INSTRUMENT FOR NUCLEAR SAFETY COOPERATION

OPERATING GUIDE

INSC End-User Guidance Document

(Rev 4. September 2020)

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Introduction

1 BACKGROUND

The European Union financing instrument “Technical Aid to the Commonwealth of Independent States (TACIS)”, which was established in 1992 to facilitate improved safe operation of Nuclear Power Plants (NPPs) in the Former Soviet Union (FSU) countries, was replaced by the Instrument for Nuclear Safety Cooperation (INSC) in January 2007. The TACIS funded projects that remain under implementation will be completed by 2014.

The initial priority of the TACIS Programme was to implement projects, which would supply critical safety equipment within the beneficiary countries. Since that time, the physical safety systems of nuclear plants within the FSU Countries have been reinforced through the TACIS Programme to such an extent, that the initial priority for equipment supply projects has significantly reduced. Additionally, both the Russian and Ukrainian nuclear Utilities, Rosenergoatom and ‘SE NNEGC Energoatom’ which were established in 1992 and 1996 respectively, have developed into modern state-owned companies with significantly improved income. To varying degrees, both organisations are considered to have available resources with which to further modernize their NPPs.

In the context of the INSC Programme, which will remain effective until 2020, the scope of EC support to nuclear safety in Ukraine has been refocused. INSC has moved towards supporting improved ‘human performance and safety culture’, in parallel with enhancing End-User managerial, operational and maintenance capability, to be more aligned with international best practice. To this end, the European Commission EuropeAid Unit B5 supported by their services in Ukraine, have been working with their Ukrainian Partners and End-Users to identify appropriate project topics to be implemented within the frame of INSC Annual Action Programmes.

Owing to the focus of INSC being on cooperation rather than on assistance (as it was under TACIS), the Ukrainian Partners undertake a greater responsibility for programming and defining specific project activities. In order to facilitate this change in focus, a supervisory infrastructure has been established for joint EC/UA INSC Programme Supervision and Decision Making. Whilst EC retains overall responsibility for INSC Programme Management, the Ukrainian Partners together with the End-Users are responsible for the identification, planning, development and implementation of INSC projects. In addition, the Partners and End-Users are undertaking a much more collaborative and proactive role in the development and management of Projects. Such a proactive role will support the achievement of programme objectives and ensure optimised transfer of knowledge and capability, which is to be achieved through increased involvement of the End-User in project implementation and widespread dissemination by the End-User Experts following implementation at a Pilot Plant.

This Guidance document is intended to assist the Ukrainian partners and End-Users in understanding the aims and objectives of INSC and to support them in the development and overall management of project documentation and programming.

Instrument for Nuclear Safety Cooperation

2 THE INSC PROGRAMME

2.1 Financing Instrument INSC

The Financing Instrument for Nuclear Safety Cooperation is available for the financing of measures to support a higher level of nuclear safety, radiation protection and the application of efficient and effective safeguards of nuclear materials in third countries.

2.2 Coverage

The geographic scope of the Instrument includes all third countries, and therefore is wider than that of the previous TACIS Nuclear Safety Programme. However, the first part of the implementation phase (2007-2009) continued to concentrate on the former Soviet Union Countries (mainly Russia and Ukraine, but also Armenia and Kazakhstan). From 2010, nuclear safety problems in countries of Northern Africa, ACP (Africa, Caribbean, Pacific), and Latin America are being funded.

The Instrument is designed to provide a new strategy dealing with political crisis in third countries as well as global and trans-regional threats arising from organised crime, trafficking, proliferation, biological and chemical agents.

2.3 Aims and Objectives

INSC aims are to finance actions in the following priority areas:

- Improving nuclear safety, particularly in terms of regulatory framework or management of nuclear plant safety (design, operation, maintenance, decommissioning),
- The safe transport, treatment and disposal of radioactive waste,
- The remediation of former nuclear sites and the protection against ionising radiation given off by radioactive materials,
- Emergency preparedness (accident prevention as well as reaction in the event of an accident),
- Promotion of international cooperation in the field of nuclear safety.

Nuclear safety and non-proliferation actions are implemented by Europe Aid Development and Cooperation Directorate General (EC EuropeAid), with the collaboration of External Relations DG, the Energy and Transport DG and the technical support of the Commission's Joint Research Centre (EC-JRC).

Cooperation is implemented on the basis of multiannual strategy papers and multiannual indicative programmes. The strategy papers cover one or more countries for a maximum of seven years and contain multiannual indicative programmes specifying the key objectives and indicative financial allocations. On the basis of these documents, the Commission adopts action programmes, usually on annual basis. Certain measures may be adopted although not included in the programming documents: this is the case of special measures

(adopted in an emergency) and support measures (for example, technical or administrative assistance).

