IAEA-NS-IRRS-2007/09
November 2007
ORIGINAL: English

IAEA
International Atomic Energy Agency

INTEGRATED REGULATORY REVIEW SERVICE (IRRS)

TO

THE REPUBLIC OF MAURITIUS

Radiation Protection Authority

(RPA)

Port Louis, Mauritius

26 to 30 November 2007

DEPARTMENT OF NUCLEAR SAFETY AND SECURITY

European Union

Conducted by the IAEA
with funding by the European Union

IAEA

INTEGRATED REGULATORY REVIEW SERVICE

IRRS

Under the terms of Article III of its statute, the International Atomic Energy Agency (IAEA) has the mandate to establish or adopt, in consultation and, where appropriate, in collaboration with competent organizations, standards of safety for protection of health and minimization of danger to life and property (including such standards for labour conditions), and to provide for the application of these standards to its own operations as well as to assisted operations and, at the request of the parties, to operations under bilateral or multilateral arrangements or, at the request of a State, to any of that State's activities concerning peaceful nuclear and radiation activities. This includes the publication of a set of Safety Standards, whose effective implementation is essential for ensuring a high level of safety. As part of its providing for the application of safety standards, the IAEA provides Safety Review and Appraisal Services, at the request of Member States, which are directly based on its Safety Standards.

In the regulatory framework and activities of the regulatory bodies, the IAEA has been offering, for many years, several peer review and appraisal services. These include: (a) the International Regulatory Review Team (IRRT) programme that provides advice and assistance to Member States to strengthen and enhance the effectiveness of their legal and governmental infrastructure for nuclear safety; (b) the Radiation Safety and Security Infrastructure Appraisal (RaSSIA) that assesses the effectiveness of the national regulatory infrastructure for radiation safety including the safety and security of radioactive sources; (c) the Transport Safety Appraisal Service (TranSAS) that appraises the implementation of the IAEA's Transport Regulations; and (d) the Emergency Preparedness Review (EPREV) that is conducted to review both preparedness in the case of nuclear accidents and radiological emergencies and the appropriate legislation.

The IAEA recognized that these services and appraisals had many areas in common, particularly concerning the requirements on a State to establish a comprehensive regulatory framework within its legal and governmental infrastructure and on a State's regulatory activities. Consequently, the IAEA's Department of Nuclear Safety and Security has developed an integrated approach to the conduct of missions on legal and governmental infrastructure to improve their efficiency, effectiveness and consistency and to provide greater flexibility in defining the scope of the review, taking into account the regulatory technical and policy issues.

The new IAEA peer review and appraisal service is called the Integrated Regulatory Review Service (IRRS). The IRRS is intended to strengthen and enhance the effectiveness of the State's regulatory infrastructure in nuclear, radiation, radioactive waste and transport safety, whilst recognizing the ultimate responsibility of each State to ensure the safety of nuclear facilities, the protection against ionizing radiation, the safety and security of radioactive sources, the safe management of radioactive waste, and the safe transport of radioactive material. The IRRS is carried out by comparisons against IAEA regulatory safety standards with consideration of regulatory technical and policy issues.

The new regulatory service is structured in modules that cover general requirements for the establishment an effective regulatory framework, regulatory activities and management systems for the regulation and control in nuclear safety, radiation safety, waste safety, transport safety, emergency preparedness and response and security. The aim is to make the IAEA services more consistent, to enable flexibility in defining the scope of the missions, to promote self-assessment and continuous self-improvement, and to improve the feedback on the use and application of the IAEA Safety Standards. The modular structure also enables tailoring the service to meet the needs

and priorities of the Member State. The IRRS is neither an inspection nor an audit but is a mutual learning mechanism that accepts different approaches to the organization and practices of a national regulatory body, considering the regulatory technical and policy issues, and that contributes to ensuring a strong nuclear safety regime. In this context, considering the international regulatory issues, trends and challenges, and to support effective regulation, the IRRS missions provide:

- a balance between technical and policy discussions among senior regulators;
- sharing of regulatory experiences;
- harmonization of the regulatory approaches among Member States; and
- mutual learning opportunities among regulators.

Regulatory technical and policy discussions that are conducted during IRRS missions take into account the newly identified issues coming from the self-assessment made by the host organization, visits to installations to observe inspections and interviews with the counterparts.

Other legally non-binding instruments can also be included upon request of the Member States, such as the Code of Conduct (CoC) on the Safety and Security of Radioactive Sources, which was adopted by the IAEA Authority of Governors in 2004 and for which more than 85 Member States have written to the Director General of the IAEA committing themselves to implementing its guidance, and the Code of Conduct on the Safety of Research Reactors, which was adopted by the IAEA Authority of Governors in 2005.

The IRRS concept was developed at the IAEA Department of Nuclear Safety and Security and then discussed at the 3rd review meeting of the Contracting Parties of the Convention on Nuclear Safety in 2005. The meeting acknowledged the importance of the IAEA regulatory peer reviews now recognized as a good opportunity to exchange professional experience and to share lessons learned and good practices. The self-assessment performed prior to the IAEA peer review mission is an opportunity for Member States to assess their regulatory practices against the IAEA safety standards. These IAEA peer review benefits were further discussed at the International Conference on 'Effective Nuclear Regulatory Systems' in Moscow in 2006, at which note was taken of the value of IRRS support for the development of the global nuclear safety regime, by providing for the sharing of good regulatory practices and policies for the development and harmonization of safety standards, and by supporting the application of the continuous improvement process. All findings coming from the Convention on Nuclear Safety review meetings and from the Moscow conference are inputs for the IRRS to consider when reviewing the regulatory technical and policy issues.

In addition, the results of the IRRS missions will also be used as effective feedback for the improvement of existing safety standards and guidance and the development of new ones, and to establish a knowledge base in the context of an integrated safety approach. Through the IRRS, the IAEA assists its Member States in strengthening an effective and sustainable national regulatory infrastructure thus contributing towards achieving a strong and effective global nuclear safety and security regime.

The Global Nuclear Safety Regime has emerged over the last ten years, with international legal instruments such as safety Conventions and Codes of Conduct and significant work towards a suite of harmonized and internationally accepted IAEA safety standards. The IAEA will continue to support the promotion of the safety Conventions and Codes of Conduct, as well as the application of the IAEA safety standards in order to prevent serious accidents and continuously improve global levels of safety.

REPORT

INTEGRATED REGULATORY REVIEW SERVICE (IRRS)

REPORT TO

THE GOVERNMENT OF THE REPUBLIC OF MAURITIUS

RADIATION PROTECTION AUTHORITY (RPA)

Port Louis, Mauritius

Mission date: 26 to 30 November 2007

Regulatory body: RPA (Radiation Protection Authority)

Location: Port Louis, Mauritius

Regulated facilities and activities: medical, industrial and research applications

Organized by: IAEA

IAEA Review Team:	McGARRY, Ann	(Team Leader, Republic of Ireland)
	MARKKANEN, Mika	(Reviewer, Finland)
	BONEV, Emil	(Reviewer, Bulgaria)
	EVANS, Stephen	(IAEA/NSRW, Team Coordinator)

IAEA-2007 09
Issue date: May 2009

The number of recommendations, suggestions and good practices is in no way a measure of the status of the regulatory body. Comparisons of such numbers between IRRS reports from different countries should not be attempted.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of the Republic of Mauritius (Mauritius), an international team of four experts in radiation safety visited the Radiation Protection Authority (RPA) from 26 to 30 November 2007 to conduct an Integrated Regulatory Review Service (IRRS) mission to review the RPA's regulatory framework and its effectiveness.

The purpose of this IRRS mission was to conduct a review of RPA's regulatory framework and the regulatory activities in all regulated sources, facilities and activities, to review its regulatory effectiveness and to exchange information and experience in the areas considered by IRRS. It is expected that the IRRS mission will facilitate regulatory improvements in Mauritius and throughout the world from the knowledge gained and experiences shared by RPA and the IRRS reviewers through the evaluation of the effectiveness of the regulatory framework.

The scope of the mission included sources, facilities and activities regulated by RPA: medical activities, industrial and research activities, and the safety and security of radioactive sources.

The IRRS Review Team consisted of senior experts from three Member States Regulatory Bodies and one staff member from the IAEA. The IRRS team carried out the review of all relevant areas: legislative and governmental responsibilities; responsibilities and functions of the regulatory body; organization of the regulatory body; activities of the regulatory body, including the authorization process, review and assessment, inspection and enforcement and the development of regulations and guides, safety of radioactive sources, the management system and information management.

From a series of intensive interviews and discussions with key personnel at RPA, review of documentation provided during the course of the mission and two site visits, the team presented its findings based on IAEA safety standards. Additionally, the IRRS team, together with RPA senior officers, discussed some policy issues relating to the regulation of radiation safety. The results of the discussions will serve as a useful basis for the evolution of future IRRS missions and will assist with continuous improvement in the regulation of radiation safety.

The IRRS Review Team noted the significant effort made by the RPA in the preparation of the mission. The IRRS Review Team made recommendations and suggestions that indicate where improvements are necessary or desirable to further enhance the legal and governmental infrastructure for radiation and safety and improve effectiveness of regulatory controls. These recommendations and suggestions are made to an organization that is seeking to improve its performance and some of them are related to areas in which the RPA has already initiated a programme for change. The IRRS Review Team believes that consideration of the following items should be given high priority because the experts considered that they will contribute significantly to the enhancement of the overall performance of the regulatory system:

- The 2003 Act is not fully compatible with international standards and guidance and does not provide for the security of radioactive sources.
- There are insufficient skilled and experienced staff to allow the RPA to function effectively as a regulatory body.
- There are no adequate processes or procedures for authorization, inspection and enforcement.

- Regulations have not yet been issued, significantly constraining the RPA's capacity to carry out its regulatory functions.
- There are no formal arrangements for national or international cooperation.
- Export of Category 1 and 2 sources to Mauritius may increasingly be at risk of denial unless regulatory infrastructure is improved.

