Preparation of guidance on the appraisal of the environmental impact assessment report for the center for nuclear science and technology of Vietnam

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Abstract. At present, Viet Nam is intensifying work on the preparation of the construction of the Center for Nuclear Science and Technology (CNST) with a new research reactor (10 MWt capacity, with the possibility of increasing the capacity to 15 MWt). The implementation of this project will improve Vietnam's nuclear infrastructure and will become a reliable stepping-stone for the further development of nuclear energy. The main tasks of the CNST are solving tasks in the field of science, engineering, and technology; conducting research in the field of production of radioisotopes for medical and industrial purposes, conversion of materials, and reactor materials science; conducting fundamental and applied research in nuclear physics, experimental research in physical processes; training and advanced training of personnel in the field of nuclear energy. This article presents and analyzes the legal system of Vietnam on environmental protection, up-to-date documents related to the environmental impact assessment (EIA) of Vietnam and international organizations. Issues requiring attention related to the EIA on the radiological aspect during the implementation of the CNST project at the construction stage, trial, and normal operation are considered. The structure of Guidance on the appraisal of the EIA report (GAR EIA) for Vietnam's CNST project is presented.

1 Introduction

Nuclear research reactors (NRRs) occupy an important place in the development of nuclear power generation. Safety substantiation of commercial nuclear power plants operation is impossible without the implementation of the wide program of fundamental and applied studies conducted on NRRs [1]. NRRs offer a diverse range of applications, such as neutron beam research for material studies and non-destructive examination, neutron activation analysis to measure minute quantities of an element, radioisotope production for medical and industrial use, neutron irradiation for materials testing for fission and fusion reactors, neutron transmutation doping of silicon, gemstone coloration, etc. Another important area where NRRs have a large contribution is education and training in all nuclear technology areas for

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operators, maintenance and operational staff of nuclear facilities, radiation protection personnel, regulatory personnel, students, and researchers [2].

Currently, Vietnam has only one research reactor – the Dalat NRR with a nominal capacity of 500 kW, whose main purpose is training, radioisotope production, neutron activation analysis, and basic research. During its operation, the Dalat NRR played a very important role in the development of Vietnam's nuclear infrastructure and produced a large number of products and services [3]. However, due to the limitation of the neutron flux level, the outdated design of the experimental facilities, and the aging of the reactor equipment, the research reactor cannot meet the growing needs of users. Therefore, the construction of a new multi-purpose NRR with high-capacity from 10–15 MW (Fig. 1) is necessary to increase the country's nuclear potential, meet the needs of energy and non-energy applications, and train personnel for the nuclear industry. The main role of the new NRR is to serve the nuclear power development program, promote the application of nuclear science and technology, and train scientific personnel and operating specialists for future nuclear facilities.

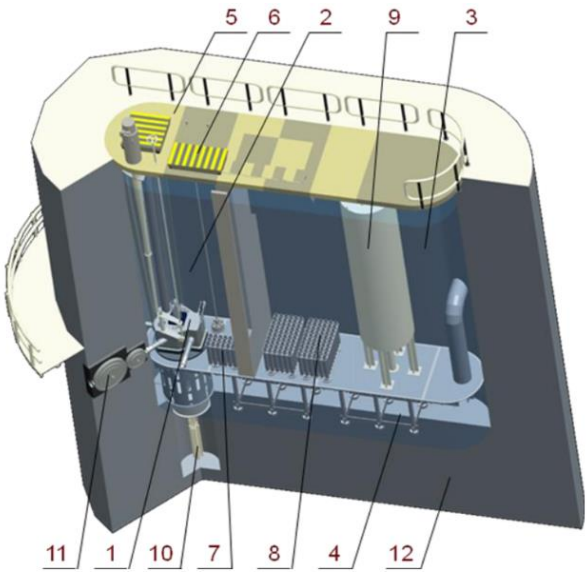

Fig. 1. 3D model of the 10 MW Russian pool-type NRR [4]: 1 – reactor core and reflector; 2 – reactor pool; 3 – storage pool; 4 – retainer tank; 5 – upper plate; 6 – sliding plate; 7 – intermediate storage; 8 – storage of spent fuel assemblies; 9 – tank of emergency core cooling system; 10 – drives of control and protection system; 11 – horizontal experimental channel; 12 – biological shield body.