Roles and Responsibilities within INSC

3 PRINCIPAL STAKEHOLDERS

The following organisations are the principal stakeholders involved in the preparation and implementation of the INSC Nuclear Safety programme in Ukraine:

- The European Commission
- Ukrainian Partners (Beneficiaries)
- The State Nuclear Regulatory Inspectorate of Ukraine (SNRIU)
- The End-Users
- Contractors and Consultants
- The JSO

Roles and responsibilities of the principal stakeholders are detailed below.

3.1 Roles and responsibilities of the European Commission

3.1.1 Europe Aid Development and Cooperation Directorate General (EC EuropeAid)

EC EuropeAid formally replaces the EC Europe Aid Co-operation Office (AidCo) from January 2011. EC EuropeAid maintains responsibility for the implementation of all EU funded technical aid programme activities within the Nuclear Sector. EC EuropeAid has responsibility for the implementation of the INSC programme.

3.1.2 EC EuropeAid Nuclear Safety Unit B5

Within the organisational structure of EC EuropeAid Directorate B has six units, among which the Unit B5 “Instrument of Stability, Nuclear Safety” is responsible for identification through to implementation and close out of all INSC nuclear safety projects in the project cycle management. INSC programme management is divided into Sectors:

1. Support to the Operator Sector
2. Radioactive Waste Management, Decommissioning and Remediation
3. Regulatory

During the Concept Phase of the INSC Nuclear Safety Programme EC EuropeAid B5:

1. initiates missions and studies for the identification of projects with the beneficiary countries (including consultation with other donors and potential co-financing);
2. launches studies for appraisal of projects as may be required from technical, contractual and financial points of view;
3. prepares and adjusts the Financing Proposal, in consultation with other DGs of the European Commission, the Unit for Finance, Contracts, Audit - EC EuropeAid B6;
4. submits each year a list of identified projects i.e. the Annual Action Program (including an indicative timetable for implementation) to other Commission services for approval through so-called Inter-Service Consultation;

5. presents the draft Annual Action Programme at the INSC Committee, which is attended by representatives of each EU Member State. The INSC Committee gives an opinion on the Annual Action Programme.
6. prepares the Financing Agreement for each annual action programme and presents it for decision by the Commission.
7. seeks approval of the Financing Agreement together with the Annual Action Programme by the authorized parties of the Partner Country
8. management of the development, approval and endorsement of project proposals and Contract TOR
9. management of Contract Tender Procedures
10. oversight and monitoring of project implementation
11. identification and reporting of project performance to the Member States
12. monitoring of planned benefit delivered from project implementation against pre-determined Key Performance Indicators (KPI).

The following key EC EuropeAid B5 personnel take direct responsibility for INSC Programme and Project Management;

Sector Coordinator

The Sector Coordinator is accountable to ensure the appropriate implementation of all above-mentioned activities. The Sector Coordinator will delegate specific responsibilities for each project to a project manager within his/her sector.

Project Manager

The respective Project Manager (PM) takes overall responsibility for the administrative and technical aspects of each project and is therefore accountable to his/her Sector Coordinator for all of the above-mentioned activities, which are entrusted to the Unit.

3.1.3 Joint Research Centre

The Joint Research Centre (EC-JRC) is a Directorate General of the Commission with its headquarters in Brussels and consists of a group of research institutes located at five different sites in Belgium, Germany, Italy, Spain and the Netherlands. The JRC actively provides technical support to the Commission policies and in particular to the nuclear safety project cycle management in all Sectors. This technical support is provided upon EC EuropeAid's request and in all stages of the project lifecycle management.

3.1.4 INSC Committee

The INSC Committee is composed of senior experts on nuclear energy and nuclear safety. Each expert is appointed by his/her EU Member State. The Commission chairs the INSC Committee. This Committee reviews strategies and priorities drafted during the Programme Identification Stage and makes comments on technical aspects on the proposed programme and projects. The INSC Committee delivers an opinion on the content of each Annual Action Programme.

3.1.5 The EU Delegation to Ukraine

The EU Delegation is a direct extension of the Commission. The level of responsibilities of the Delegations for programme management varies from region to region and from subject to

subject. Whilst the INSC programme currently remains under Centralised Direct Management from Brussels, the EU Delegation in Ukraine provide all necessary support to the Commission in seeking Ukrainian adoption of the Annual Action Programmes and Financing Agreements. In respect to the implementation of the INSC Programme, the EU Delegation provides support in the contacts with SNRIU. The EU Delegation further provides support to the Commission in the Management of INSC regarding all political matters.

3.2 Roles and Responsibilities of the Ukrainian Partners

The Ukrainian Partner Organisations (previously referred to as the Beneficiary), is the Ukrainian Organisation that receives the principal benefit from the implementation of each specific project on behalf of the Ukrainian Government. For the INSC Programme in Ukraine, there are two principal Partners on the Industrial side:

1. Ministry of Environmental protection and Natural resources of Ukraine
2. State Agency of Ukraine on Exclusion Zone Management

The role of the Beneficiary is to identify the content of each Annual Action Programme with the End-Users for which they are responsible and to agree the content of the Action Programme with the Commission. Following final agreement of the Action Programme by the Commission, the Beneficiary has a responsibility to support programme endorsement by the Ukrainian Government.