The IRRS Review Team's findings are summarized in Appendix V.

I. INTRODUCTION

At the request of the Chief Radiation Safety Officer of the Radiation Protection Authority (RPA), an IAEA team consisting of three experts from Member States and one staff member from the IAEA visited the RPA from 26 to 30 November 2007 to conduct an Integrated Regulatory Review Service (IRRS)[1] .

The purpose of the mission was to conduct a peer review of the RPA regulatory framework and regulatory activities, to review the regulatory effectiveness of the RPA and to exchange information and experience in the areas considered by the IRRS. The areas reviewed were: legislative and governmental responsibilities; authority, responsibilities and functions of the regulatory body; organization of the regulatory body; the authorization process; review and assessment; inspection and enforcement; the development of regulations and guides; safety of radioactive sources; the management system and information management.

In addition, the regulatory technical and policy issues considered in this review provide a greater understanding of the regulatory issues that may have international implications and assist in addressing specific technical issues relevant to the regulation of radiation safety.

The mission was conducted from 26 to 30 November 2007. During the mission, the RPA made available a collection of reference material for the team to review. This material consisted of legal and regulatory documents. During the mission the team performed a systematic review of all topics using this reference material and interviews with the RPA.

IRRS activities took place mainly at RPA headquarters, Port Louis. A site visit took place at the Radiotherapy Department of the Victoria Hospital, Quatre Bornes, Mauritius (see Appendix III). In addition a meeting was held at the National Police Headquarters, Port Louis, Mauritius to discuss security of radioactive sources issues and emergency preparedness.

Meetings were arranged with the Minister for Public Utilities (MPU) and the Permanent Secretary together with the Ministry's Director of Technical Services. Further meetings were held with the Mauritius Assistant Solicitor-General and with the Chairman of the RPC.

[1] This mission was initially organized with the RaSSIA protocol, and later converted using the IRRS Guidelines, but without changing its scope.

II. OBJECTIVE AND SCOPE

The purpose of the mission was to conduct an IRRS mission to review the Mauritius legal and governmental infrastructure for radiation safety and the effectiveness of the Mauritius regulatory body (RPA) and to exchange information and experience among RPA officers and the IRRS team with a view to contributing to harmonizing regulatory approaches and creating mutual learning opportunities among regulators.

The key objectives of this mission were to enhance radiation safety and the security of radioactive sources by:

- ✓ Providing Mauritius (RPA) with a review of its radiation safety and source security, regulatory, technical and policy issues;
- ✓ Providing Mauritius (RPA) with an objective evaluation of their and radiation safety and source security regulatory activities with respect to international safety standards;
- ✓ Contributing to the harmonization of regulatory approaches among Member States;
- ✓ Promoting the sharing of experience and exchange of lessons learnt;
- ✓ Providing key staff in Mauritius (RPA) with an opportunity to discuss their practices with reviewers who have experience of other practices in the same field;
- ✓ Providing Mauritius (RPA) with recommendations and suggestions for improvement;
- ✓ Providing other States with information regarding good practices identified in the course of the review;
- ✓ Providing reviewers from States and IAEA staff with opportunities to broaden their experience and knowledge of their own field; and
- ✓ Providing Mauritius through completion of the IRRS questionnaire with an opportunity for self-assessment of its activities against international safety standards.

The scope requested by Mauritius for this IRRS mission was:

- Radiation safety in medical, industrial and research activities;
- Safety and security of radioactive sources; and
- Communication and public information.

III. BASIS FOR THE REVIEW

A) Preparatory work and IAEA review team

The preparatory work for the mission was carried out by the IRRS Team Coordinator Stephen Evans, NSRW/IAEA. It is important to mention that, according to the IRRS guidelines, the IRRS Team Leader, Ms Ann McGarry, belongs to an IAEA Member State rather than being IAEA staff. In accordance with the request from RPA, and taking into account the scope as indicated above, it was agreed that the IAEA review team would comprise three external experts and one staff member (see Appendix I).

The details and organizational aspects were defined with Mr. Faradally Ollite MSc, the Chief Radiation Protection Officer (CRPO) of the RPA.

A team briefing was conducted on 25 November 2007 to discuss the specifics of the mission, to clarify the basis for the review, background, context and objectives of the IRRS and to agree on the methodology for the review and the evaluation among all reviewers.

B) References for the review

The main reference documents provided by the RPA for the review mission are listed in Appendix VI. The most relevant IAEA safety standards and other reference documents used for the review are listed in Appendix VII.

C) Conduct of the review

During the mission, a systematic review was conducted for all the review areas with the objective of providing the RPA with recommendations, suggestions and identifying good practices. The review was conducted through meetings, interviews and discussions with the RPA, visits to relevant organizations and assessment of the reference material.

The team performed its activities based on the mission programme given in Appendix II.

The entrance meeting was held on Monday, 26 November 2007 with the participation of RPA senior management. Opening remarks were made by the CRPO of the RPA, the IRRS Team Leader and the Team Coordinator.

The exit meeting was held on Friday, 30 November 2007 with the Permanent Secretary and Director of Technical Services of the MPU, the Chairman and a number of members of the RPC and the CRPO of the RPA. The main conclusions and recommendations were presented by the IRRS Team. The draft mission report was handed over to RPA at the end of the meeting.

Later in the day a further exit meeting was held with the Minister of Public Utilities, followed by a press conference.

1. LEGISLATIVE AND GOVERNMENTAL RESPONSIBILITIES

Legislative and statutory framework

GS-R-1 § 2.2 (1)

The legislative and statutory framework for the safety of facilities and activities is established through the Radiation Protection Act, No. 46 (2003) [hereafter 'the Act'] which was passed by Parliament on 24 November 2003, but not proclaimed until 11 September 2006.

The 2003 Act is acknowledged by the relevant Mauritius Authorities to have some weaknesses and shortcomings relative to current international standards and guidance, in particular, GS-R-1, BSS and the guidance provided by the Code of Conduct on the Safety and Security of Radioactive Sources. It is the intention of the Mauritius Government to update the 2003 Act and new legislation is currently in draft.

Relative to international standards and guidance the IRRS Team also identified a number of weaknesses and shortcomings with the 2003 Act (for details, see 'Legislative Requirements' below).

Establishment of an effectively independent regulatory body

GS-R-1 § 2.2 (2)

Article 4 of the Act establishes a single effectively independent regulatory body called the Radiation Protection Authority (RPA). The functions of the RPA are set out in Article 5 of the Act. Article 6 of the Act establishes the Radiation Protection Council (RPC) to administer and manage the Authority.

The Members of the RPC are representatives of bodies having an interest in radiation protection. The Chairman and the Members of the RPC are appointed by the Minister of Public Utilities. The RPA's position in the government's organizational structure appears to ensure effective independence from organizations charged with the promotion of nuclear or radiation related technologies, or those responsible for the management of facilities, activities or radioactive sources.

Article 8.1 of the Act establishes the post of Chief Radiation Protection Officer (CRPO) and sets out his/her responsibilities. Article 9.2 indicates that in the exercise of his functions, the CRPO shall act in accordance with such directives as he may receive from the Council. The IRRS Team understands that the CRPO is appointed by a Public Services Commission in accordance with normal practice for public service posts in Mauritius. The RPC appears to have no direct influence upon the selection of the CRPO.

Regulatory body assigned responsibilities, authority, and resources

GS-R-1 § 2.2 (3)

Authorization, Review and Assessment:

Article 11.1 of the Act indicates that responsibility for authorization is assigned to the RPA.

Inspection and Enforcement:

Article 10.1(a) assigns powers of inspection to the RPA but the extent of powers of enforcement is not comprehensively assigned in legislation.

Establishing Regulations, Safety Principles and Criteria:

Articles 5.1 (a) and (b) assign authority to the RPA to formulate policies, codes and standards, but by Article 24.1 only the Minister may make regulations for the purpose of the Act.

Regulatory Body Resourcing:

GS-R-1 § 2.2 (4)

Article 8.1 of the Act makes provision for the appointment of such staff as may be necessary for the proper discharge of the functions of the Authority. Legislation does not specify other aspects of the resourcing of the RPA, but the IRRS Team understands that funding of the RPA is wholly derived directly from Government in response to an annual budget submission made by the RPA.

Responsibilities which Jeopardize or Conflict with Responsibility for Regulating Safety:

GS-R-1 § 2.2 (5)

The Act does not explicitly contain any provision which may assign responsibilities to the Regulatory Authority which jeopardise or conflict with its responsibility for regulating safety. However, Article 5.1(h) of the Act assigns responsibility to the RPA to fulfil the obligations of the State with regard to conventions ratified in the field of nuclear energy, which may potentially lead to a conflict of interest where for instance this Article causes the regulator to act for the State as a promoter of the uses of ionising radiation.

Adequate infrastructural arrangements for the safe management of radioactive waste:

GS-R-1 § 2.2 (6)

There appears to be no legislative or Governmental mechanism to ensure adequate infrastructural arrangements for the safe management of radioactive waste.

Adequate infrastructural arrangements for safe transport:

GS-R-1 § 2.2 (7)

Article 19 of the Act states that no radioactive material or radiation generator shall be transported by land, air or sea without authorization from the RPA.

Emergency Response and Intervention:

GS-R-1 § 2.2 (8)

A National Disaster Management Committee exists to handle national emergencies, but its remit does not currently extend to radiological emergencies. The RPA is not represented on this Committee.

Physical Protection of Radioactive Sources:

GS-R-1 § 2.2 (9)

There appear to be no legislated or other formal arrangements made for physical protection of radiation sources.

Operator responsibility

GS-R-1 § 2.3

The Act does not clearly assign prime responsibility for safety to the operator, although elements of this responsibility are reflected in Article 16 of the Act.

