, Republic of Korea, 17–28 March 1997).

24. The experts that participated in the IPERS Review for the HIFAR research reactor PSA appreciated that the scope of the Level 1 PSA included the full range of operating conditions, initiating events and external hazards. In general, the approach used for the PSA was considered to be state-of-the-art. The review identified some shortcomings related, for example, to the treatment of plant specific reliability data, and the human reliability analysis.

25. The scope of the PSA for the Ulchin Units 3 and 4 PSA comprises full power PSA, internal and external initiating events including internal fires and floods, and Level 2 PSA. Adequate PSA techniques are used and recommendations of the previous IPERS mission for the Yonggwang Units 3 and 4 PSA had been taken into account. Because generic data were used, the reviewers recommended that a plant specific data collection effort be initiated as soon as possible. More weight should be given to human reliability analysis including the analysis of dependencies between human actions.

Related Activities

26. A mission to the Paks NPP was carried out to review the risk based determination of allowable outage times (4–8 November 1996) with the objective of performing a detailed review of the PSA based methodology. The main findings were related to the assumptions in the study, the way the risk measures had been calculated, the limitations in the documentation, and the sensitivity and uncertainty analyses.

27. Many findings from IPERS reviews are related to the assumptions adopted for the PSA, the data used and the common cause failure (CCF) and human reliability analyses (HRA) performed. Thus the IAEA, in co-operation with the US Department of Energy (US-DOE), planned to organize a series of workshops to provide a forum for discussion of all these PSA areas that require special attention.

28. The first workshop, organized with the purpose of comparing and harmonizing data and modelling assumptions of PSAs for WWER reactors, was held at the Nuclear Research Institute in Rez, Czech Republic in November 1996.

29. A second workshop on 'developments in PSA data in Eastern and Central Europe' was held in Bratislava, Slovakia in April 1997, and was attended by more than 50 experts from 15 countries. It was stressed that the data used for the PSA should be based on plant experience, being plant specific or at least plant type specific to reflect design and operating features as close as possible. Common approaches and methods for data collection and processing should be adopted. The participating countries in the region agreed to co-operate in this aspect. As a result of the different approaches and CCF and HRA data used, important variations can be observed among PSAs, even for similar plants. It is therefore intended to organize two additional workshops during 1998 on CCF analysis and HRA.

30. As a result of the availability of PSA studies, the number of PSA applications to enhance plant safety is increasing. A workshop on 'PSA applications' was therefore organized in Sofia, Bulgaria, in October 1996. It was pointed out that the quality of the PSA is very important, and that the development of a living PSA is a necessary prerequisite for the use of PSA for decision making at NPPs. When using PSA for applications, both the qualitative and numerical results should be carefully analysed and understood before taking decisions.

New Developments

31. During the IPERS PSA reviews, formalized technical notes (called 'issues') are generated. These issues — consisting of a reviewer's question, an answer provided by the responding team and a resolution suggested by the reviewer — are the basis for preparing the review report. The issues from all 40 IPERS review activities also represent a valuable knowledge base regarding the PSAs, PSA methodology and problem areas for specific reactor types, and are included in a computerized IPERS database. In combination with a software package, this provides:

- a controlled and computerized platform during reviews for the issue writing and handling process. It also automatically generates the input for the database; and
- a database of collected IPERS PSA review findings which can be used to support reviews by allowing queries on past review information.

It is expected that the database, which uses standard software, will be finalized in 1999.

The Integrated Safety Assessment of Research Reactors (INSARR) Service

32. As in previous years, INSARR and related advisory missions have been a major component of the research reactor safety programme. Seven such missions have been planned for 1997, four of which had been carried out by the end of August.

Mission findings

33. In general, the results of INSARR missions have revealed numerous common features among the visited facilities, indicating striking similarities in operational and safety practices.

34. While most reactors were found to be in good condition and operated by experienced and knowledgeable staff, many facilities failed to update the reactors' documentation (including the Safety Analysis Reports), or have incomplete operating procedures. Other common findings are poor record keeping and poor enforcement of quality assurance programmes.

35. A small number of reactors are badly in need of refurbishment, mostly in their instrumentation and control (I&C) systems. Several Technical Co-operation (TC) projects launched in recent years are concerned with such refurbishment programmes and consist, to a large extent, of fulfilling the recommendations of these missions.