In respect of programme implementation, the Beneficiary is accountable to ensure that the Project Cycle in Ukraine is managed according to the requirements laid down by the Commission's Project Cycle Management and Procurement rules. The responsibility for day to day activities involved in project and contract management associated with INSC Projects is normally delegated by the Beneficiary to the appropriate End-Users. These responsibilities include the identification, development, planning and implementation of INSC projects.

The Beneficiary normally delegates responsibility for the identification of projects, project development and implementation management to the End-User.

3.3 Roles and responsibilities of the End Users

The End-Users in Cooperation with the Beneficiaries are responsible for the implementation of the preparatory phase of programme identification. Different End-Users might utilise different internal processes for the identification and approval of projects to be proposed for inclusion to the INSC Programme. However, all projects that are proposed for implementation in the frame of INSC are required to be identified on a Commission document called an Action Fiche. The Action Fiche provides an overview of each of the projects proposed for implementation. For each proposed project, the End-User is responsible for the completion/development of a more detailed Technical Annex to the Action Fiche. The Action Fiche forms part of the Annual Action Programme, which is annexed to the Finance Agreement that is to be approved by the Commission and adopted by the Ukrainian Authorities.

The Second phase (Planning) in the project cycle management is implemented following approval of the Action Programme by the Commission. During the Planning Phase, the End-User is responsible for establishing the project in readiness for implementation of the Commission Tendering Procedure. The planning Phase requires the End-User to establish the following as a minimum:

1. Appointment of the appropriate End-User experts to be involved in project planning and subsequent phases of project implementation and dissemination.

2. Contract Terms of Reference (TOR) or Technical Specification (TS)

3. Refined project budget estimate.

4. Project Quality Plan

5. Draft Level 2 project schedule

The End-User will normally have a responsibility to assist the commission in the implementation of the Tender Procedure. This can include supporting the production of Service Procurement Notices, through to the provision of attendance at the Tender Committee.

Following award of contract, the End-User is responsible for the day-to-day contract and project management. It should be noted that this is a proactive role, which requires significant management by the End-User together with the appropriate levels of interaction with the successful Consultant / Contractor during the implementation of the project.

The End-User is also responsible for the implementation of Tasks and Activities assigned to them within the TOR. The Tasks and Activates identified within the TOR are designed to provide maximum transfer of capability and benefit to the End-User organisation.

It should be noted that the End-User is responsible for the day-to-day contract and project management, through continuous interaction with the Consultant / Contractor. The European Commission maintains responsibility for all Contract and Financial administration activities. This is achieved through an appointed EC Project Manager.

In order to achieve successful project implementation, there is a clear requirement for strong and frequent lines of communication between the End-User Project manager, the EC Project Manager and the Consultant / Contractor Project manager.

3.4 Roles and Responsibilities of the SNRIU

Whilst the SNRIU performs its duties as a fully independent Authority, in respect of implementing and maintaining the nuclear safety regulatory norms and standards of Ukraine, together with implementing its responsibilities for regulatory inspection, it is also eligible for Commission support under the INSC Programme. In this respect the SNRIU is considered as a Beneficiary and End-User in the frame of INSC. Where INSC projects are implemented in support of the SNRIU's Technical Support Organisation (SSTC), the SNRIU remains the Beneficiary, however, SSTC is considered as the End-User.

In its capacity as a Beneficiary, the SNRIU is responsible for the identification, development, planning and implementation of INSC regulatory projects.

In respect of industrial side INSC projects in Ukraine, where required, the SNRIU is responsible for all licensing issues in accordance with the agreed project implementation schedules. However, the End-Users are responsible for ensuring that licensing plans and all documentation and information required for the licensing process is submitted to the SNRIU in accordance with the agreed project implementation schedule.

For all industrial projects that require involvement of the SNRIU, it is important to promote the involvement of the SNRIU Experts as observers to project development and implementation from the earliest stage in project development. Such an early involvement will facilitate a

complete awareness of project activities, deliverables and benefits by the Regulatory Authority, which will in turn facilitate a smooth and timely interaction with the Authority and its Technical Support Organisation SSTC, at the time of document/design review and licensing.