For the future of the national nuclear power industry, Vietnam needs to make efforts to implement the CNST project as soon as possible. To achieve this goal, a lot of work needs to be done, among them, the preparation of an EIA for the CNST project is an urgent task. The authors of this article have completed the Guidance on the preparation of the EIA report (GPR EIA) for Vietnam's CNST project (details, as well as an overview of the project, can be found in the article [5]), and we are currently continuing work on the development of Guidance on the appraisal of the EIA report (GAR EIA). The draft of this appraisal guidance has been completed. The purpose of developing the appraisal guidance is to help evaluators take a systematic and consistent approach to review an EIA report for a project relating to a nuclear installation with an NRR.

The purpose of the presented work is to analyze the regulatory documents for the preparation of GAR EIA for the CNST project following the legal and technical requirements of Vietnam, as well as to describe the issues that need to be considered concerning radiological aspects in the preparation and appraisal of the EIA report.

2 Literature review

The International Atomic Energy Agency (IAEA) provides a measure of safety standards for member states and the safety of all countries using nuclear energy. This is especially necessary for nuclear newcomer countries such as Vietnam to develop standards for nuclear safety, national legal and regulatory framework for environmental protection in the field of nuclear energy, and gradually establish the infrastructure to develop its own nuclear energy industry.

The NG-T-3.11 "Managing Environmental Impact Assessment for Construction and Operation in New Nuclear Power Programmes" published by the IAEA [6], provides a holistic approach to environmental protection in new nuclear power programmes. It describes the EIA process, its utilization, and the necessary infrastructure for such a process. The GSG-10 "Prospective Radiological Environmental Impact Assessment for Facilities and Activities" published by the IAEA [7], provides general guidance and recommendations about the content of a prospective radiological EIA, its use, and the procedures for its implementation, as an aid to national regulatory bodies, to persons or organizations responsible for facilities and activities and to other interested parties, including but not restricted to those persons or organizations applying for authorization for or responsible for the operation of facilities and the conduct of activities. This document can also be used for nuclear facilities with NRR.

The EIA is a complex, holistic analysis, and hence, it involves a great deal of knowledge, skills, and data interpretation. To review the EIA report effectively, the competent authority has either to develop its capacity in these areas or to utilize the expertise of other relevant organizations. Examples of the types of expertise that may be called upon in evaluating EIA topics range far beyond radiological subjects (see Table 1).

Table 1. Types of Expertise for Environmental Impact Assessment Reviews [6].

Sciences	Engineering	Social sciences	Other disciplines
Environmental science	Environmental engineering	Demography	Emergency planning
Biology, including human health	Geotechnology	Law	Security
Meteorology	Visual engineering	Economics	Project management
Oceanography	Acoustics	Environmental justice	Quality management
Hydrology	Developed land use	Archaeology and culture studies	Stakeholder involvement
Geology	Grid infrastructure	-	Permit and licence management
Seismology	Electromagnetism	-	-
Volcanology	External human induced events	-	-

In the United States (U.S.), the NUREG-1555 "Standard Review Plans for Environmental Reviews for Nuclear Power Plants" [8] provides environmental standard review plans to use when conducting environmental reviews of applications related to nuclear facilities. Environmental standard review plans are prepared for the guidance of the Office of Nuclear Reactor Regulation staff responsible for environmental reviews for nuclear facilities. The plans: (1) provide specific instructions to the U.S. Nuclear Regulatory Commission (NRC) staff responsible for conducting environmental reviews, (2) provide detailed descriptions of the manner in which the NRC reaches judgments on the kinds of environmental impacts caused by construction and operation of nuclear facilities, and (3) specify the means for determining the significance of these impacts.

Moreover, the EPA Publication 315-X-08-001 "§309 Reviewers Guidance for New Nuclear Power Plant Environmental Impact Statements" [9] provides background information to staff within the U.S. Environmental Protection Agency who review and comment on National Environmental Policy Act documents prepared by the NRC. Specifically, this guidance provides information to assist reviewers in (1) preparing scoping comments on environmental impact statements (EIS) related to NRC's licensing of new nuclear facilities, (2) considering those issues most appropriate to a specific type of nuclear reactor presented in an EIS, etc.

In this study, we examined the documents of the IAEA and the U.S. related to the criteria, contents, and requirements to be considered and achieved when developing GAR EIA in general, as well as in terms of assessment of radiological environmental impact in particular during construction, commissioning, and operation of nuclear facilities, and reviewed the assessment items.

In addition, several other documents of the IAEA [10-12], the Russian Federation (RF) [13], the European Union (EU) [14] were also consulted to develop and draft other contents in the Guidance on the preparation and appraisal of the EIA report for Vietnam's CNST project.