Legislative requirements

GS-R-1 § 2.4

Relative to international standards and guidance the IRRS Team identified a number of weaknesses and shortcomings with the 2003 Act, in particular, the following:

GS-R-1 § 2.4(1)

- Although the preamble of the Act indicates its intent, the legislation does not adequately set out objectives for protecting individuals, society and the environment from radiation hazards, both for the present and in the future;

GS-R-1 § 2.4(2)

- Article 3 of the Act inappropriately uses exemption levels to define the scope of the legislation.

GS-R-1 § 2.4(3)

- Although the Act does establish a requirement for prior authorization it does not take account of the potential magnitude and nature of the hazard associated with the facility or activity.

GS-R-1 § 2.4(4)

- In most respects the Act establishes an effectively independent regulatory body, but there are a number of shortcomings detailed in 'Authority of the Regulatory Body' (see below).

GS-R-1 § 2.4(5)

- The Act does not make provision to adequately fund the regulatory body independently of fees.

GS-R-1 § 2.4(6)

- The Act does not specify the process for removal of a facility or activity from regulatory control (e.g. by sale, transfer, disposal or decommissioning).

GS-R-1 § 2.4(13)

- The Act does not set out responsibilities and obligations in respect of financial provision for radioactive waste management and decommissioning.

GS-R-1 § 2.4(15)

- The phrasing of the Act (Article 5.1(h)) assigns the function of fulfilling the obligations of the State with regard to conventions in the field of nuclear energy to the Radiation Protection Authority (RPA). However, the RPA may not always be the appropriate body to implement such obligations.

GS-R-1 § 2.4(16)

- The Act does not define how the public and other bodies are involved in the regulatory process. However, in practice, the IRRS Team understands that draft legislation is subject to public consultation prior to enactment.

GS-R-1 § 2.4(17)

- The Act does not specify when its requirements will be applied to existing facilities and current activities.

Code of Conduct on the Safety and Security of Radioactive Sources 2004:

- The 2003 Act does not provide for the security of radioactive sources (further, the IRRS Team understands that security of radioactive sources is not addressed in any other Mauritius legislation);

- Although the scope of regulatory control established by the Act broadly addresses management of sources (cradle-to-grave) it appears to omit export of sources and it does not adequately makes provision for trading in and exchange of radioactive sources.

- The Act does not clearly assign roles and responsibilities for rapid response to the loss of control of radioactive sources and for gaining or regaining control of lost, stolen or orphan sources.
- The Act does not clearly require the regulatory body to promote the development and maintenance of a safety and security culture among all those individuals and organizations managing radiation sources.

Basic Safety Standards 115 (2.22(b):

- Contrary to international standards, the Act does not prohibit the addition of radioactive substances in the production and manufacture of foodstuffs and cosmetics.

Authority of the Regulatory Body (assigned in legislation)

GS-R-1 § 2.6 (1)-(14)

Under the Act, the RPA has the authority to:

- develop safety principles and criteria (Article 5.1);
- require any operator to conduct a safety assessment (Article 11.4(c));
- issue, amend, suspend or revoke authorizations and to set conditions (Articles 11 to 14);
- enter a site or facility at any time to carry out an inspection (Article 10.1(a), although it is not explicit that the inspection may be at *any* time);

- enforce regulatory requirements, but this is not addressed comprehensively (Articles 10.1 (c) and (d));
- liaise and coordinate with other governmental or non-governmental bodies having competence in such areas as health and safety, environmental protection, security, and transport of dangerous goods (Article 5.1 (g));
- require that any operator provide it with any necessary information (11.4 (b));
- liaise with regulatory bodies of other countries and with international organizations to promote cooperation and the exchange of regulatory information (Article 5.1 (g)).

The Act does **not** give the RPA the authority to:

GS-R-1 § 2.6 (2)

- establish regulations (this is assigned to the Minister, Article 24.1 of the Act); While Article 24.1 of the Act provides for the Minister to make regulations, the review team understands that as the Radiation Protection Authority (RPA) assumes primarily the role of a Regulator, it is the intention of the Government (when reviewing the Act) to entrust responsibility for making Regulations to the Radiation Protection Council.

GS-R-1 § 2.6 (8)

- comprehensively enforce regulatory requirements.

GS-R-1 § 2.6 (9)

- communicate directly with Governmental Authorities at higher levels when such communication is considered to be necessary for exercising effectively the functions of the Body;

GS-R-1 § 2.6 (10)

- obtain such documents and opinions from private or public organizations or persons as may be necessary and appropriate;

GS-R-1 § 2.6 (11)

- communicate independently its regulatory requirements, decisions and opinions and their basis to the public.

GS-R-1 § 2.6 (12)

- make available, to other governmental bodies, national and international organizations, and to the public, information on incidents and abnormal occurrences, and other information, as appropriate.

CONCLUSIONS (Legislative and Governmental Responsibilities)	
(1)	**BASIS:** GS-R-1 §2
C1	**<u>Conclusion:</u>** The legislative and statutory framework for radiation safety in Mauritius is in place but is not fully compatible with international standards and guidance, in particular the Act does not: • clearly assign prime responsibility for safety to the operator; • adequately assign the full extent of the powers of enforcement; • require that the potential magnitude and nature of the hazard associated with the facility or activity be taken into account in implementing authorization and other regulatory processes.

CONCLUSIONS (Legislative and Governmental Responsibilities)	
(1)	**BASIS:** GS-R-1 §2
C2	**Conclusion:** Mauritius legislation has established an effectively independent regulatory body for radiation safety; however, its independence is constrained by shortcomings (relative to international standards) in the 2003 Act.
(1)	**BASIS:** Code of Conduct on the Safety and Security of Radioactive Sources 2004
C3	**Conclusion:** Given its age, the 2003 Act does not provide for the security of radioactive sources.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
(1)	**BASIS: GS-R-1** §2
R1	**Recommendation:** The Republic of Mauritius should at the earliest opportunity, review and revise the 2003 Act to ensure it is consistent with international standards and guidance.
(1)	**BASIS: GS-R-1** §5.25 – 5.28
R2	**Recommendation:** Regulations to implement the legislation should be drafted in parallel with the review and/or revision of the Act and issued as soon as possible.
(1)	**BASIS: GS-R-1** §5
GP1	**Good Practice:** The IRRS Team was informed that all Mauritius legislation, including that for radiation safety, is subject to a public consultation and drafts are published on the Government website.

2. RESPONSIBILITIES AND FUNCTIONS OF THE REGULATORY BODY

Regulatory body - fulfilling statutory obligations

GS-R-1 § 3.1

At the present time, the RPA is not fully functioning as a regulatory body and as yet has not issued formal policy documents, or safety principles, codes of practice or guidance.

GS-R-1 § 3.2 (1)

Article 24.1 of the Act states that regulations to implement the Act may be issued only by the Minister. To date, no regulations have been issued. However, through Article 5.1(a) of the Act the RPA is empowered to formulate policies, codes and standards in relation to radiation protection. To date no policies, standards or codes have been issued.

GS-R-1 § 3.2 (2 to 6) and §3.3

The RPA does not currently have a comprehensive system of authorization in place and has not implemented an inspection programme.

Regulatory body – cooperation with other relevant authorities

GS-R-1 § 3.4

The RPA currently has no formal arrangements in place for national cooperation with other relevant authorities. Although the IRRS Team understands that informal cooperation takes place with most relevant authorities and a draft MoU is in preparation between the RPA and Customs.

The RPA does not currently have formal or informal links to the National Disaster Management Committee. The review team was informed however, that action is proposed to ensure the Radiation Protection Authority is duly represented on the Committee as soon as possible.

There are currently no cooperative arrangements between the RPA and authorities having responsibility for security matters.

There appears to be an urgent need for close cooperation with relevant authorities on determining future responsibility (including identification of an appropriate operator) for the waste management facility.

The RPA has provided some training and guidance for local law enforcement and Customs authorities to raise awareness of the uses and identification requirements for radioactive sources so that they can take appropriate response.

Regulatory body – additional functions

GS-R-1 § 3.5

The IRRS Team understands that the RPA plans to take over the personnel monitoring service currently managed by the Physics Department of the Victoria Hospital on behalf of the Ministry of Health and also the radioactive waste storage facility currently operated by the Ministry of Health.

CONCLUSIONS – (Responsibilities and Functions of the Regulatory Body)	
(1)	**BASIS: GS-R1** §3
C4	**Conclusion:** Although the 2003 Act establishes the regulatory body and sets out its functions, the RPA is not yet a fully functional regulatory body in accordance with the Act. In particular, there is no adequate authorization process, or inspection and enforcement activity taking place. Furthermore, necessary instruments provided for in the Act (including regulations) have not yet been issued, significantly constraining the RPA's capacity to carry out its regulatory functions.
(1)	**BASIS:** GS-R-1 (§3 and Glossary – Regulatory Body)
C5	**Conclusion:** There are no formal arrangements for national cooperation between all the agencies which contribute to the regulation of radiation safety and security of sources in Mauritius (e.g. for security, transport, emergency preparedness)[2].
(1)	**BASIS:** GS-R-1 §3.5
C6	**Conclusion:** By becoming the operator of the waste storage facility the RPA would be compromised as a regulator of radiation safety through the conflict of interest arising from its being the operator of a facility it must also regulate. A potential conflict of interest may arise if the RPA offers personnel dosimetry services to operators, whilst also having to approve the dosimetry service.

[2] A 'Regulatory Body' is defined in the glossary to GS-R-1, as an authority or system of authorities designated by the Government of a State as having legal authority for conducting the regulatory process. It is commonly the case that several State agencies will have a regulatory role and therefore formal cooperative agreements should exist between them in order that they act as a cohesive regulatory body

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
(1)	**BASIS:** GS-R-1 §3
R3	**Recommendation:** At the earliest opportunity and as a matter of urgency, the RPA should implement processes of authorization, inspection and enforcement compatible with international standards and guidance.
(1)	**BASIS:** GS-R-1 §3
R4	**Recommendation:** The RPA should develop a national action plan which identifies the key functions to be implemented in Mauritius to ensure radiation safety and the security of radioactive sources. The RPA should implement these functions at the earliest opportunity, either acting itself or as appropriate entering into formal agreements on national cooperation with other agencies having a regulatory role. In accepting new responsibilities, the RPA should take care to ensure its effective independence as a regulator is not compromised and that it is the appropriate national body to take on such new responsibilities and is properly resourced to do so.