Missions within the Technical Co-operation framework

36. In addition to the INSARR missions described above, the Secretariat has organized other safety related missions to Member States for the purpose of assisting them to license or commission new reactors, or reactors that have undergone major refurbishment or modification. Such missions are carried out within the framework of the Agency's technical co-operation programme. Two such missions have been carried out this year — to Algeria and Kazakhstan.

Special Missions

37. One special mission (financed through the extrabudgetary programme) was carried out early in 1997 to the RA reactor at Vinca, to assist the staff in preparing a detailed action plan related to the highly degraded conditions of the spent fuel pool at the site. Preparations to implement the recommendations of this mission have started, and work is expected to start soon (see also the Nuclear Safety Review, GC(41)/INF/5).

Incident Reporting System for Research Reactors (IRSRR)

38. The Incident Reporting System for Research Reactors (IRSRR) was launched this year, and all Member States operating research reactors have been invited to participate. The IRSRR is similar in character to, and compatible with, the Incident Reporting System (IRS) for nuclear power plants, which has been in operation for over a decade. It is expected that the database established by the IRSRR will prove to be a valuable service to the research reactor community worldwide.

39. At the time of writing (mid-August 1997), seven Member States have notified the Agency of their participation in the IRSRR: Argentina, Canada, Chile, Egypt, Pakistan, Slovenia and Turkey.

New Safety Documents

40. Two new safety related technical documents have been added to the list of research reactor publications under development. One deals with safety in core management and fuel handling in research reactors, the other with extended shutdowns and mothballing of research reactors. Both documents are expected to be completed by 1999.

The Assessment of Safety Culture in Organizations Team (ASCOT) Service

41. Safety culture is a necessary characteristic to achieve safety in nuclear installations. Although it is generally intangible, there must be ways to assess its status in order to be able to improve it and maintain it at optimum level. Many operational safety problems can be traced back to safety culture inadequacies. Therefore, it is prudent to anticipate and try to identify indicators that will give a warning before problems occur. These indicators would not 'measure' the safety culture of a specific organization, but would rather indicate the need for improvements of the different contributors to safety culture. ASCOT services have been promoting such an assessment approach over the last four years, through more than 30 seminars held in over 20 countries.

42. A Safety Report Series publication is being prepared to illustrate the concepts and principles of safety culture given in INSAG-4¹, by providing a small selection of examples taken from a worldwide collection of safety performance evaluations. These documented evaluations collectively provide a database of safety performance strengths and weaknesses and related safety culture observations. The examples which have been selected for inclusion in this document were those which were illustrative of a specific attribute of safety culture given in INSAG-4.

¹ Safety Culture — A Report by the International Nuclear Safety Advisory Group. IAEA Safety Series No. 75-INSAG-4 (1991).

43. Two ASCOT seminars have been held since the last General Conference. At the request of the plant manager, one seminar took place at the Gentilly-2 site in Canada. It was attended by 36 senior staff from the different departments of the plant.

44. The second ASCOT seminar, requested by the Nuclear Regulatory Administration of the Ministry of Environmental Protection and Nuclear Safety of the Ukraine, was held in Kiev, Ukraine. It was attended by 28 professionals from Chernobyl, Rovno, Khmel'nitski, Zaporozhe and South Ukraine NPPs, as well as a number of staff from the Regulatory Body, the State Atomic Inspection, Goskomatom and the Ukrainian Radiation Training Centre.

45. ASCOT experience to date demonstrates that a commitment towards safety culture exists at almost all utilities. However, since the development and implementation of an effective safety culture is a dynamic learning process, internal and external evaluations are helpful and necessary tools for progress.

The International Regulatory Review Team (IRRT) Service

46. The Agency offers the IRRT service, which has the objectives of providing:
- an objective review for the host country (regulatory body and governmental authorities) of their nuclear regulatory practices with respect to international guidelines;
 - recommendations and suggestions to the host regulatory body for improvement in areas where their organization or performance falls short of internationally accepted practices;
 - an opportunity for key staff at the host regulatory body to discuss their practices with experts who have experience of other practices in the same field;
 - information for all Member States on good practices identified in the course of the review; and
 - opportunities for experts from Member States and IAEA staff to broaden their experience and knowledge of their own field.

47. Two IRRT missions planned for 1997, to Bulgaria and Romania, had to be postponed until November 1997 and until 1998, respectively. Subsequent to the revision of the Safety Standards Series documents on Governmental Organization, it is expected that the number of requests for this service will increase. At present, four missions are tentatively planned for 1998.