3 Vietnam's current environmental protection system

Environmental impact assessment (EIA) in general and the appraisal of the EIA report, in particular, is one of the activities of public administration in the field of the environment, which plays an important role in ensuring a harmonious settlement of the relationship between socio-economic development and environmental protection. Purpose of the EIA report: (1) to ensure that environmental considerations are explicitly addressed and incorporated into the development decision-making process; (2) to anticipate and avoid, minimize, or offset the adverse significant biophysical, social, and other relevant effects of development proposals; (3) to protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and (4) to promote development that is sustainable and optimizes resource use and management opportunities.

The EIA system in Vietnam is governed through Law No. 72/2020/QH14 [15] of the National Assembly, Decree No. 08/2022/ND-CP [16] of the Government, and Circular No. 02/2022/TT-BTNMT [17] of the Ministry of Natural Resources and Environment (MONRE). The main requirements foreseen in the field of NRR safety are established in Circular No. 05/2020/TT- BKHCN [18] of the Ministry of Science and Technology (MOST).

At present, Vietnam's system of legal documents on EIA has been supplemented by laws, regulations, and circulars governing the preparation of the EIA reports for various types of investment projects. In addition, the Government has established the state management apparatus for environmental protection from the central to the local level. In addition to MONRE, the provincial people's committee, other ministries/sectors, and industrial zone management departments also have the right to evaluate and approve EIA reports. The administering authority is decided according to project type, location, and size. Vietnam's administrative framework for EIA is shown in Fig. 2.

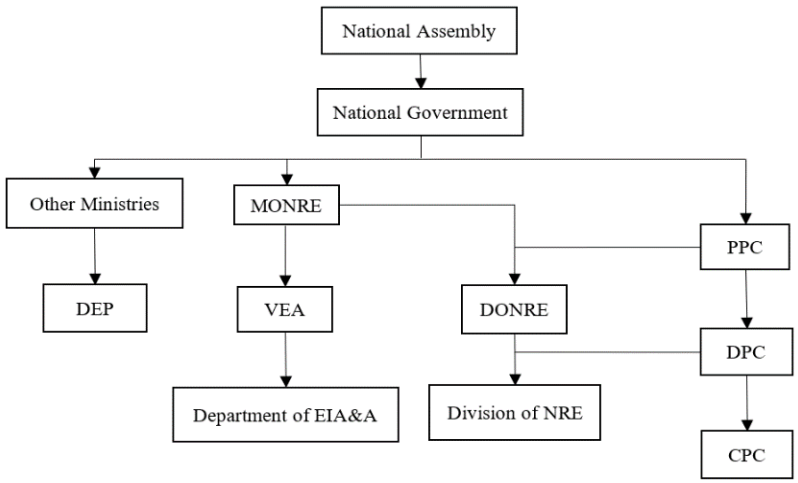

Fig. 2. Vietnam's administrative framework for EIA [19].

Vietnam's nuclear program is regulated by the Atomic Energy Law No. 18/2008-QH12, adopted in 2008. In this law, Article 38 "Site Approval for the Construction of Nuclear Facilities" states that the EIA report is one of the mandatory documents that must be included in the dossier of request for approval of a building location.