3.5 Roles and Responsibilities of Contractors and Consultants

The Contractor or Consultant is responsible for the implementation of his contract in accordance to the Contract TOR. Whilst the Contract TOR sets out the Contract Tasks and Deliverables, the organisation and methodology for implementation should be as described within the Contractors Tender (Annex III). Following Contract award, the Consultant/Contractor will implement the Inception Phase of the project. During the Inception Phase, the Contractor is responsible to ensure that his Organisation and Methodology is fully appropriate to meet the End-User and Contractual requirement. The Inception Period will culminate in an Inception or Kick-Off Meeting whereby the Consultant/Contractor seeks formal verbal agreement to any changes to the "Organisation and Methodology" (Annex III), from the End-User and Contracting Authority (normally represented by the EC Project Manager). These verbally agreed changes are then detailed within the Consultant / Contractors Inception Report, which is normally endorsed by the End-User and formally approved by the Commission. It should be noted that whilst the Inception Report might revise some details of the organisation and methodology set out within the Tender Document, it should not alter the requirements of the TOR.

The Contract TOR will establish all requirements to be delivered during and by the end of the defined Inception Period. These requirements will normally include, but not be limited to:

1. Minutes of the Kick-Off meeting
2. Inception Report (including the Organisation and Methodology together with any agreed (minor) changes to the TOR, and/or changes to the Organisation and Methodology as detailed within the contractors proposal.
3. Project Quality Programme and / or Quality Plan
4. Detailed Integrated Project Implementation Schedule

At all times the Contractor is responsible to abide by the conditions of contract and to implement works in accordance with the approved contractual documentation, which can only be revised by the issue of an Administrative Order or Contract Addendum by the Contracting Authority. All Contract Addendums must be approved and signed by the relevant parties before it can be brought into force.

3.6 Roles and Responsibilities of the JSO

The "Joint Support Office (JSO), at Kiev, for the management of the nuclear safety instrument in Ukraine" is a project established in the frame of the INSC programme. The JSO is operated under an EC established contract, for the provision of project management and technical support to the Commission.

The JSO is centrally based in Kiev and is responsible for the provision of support in the development, planning and oversight of INSC thematic issues.

The JSO is responsible for the provision of support to the Commission and Beneficiaries in the preparation of programmes and projects documentation. These documents include Action Fiche, Technical Annexes and Contract TOR.

The JSO is also responsible for the provision of information regarding the nuclear industry within Ukraine to the Commission and other stakeholder of the nuclear safety programme in Ukraine.

Supervisory Infrastructure

4 JOINT SUPERVISORY AND DECISION-MAKING BODIES

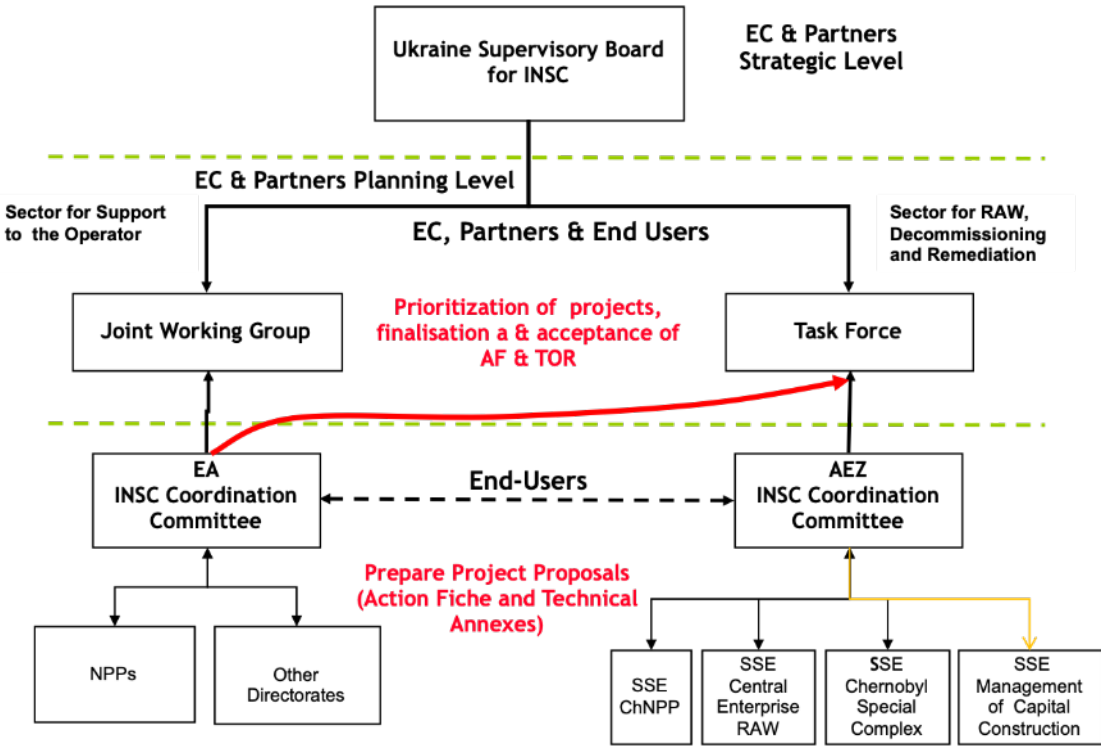
In order to ensure the appropriate management and oversight of each Annual Action Programme there are a number of Bodies, or Groups, which play an important role in both the decision-making and supervision of programme development, approval and implementation. These bodies are:

- End-User INSC Coordination Committee
- Task Force (RAW Sector)
- Joint Working Group (SO Sector)
- USB
- EU INSC Committee

The previous section identified the roles and responsibilities of specific organisations both within the EC and Beneficiary Country. Each of the above Bodies are jointly chaired and represented by the European Commission, Ukrainian Partners and key Ukrainian Stakeholders of the INSC Programme.

