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# ***Guidance and Principles for the Initiation and Conduct of Joint Safety Research Projects***

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## 1. Introduction

The operational framework of the OECD Nuclear Energy Agency (NEA) provides for the formation of joint undertakings (projects) among a group of participating countries to support the use of nuclear energy for peaceful purposes. Article 5 of the NEA Statute describes the basis for joint undertakings. A joint project is formed when participating countries – which can include both NEA members and non-members – enter a legal agreement that describes the conduct of the project and the rights and responsibilities of the participants. The projects are required to be self-financed and there should be provisions for the participants to consider the inclusion of non-participants to join a project or benefit from the results.

Countries have benefitted from the output of joint projects for decades. This is particularly true in the area of safety research, where a large suite of projects (respectively defined herein as joint safety research projects) has addressed a range of high-priority safety issues and preserved key safety research capability (NEA, 2012). These joint safety research projects, while distinct from the programme of work executed through the NEA standing technical committees, have been of particular interest to the members of the Committee on the Safety of Nuclear Installations (CSNI), and have complemented the CSNI's programme of safety research activities.

A set of principles has evolved for the formation and conduct of joint safety research projects that reflects their strategic importance to CSNI members and ensures a consistent and mutually beneficial framework. The purpose of this document is to describe these principles. It is important to recognise that the principles are for guidance, and should be adjusted to reflect particular circumstances and to accommodate the needs of a specific project's participants. This document describes the typical framework for projects, and provides some examples of alternate considerations.

## 2. Strategic nature of joint safety research projects

The primary motivation for joint safety research projects is to support the safe operation of nuclear installations. Typical safety research projects comprise:

- The conduct of a set of experiments that addresses a safety issue and closes a safety knowledge gap.
- The creation and maintenance of a shared database of operating experience that can be used to identify adverse trends and good practises.
- The exchange of experimental information and modelling results to better understand safety-related phenomenology.

These activities are of considerable interest to the CSNI. In addition to addressing important safety issues, joint safety research projects have also contributed to the preservation and operation of essential research facilities and capabilities. Over the past two decades, the CSNI has conducted reviews of the status of essential research facilities and capabilities, and joint safety research projects have been established to support continued availability and operation of key facilities, including the maintenance of the human resources needed to conduct high quality experimental research. The latest review was published in 2021 (NEA, 2021). Joint safety research projects also contribute to the development and preservation of technical capability. First, an analytical working group is often established for a project (particularly experimental projects) to share modelling and interpretation of experimental results. Students or young professionals are often involved in these activities alongside experienced experts and benefit from the sharing of knowledge and different approaches. Second, participants are encouraged to use staff visits and assignments to aid in the transfer and further development of knowledge and capability.

One of the main purposes of the joint safety research projects is to reduce or close knowledge gaps by obtaining unique and high-quality experimental data whose output often requires information and capacities as well as financial and in-kind contributions from the involved parties. Special attention is paid to ensure long-term availability and usability of the received information. For this reason, the projects are asked to consider the preservation of information from the beginning and to develop a retention plan for the project information. Recognising the shared responsibility and benefits of nuclear safety, the results of joint safety research projects are made available after a non-disclosure period (as agreed by the participants; typically three years) following the completion of a project (or project phase). Once the non-disclosure period has expired, the results are made available upon request to organisations from NEA member countries for their use (perhaps with restrictions on their commercial exploitation or transfer to third parties). In addition, the work accomplished in joint safety research projects are memorialised in a final report that summarises the main outcomes of the project and their benefits.

**Principle 1:** Joint safety research projects address important safety needs, and their results should eventually be broadly shared to improve safety.

**Principle 2:** Joint safety research projects are used to develop and preserve key research facilities and capabilities.

### 3. Cost-sharing framework

The funding shares for joint safety research projects are usually determined on a country basis. If there is more than one organisation participating from a country, it is up to the participating organisations to decide how to divide the country's funding share. The funding arrangement described below has been found to be practical for most joint safety research projects, providing for an equitable sharing of costs and for a degree of consistency that helps project participants plan for funding requirements across a number of projects. The consistency is particularly important for some organisations that participate in a number of projects.

For experimental projects, the host country usually covers a large fraction of the overall cost (~50%), reflecting the benefit the host receives in terms of support for their experimental facility and involved staff members. For other countries, their funding shares are typically determined by their gross national product (GNP) as an indicator of the relative benefit to each country. In practice, a minimum contribution of ~1% and a maximum contribution of ~10% of the project cost have been established as reasonable limits. However, the exact funding arrangement will need to be agreed by the project partners and additional considerations can be taken into account if they are deemed appropriate. They can include economic factors per capita, installed nuclear capacity in terms of energy production, and the number of nuclear reactors in operation or under construction, or other considerations.