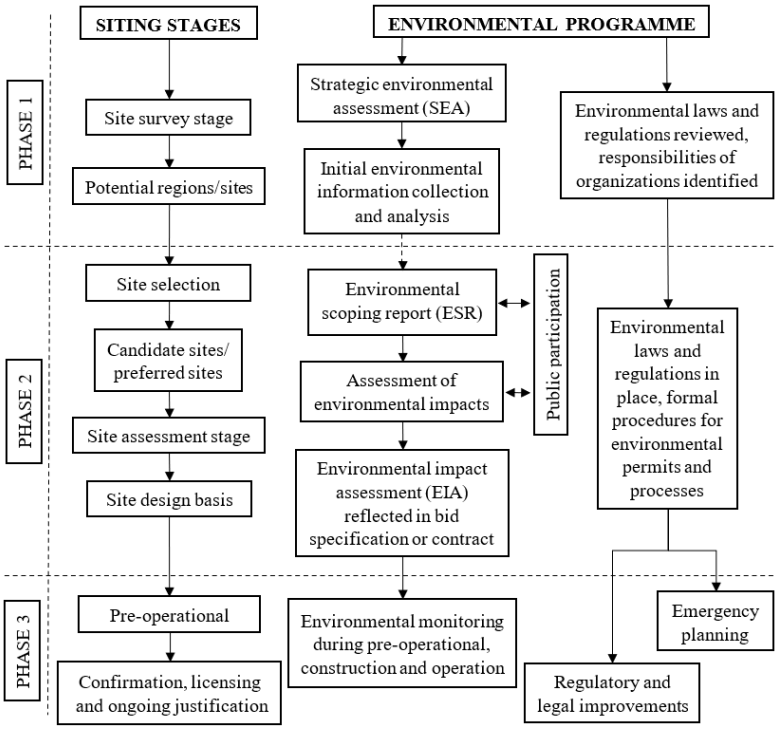

Fig. 3. Stepwise approach to solving environmental issues in new nuclear power programs [6].

Using an EIA, environmental impacts associated with nuclear facilities can be identified and evaluated. International approaches and guidelines indicate that nuclear newcomer countries such as Vietnam need to ensure that the national legal and regulatory framework for environmental protection accounts for the unique safety and environmental aspects of such an endeavor (Fig. 3). Existing laws may require amendment and/or supplement. Moreover, the responsibilities of the environmental agency and nuclear regulatory body, in environmental oversight of nuclear facilities will need to be legally defined to prevent overlapping of responsibilities and to minimize the potential for a project delay.

The Decree [16] outlines general provisions for the content of the EIA reports for all sectors of production. Appendix I of this Decree shows the list of industry and field development strategies and national sector planning for which a strategic environmental assessment is required (including the nuclear power development plan), and Appendix III lists the Group I investment projects with a high risk of adverse impacts on the environment specified in Clause 3, Article 28 of the Environmental Protection Law, which includes projects to build nuclear facilities. However, there are no specific regulations on carrying out EIA for NRR facilities (contents related to the radiological aspect).

Therefore, it was necessary to develop separate Guidance on the preparation and appraisal of the EIA report concerning the CNST to improve the quality of the assessment and appraisal. A feature of the CNST project is the presence of nuclear fuel, therefore, it is necessary to use international treaties and IAEA documents on EIA for objects using atomic energy (OUAE). At the same time, in the EIA for Vietnam's CNST, it is important to use the experience in the implementation of similar projects of countries with a developed nuclear infrastructure (e.g., the RF, the U.S., the EU, Korea, etc.).

4 Issues to be considered in connection with the radiological aspect in the preparation and appraisal of the EIA report

Radiological EIA aims to confirm that off-site radiological dose from the radioactive material released from the facility does not exceed the regulatory criteria to promote the health and safety of residents around the nuclear facilities (Fig. 4). The table below shows an example of the contents of the radiological EIA report [20].

Table 2. Radiological Environmental Impact Assessment Items for Operation Permit.

Items	Contents
1. Overview of construction plan	1.1 Necessity of construction / 1.2 Basis for environmental impact assessment / 1.3 Progress of business / 1.4 Construction plan / 1.5 Reason for site selection
2. Environmental status	2.1 Site status / 2.2 Land use / 2.3 Marine use / 2.4 Weather and atmospheric diffusion / 2.5 Water and watershed diffusion / 2.6 Oceanic and marine diffusion / 2.7 Population / 2.8 Environmental radiation/performance status
3. Nuclear facility status	3.1 Appearance / 3.2 Reactors and steam electric systems / 3.3 Fuel storage facility / 3.4 Radioactive waste treatment system / 3.5 Radiation source
4. Impact from construction	4.1 Dose calculation model / 4.2 Assumptions for does calculation / 4.3 Dose calculation / 4.4 Summary of annual exposure dose
5. Impact from operations	5.1 Exposure pathway / 5.2 Exposure dose evaluation
6. Impact from accidents	6.1 Accident assumptions / 6.2 Radiation source / 6.3 Evaluation method / 6.4 Exposure dose evaluation / 6.5 Resident protection measures
7. Environmental monitoring plan	7.1 Environmental monitoring before operation / 7.2 Environmental monitoring during operation