The interaction and interfaces between the above-mentioned Bodies are identified in Fig 1 below, detailed explanations are provided in the following sub-sections:

Fig 1: INSC Management Structure Ukraine



In respect to planning and strategic management of the INSC Programme, Figure 1 above details the approach, which has been in place since early 2009. However, the responsibility for organising initial project identification and their prioritisation within the End-User organisation rests with the Ends-User. It is the sole responsibility of the End-User as to how this is organised. In respect of this part of the process, Figure 1 represents a model by which the End-User Management might wish to organise the identification and prioritisation of projects for presentation to the Task Force and Joint Working Groups respectively.

4.1 End-User INSC Coordination Committee

The End-User INSC Coordination Committee (not to be confused with the EU INSC Committee), is established as the End-User internal control mechanism for identification and prioritisation of projects. It is the responsibility of the End-User INSC Coordination Committee to request the various departments and operational divisions of their organisations to submit proposals for projects to be considered for implementation in the frame of the INSC Programme.

4.1.1 RAW, Decommissioning and Remediation Sector

The State Agency of Ukraine on Exclusion Zone Management (SAUEZM), utilise the Projects Strategic Road Map (PSRM) for the identification and prioritisation of projects.

The PSRM, which is described in detail in Section 5 of this document, provides an overview of project requirement for the RAW, Decommissioning and Remediation Sector for the forthcoming 20 years. Whilst the PSRM is considered to be a live planning document and therefore subject to revision as needs change within the sector. The initial 5 years of the PSRM is well detailed in respect of short-term prioritised needs. With support from JSO Experts, the projects, which are identified within the PSRM, are reviewed annually in respect of their priority and suitability for INSC.

The Partner and End-Users are responsible for the development of a single Action Fiche describing each of the proposed projects together with an estimated collective budgetary requirement for implementation of the projects. The End-User Experts responsible for each of the projects are responsible for the development of the draft Action Fiche Technical Annexes with detailed information regarding each project, ref Section 6.

The development of the Action Fiche, its Technical Annexes and budgetary estimations is supported by JSO, who also liaise with the EC Project manager and EC JRC Experts regarding the content, budgetary estimates and approach of each proposal. The Draft Action Fiche and Technical Annexes are presented to the Task Force for consideration to be implemented in the frame of INSC.

4.1.1 Support to the Operator Sector

The approach of establishing an End-User Coordination Committee, as described in 4.1 above, is utilised by SE NNEGC Energoatom.

The proposals are presented by NPPs and other NNEGC Energoatom Departments to the INSC Coordination Committee, who is responsible to accept, prioritise or reject each of the projects. The INSC Coordination Committee, who meet once per year to review and prioritise identified projects, invite the JSO to give an opinion regarding the suitability of projects for implementation within the frame of the INSC Programme.

Following the INSC Coordination Committee meeting, a list of prioritised projects for proposed implementation under INSC is established and informally submitted to EC via the JSO for initial information.

NNEGC Energoatom is responsible for the development of a single Action Fiche describing each of the proposed projects together with an estimated collective budgetary requirement for implementation of the projects. NNEGC Energoatom Experts responsible for each of the projects are responsible for the development of the draft Action Fiche Technical Annexes with detailed information regarding each project, ref Section 6.

The development of the Action Fiche, its Technical Annexes and budgetary estimations is supported by JSO, who also liaise with the EC Project manager and EC JRC Experts regarding the content, budgetary estimates and approach of each proposal. The Draft Action Fiche and Technical Annexes are presented to the Joint Working Group for consideration to be implemented in the frame of INSC.

4.2 Task Force for RAW, Decommissioning and Remediation

The Task Force is established for the definition of a programme of cooperation between the European Commission and the Republic of Ukraine in the domain of radwaste and spent fuel management and nuclear and radiation hazardous facilities decommissioning in the framework of the INSC. The Task Force is promoting activities of the European Commission in the areas of radioactive waste management and nuclear decommissioning in Ukraine.