3. ORGANIZATION OF THE REGULATORY BODY

Organizational structure, size and activities

GS-R-1 § 4.1

Article 4 of the 2003 Act establishes a single effectively independent regulatory body called the Radiation Protection Authority (RPA). Article 6 of the Act establishes the Radiation Protection Council (RPC) to administer and manage the Authority.

The Chairman and Members of the RPC are appointed by the Minister of Public Utilities.

There are eight members of the Council in addition to the Chairman, six members representing Ministries having an interest in radiation protection matters and in some cases representing entities that use or promote the use of ionising radiation. One member is from the Customs Authority and one member from the Institution of Occupational Safety and Health Managers.

Articles 8 and 9 of the Act establish the post of Chief Radiation Protection Officer (CRPO) and set out his/her responsibilities.

At the present time the RPA has a Chief Radiation Protection Officer and two Radiation Protection Assistants (one a graduate and the second having a diploma), together with six administrative staff.

With the exception of the CRPO, there are no other trained professional staff suitably qualified to perform inspections and/or to carry out review and assessment of applications for authorisation.

The Ministry of Public Utilities (MPU) currently holds the budget for the RPA. The RPA prepares an annual budget based on its needs which is approved by the RPC and the MPU. The Government, through the Ministry of Finance decides the extent to which the budget will be met. Funds for the RPA are held by the Ministry of Finance and released on receipt of a request by the MPU relating to each RPA expenditure item.

The new headquarters building of the RPA is well suited to the present and planned functions and responsibilities of the RPA, but funds are currently limited for equipping the building with furniture, computers, other support technologies and library facilities. RPA personnel have access to the Internet for research, support and business communication purposes. A vehicle is available for RPA activities.

The RPA has some technical equipment but it may not be sufficient once RPA implements its inspection programme.

There is a range of personnel dosimetry equipment including a Harshaw 4500 originally supplied by the IAEA. This device has never been used because there are no staff trained in its operation.

GS-R-1 § 4.2

Since the RPA is currently the only regulatory agency in Mauritius having a role in radiation safety and the security of radioactive sources, this standard is not presently applicable to Mauritius. If in due course, other organisations adopt regulatory functions in this field, formal memorandums of agreement would be required between the RPA and all such agencies which collectively form the regulatory body.

Use of consultants and contractors

GS-R-1 § 4.3 and 4.4

The RPA does not routinely seek advice or assistance from consultants.

GS-R-1 §4.5

The RPA has not yet established management procedures to regularly review its effectiveness across the range of the regulatory body's responsibilities and functions.

The RPA is not subject to periodic internal audits, but has received external reviews by the IAEA amongst others.

Staffing and Training of the Regulatory Body

GS-R-1 §4.6 and 4.7

The RPA does not have sufficient staff with the appropriate skills and qualifications to implement a regulatory programme. This is not in compliance with Article 8.1 of the Act.

There is no staffing plan in place to identify numbers of staff and the required roles, qualifications and experience, based on the expected regulatory programme of the RPA.

There is no formal training programme for RPA staff.

As Public Officers, all RPC Members (except one) and all RPA staff are subject to trustworthiness checks through Mauritius Public Service Commission recruitment procedures.

GS-R-1 §4.8

The RPA does not routinely use the services of consultants to undertake any of its functions.

GS-R-1 §4.9

There are currently no advisory bodies to the RPA.

International co-operation

GS-R-1 §4.11

Mauritius does not have formal arrangements for the exchange of safety related information with neighbouring or other interested States however, the IRRS Team was informed that there have been discussions with some neighbouring States and work is underway to develop a formal agreement between India and Mauritius on matters of radiation safety.

In accordance with Article 5.1(h) of the Act the RPA is required to fulfil the obligations of the State with regard to Conventions ratified in the field of nuclear energy. There is no other, more specific provision for the RPA to coordinate the State's actions in respect of international cooperation on radiation safety.

The RPA has the RAIS system (which may be used to facilitate the international exchange of information) but it is not in use because there are no trained staff available to operate it.

CONCLUSIONS – Organization of the Regulatory Body	
(1)	**BASIS:** GS-R-1 §4
C7	**Conclusion:** In terms of its position in the governmental infrastructure, the organisational independence of the RPA is compromised by at least the following: • The RPA appears not to have day-to-day control of its own expenditure; • The RPA appears to have no direct role in the recruitment of its own staff; • The RPA does not have control over staff training.
(1)	**BASIS:** GS-R-1 §4
C8	**Conclusion:** The RPA appears to have no formal international cooperative arrangements and thus may not be benefiting from the advantages of cross-border agreements for the exchange of safety related information, knowledge and experience.
(1)	**BASIS:** GS-R-1 §4
C9	**Conclusion:** There are insufficient appropriately skilled and experienced staff in the RPA to allow it to function effectively as a regulatory body.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
(1)	**BASIS**: GS-R-1 §4
R5	**Recommendation**: Through legislation or other means, the RPA should be given clear control of its own finances (once agreed in the budget). In accordance with national arrangements for the recruitment of public officers, the RPA should (insofar as possible) have control of recruitment and training of staff (in accordance with a staffing and training plan based on the national regulatory workload).
(1)	**BASIS**: GS-R-1 § 4
R6	**Recommendation**: The Government of Mauritius should consider the establishment and/or continuous development of cooperative arrangements with neighbouring and other relevant States and international organizations to promote the effective exchange of information, experience and knowledge on matters relating to radiation safety and the security of sources.

R7	**<u>Recommendation</u>**: As an immediate priority, steps should be taken to recruit suitably qualified RPA staff to enable the implementation of an adequate authorisation process, inspection and enforcement.

4. ACTIVITIES OF THE REGULATORY BODY

Notification

GS-R-1 §5.2, BSS §2.10, GS-G-1.5 §3.25

The RPA has established a national register of sources using Excel (it is in possession of RAIS, but has no trained staff to implement the RAIS system). The IRRS Team understands that the register is not complete.

The RPA has taken steps to ensure it is notified of all non-exempt radioactive sources. Amongst the measures taken has been a press campaign and some institutions have been contacted directly. A notification form is also available on the RPA website. At the present time the Customs Authorities, with whom there appears to be good informal cooperation, are a prime source of information. The notification programme is used to maintain the source register.

While Article 9.3 (b) of the Act does require that registers of sources, licensees and radiation workers be maintained, this responsibility is assigned inappropriately to the Chief Radiation Protection Officer rather than to the RPA.

Authorization

GS-R-1 §5.3

The IRRS Team was informed more than fifty permits have been issued solely for the import of sources. In these cases operators were required to submit for RPA review all documents relating to the safe conduct of the practice. In all other respects and circumstances there is currently no authorization process in place.

GS-R-1 §5.4

The RPA has issued a notification form which includes some guidance on its completion, but there is currently no more developed guidance on the submission of an application for authorization.

GS-R-1 §5.5 to 5.11

Currently there is no review and assessment process in place.

Guidance on Import and Export of Radioactive Sources (GIERS)

The RPA has not yet established a specific programme of authorization in accordance with the Guidance on the Import and Export of Radioactive Sources. It is understood however, that Mauritius is preparing to write to the IAEA Director General to express its commitment to the Code of Conduct on the Safety and Security of Radioactive Sources and its associated Guidance on the Import and Export of Radioactive Sources.

Inspection

GS-R-1 §5.14

The RPA has not yet established or implemented a planned and systematic inspection programme.

Enforcement

GS-R-1 §5.18 - 5.24

There is currently no enforcement policy or consequent enforcement activity.

Development of Regulations and Guides

GS-R-1 §5.25- §5.28

Regulations are developed by the RPA and are approved and issued by the Minister of Public Utilities in accordance with the Act (Article 24.1).

Currently no radiation safety or source security regulations, codes of practice or guides have been issued.

The IRRS Team was informed that Regulations for control of radiation sources, occupational exposure monitoring and radioactive waste management are in preparation.

CONCLUSIONS – Activities of the Regulatory Body	
(1)	**BASIS:** GS-R-1 §5
C10	**Conclusion:** Since its establishment in 2006 the RPA has begun to implement its regulatory activities, including a national register of sources and a system of notification. But until adequate systems of authorization, inspection and enforcement are in place (together with regulations etc) the RPA cannot function effectively as a regulatory body.
(1)	**BASIS:** GS-R-1 §5.12
C11	**Conclusion:** Significant shortcomings in operational radiation protection at the one facility visited by the IRRS Team clearly demonstrated the urgent need to implement a system of regulatory control for radiation safety and the security of sources in Mauritius.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
(1)	**BASIS:** GS-R-1**§**5.25, 5.26, and 5.27
R8	**Recommendation** The RPA should urgently establish and implement formal written procedures and processes for authorization, inspection and enforcement.

5. SAFETY AND SECURITY OF RADIOACTIVE SOURCES

Code of Conduct on the Safety and Security of Radioactive Sources and its associated Guidance on the Import and Export of Radioactive Sources:

The IRRS Team was informed that Mauritius is preparing to write to the IAEA Director General to express its commitment to the Code of Conduct on the Safety and Security of Radioactive Sources and its associated Guidance on the Import and Export of Radioactive Sources.

The 2003 Act does not adequately make provision for the safety and security of radioactive sources or for their import and export.

The RPA has not yet implemented a comprehensive system of authorization and an inspection programme which also addresses regulatory control of the security of radioactive sources.

The IRRS Team understands that Mauritius has procedures for the trade in scrap metal.

The IRRS Team understands there are no radiation monitoring devices at any port of entry to Mauritius.

The IRRS Team understands there is no dedicated facility for temporary storage of radioactive sources at Ports of Entry to Mauritius.