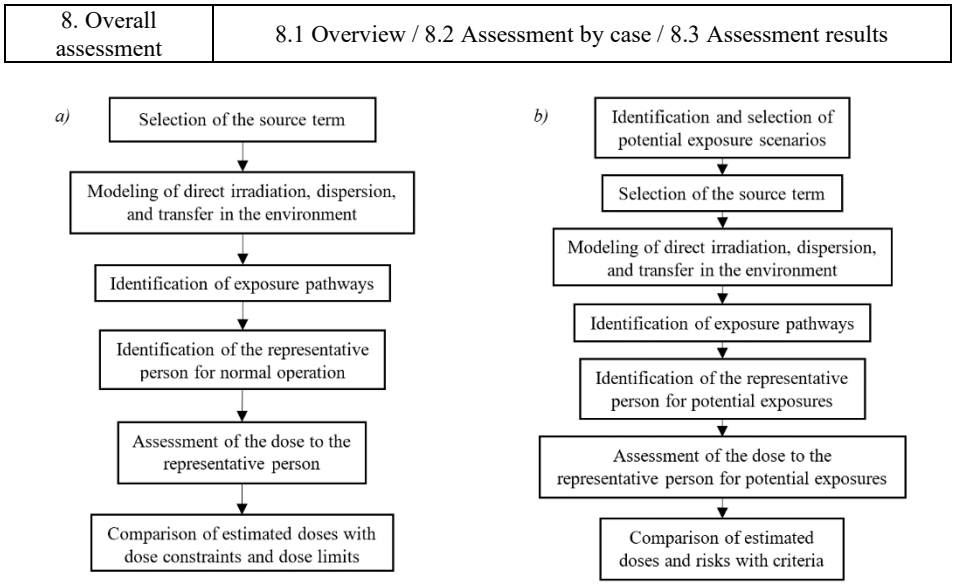

Fig. 4. Components of a radiological environmental impact assessment for protection of the public in normal operation (a), and of an assessment for consideration of potential exposures (b) [7].

4.1 Impact of radioactive elements during the construction phase

4.1.1 Content to be mentioned:

a) Sources causing impacts: In this section, it is necessary to present the radioactive sources and radiation equipment that is supposed to be used during construction, e.g., radioactive sources, radiation-hazardous equipment used for quality control of welded joints, and metal (radiography).
b) Impact assessment of radioactive sources and radiation-hazardous equipment on human health and the environment: Impact assessment during the use, transportation, and storage of radioactive sources and radiation-hazardous equipment. Evaluation of the effective dose to personnel and the public from the above activities (the impact level is assessed based on comparison with the standards for dose limits of occupational exposure and of the public exposure dose) [21].
c) Impact assessment of transport accidents: accidents during the transportation of nuclear fuel, and radioactive sources.
d) Environmental protection measures for radiation activities in construction: Presentation of measures consistent with the ALARA principle (in particular: contact time, shielding, distance). Preliminary presentation of measures to prevent and respond to possible radiation and nuclear incidents, risks, and accidents.

4.1.2 Evaluation questions:

During the construction phase of the project, some work related to radiative impacts requires the use of radioactive sources and radiation-hazardous equipment for geological assessment, construction quality, etc. This work is outside the scope of the project. These radiation-hazardous works will be assessed in terms of safety and licensed separately. Thus, the appraisal in this section is focused on the following points: the section should contain a

complete list of radiation-hazardous works; there must be confirmation of compliance with the conditions for performing these works with the requirements of the rules and regulations regarding licensing for the conduct of radiation-hazardous works.

4.1.3 Acceptance criteria:

(1) Compliance with the provisions of the Atomic Energy Law (2008); (2) Full implementation of the requirements for clarification of the impact assessment during the construction phases [17]; (3) The EIA report should contain a specific impact assessment on socio-economic and environmental issues; (4) Impacts should be assessed specifically for potentially affected objects, specifying the level of impact, the affected range; (5) The impact level should be assessed based on national standards and technical regulations on the environment; (6) Radiation-hazardous works listed in the section must comply with the provisions on licensing for performing such works [22]; (7) Full description of potential radiation risks and incidents during the performance of radiation-hazardous works.

4.2 Impact of radioactive elements during the trial operation phase

4.2.1 Information to be specified:

a) Sources causing radiative impacts: transportation and loading of nuclear fuel; radioactive releases (the content described in this section should reflect the scale, nature, and level of impact from sources that cause potential radiation exposure).
b) Compliance assessment of technical parameters of monitoring and warning devices by design for radioactive elements: Availability evaluation of design monitoring and warning devices for radioactive elements; Compliance verification of technical parameters during trial operation (including evaluation of the parameters of gas and water emissions from the reactor; measurement and assessment of the dose rate inside and outside the reactor building at the established monitoring points).
c) Evaluation of potential problems during trial operation: In this section, it is necessary to present potential problems that may arise during trial operation and assess the impact level. Particular attention should be paid to the process of transporting fuel and loading fuel into the reactor.