For database projects, there is no benefit for a host country, and as a result, the project costs are equally shared between the participating countries. Information sharing projects may use either approach, depending on whether there is a larger benefit for a particular country (host).

**Principle:** For projects with a benefit to the host country, the host country should contribute a large portion of the overall cost, and other countries may contribute based on their GNP. Different funding arrangements can be agreed if preferred by the project partners. For projects with no specific benefit for a particular country, the costs can be shared equally.

## 4. Membership in a joint project

The NEA is an intergovernmental agency, and its member countries designate experts from appropriate organisations to represent their national interests in the various NEA activities. Representatives to NEA committees and working parties typically come from governmental agencies or national organisations. For example, most CSNI members are technical experts from nuclear regulators, technical support organisations, national laboratories or national ministries or agencies.

For joint projects, participant organisation(s) should be designated by an authorised representative for their country – e.g. an authorised standing technical committee member, an appropriate government agency or the permanent mission to the OECD.

In some cases, an international organisation with a multinational membership, such as the European Union (EU), Electric Power Research Institute (EPRI), or World Association of Nuclear Operators (WANO), may participate in a joint project. In this particular case, the organisation may only use the project information within their base organisation, and is specifically prohibited from sharing data with their member countries unless otherwise agreed by the other project participants.

There are two considerations in the designation of a participant organisation for a joint safety research project. First, the participant organisation should have the appropriate technical expertise. Second, the participant organisation should be the appropriate beneficiary for the project results. For example, the expectation is that the outcomes of joint safety research projects should be primarily used to improve safety and not just for commercial gain. Accordingly, the participants in joint safety research projects are most often governmental or national organisations.

There are occasions where a country may designate an industry organisation to participate. For example:

- The facility to be used for the project is operated by a commercial entity.
- The participant organisation is a state corporation.
- A utility will be using the results to improve the safety of their reactors.
- A vendor or utility has the necessary technical expertise.

In the specific case where a country designates a national subsidiary of a multinational company, the subsidiary, and not the parent company, should participate and benefit from the project.

When an industry organisation is a project participant, the other partners may have concerns if the industry partner would like to commercially exploit the results. In this instance, the industry partner could be asked to make a larger than normal contribution to secure commercial exploitation rights. Examples of such a situation could be:

- A fuel manufacturer providing project results to customers to support operational limits.
- A technical organisation sharing the results with a customer to validate analysis results.

**Principle:** Participants in joint safety research projects should be designated by their countries as having the relevant expertise and being the appropriate recipient of the project results (but not necessarily representing their country's views).

## 5. Obligations and rights of participants

The legal agreement for a joint project describes the rights and obligations of the participants. The primary obligation for participants is to provide their committed contributions (usually funding, sometimes in-kind), and in return the participants have a right to use project results in their business. The right to use the project results does not extend to commercial exploitation or sharing of project results with third parties (discussed further below). Each participant is responsible for covering their own costs associated with the project (e.g. staff time, travel).

**Principle 1:** Participants gain a right to use project results in their own business, but not a right to commercial exploitation.

**Principle 2:** Participants cover their own costs for participation in a project.

## 6. Project results and confidential information

There are two main types of information shared under a joint project. The first type is the project results from executing the programme of work. Examples of project results are data generated through a set of experiments, interpretations gained through analysis of information shared by participants (e.g. results of inter-code comparisons in a benchmark), or trend analyses of operating experience data from a database. Where there is a host organisation contributing a large portion of the project costs, the ownership of the project results should typically rest with the host organisation. In other situations, the ownership of the project results can be shared by the project participants.

For the duration of a joint safety research project and its non-disclosure period, the disclosure of project results requires the approval of the project participants (through a management board, described below). After the non-disclosure period, the management board can decide to make the results publicly available (the preferable situation from a nuclear safety perspective), or available for use (and not commercial exploitation) by NEA member countries. In the latter case, requests for commercial exploitation require the approval of the owner of the project results (host organisation, or shared ownership).

The second type is confidential information owned by one of the participants, but provided to other participants to help with the interpretation of project results. Examples of confidential information are data from proprietary experiments relevant to the project, the results of computer code analyses, or operating experience data that are provided for a database. Confidential information remains the property of the participant that owns it. Project participants should secure the permission of the owner of confidential information before sharing it with a third party. Following the standard practice of the NEA, any information provided by a participant should be treated as confidential, whether marked as confidential or not, unless it is known to be publicly available. Marking of information as confidential should only be required in specific situations, as this is not consistent with NEA practice.

In some situations, project participants may be obliged by law or governmental requirements to share project results or confidential information. Participants should alert the other partners of such an obligation, and should provide notification prior to disclosing any project results or confidential information.