The RPA has not yet implemented requirements for the safety and security of radioactive sources during transport or implemented procedures to track movement of high-risk sources.

The RPA has not yet implemented requirements for the safety and security of radioactive sources that may be routinely stored on vehicles or at field sites.

The RPA has not yet established and implemented procedures including emergency plans that address the actions to be taken in respect of sources that may have been found or lost from authorized control (e.g. stolen, accidentally disposed, or fallen from vehicles).

CONCLUSIONS – Activities of the Regulatory Body	
(1)	**BASIS:** Code of Conduct on the Safety and Security of Radioactive Sources 2004
C12	**Conclusion:** The lack of legislated provisions for the security of radioactive sources places Mauritius at a heightened risk of malicious acts, including the use of sources for the purposes of terrorism.
(1)	**BASIS:** Code of Conduct (III 25)
C13	**Conclusion:** Export of Category 1 and 2 sources to Mauritius may increasingly be denied by the exporting State unless Mauritius can demonstrate it has appropriate technical and administrative capability, resources and regulatory structure needed to ensure that the

CONCLUSIONS – Activities of the Regulatory Body	
	source will be managed in a manner consistent with the provisions of the Code [of Conduct].
(1)	**BASIS:** Code of Conduct (III 7 and 22(n))
C14	**Conclusion:** The lack of security and emergency arrangements puts the general public at risk in cases of theft, loss or damage to radioactive sources.
(1)	**BASIS:** Code of Conduct (III 7 and 22(n))
C15	**Conclusion:** The lack of an evident safety and security culture in the facility visited by the IRRS Team demonstrated the urgent need to introduce improved awareness of radiation safety through effective regulatory oversight.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
(1)	**BASIS:** Code of Conduct
R9	**Recommendation** In line with its already stated intention, the Government of Mauritius should consider writing to the Director General of the IAEA expressing its commitment to working towards following the guidance of the Code of Conduct on the Safety and Security of Radioactive Sources 2004 and its associated Guidance on the Import and Export of Radioactive Sources.

6. INFORMATION MANAGEMENT

Regulatory Activity Information Management

RPA currently is undertaking a limited range of activities. For these activities, RPA appears to have good arrangements in place for managing its current documentation. It has not yet established a formal management process and procedures for the management of information.

There is an alarm on the main entrance to the RPA headquarters and the RPA plans to engage the services of a security officer. Currently there are no specific procedures to ensure against theft of computers or removable media that may hold sensitive information.

Public information and communication

The IRRS Team was informed that the RPA is commencing a public awareness campaign using a variety of approaches. The RPA has a website which contains some information accessible to all parties. The website is currently undergoing further development. The IRRS Team understands that in some cases relevant parties are informed of specific issues on a case-by-case basis.

CONCLUSIONS	
(1)	**BASIS:** GS-R-1 chapter 3
C16	**Conclusion:** The current systems of information management, including the dissemination of information to the public are satisfactory for the level of regulatory activity presently occurring.

RECOMMENDATIONS, SUGGESTIONS AND GOOD PRACTICES	
(1)	**BASIS: GS-R-1 §**
R 10	**Recommendation:** The plan for the development and implementation of procedures and processes for authorisation, inspection and enforcement should incorporate an appropriate information management system.

7. POLICY ISSUES

7.1 Independence of the regulatory body

Background:
Although many Member States have regulatory infrastructure which is effectively independent of users and/or promoters of the use of ionising radiation, the issue of effective independence is still a challenge worldwide.

Key elements:

- *Legislation establishes an effectively independent regulatory body*
- *Access to independent resources and technical advice*
- *Funding independence*
- *Balance between the Operators and Regulators responsibilities*

Discussion:
The Chief Radiation Protection Officer (CRPO) confirmed that the legislation in Mauritius establishes the Radiation Protection Authority as an independent regulatory body. The work of the Authority is overseen by the Radiation Protection Council which comprises representatives of bodies with an interest in radiation protection appointed by the Minister for Public Utilities. The Ministry of Public Utilities is a potential user and promoter of radiation sources itself, some of the other ministries represented on the Council are extensive users, for example the ministry responsible for health; or some may have potentially conflicting interests, for example ministry responsible for commerce. Until the system of authorisation and licensing is properly established by the RPA, it is not clear whether/if the Council members will come under pressure from external influences.

Article 21 of the Act provides the Minister to give general directions to the Council, consistent with the Act, which he considers necessary in the public interest and with which the Council is obliged to comply. To date no such directions have been issued.

At present, the Permanent Secretary of the Ministry of Public Utilities is the Designated Accounting Officer for the RPA. As a result, the RPA does not have direct access to independent resources nor can its funding be said to be entirely independent.

The CRPO was clear that all authorisations and permits should be issued to the person or persons with legal responsibility for the operator.

7.2 Openness, transparency and stakeholder involvement (including public communications)

Background:
Openness and transparency in regulation is essential to encourage continuous improvement of performance and building public confidence. The international community promotes openness through several services. However, finding a proper balance between public availability of information and protection of confidential data remains a challenge.
Key elements:

- *Strategies for engagement of stakeholders*
- *Stakeholder involvement in regulatory decision making*

- *The basis for regulatory decisions made available to stakeholders*
- *Use of electronic communication, including the internet, for communication to stakeholders*
- *Low threshold for informing stakeholders of nuclear and radiation safety related information*

Discussion:
The CRPO recognised the need for the public to be better informed about radiation safety. Some initial work in this area has been undertaken – in particular, a webpage containing basic information is already available on the Mauritius Government website. A new dedicated website is under development by the RPA. The website which is due to be launched in about two months time will contain information on radiation protection, a copy of the 2003 Act and all relevant application forms for authorisation, etc.

At present there is no requirement for the RPA to produce an annual report setting out its activities during the previous 12 month period.

The CRPO considered that information relating to individual licences will, in general, be treated as confidential, although it will be possible to make general information available to the public, radiation workers, patients and others who might be exposed to radiation as a result of the practice.

7.3 Enhancing regulatory effectiveness and competence

Background:
Challenges in maintaining and enhancing regulatory effectiveness and competence remain in many Member States. There is still no consensus on how to measure regulatory effectiveness.

Key elements:
- *Harmonization with International practices*
- *Commitment to resource planning*
- *Commitment to knowledge management*
- *Assessment of workforce competencies*
- *Commitment to staff training and development*
- *Commitment to continuous improvement and safety management systems*
- *Promote sharing experience and lessons learned*
- *Use of regulatory performance indicators*

Discussion:
Progress has been made since the RPA was established in September 2006. In particular, a national register of radiation sources has been compiled and a system of permits for the import of sources has been implemented. The CRPO believes that one of the key difficulties for the RPA in progressing its work is the lack of suitably trained staff. Training courses are provided by the IAEA but all attendance at courses must be authorised by the Ministry of Finance.

In addition, the Public Service Commission has experienced difficulty in recruiting suitably qualified staff to fill the positions of Radiation Protection Officer in the RPA.

Two Radiation Protection Assistants have recently been appointed and on-the-job training is being provided by the CRPO in addition to his other responsibilities.

7.4 Leadership and management of safety

Background:
Leadership in nuclear and radiation safety matters has to be demonstrated on the highest levels in an organization. The importance of human and organizational aspects of safety and safety culture is widely accepted. An effective management system is considered essential to support leadership in order to maintain and continuously enhance a good safety culture. Assessment tools for safety culture are being developed. Advanced decision-making techniques are increasingly needed to apply resources where they will do the most good. Recent events have led to concern over complacency in some operating organizations and lack of regulatory effectiveness in identifying and proactively responding to early symptoms of emerging problems.
Key elements:

- *Safety policy defined*
- *Safety management system*
- *Integration of the elements of the safety management system (safety culture, environment, quality, financial etc)*
- *Internal assessment of safety culture*
- *Open dialogue between regulatory body and senior industry executives*
- *Internal decision making appeal process*
- *Value and ethics programmes*
- *Self assessment*
- *Regulatory experience included in appointing senior executives*

Discussion:
At present as there is no licensing system in place, the CRPO has limited experience concerning the management of safety amongst operators.

7.5 Regulatory approach: risk-informed and deterministic

Background:
In some Member States, there is a trend towards a risk-informed approach to regulation, rather than a wholly compliance-based approach (deterministic and prescriptive).
Key elements:

- *Guidance exist for risk informed regulatory decision making*
- *Process for determining the safety significance of regulatory actions*
- *Defined outcomes based on promoting safety*
- *Prioritise regulatory activities based on safety significance*
- *Expectations for balancing risk-informed and deterministic decision-making*

Discussion:
The review team asked the Chief Radiation Protection Officer whether he favoured prescriptive or performance based regulations for a regulatory programme.

In response the CRPO stated his view that a performance-based rather than prescriptive system was appropriate in Mauritius and that codes setting out the standards required rather than detailed prescriptive regulations was the optimum approach.

7.6 Human resources and knowledge management

Background:
There is a movement towards revitalization of the human resource in some Member States. The need for knowledge management a creation of new knowledge, preservation of the existing resource, and knowledge sharing - is recognized. The new move towards network building for global knowledge sharing and management is showing promising results. Efforts in this direction need to continue to ensure availability of resources. Also, facilities critical to the conduct of important safety research need to be preserved.
Key elements:

- *Plans to attract and retain staff*
- *Existing strategies to identify, capture, and transfer knowledge internally and externally*
- *National or Regional training centres*
- *Identified specialized skills and identified strategies to maintain and build competence*
- *Appropriate emphasis on regulatory research and technical support organizations*

Discussion:
According to the CRPO, one of main difficulties for the RPA at this initial stage of its development is the recruitment of suitably qualified staff. Two Radiation Protection Assistants have been recruited but the CRPO expressed some concern that currently approved organisation structure did not provide an appropriate career structure for these staff. In addition, the Public Service Commission had not yet succeeded in recruiting appropriately qualified Radiation Protection Officers and the CRPO expressed the view that an imaginative approach was needed to address this problem.