4.2.2 Evaluation questions:

(1) Does this part of the EIA report adequately present sources causing impacts from radioactive elements?; (2) Does this part of the EIA report provide an assessment of the degree of influence of the sources causing radiative impacts (in the control zone, monitoring zone and residential zone)?; (3) Are instruments for monitoring radioactive elements, and methods for assessing impacts from radioactive elements suitable?

4.2.3 Acceptance criteria:

(1) Full presentation of the expected impact sources by design; measures to prevent, respond and minimize negative impacts during the trial operation phase; (2) The parameters of radioactive waste releases presented in the EIA report must be consistent with the feasibility study (FS) report (content related to the design); (3) Incidents (radioactive, non-radioactive) are fully presented under the FS report (content related to the design).

Note: This content will be re-evaluated during the assessment process to issue an official operating license and will be updated in the EIA report.

4.3 Impact of radioactive elements during the normal operation phase

4.3.1 Content to be mentioned:

a) Sources causing impacts: It is necessary to present sources causing impacts (nuclear fuel; spent nuclear fuel; radioactive waste (solid, liquid, gaseous); production process of pharmaceutical substances and radioisotopes; research activities; irradiation products from the reactor) and indicate the quantity and nature of each type of radioactive waste arising from the operation [23].
b) Demand and level of consumption of nuclear fuel, products, and generated radioactive waste: It is necessary to present the need for fresh nuclear fuel (annual, maximum reserve level); consumption level of nuclear fuel, statistics of radioactive activity in burned fuel; quantity of radioactive substances for pharmaceutical substances and irradiation products in the reactor; quantity of radioactive waste generated (including solid, liquid, and gaseous waste).
c) Assessment method: It is necessary to provide an estimation method for the need for fresh nuclear fuel, total radioactive activity, the quantity of radioactive waste generated (solid, liquid, and gaseous); method for assessing the dispersion of radioactive substances in the aquatic and air environment.
d) Impact assessment of radioactive elements: It is necessary to provide an impact assessment of the above radioactive elements on the following subjects: personnel, population, environment - ecology (air, soil, water, animals, plants).

4.3.2 Evaluation questions:

(1) Does this part of the EIA report fully present radioactive elements (radioactive sources, nuclear fuel, radioactive waste, etc.) along with their characteristics, properties, and radioactive composition from the NRR's activities?; (2) Is this part of the EIA report accompanied by a diagram showing the location of the origin points of radioactive releases sources?; (3) Does this part of the EIA report provide an assessment of the degree of influence of the sources causing radiative impacts (in the control zone, monitoring zone, and residential zone)?; (4) Does this part of the EIA report present options for the storage and handling of radioactive substances, radioactive waste, and nuclear fuel?; (5) Does this section of the EIA report present methods for calculating and estimating emission sources?; (6) Does this section of the EIA report present methods for assessing impacts on objects (personnel, public, environment, creature)?

4.3.3 Acceptance criteria:

(1) Compliance with the requirements for impact assessment during the operation phase of the project [17]; (2) Compliance with the provisions of the Circulars [24-26]; (3) The impact level shall be assessed based on technical regulations for the environment.

Note: Calculation methods and models, input parameters, and calculation conditions were taken into account during the design process. Thus, the appraisal in this section is only limited to assessing the compliance of the results presented in the EIA report with the provisions of the law, e.g., for control zones, monitoring zones, and levels of gas and liquid releases into

the environment. These results will be verified again by an on-site commission during the licensing process for operation. These results will be updated in the EIA report.

5 Format and content of Guidance on the appraisal of the EIA report (GAR EIA)

The GAR EIA for Vietnam's CNST project is created under the documents of the Socialist Republic of Vietnam [16-17]; GPR EIA for Vietnam's CNST project [5]; documents on guidance on the preparation and appraisal of the EIA report by the U.S. Environmental Protection Agency (EPA), the U.S. Nuclear Regulatory Commission (NRC), the RF, the EU, the IAEA, in cooperation with the Department of Environmental Impact Assessment and Appraisal, MONRE and a group of Vietnamese environmental experts.