The Task Force guide and support the definition and implementation capacities of the European Commission, the Ukrainian State Agency for the Management of the Exclusion Zone and the Ministry of Environmental protection and Natural resources of Ukraine, in the frame of cooperative activities in the area of radioactive waste management and nuclear decommissioning. The Task Force's support includes careful planning and evaluation of the foreseen areas of intervention and activities and shall profit from the added value that may be provided to Ukraine through the INSC.

In order to achieve its objective, the Task Force proceeds according to the scheme that is outlined below.

- Definition of priority areas of intervention (key areas), account taken of the priorities defined in Ukrainian national programmes.
- Definition of the needs for each integrated project and its components (i.e. specific projects and activities), in terms of human and financial resources, as well as of the instruments under which such resources shall be made available.
- Definition of the overall time schedule for the implementation of the integrated projects and their components and of the responsibilities of their timely and satisfactorily completion.
- Definition of the interactions among the components of each integrated project, in view of ensuring their added value and a close cooperation of all involved parties.
- Finalisation and approval of integrated projects (and their respective components) aimed at the achievement of the established objectives in the key areas, in view of including such integrated projects in the cooperation programmes.
- Definition of key performance indicators and evaluation criteria to allow a close and effective management and assessment of projects and results.

- Analysis of project management past experience and international best practices, and subsequent definition of recommendations and guidelines for the implementation and management of the projects in the frame of the cooperation between the European Commission and Ukraine.

The Task Force makes a decision as to which projects are presented to the European Commission for consideration to be included to an Annual Action Programme.

The SNRIU is invited to attend each of the Task Force meetings as an Observer. The Role of the Regulator at the Task Force meetings is considered to be of the highest importance in respect to understanding regulatory requirements for each specific project, together with the potential need for additional Regulatory Projects that will be required to support the implementation of deliverables from the Industrial Projects.

Following Comments of the Task Force and or Observers, the Action Fiche and its Technical Annexes are finalised by the End-User with support from JSO. The Action Fiche together with its Technical Annexes, is submitted to EC for final review and comment. Once finalised the Action Fiche is presented at the USB for endorsement.

4.3 Joint Working Group for Support to the Operator

The European Commission/Ukrainian Joint Working Group is established for the definition of a cooperation programme between the European Commission and their Ukrainian Partner (Ministry of Energy). The Joint Working Group is promoting activities of the European Commission in the area of “Support to the Operator”.

The JWG specific objectives is the development and implementation of the annual Action Programmes for the enhancement of nuclear safety in Ukraine, within the frame of INSC; the identification, planning, oversight and evaluation of INSC projects within the sector to Support the Operator.

The JWG responsibilities are includes:

- Identification of key areas for ‘Soft Nuclear Safety’ improvement considering the priorities defined in Ukrainian national programmes, Partner and End-User requirements. Evaluation and screening against criteria established by EC and their Partners
- Definition of each project need in terms of resources, and of instruments under which such resources shall be made available
- Definition of the overall time schedule for the implementation of projects and the responsibilities for their timely and satisfactory completion
- Identification of project integration and or interactions, including those intended to support the Regulatory Body, to ensure their integrated value and close cooperation of all involved parties. Such projects should be integrated for improvement of their coordination and control, where this is deemed beneficial
- Prioritization in respect of project implementation
- Definition of key performance indicators and evaluation criteria to allow close and effective management and assessment of projects and results
- Control of development and approval of INSC related project documentation (i.e. Action Fiche, Action Fiche Technical Annexes and Project Terms of Reference),

aimed at the achievement of the established objectives in the key areas, in view of including such projects in the INSC programmes

- Promotion of effective project management based upon past experience and international best practice, and subsequent preparation of recommendations and guidelines for the project implementation and management in the frame of the cooperation between the European Commission and Ukraine
- 'Oversight' of project implementation, the solving project issues and the provision of support in the mitigation of project risk as well as the evaluation of project results against agreed key performance indicators and evaluation criteria.

The Joint Working Group makes the final decision as to which projects are presented to the European Commission for consideration to be included to an Annual Action Programme.

The SNRIU is invited to attend each of the Joint Working Group meetings as an Observer. The Role of the Regulator at the Joint Working Group meetings is considered to be of the highest importance in respect to understanding regulatory requirements for each specific project, together with the potential need for additional Regulatory Projects that will be required tro support the implementation of deliverables from the Industrial Projects.

Following Comments of the Task Force and or Observers, the Action Fiche and its Technical Annexes are finalised by the End-User with support from JSO. The Action Fiche together with its Technical Annexes is submitted to EC for final review and comment. Once finalised the Action Fiche is presented at the USB for endorsement.

4.4 Ukrainian Supervisory Board for INSC

The principal objective of the Ukraine Supervisory Board (USB) for INSC is to provide a forum for the supervision of programming issues, including co-ordination and management, of the nuclear safety programme in Ukraine at a senior level.