The administrative staff in the RPA are public officers employed by the Government and, as a result, they may be transferred from the RPA to other government departments and agencies.

The CRPO recognises the need to develop a detailed staff plan and the need to develop a new organisation structure for the RPA to support sustainability in the new organisation structure.

While some external training has been available to staff of the RPA, much of the training, particularly for the Radiation Protection Assistants and administrative staff is in the form of on-the-job training. The CRPO recognized the importance of adequate training for technical staff, particularly at this start-up stage of development.

APPENDIX I – LIST OF PARTICIPANTS

INTERNATIONAL EXPERTS		
Ann **McGARRY**	Radiological Protection Institute of Ireland	amcgarry@rpii.ie
Mika **MARKKANEN**	Radiation and Nuclear Safety Authority (STUK), Finland	mika.markkanen@stuk.fi
Emil **BONEV**	Nuclear Regulatory Agency, Bulgaria	E.Bonev@bnra.bg
IAEA STAFF MEMBERS		
Stephen **EVANS**	Division of Radiation, Transport and Waste Safety, Team Coordinator	s.evans@iaea.org
OFFICIAL LIAISON OFFICER		
Rajkoomar **BIKOO**	Director of Technical Services, Ministry of Public Utilities	rbikoo@ mail.gov.mu
MAURITIUS COUNTERPARTS		
Faradally **OLLITE**	Chief Radiation Protection Officer, Mauritius Radiation Protection Authority (RPA)	faollite@mail.gov.mu

APPENDIX II – MISSION PROGRAMME

Date/time	Programme	Participants
26 November 2007		
09:30–10:30	Entrance meeting with RPA	Full IRRS Team RPA officers
10:30–13:00	Review of IRRS programme and initial discussions on the status of the national regulatory infrastructure	Full IRRS Team RPA
13:00–14:00	Lunch	
14:00–15:00	Meeting with Minister, Permanent Secretary and the Director of Technical Services of the Ministry of Public Utilities	Full IRRS Team Ministry Officials RPA
15:00 – 18:00	Continued discussions on the status of the national regulatory infrastructure.	Full IRRS Team RPA
20:00–23:00	Preparation of findings and drafting of IRRS report	IRRS Team

27 November 2007		
09:00–13:00	Continued discussions on the status of the national regulatory infrastructure and the activities of the regulatory body	Full IRRS Team RPA
13:00–14:00	Lunch	
14:30–18:00	Continued discussions on the status of the national regulatory infrastructure and the activities of the regulatory body	Full IRRS Team RPA
20:00–24:00	Preparation of findings and drafting of IRRS report	IRRS Team

28 November 2007		
09:30–10:30	Meeting with Assistant Solicitor-General to discuss the current status of Mauritius radiation safety legislation	Assistant Solicitor-General Full IRRS Team RPA CRPO
10:45 – 11:30	Meeting with RPC Chair	RPC Chair RPC CRPO Full IRRS Team
11:30: 13:00	Two members of the IRRS team worked on the editing of the IRRS report	IRRS Team Members
11:30 – 13:00	Two members of the IRRS Team and the CRPO of RPA visited the Radiotherapy Dept of the Victoria Hospital.	IRRS Team Members CRPO Staff of the Radiotherapy Dept of Victoria Hospital
13:00–14:00	Lunch	
14:00 – 15:00	Two members of the IRRS team worked on the editing of the IRRS report	IRRS Team Members
14:00 – 15:00	Two IRRS Team members meeting at National Police HQ to discuss security of radioactive sources issues and emergency planning and preparedness	IRRS Team members Senior officers of National Police CRPO
15:00–18:00	IRRS Team Members edited IRRS report	IRRS Team members
19:00–23:00	Official Dinner	IRRS Team and RPA

29 November 2007		
9:00–12:00	Preparation of findings and drafting of IRRS report	Full IRRS Team
12:00–13:00	Lunch	
13:00–18:30	Drafting of IRRS preliminary draft report	Full IRRS Team
21:00–24:00	Final drafting of preliminary draft report	Full IRRS Team

30 November 2007		
09:00–11:00	Presentation of the draft report with recommendations and suggestions by IRRS Team to RPA	IRRS Team RPA
12:00–13:00	Exit meeting Summary of findings and recommendations, action plan Meet with Minister	IRRS Team RPA
13:00–14:00	Lunch and depart	

APPENDIX III – SITE VISITS

Report of a Visit to the Radiotherapy Department of the Victoria Hospital, Quatre Bornes, Mauritius:

The review team accompanied an RPA officer on a visit to the Victoria Hospital, Quatre Bornes, Mauritius. The following reports address their observations of aspects of radiation safety and source security at this facility which would be subject to regulatory oversight by the RPA:

Observations on Radiation Safety at the Victoria Hospital, Quatre Bornes, Mauritius

The Radiotherapy Department is housed in a detached building on the Hospital site. The equipment available includes two cobalt machines, one linear accelerator (Linac) and one brachytherapy unit. Iodine ablation therapy is also provided.

The Department is overseen by a Consultant Radiotherapist and includes four other radiotherapists and thirteen radiographers. The treatment planning and equipment quality assurance is provided by the Physics Department of the Ministry of Health comprising a Principal Hospital Physicist and a Hospital Physicist. In addition, the Physics Department provides the TLD dosimetry service to the hospital staff and staff working in other hospitals (approximately 300 workers in total, with badges issued every two months).

The Radiotherapy Department treats on average about 100 patients per day. Quality Assurance checks are performed by the Hospital Physicist on the equipment each morning and at lunch time. Other checks are performed weekly or fortnightly.

At present, the authorisation system envisaged in the Radiation Protection Act 2003 is not yet in place, and a formal assessment of the radiation safety procedures in the radiotherapy department has not been undertaken by the RPA. However, based on a short visit to the Department and in response to queries, the IRRS Team members understand that no formal risk assessment has been undertaken for each treatment modality, no written procedures are available and no intervention plan is available. It would also appear that training opportunities are limited. In the case of the newly installed brachytherapy equipment, the IRRS Team members were informed that only three hours training was provided by the equipment supplier in advance of the commissioning of the equipment. For iodine treatment, the facilities are of a very poor standard; there is no fume hood or dose calibrator. Patients are not segregated from other members of the public following treatment.

Based on the visit to the Radiotherapy Department, the IRRS Team members concluded that the system of authorisation and inspection provided for in the 2003 Act should be implemented by the RPA as a matter of urgency in order to ensure the safety of the public, patients and hospital staff.

Observations on Radioactive Source Security at the Victoria Hospital, Quatre Bornes, Mauritius

On 28th of November 2007 IRRS Team members and the Chief Radiation Protection Officer visited the Radiotherapy Department of the Victoria Hospital. The team was accompanied by the Hospital Physicist. During the visit the IRRS Team members obtained the understanding that the gamma teletherapy units containing Category 1 sources do not have a security alarm system for the purpose of physical protection. The existing radioactive sources used for brachytherapy are stored in an inappropriate room. On the windows there are no metal frames, no alarm system, the door is wooden with only one lock. During the daytime the keys are with the physicists and during the night at the security guards post located at the main gate (at about 200 m distance). During the conversation it was explained to the IRRS Team members that the hospital has no emergency plan and no regular police inspections relating to security. The local fire protection service performs yearly inspections to check the existing fire fighting equipment.

Meeting at the Mauritius National Police Headquarters to Discuss Security of Radioactive Sources and Emergency Planning

A meeting was held at the National Police HQ with two Chief Inspectors of Police to discuss emergency planning and the future potential for providing measures for security of radioactive sources on the national level. It was explained to the IRRS Team members that the legislation regulating police activities does not contain provisions relating to security of radioactive sources. The National Police representatives underlined that the National Police are ready to collaborate actively with the RPA in several specific areas including emergency planning, training of police officers, joint practical exercises, public relations, exchange of information etc. The IRRS Team members explained the IAEA policy and practices to support the law enforcement agencies of the member states with regard to the upgrade of the physical protection of radioactive sources and the capabilities to combat illicit trafficking. The RPA and Police HQ recognized they have joint interests and tasks and they agreed to cooperate in their future activities.

APPENDIX IV – MISSION COUNTERPARTS

Item	Subject Area	IRRS Experts	Counterparts
	Legislative and governmental responsibilities	• Ann McGarry • Mika MARKKANEN • Emil Bonev • Stephen Evans	• Faradally Ollite
	Responsibilities and Functions of the Regulatory Body		
	Organization of the regulatory body		
	Activities of the Regulatory Body		
	Management System for the Regulatory Body		
	Policy Issues		
	Public Information		
	Safety of Radioactive Sources		

APPENDIX V – RECOMMENDATIONS, SUGGESTIONS, GOOD PRACTICES

	Areas	**IAEA Comment No** ***R: Recommendations,*** ***S: Suggestions,*** ***G: Good practices***	***Recommendations, Suggestions or Good Practices***
A	Legislative and governmental responsibilities	*R1*	The Republic of Mauritius should at the earliest opportunity, review and revise the 2003 Act to ensure it is consistent with international standards and guidance.
		R2	Regulations to implement the legislation should be drafted in parallel with the review and/or revision of the Act and issued as soon as possible.
		G1	The IRRS Team was informed that all Mauritius legislation, including that for radiation safety, is subject to a public consultation and drafts are published on the Government website
B	Responsibilities and functions of the regulatory body	*R3*	At the earliest opportunity and as a matter of urgency, implement processes of authorization, inspection and enforcement compatible with international standards and guidance.
		R4	The RPA should develop a national action plan which identifies the key functions to be implemented in Mauritius to ensure radiation safety and the security of radioactive sources. The RPA should implement these functions at the earliest opportunity, either acting itself or as appropriate entering into formal agreements on national cooperation with other agencies having a regulatory role. In accepting new responsibilities, the RPA should take care to ensure its effective independence as a regulator is not compromised and that it is the appropriate national body to take on such new responsibilities and is properly resourced to do so.