ANNEX C-6

RADIOLOGICAL ASSESSMENTS

Background

1. At the request of Member States and pursuant to its statutory obligation to provide for the application of its safety standards, the Agency has in recent years organized a wide variety of international radiological assessments. Two such radiological assessments, both related to radioactive residues from nuclear weapons testing, are described below. Two other assessments worthy of mention addressed in other General Conference documents are:

- a study of the radiological situation at the Atolls of Mururoa and Fangataufa — used by France for nuclear weapons testing — is dealt with in a separate information document GC(41)/INF/6; and
- the results of the International Arctic Seas Assessment Project (IASAP) — to investigate concerns over the potential health and environmental impacts of radioactive waste dumped in shallow waters of the Kara and Barents Seas — are described in the Nuclear Safety Review 1997 (GC(41)/INF/5).

Bikini Atoll

2. At the end of 1995, pursuant to a request made by the Republic of the Marshall Islands, the Agency organized an international assessment of the radiological situation at Bikini Atoll. For that purpose it convened an advisory group of experts from Australia, France, Japan, New Zealand, Russia, the United Kingdom, the United States, WHO, UNSCEAR and the Agency itself to assess the habitability of Bikini Atoll with a view in particular to answering — once and for all — the question whether the Bikini people, who had been evacuated from the atoll before the start of nuclear testing, could return safely to it and resume living there. Following a meeting of the advisory group held at the Agency's Headquarters in December 1995, and attended by a delegation of the Bikini people, the

Secretariat prepared a technical report on the radiological situation at Bikini Atoll and a companion version for the non-scientific public.

3. The advisory group's report concluded that:

- there are technically and financially feasible remedial measures which would allow Bikini Atoll to be reinhabited in accordance with international radiological protection principles;
- if the preferred remedial strategy — treatment of the soil with potassium based fertilizers to reduce the uptake of caesium-137 by crops — is adopted, regular foodstuff monitoring should be instituted in order to ensure that the strategy is effective (a local whole-body monitor might enable the Bikini residents to reassure themselves that caesium uptake remains low); and
- a technical co-operation project should be instituted with a view to helping the Republic of the Marshall Islands to resolve any remaining problems associated with the radiological situation at Bikini Atoll.

4. The report was presented to the Government of the Marshall Islands. At their request, and to provide further assurance to the Bikini people, an Agency mission visited the island in May 1997 and carried out extensive independent monitoring of the environment and foodstuffs. The analyses completed to date indicate that the results obtained by the IAEA team were generally consistent with those from previous monitoring programmes that were used as a basis for the advisory group's assessment. A report on the Agency mission will be appended to the final version of the advisory group's report for publication.

Semipalatinsk

5. In 1994, at the request of the Government of Kazakhstan, the Agency initiated a radiological assessment of the former nuclear test site to the east of the Kazakh city of Semipalatinsk (code named 'Semipalatinsk-21'). The site, with an area of some 19 000 km², is located in the north-eastern part of Kazakhstan, about 800 km north of the capital Almaty. At this site, over 450 nuclear tests (some atmospheric, some underground) were carried out during the period 1949–89.

6. Following missions to the site and surrounding area in 1993 and 1994, the expert group assembled by the Agency has prepared a report on the current radiological situation. The report is now being edited by the Secretariat, and should be published in the near future.

7. The expert group conclude that, with regard to the area surrounding the test site, the measurements made by the IAEA missions, along with the more extensive surveys carried out in the past by organizations from Kazakhstan and other parts of the former Soviet Union, provide sufficient basis for a preliminary assessment. In view of the fact that the estimated average annual exposure of persons outside the test site due to the residual radioactive material is less than 0.1 mSv¹ — an increase of about 5% on the average natural background — the expert group concluded that a more detailed radiological assessment of this area in general should not be regarded as a priority task. Doses in the village of Dolon, where plutonium deposition is higher than in other settlements, were slightly higher (0.14 mSv), but still represent only a small increase on natural background.

8. The expert group expressed some concern, however, about the drinking water supply in the area surrounding the test site. Although samples of drinking water taken by the missions showed no elevated levels of artificial radionuclides, sampling was not comprehensive. They therefore recommended that a hydrological study should be carried out to investigate the future possibility of radionuclides from the underground explosions appearing in drinking water supplies.