The objective of the USB will be met by the completion of the tasks listed below:

- Examination of the status of programming and project implementation of the Annual Programmes.
- Periodical evaluations of the programmes on the basis of the reporting on the achievements of the various projects and the Programme Monitors' reports.
- Development of general recommendations for the European Commission and the Beneficiaries of the nuclear safety programme in Ukraine. These recommendations especially address the efficiency of project programming, planning, preparation, implementation and completion.
- Development of general approaches to the implementation of annual programmes.
- Consultation on issues concerning the interpretation of the provisions of the Memorandum of Understanding between Ukraine and the Commission on the implementation of the Nuclear Safety Programmes.
- Consideration of issues that may arise in the project programming phase, preparation phase, or the implementation phase of projects.

In respect of the Annual Action Programme, the USB endorses the final decision as to the projects to be included for presentation to the EU INSC Committee, the overall proposed budget for the Action Programme and all other key issues regarding the implementation of approved INSC projects within Ukraine. It should be noted, that the Action Programme remains subject to revision until the final Commission decision is made.

4.5 EU INSC Committee

The INSC Committee, which is chaired by the Commission, reviews strategies and priorities drafted during the Project Identification Stage of the INSC nuclear safety project cycle and makes comments on technical aspects on the proposed nuclear safety programmes and projects. The INSC Committee delivers an opinion on the content for each Annual Action Programme.

The final decision as to which projects are included within the Annual Action Program rests with the European Commission. This decision can be strongly influenced by the EU Member States, who are represented at the INSC Committee in Brussels.

Strategic Management

5 INSC PROJECT STRATEGIC ROAD MAP (PSRM)

5.1 Background

As called for in its Terms of Reference, the Kiev Joint Support Office (JSO) has produced a Project Strategic Road Map (PSRM) for the radwaste, decommissioning and remediation (RDR) sector. It consists of a document and accompanying Gantt chart that was written in draft in 2009 and further developed following comments from many stakeholders, including the nuclear regulator SNRIU. At the time of writing the current version is Revision 7.1 of February 2019. The PSRM is a long-term planning tool that aims to build consensus between the partners regarding the shape of the future programme.

The long-term goal of such a programme is the disposal of all existing and currently committed wastes. Committed wastes are radioactive materials that do not exist as wastes now but will inevitably be created in future. An example is the vitrified fission products that will result from the reprocessing of nuclear fuel that is currently being used. This goal – the liquidation of the current and committed liabilities - will not be achieved for several decades because of

- the magnitude and complexity of the radioactive waste management problem in the Chernobyl Exclusion Zone (CEZ);
- shortage of resources to implement a storage and disposal programme of adequate size, especially for the Chernobyl Exclusion Zone;
- currently operating nuclear power stations will cease operation over the period 2025-2049 (assuming 45-year service life and noting that the commissioned units came on line in 2004);
- a deep disposal programme will take around 30 years before a deep geological repository can be operational.

Recognising this long-time scale and the fact that some activities related to deep geological disposal are probably already overdue, the PSRM covers the period leading up to 2030.

The PSRM begins with a list of individual projects that is intended to be comprehensive: the current version has circa 90 projects and these, in outline at least, contain all the actions needed to remediate the consequences of the 1986 accident and to bring Ukraine's RAW management up to international standards. The expectation is that, as the programme moves forward, there will be greater clarity with respect to the timing, content, cost etc. of the longer-term activities and this will make it necessary to re-visit and revise the PSRM on a regular basis.

5.2 Purpose

The main purposes of the PSRM are

- To build consensus between the partners regarding the content and the timing of the future programme. The key to achieving such a consensus is a clear explanation and justification of the priorities allocated to the various projects and an important aim of the PSRM is to provide this.

- To provide stability by avoiding, so far as possible, any “surprises”. This is done through a comprehensive approach, specifically, by including all the projects that are currently thought to be needed in the approaching 10-year period. I.e. the PSRM is not simply limited to projects that are thought to be suitable for INSC funding.

- To enable a risk-based analysis of the programme that supports the examination of alternative, i.e. “what if”, strategies.

While the PSRM is maintained by the JSO, ownership rests with the Ukraine stakeholders. It should be seen as an aid to decision-making so, for example, it does not in any way replace the Task Force but aims to assist it in its deliberations on the annual programme.

5.3 Programme logic

Where possible, the PSRM takes a conventional project management approach to building the long-term programme by estimating durations and identifying interdependencies of the various projects. In this way, standard project management software can be used to calculate the sequencing (i.e. priority) of the various projects and their time of implementation. The software can also, of course, create Gantt charts, resource demand charts and so on. This approach is very powerful, but it has limitations because many of the identified projects have no strong inter-dependencies. The solution offered by the PSRM is to provide an additional means of prioritisation by dividing the programme into three phases of broadly equal duration but with diminishing urgency. The objectives of these three phases are

- The implementation of a national institutional RAW management structure and the identification of the scope of the needed disposal programmes.