**Principle:** Project results and a partner's confidential information should not be shared or commercially exploited without appropriate permission.

## 7. Legal framework and liabilities

Joint projects are international in their membership, and it is not realistic for the participants to be aware of and meet the various legal requirements in each other's countries. For this reason, the joint project agreement does not correspond to any specific legal framework, and is to be interpreted on its own. Moreover, it is the responsibility of each participant to ensure they comply with applicable laws in carrying out their activities.

In a similar fashion, each participant is responsible for their own liabilities – there is no transfer or sharing of liability. This includes any liabilities that arise with performing the programme of work for the joint project, which stay with the party performing the work.

Likewise, any information shared under the project, including project results and information from participants, is provided without any guarantee of accuracy or completeness. Participants use the information at their own risk.

**Principle 1:** The agreement for a joint project should not be subject to a particular national legal framework. It is up to each participant to ensure they comply with applicable laws in carrying out their activities.

**Principle 2:** Each participant remains solely responsible for their own liabilities, and use information shared under the project at their own risk.

## 8. Third parties

Joint projects are an arrangement between the participating organisations that sign the project agreement. Any other organisation is a third party and typically has no role or rights in a joint project. Accordingly, the permission of the other participants is required before project results (management board approval, described further below) or confidential information (information owner approval) are shared with a third party. Having said that, special situations can arise where a third party can gain access to information, particularly recognising the technical and strategic nature of joint safety research projects. There should be transparency and full disclosure for such special situations. Three specific situations are described below.

The first situation is where a third party has a role as a technical supporter to a project participant. For example, an expert may be contracted to help with interpretation of project results. Or, an operating agent may need to procure technical services in executing the programme of work. A specific case is the engagement of academia (professors and/or students) with the goal of developing expertise. While not necessarily a direct support for a participant, development of expertise is often a strategic objective for national nuclear organisations. In the cases where a third party is engaged as a technical supporter, there should be a non-disclosure agreement that limits the technical supporter's ability to use project results and provides protections equal to or greater than the joint project agreement. If it is proposed to allow a technical supporter to access confidential information, the other participants should be notified and they may with good reason object.

With the focus of joint safety research projects being more strategic and less commercial, there should not be much concern with participants engaging technical supporters, and therefore approval of the other participants should not usually be required. If there are sensitivities for a particular joint project, a requirement can be added for other participants to be notified of, or approve of, the use of a technical supporter. Where approval is required, it may be advisable to list the technical supporters (in

an appendix) in the project agreement so that they are clearly identified, and all participants approve through signing of the agreement.

A second case where a third party may gain access to project information is where there is a governmental or legal obligation for a participant to disclose information to other organisations in their country. For example, national research organisations are often required to share technical information with other governmental organisations or educational institutions. In such cases, the participant should alert other participants to the obligation, preferably in advance of completing the project agreement. Any disclosure of project results should be governed by an appropriate non-disclosure agreement. Furthermore, the participant should secure permission from the information owner before any confidential information is shared with a third party for governmental or legal reasons.

A third case can arise where a project participant represents a group of organisations from their country. It is preferable for all organisations that will have access to project results to sign the agreement. In that way, it is clear that they are bound by the obligations of the agreement and any other requirements that may be established by project participants. In rare circumstances, a participant may have to sign on behalf of the other members of the group. For example, in some countries there is a technical organisation that represents the interests of nuclear utilities, and will share the project results with those utilities. In such a case, the requirement should be made clear to the other participants, preferably in the project agreement (e.g. in an annex). Also, the non-signing organisations have to be bound by a non-disclosure arrangement that respects all the requirements of the project agreement.

**Principle:** In general, third parties should not have access to project results and confidential information without permission. Nevertheless, participants should have the right to engage technical supporters, with a non-disclosure agreement that is at least as restrictive as the project agreement, and without the permission of the other participants.

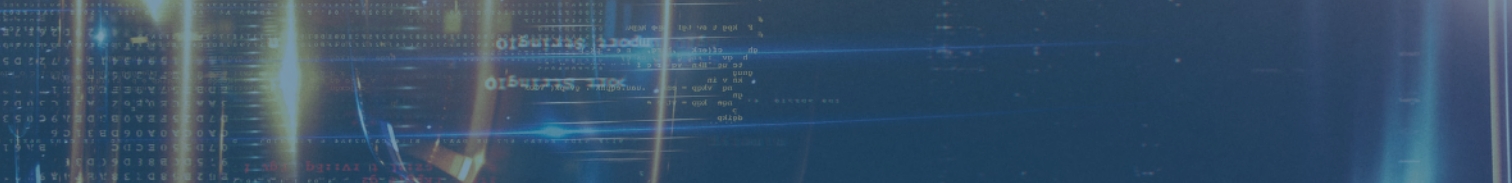
## 9. Managing a joint safety research project

Flexibility is required in the execution of research projects. For example, the scope and schedule may need to be adjusted as results become available. As a result, each participant in a joint safety research project nominates a representative to a management board to oversee the execution of a project. The management board manages the project within the parameters established in the project agreement, for example making decisions on:

- the addition of new participants;
- the timing of project contributions and payments;
- schedule changes (typically a management board can approve up to a year's delay in the completion of a project);
- scope changes (with no requirement for additional contributions from participants);
- disclosures of project information (including approval of publications with project results).