The GAR EIA consists of nine main parts-appraisals on the "Dossier submitted for the EIA report appraisal"; "Basis for the EIA performance" (e.g., legal grounds, technical grounds, etc.); "Brief description of the project" (general information about the project, construction items, production technology, operation, etc.); "Description of natural, socio-economic conditions and the current state of the environment in the territory of the project implementation"; "EIA" (construction, commissioning, and decommissioning stage); "Measures to prevent, minimize negative impacts and prevent, respond to environmental incidents"; "Environmental management and supervision program"; "Public consultation"; "Conclusions, proposals, and commitments".

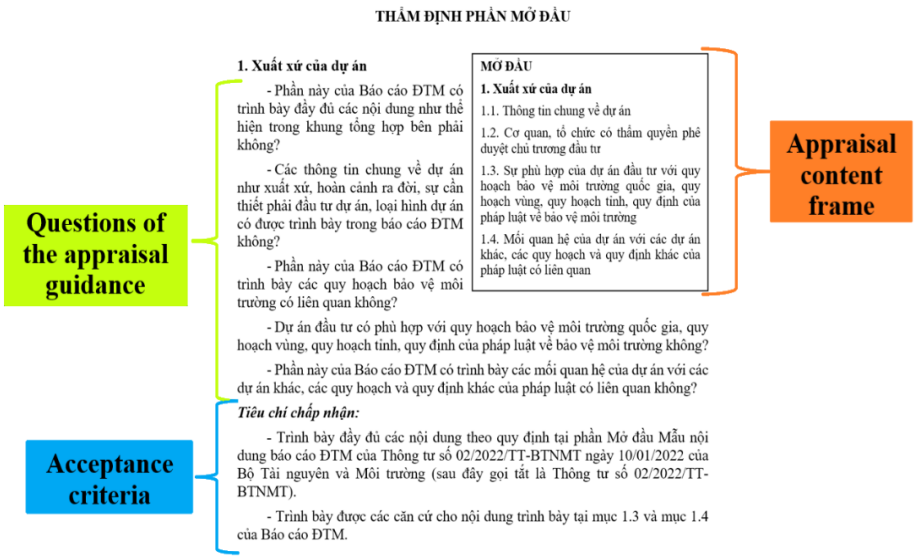

Fig. 5. Structure of the Guidance on the appraisal of the EIA report.

This document is intended to guide the appraisal of the EIA report content based on the following criteria: completeness, relevance, suitability, reliability of input information, and assessment methods under the provisions of the legislation (Environmental Protection Law, Atomic Energy Law, and relevant by-laws). In addition, references are made under the documents of the IAEA, the RF, the U.S., etc.

The presentation structure of the appraisal guidance includes the name of the appraisal content, which determines the appraisal scope; questions; requirements for the content to be presented/described; acceptance criteria, requirements; appraisal process; evaluation results (Fig. 5).

6 Results and discussion

The authors used a systematic approach in developing the guidance. The activities/works carried out include the collection of documents, results of domestic and foreign research; analysis and evaluation of the methods used, and the results of relevant studies that have been conducted to serve as a basis for selecting methods that correspond to actual requirements, as well as to overcome the limitations of previous works.

Some important steps:

- Review of the IAEA documents on monitoring and assessing the impact of OUAE on the population and the environment; legal norms of the RF, the U.S., and the EU on EIA in the radiological aspect for OUAE during planned exposure and emergencies [27];
- Review and analysis, assessment of the norms and rules of radiation safety of the IAEA, Vietnam, the RF, the U.S., and the EU concerning OUAE;
- Generalization of the legal framework for the EIA of Vietnam, development of information content about the project to be presented in the EIA report;
- Generalization of the legal framework and development of the content that needs to be assessed for the natural, and socio-economic conditions and the current state of the environment in the project area;
- Generalization of the legal framework for assessing the impact of waste (non-radioactive and radioactive waste) on people and the environment;
- Generalization of the content related to non-radioactive and radioactive waste (solid, liquid, gaseous) of the project, which needs to assess and predict the impact on the environment and people; works, measures for the collection, storage, and management of waste (radioactive and non-radioactive waste); environmental management and supervision program.

Considering all of the above, we have summarized and developed the main content required in the GAR EIA for Vietnam's CNST project, as well as the clarification of the radiological aspects that should be considered in the guidance on the preparation and appraisal of this report under Vietnamese laws, norms, rules, and requirements, as well as taking into account international experience and recommendations of the IAEA experts.