9. There are fewer measurement data available from within the test site. However, the group concluded that there is sufficient evidence to indicate that most of the test site has little or no residual activity from the nuclear tests. Clear exceptions are the Ground Zero and Lake Balapan areas, which are heavily contaminated. The measurements carried out in the Ground Zero area are sufficient for determining the contamination pattern; they indicate, in particular, that the contamination is relatively localized. The expert group has recommended a similar type of survey for the Lake Balapan area in order to determine whether the same conclusion applies.

¹ This estimate is deliberately conservative; actual exposures are likely to be lower and close to the global average from fallout.

10. Insufficient data were available for the group to determine the presence or otherwise of significant contamination levels in other areas, or of actinide residues from failed tests. They therefore recommended that more detail was needed on the nuclear tests that were carried out to determine whether, and if so where, further investigations were needed.

11. There is no restriction of access to the test site, and limited reoccupation has already begun. An assessment of the exposure of a critical group of settlers who visit the Ground Zero and Lake Balapan areas on a daily basis has been undertaken. It indicates annual exposures of about 14 mSv, due predominantly to external radiation. There are not yet any permanent settlements within the Ground Zero and Lake Balapan areas. Should permanent settlements be established there in the future, the estimated annual exposures would be of the order of 140 mSv/y. This is above the action level at which intervention is expected to be undertaken under any circumstances. Remedial action is therefore considered necessary for the immediate areas around Ground Zero and Lake Balapan, and restriction of public access to these areas is recommended as the most feasible and effective protective action.

PART D

PEER REVIEW OF THE WORK OF THE AGENCY'S DEPARTMENT OF NUCLEAR SAFETY

Background

1. The Agency convened a meeting of a group of senior experts to perform the second peer review of the IAEA's safety programme. The meeting was held at IAEA headquarters in Vienna, Austria, from 20 to 24 January 1997. The peer review was performed under the framework of the IAEA's Programme Performance Assessment System (PPAS). All Member States of the IAEA Board of Governors were invited to be represented at the meeting through senior peer reviewers representing the views of their governments. Fifteen Member States sent representatives to the meeting. The meeting was chaired by Professor Roger Clarke of the United Kingdom.

The Peer Review Process

2. The objectives of the peer review were:
- to assess whether the current programmatic and managerial structure in the safety programmes meets the recommendation of the 1995 peer review,
 - to determine the usefulness and impact of the various specific tasks comprising the safety programmes,
 - to recommend considerations for relevant activities in the future, and
 - to recommend future priorities for reorienting the IAEA's safety programmes.
3. This was the second review of the nuclear safety programme, a similar review having been done in July 1995. The Peer Review Group noted with satisfaction that the majority of the recommendations made in 1995 had been implemented resulting in:
- a significant improvement in the focus and direction of the programme; and

- a better integration of the TC programme and the budget aspects into the nuclear safety document.

4. The Peer Review Group commented favourably on the effectiveness of this PPAS based on a comprehensive peer review mechanism, and, after the experience of these two reviews, and suggested the IAEA make wider use of this method.

Review of Previous Programme

5. Although the Peer Review Group spent little time on reviewing the previous programme it did nonetheless conclude that the performance of the completed programme had been in accordance with normal expectations. Some members commented favourably on the impact on Member States.

Review of Proposed Future Programmes

6. With respect to the programme for 1997/98, the Group supported the broad thrust of the programme and concluded that the selection of projects is generally consistent with what Member States regard as high priority.

7. The Peer Review Group was, in general, supportive of the plans for the future programme (1999/2000) and also made recommendations on where priorities should be adjusted. Overall, the Peer Review Group gave highest priority to development and establishment of Safety Standards.

8. Among the general recommendations were those where the Group recommended that:

- the Regular and TC budgets should be put on the same budgetary cycle;
- means should be sought to rationalize and hopefully reduce the amount of planning and financial documentation presented to Member States;
- the programme should include information on expected outputs and impacts on Member States;
- “indicators of success” should be developed for all programme elements.

9. The Peer Review Group also made more than sixty other recommendations most of which are specific to individual programmes and projects. The Group felt that, overall: (i) the

radiation safety programme was good and well coordinated; (ii) the reorientation and objectives of the nuclear safety programme with its redefined priorities should be strongly supported; and (iii) the waste safety programme should give priority to the development of a number of important safety principles which are lacking at the international level.

10. The Group was informed that a Secretariat response to each recommendation would be forthcoming.