The experience with joint safety research projects is that decisions can be made by consensus among the project partners. In some cases, unanimous approval is required, for example on the accession of new members to a project. In the event that consensus is not achieved and unanimous approval is not required, approval should be granted by parties contributing at least 75% of the project funds. Such





voting has been extremely rare. Note that the 75% limit means that for experimental projects, the host country has to agree to a proposed change.

If a dispute were to arise in a joint safety research project, it should be settled amicably by the management board. If the management board is not able to resolve the issue, the services of the NEA should be sought to achieve an amicable solution, up to and including referring the matter to the NEA Director-General. If an amicable solution is not achieved through the NEA, the dispute should be referred to arbitration under the International Chamber of Commerce. In the history of the NEA's projects, no dispute has ever gone to arbitration.

**Principle:** A management board of representatives from project partners oversees the execution of a joint safety research project, making decisions on the basis of consensus and ensuring amicable resolution of any disputes.

## 10. Role of the NEA

While the NEA provides a framework for establishing joint projects, it is not a partner in joint projects, i.e. the NEA is not a signatory of project agreements. The NEA does provide administrative support to joint projects, including technical secretariat services. The NEA also assists parties in the preparation of an agreement that reflects the interests of the participants, and the NEA certifies the signed agreement. Joint projects compensate the NEA for its administrative support through payment of direct expenses (e.g. travel and meeting expenses) and of a secretariat fee reflective of typical staff expenses.

**Principle:** The NEA is not a participant in joint projects but provides, and is compensated for, administrative support and technical secretariat services.

## 11. Role of the CSNI

It is important to recognise that the CSNI does not have a formal role in the oversight of joint safety research projects. Joint safety research projects are independent of the NEA's programme of work and budget (executed through the standing technical committees, including the CSNI), and are overseen by the participants, notably through the management board. Nevertheless, the joint safety research projects are of interest to CSNI members for complementing the committee's programme of work and addressing strategic goals of resolving safety issues and maintaining research facilities and capabilities. In that regard, the CSNI provides feedback on the technical merits and relevance of a joint safety research project (primarily through review of project proposals by the CSNI working groups), and serves as a means of encouraging participation in a project and of co-ordinating the work of projects and working groups.

**Principle:** The CSNI does not oversee the conduct of joint safety research projects, but can provide feedback on a project's technical merits and relevance, and ensures the work of joint safety research projects is well co-ordinated with CSNI safety research activities.



## References

- NEA (2021), *Nuclear Safety Research Support Facilities for Existing and Advanced Reactors: 2021 Update*, OECD Publishing, Paris, [www.oecd-nea.org/jcms/pl\\_60542/nuclear-safety-research-support-facilities-for-existing-and-advanced-reactors-2021-update](http://www.oecd-nea.org/jcms/pl_60542/nuclear-safety-research-support-facilities-for-existing-and-advanced-reactors-2021-update).
- NEA (2012), *Main Benefits from 30 Years of Joint Projects in Nuclear Safety*, OECD Publishing, Paris, [www.oecd-nea.org/jcms/pl\\_14784/main-benefits-from-30-years-of-joint-projects-in-nuclear-safety](http://www.oecd-nea.org/jcms/pl_14784/main-benefits-from-30-years-of-joint-projects-in-nuclear-safety).



```
#!/usr/bin/python
"""
Simple HTTP server
This module builds a simple HTTP server that handles GET and HEAD requests in a
straightforward manner.
"""
import sys
import socket
import string
import os

server_version = "SimpleHTTPServer/0.1"

def do_GET(self):
    """Serve a GET request."""
    f = self.send_header("Content-type", self.mime_type)
    f.send("\r\n\r\n")
    f.send(self.send_file())

def do_HEAD(self):
    """Serve a HEAD request."""
    f = self.send_header("Content-type", self.mime_type)
    f.send("\r\n\r\n")

def do_POST(self):
    """Serve a POST request.
    The data is saved to a file in the current directory.
    """
    r, info = self.send_header("Content-type", "text/plain")
    print r, info, "bytes", self.client_address
    BaseHTTPServer.BaseHTTPRequestHandlerClass.do_POST(self)

if __name__ == '__main__':
    test()

```