In addition, the authors summarized some key content points that Vietnam needs to pay attention to in connection with the issue of "Limitation and control of the dose and risk" during the appraisal of the EIA report: exposure control in case of radiative and nuclear accidents and other special cases [28]; assessment and control of potential exposure; assessment by tiered approach; cumulative impact assessment; transboundary impact assessment; rules for the management of waste and used radioactive sources; rules for preparedness and response to radiative and nuclear incidents; radiation monitoring of the environment. At the same time, it is necessary to pay attention to the technical standards/rules applied in the analysis of environmental samples: analysis of radionuclides in soil, water, air, plants, and food samples (Fig. 6); analysis of the total alpha and beta activity in water, soil, and air samples; measurement the dose rate of gamma radiation in the environment.

Regarding the current standards/rules of Vietnam in the field of nuclear energy, in the process of studying and comprehending the documents of the IAEA and developed countries with a developed nuclear industry in the world, the authors found that the list of standards/rules of these countries is very diverse, quite a lot of documents that are not in Vietnam. Consequently, the study of these documents is essential to clarify compliance with Vietnam's regulations and to supplement the missing content, allowing them to be applied in Vietnam. At the same time, the authors suggest that Vietnam needs to study and develop new standards/rules similar to other countries, suitable for Vietnam's conditions; and to establish a clear, methodical, consistent system of legal documents, under global standards, to be used in the future, when Vietnam's nuclear power industry develops and flourishes.

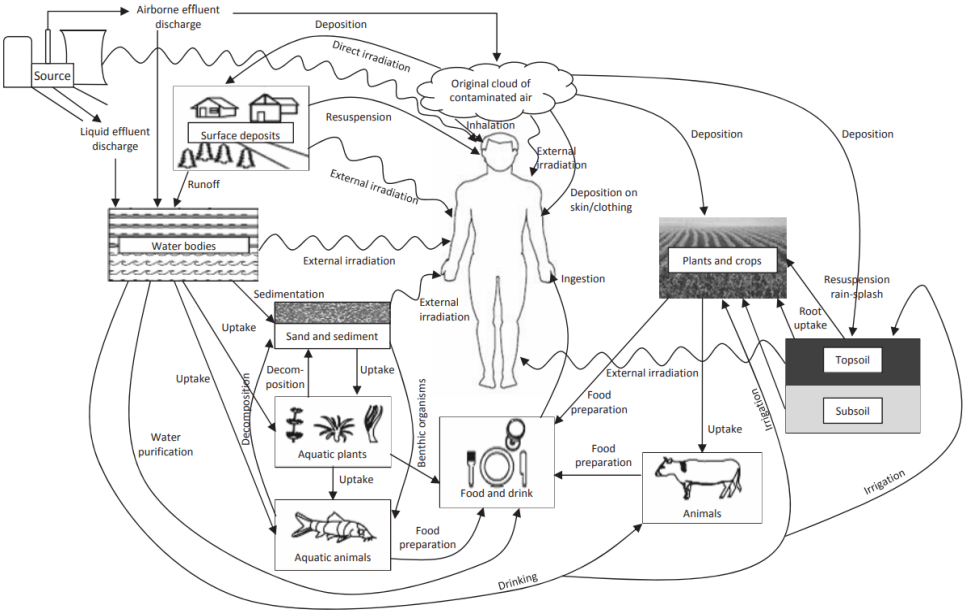

Fig. 6. Potential pathways for human exposure [6].

7 Conclusion

The Environmental Protection Law (2020) of Viet Nam determines the content of the EIA report. However, the domestic regulations provide only general provisions and content of the EIA report, and there is no specific guidance on the EIA for OUAE in terms of the radiological aspect, as well as their specific content. Consequently, the relevant departments and organizations will face difficulties when assessing the radiation impact on the environment during the project implementation. This article presented some results of the development of GAR EIA, analyzed the relevant guidance of the IAEA and developed countries of the world with extensive experience in the nuclear sphere (the RF, the U.S., etc.); presented draft guidance on the assessment of radiological environmental impact and other relevant content under the conditions and standards of Vietnam; indicated factors related to radiation that require attention to focus on the assessment and presentation in the EIA report during the implementation stages of the CNST project; presented the acceptance criteria that must be met and how the appraisal will be conducted. All of the above is intended to solve the limitations and eliminate the deficiencies associated with the provisions of the Vietnamese law on EIA for OUAE and contribute to making the appraisal process simple and methodologically understandable.

The GAR EIA developed by us, contributing to improving the quality of reporting, assessment, and appraisal, as well as ensuring the effective implementation of projects related to Vietnam's nuclear industry in the future, is a useful tool and an important reference material of the guidance for relevant management authorities, organizations, and contractors.

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