	Areas	IAEA Comment No *R: Recommendations,* *S: Suggestions,* *G: Good practices*	*Recommendations, Suggestions or Good Practices*
C	Organization of the Regulatory Body	*R5*	Through legislation or other means, the RPA should be given clear control of its own finances (once agreed in the budget). In accordance with national arrangements for the recruitment of public officers, the RPA should (insofar as possible) have control of recruitment and training of staff (in accordance with a staffing and training plan based on the national regulatory workload).
		R6	The Government of Mauritius should consider the establishment and/or continuous development of cooperative arrangements with neighbouring and other relevant States and international organizations to promote the effective exchange of information, experience and knowledge on matters relating to radiation safety and the security of sources.
		R7	As an immediate priority, steps should be taken to recruit suitably qualified RPA staff to enable the implementation of an adequate authorisation process, inspection and enforcement.
D	Activities of the Regulatory Body	*R8*	The RPA should urgently establish and implement formal written procedures and processes for authorization, inspection and enforcement.
E	Safety and Security of radioactive sources	*R9*	In line with its already stated intention, the Government of Mauritius should consider writing to the Director General of the IAEA expressing its commitment to working towards following the guidance of the Code of Conduct on the Safety and Security of Radioactive Sources 2004 and its associated Guidance on the Import and Export of Radioactive Sources.

	Areas	IAEA Comment No *R: Recommendations,* *S: Suggestions,* *G: Good practices*	*Recommendations, Suggestions or Good Practices*
F	Information Management	*R10*	The plan for the development and implementation of procedures and processes for authorisation, inspection and enforcement should incorporate an appropriate information management system.

APPENDIX VI – IAEA REFERENCE MATERIAL USED FOR THE REVIEW

[1] INTERNATIONAL ATOMIC ENERGY AGENCY International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources. Safety Series 115, IAEA (1996)

[2] INTERNATIONAL ATOMIC ENERGY AGENCY Legal and Governmental Infrastructure for Nuclear, Radiation, Radioactive Waste and Transport Safety. Safety Standards Series No. GS-R-1, IAEA (2000)

[3] INTERNATIONAL ATOMIC ENERGY AGENCY Code of Conduct on the Safety and Security of Radioactive Sources. IAEA/CODEOC/2004

[4] INTERNATIONAL ATOMIC ENERGY AGENCY Independence In Regulatory Decision Making International Nuclear Safety Advisory Group (INSAG) Report 17, IAEA (2003)

[5] INTERNATIONAL ATOMIC ENERGY AGENCY Regulatory Control of Radiation Sources GS-G-1.5, 2004

[6] INTERNATIONAL ATOMIC ENERGY AGENCY Categorization of Radioactive Sources RS-G-1.9, 2005

[7] INTERNATIONAL ATOMIC ENERGY AGENCY Legislation and Establishment of A Regulatory Authority for the Control Of Radiation Sources (draft)

[8] INTERNATIONAL ATOMIC ENERGY AGENCY Application of the International Radiation Safety Standards in Nuclear Medicine, Safety Reports Series No. 40 (2005)

[9] INTERNATIONAL ATOMIC ENERGY AGENCY Application of the International Radiation Safety Standards in Radiotherapy , Safety Reports Series No. 38 (2006)

[10] NTERNATIONAL ATOMIC ENERGY AGENCY Application of the International Radiation Safety Standards in Diagnostic Radiology and Interventional Procedures using X-Rays, Safety Reports Series No. 39 (2006)

[11] INTERNATIONAL ATOMIC ENERGY AGENCY Application of the International Radiation Safety Standards in Industrial Radiography and Industrial Irradiators (draft)

[12] INTERNATIONAL ATOMIC ENERGY AGENCY Building Competence in Radiation Protection and the Safe Use of Radiation Sources, RS-G-1.4

[13] INTERNATIONAL ATOMIC ENERGY AGENCY. Safety Report No 20: Training in Radiation Protection and the Safe Use of Radiation Sources

[14] INTERNATIONAL ATOMIC ENERGY AGENCY TECDOC 1525 Notification and Authorization for the use of radiation sources

[15] INTERNATIONAL ATOMIC ENERGY AGENCYTECDOC 1526 Inspection of Radiation Sources and regulatory enforcement

[16] INTERNATIONAL ATOMIC ENERGY AGENCY Guidance on the Import and Export of Radioactive Sources. IAEA/GIERS/2005

[17] INTERNATIONAL ATOMIC ENERGY AGENCY Quality Assurance within Regulatory Bodies. IAEA-TECDOC-1090 (1999).

[18] INTERNATIONAL ORGANIZATION FOR STANDARDIZATION Quality Management Systems Fundamentals and Vocabulary. ISO 9000: 2000, Geneva (2000).

[19] INTERNATIONAL ATOMIC ENERGY AGENCY TECDOC-1355 Security of Radioactive Sources (2003)

[20] INTERNATIONAL ATOMIC ENERGY AGENCY TECDOC 1388, Strengthening Control over Radioactive Sources in Authorized Use and Regaining Control of Orphan Sources. IAEA, Vienna (2004).

[21] INTERNATIONAL ATOMIC ENERGY AGENCY, Preparedness and Response for a Nuclear or Radiological Emergency, Safety Series No. GS-R-2, IAEA Vienna (2002).

[22] INTERNATIONAL ATOMIC ENERGY AGENCY, Regulations for the Safe Transport of Radioactive Materials, Safety Series No. TS-R-1, IAEA, Vienna (2000)

[23] EUROPEAN FOUNDATION FOR QUALITY MANAGEMENT, The EFQM Excellence Model, Brussels (1999).

APPENDIX VII – LIST OF ABBREVIATIONS

RPA	Radiation Protection Authority
RPC	Radiation Protection Council
MPU	Ministry of Public Utilities
CRPO	Chief Radiation Protection Officer
RPO	Radiation Protection Officer
IRRS	Integrated Regulatory Review Service
BSS	International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radioactive Sources
CoC	Code of Conduct for the Safety and Security of Radioactive Sources
GIERS	Guidance on the Import and Export of Radioactive Sources
IAEA	International Atomic Energy Agency
RAIS	Regulatory Authority Information System

APPENDIX VIII – ACTION PLAN

I. LEGISLATIVE and STATUTORY FRAMEWORK

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
1 Legislation and Establishment of the Regulatory Body			
1.1 Drafting and Enacting Legislation: 1.1.1 Taking into account the shortcomings and weaknesses of the Radiation Protection Act No 46 of 2003, draft a new or amend existing national radiation safety legislation ensuring consistency with IAEA Basic Safety Standards (SS 115), GS-R-1, CoC and GIERS and other referenced IAEA documents. 1.1.2 The new or amended legislation, in particular, should address: o Assignment of prime responsibility for safety to the operator; o Assignment of the powers of enforcement to the RPA; o That regulatory processes take into account the categorisation of sources; • import and export of radioactive material; • the security of radioactive sources;	National Government / State Law Office / RPA	Provision of IAEA Standards, Code of Conduct and other relevant publications.	• SS 115 [1] • GS-R-1 [2] • CoC [3] • GS-G-1.5 [5] • Legislation and Establishment of a Regulatory Body for the Control of Radiation Sources (Draft) [7]

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
• assignment of roles and responsibilities for rapid response to loss of control of lost, stolen or orphan sources.		After submission of draft legislation by Mauritius, the IAEA may consider the provision of an Expert Mission (EM 1) comprising legal, technical and security experts to review the draft. Consider support for organization of national seminar on Strengthening Framework and Regulatory Infrastructure for Radiation Safety	• GS-R-1, § 2.1, 2.4 [2] • CoC, § 18, 19 [3]
1.2 Enact the legislation: 1.2.1 Finalize draft/ amended legislation and take necessary measures to promulgate it in due time.	National Government		
2 Regulations and Guidance			
2.1 **Draft regulations** 2.2 Draft Regulations for consistency with new / amended legislation to ensure they are appropriate to the nature of facilities and radiation practices to be regulated within Mauritius. In particular the regulations should address: • Administrative requirements (e.g. notification, authorization) • Radiation protection performance requirements (justification, optimization and dose limitation)	RPA / State Law Office	After submission of the draft regulations by Mauritius, the IAEA may consider the provision of an Expert Mission (EM 2) comprising legal, technical and security experts to review the draft, to be held concurrently with EM 1.	• SS 115, Detailed Requirements [1] • GS-R-1 § 5.25–5.28 [2] • CoC § 18 [3] • Reference [7] • TECDOC-1355 Security of Radioactive Sources (2003) [19]

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
• Management requirements • Verification of protection and safety • Requirements for the safety of sources • Occupational and public radiation exposure; • Dose limits; • Medical exposure; • radioactive waste management; • transport of radioactive sources; • emergency exposures situations. • security of radioactive sources including unauthorized access, use or removal of radioactive sources, theft, loss, verification of security measures and response to security incidents; • import and export of radioactive sources; • exemptions for practices and sources			
2.3 Issue Regulations: 2.3.1 Finalize the regulations and take necessary measures for these to be issued by the Government of Mauritius.	Government / Ministry of Public Utilities		
2.4 Drafting and Issuing Guidance Documents: 2.4.1 Draft guidance documents (Codes of Practice) for the implementation of the legislation and regulations. The codes	RPA	Provide guidance documents (see references).	• GS-R-1, § 5.25 – 5.28 [2] • CoC, § 22(m) [3] • Applying Radiation Safety

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
of practice should cover at least: • Diagnostic radiology • Teletherapy • Brachytherapy • Nuclear medicine • Industrial radiography • Industrial irradiators • Nuclear gauges			Standards in Nuclear Medicine [8] • Applying Radiation Safety Standards in Radiotherapy [9] • Applying Radiation Safety Standards in Diagnostic Radiology and Interventional Procedures Using X Rays [10] • Application of the International Radiation Safety Standards in Industrial Radiography and Industrial Irradiators (draft) [11]
2.5 Issue Guidance Documents: 2.5.1 Issue the guidance documents.	RPA		

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
3 Regulatory Body Staffing and Training			
3.1 Staffing: 3.1.1 RPA should develop a formal staffing plan (including job descriptions) based on the functions and responsibilities assigned by the legislation and taking into account the country's needs based in particular on the national register of radiation sources. 3.1.2 RPA should urgently recruit staff necessary to meet the expected regulatory workload.	RPA / MPU		• GS-R-1 § 4.6 [2] • CoC § 21 [3] • Building Competence in Radiation Protection and the Safe Use of Radiation sources [12] • Safety Report No. 20 [13] • Authorization for the Possession and Use of Radiation Sources (draft). [14] • Inspection of Radiation Sources and Enforcement (draft) [15]
3.2 Training: 3.2.1 Develop and implement a planned and adequately budgeted programme of structured training and continuous professional development for personnel of the regulatory body so that the necessary skills are acquired and maintained, particularly in relation to new technologies, safety and security principles and concepts.	RPA / MPU	Provision of training packages as appropriate, dealing for example with; authorization and inspection of radiation sources in diagnostic radiology, nuclear medicine, radiotherapy, irradiators, industrial radiography, gauges. Provision of experts for national training courses.	• GS-R-1 § 4.7 [2] • CoC§ 10 [3]

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
		Provision of fellowships and scientific visits.	
4 Regulatory Body Funding			
4.1 Funding: 4.1.1 Provide the RPA with an annual budget under its own control and sufficient financial and other resources to undertake its regulatory functions as assigned by the legislation.	National Government		• GS-R-1 § 2.2(4) [2] • CoC § 21(b) [3] • Reference [14] • Reference [15]
5 National Coordination and Cooperation			
5.1 National Coordination and Cooperation: 5.1.1 Establish formal cooperative and coordinating arrangements, as appropriate, with other national bodies and organizations involved in radiation safety and security e.g. Customs, Police etc ***Note:*** *Coordination and cooperation can be formalized through written Memorandums between the relevant authorities.*	RPA / Government and other agencies	Provision of example Memorandum of Understanding	• GS-R-1 § 3.4 [2] • CoC § 20(m) [3]
6 International Cooperation			
6.1 Regional Cooperation: 6.1.1 Consider the establishment of arrangements for the exchange of safety and security related information, bilaterally and/or regionally, with neighbouring States as might be appropriate.	National Government	Provision of relevant documentation, international conventions, etc. Facilitate access to the **Ra**diation **Sa**fety	• GS-R-1, § 4.11 [2] • CoC, § 12, 20(n) [3]

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
6.2 Cooperation with International Organizations and States: 6.2.1 Consider the establishment of arrangements for the exchange of safety and security related information with interested States and relevant intergovernmental organizations as may be appropriate.		**Re**gulators **N**etwork (RaSaReN Web Site)	

II. **ACTIVITIES of the Regulatory Body**

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
1 Notification and National Register of Radiation Sources			
1.1 Notification of Intent to Undertake a Practice Involving Ionizing Radiation: 1.1.1 Develop and implement a mechanism of notification to the regulatory body of an intention to carry out a practice involving ionizing radiation.	RPA	Provision of an expert mission to review the process (EM 7) 3rd qtr 2008	• SS 115, § 2.7 – 2.8, 2.10 [1] • Reference [14]
1.2 Notification prior to Export of Category 1 or 2 Radioactive Sources: 1.2.1 The RPA should take account of the Code of Conduct on the safety and security of radioactive sources 2004 and the Guidance on the Import and Export of radioactive Sources 2005. These require that: The regulatory body of an exporting State: (a) obtains the consent of the corresponding regulatory body in the importing State through appropriate bilateral channels or agreements; and (b) issues prior notification of the intent to export a radioactive source.	RPA / National Government	Provision of the Code of Conduct 2004 and Guidance on the Import and Export of Radioactive Sources 2005	• CoC, § 23 – 25 and 28 [2] • GIERS 2005 Parts VII-IX [16] • RS-G-1.9 [6]
1.3 National Register of Radiation Sources:	RPA	At the request of the	• CoC, § 11, 17. Annex 1[3]

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
1.3.1 Maintain a comprehensive national register of ionizing radiation sources. Consider transfer of spreadsheet database to RAIS 3.0. 1.3.2 As a minimum, the national register should include category 1 and 2 radioactive sources as given in Annex 1 to the Code of Conduct. 1.3.3 Develop and approve formal procedures to identify and classify sensitive information related to radioactive sources. 1.3.4 Implement appropriate measures to protect the confidentiality of information contained in the source register (inventory), particularly in relation to radioactive sources.		regulatory body, provide experts to assist with the operation of the **R**egulatory **A**uthority **I**nformation **S**ystem (RAIS 3.0) including training of staff (EM 6).	• Reference [14] • Reference [6]
2 Authorization			
2.1 Establish a System of Authorization: 2.1.1 The RPA should develop formal written guidance on the format and content of documents to be submitted by the applicant in support to applications for authorization. 2.1.2 For both initial and renewal applications, the RPA should establish and approve a formal written process and procedures by which it reviews and assesses applications submitted, taking into account the potential magnitude and nature of the radiation hazard associated with the particular facility or activity and for radioactive sources, the nature of the security risk.	RPA	**Provision of an expert mission to review the process (EM 7)**	• SS 115, § 2.7, 2.8, 2.11 – 2.14 [1] • GS-R-1, § 5.3 – 5.6, [2] • CoC, § 22(a) [3] • Reference [14] • Reference [6] • Reference [19]
2.1.3 Establish and approve formal written process and procedures to approve, amend, reject, suspend or revoke applications for authorization in accordance with the legal requirement.	RPA		• GS.R-1 § 5.5 (1, 2) [2]
2.1.4 In accordance with national legislation, if appropriate, establish	RPA		• GS.R-1 § 2.4 (7), [2]

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
and approve formal written process and procedures by which aggrieved applicants may appeal regulatory decisions.			
2.2 Authorization of the Import and Export of Radioactive Sources: 2.2.1 The RPA should take account of the Code of Conduct on the safety and security of radioactive sources 2004 and the Guidance on the Import and Export of radioactive Sources 2005. These require that: The regulatory body of an exporting State should ensure that: • for export, it has notified and obtained the consent of the importing State through appropriate bilateral channels or agreements; • the receiving State has the appropriate technical and administrative capability, resources and regulatory structure to ensure the management of the sources in a manner consistent with the Code of Conduct and the Guidance on the Import and Export of Radioactive Sources. The regulatory body of the importing state: • Ensures that the recipient is authorized to receive and possess the source in accordance with the national legislation (if any) or with the relevant international guidance. • Ensures that the appropriate regulatory framework exists.	RPA		• CoC, § 23 – 25 and 28 [2] • GIERS 2005 Parts VII-IX [16]. • Reference [14]
3 Safety and Security of Radioactive Sources			
3.1 Defining levels of safety and security	RPA and other	Regional Radiation	• CoC, § 18, 20[3]

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
3.1.1 Establish procedures designating different levels of safety and security based on source categorization including a graded approach to the security of Category 1-3 sources. 3.1.2 Establish procedures for addressing specific situations regarding radioactive sources including: • found, lost or stolen sources; • cessation of licensed operations for economic reasons; • emergency planning and response; • handling, transport and storage of recovered orphan or vulnerable sources; • safe and secure storage of sources at ports of entry; • scrap metal monitoring; • tracking the movement of high-risk sources; • safety and security of radioactive sources routinely stored on vehicles or at field sites; • Illicit trafficking of radioactive sources.	appropriate authorities (e.g. Police, Customs)	Safety Training Course for Customs Officers If requested by Mauritius, the IAEA may provide an Expert Mission for 1 week to review processes (EM 8) and to include seminar to sensitize national bodies involved in safety and security of sources (as part of the national seminar on Strengthening Framework and Regulatory Infrastructure for Radiation Safety on the assumption that TC will provide resources for the preparation of material).	• CoC, § 9, 13 (b), 15, 19 (g), 22 (g) • Reference [6] • Reference [19]

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
4 Inspection			
4.1 Inspection System: 4.1.1 Establish and implement an inspection programme taking into account the potential magnitude and nature of the radiation hazard associated with particular facilities or activities.	RPA		• GS-R-1, § 5.14 – 5.17 [2] • CoC, § 20(h), 22(I,) 19(h) [3] • Reference [15] • Reference [6] • Reference [19]
4.1.2 Draft and approve formal written process and inspection procedures appropriate to the types of radiation practices regulated.	RPA	At the request of Mauritius, the IAEA may consider the provision of inspection equipment	• Reference [15]
4.1.3 Establish and approve formal written protocols clearly defining the duties and responsibilities of inspectors in the conduct of inspections.	RPA		• Reference [15]
5 Enforcement			
5.1 Establish a System of Enforcement: 5.1.1 Draft a formal policy and written procedures for enforcement actions appropriate to the nature of the alleged breach including, if appropriate, any necessary cooperative arrangements with other government agencies (justice, police, security, etc).	RPA (and other agencies as may be appropriate)		• GS-R-1, § 5.18 – 5.24 [2] • CoC, § 20 (i), 22 (j) [3] • Reference [15]
6 Information Management			

TASKS for each ELEMENT	ACTION BY:	IAEA INPUT	REFERENCES
6.1 Information Collection and Dissemination: 6.1.1 Develop formal procedures for collecting and disseminating information to radiation users, professional groups having input to radiation practices and to the public where appropriate.	RPA with the cooperation of relevant Government agencies.		• CoC, § 13 [3] • GS-R-1, § 3.3(6), (7), (11) [2]
7 Quality Management			
7.1 Quality Management Programme: 7.1.1 Establish an approved quality management programme to ensure the regulatory body programmes and procedures are reviewed at specified intervals to assure their efficiency and effectiveness.	RPA	Provision for an expert mission to review the programme (EM 11)	• GS-R-1, § 4.5 [2] • TECDOC-1090 [17] • ISO 9000 [18]