- Installations or designs of installations are available for all the processes and facilities required for conditioning, storage and (for LILW) disposal of the existing and committed waste.

- A waste management system that corresponds to the international best practice where (i) mechanisms exist to enforce the “polluter pays” principle; (ii) adequate capacity exists or is planned for all current and future waste processing, storage and disposal; (iii) a deep repository programme is ongoing with a clearly defined and nationally agreed schedule.

This device allows all the various projects to be associated with one of the three objectives and produces a programme that stretches to about 2030. Using approximate cost estimates for each project, it is possible to roughly calculate the year-by-year cash demand of the programme. This suggests that affordability is likely to be an important constraint on the programme.

5.4 Coordinating Committees

There are two coordinating committees in the RDR sector. The first concerns radioactive waste management generally; the other is concerned with the management of disused sealed sources.

The radioactive waste management coordinating committee brings together representatives of all the international donors to report on project progress in the radwaste, decommissioning and remediation sector. The aim is to update members on project progress and elucidate interdependencies. Until February 2009, the radioactive waste management coordination

meeting was only concerned with work within the Chernobyl Exclusion Zone. Recognising that work in this sector also takes place in other parts of Ukraine, the remit was expanded to include this.

The sealed source coordinating committee results from a G8 initiative on preventing the spread of weapons and materials of mass destruction. Like the radioactive waste management coordinating committee, it also brings together international donors with the aim of discussing current and future work. Countries represented include Canada, EC, France, Finland Sweden, UK, Ukraine and USA. The SAMEZ makes presentation of existing and proposed projects to the Committee, with the aim of obtaining support from the various donors.

Project Lifecycle

6 INSC PROJECT LIFECYCLE

The project Lifecycle can be split into 5 key phases:

1. Project Concept Phase
2. Project Development Phase
3. Project Planning Phase
4. Project Implementation Phase
5. Project Close Out and Monitoring

The following sub sections identify the key deliverable requirements for each of the above 5 phases of the INSC Project Lifecycle.

6.1 Project Conceptual Phase

The project concept phase includes the processes of:

1. Project identification

2. End-User prioritization and acceptance for consideration in the frame of INSC

An overview of the process for “Project Identification” is provided in section 4 above. However, there are a number of issues which should be taken into consideration when defining and selecting the individual projects for INSC. These include:

- The selection of Projects must be made against certain constraints placed by both the EC and / or the Ukrainian Partner Organisations. They must comply with INSC Objectives and Partner Organisation requirements.

- They must meet the ‘spirit’ of the EC member states requirements for Human Performance and attitude towards Nuclear Safety improvement. I.e. the promotion of improved human performance and behaviours (Managerial & Staff)

- The projects will not deliver equipment other than appropriate elements of software together with the infrastructure to operate the software.

- They should address such things as training, maintenance, quality control and best operational and management practices associated with sustainable use for achieving improved safety performance over the long term.

- They must deliver sustainable transfer of capability to the End-User, based upon best international practice.

- They should demonstrate a generic approach to enhancing Nuclear Safety Issues across the whole End-User Organisation.

- They should preferably be large scale projects, which have significant positive impact Nuclear Safety

6.2 Project Development

Following the approval of a project by the End-User Coordination Committee, or as identified for development by the PSRM, it is important to ensure that the development of the project proposal is implemented appropriately. This is done through the following process:

1. Development of the Action Fiche and Technical Annexes
2. Action Fiche's approval by TF or JWG
3. Action Fiche and Technical Annexes agreed to be included within the AP by the USB
4. Opinion of the EU INSC Committee
5. EC approval of the AP and Commission Decision regarding the Financing Agreement

6.3 Project Planning

The Project Planning phase includes the development of various project documents and tools, together with the establishment of the End-User Project Team. This phase would normally commence following the decision of the Commission and approval of the Annual Action Programme by the EC. In order to optimise the EC 3-year procurement rule, which commences at the time of Programme adoption by the Ukrainian Authorities, the objective of the planning Phase is to ensure the following are prepared and approved before Programme adoption by the Ukrainian Authorities:

1. Contract Terms of Reference
2. End-User Project Quality Programme and Plan
3. End-User Draft Project Schedule
4. End-User Project Manager appointed
5. End-User Experts nominated

Completion of the above in a timely manner will facilitate the commencement of the EC Procurement Procedure at the time of Programme adoption by the Ukrainian Authorities.

A Schedule for steps 6.1 through to and inclusive of 6.3 can be found in Section 7.

6.4 Project Implementation

Project Implementation commences with the EC Procurement Procedure and completes at the time of issue of the Final Certificate to the Contractor. It is essential that the End-User works in close association with the Consultant / Contractor throughout the Implementation Phase in order to ensure appropriate and timely implementation and maximised transfer of knowledge and capability. Whilst the Consultant / Contractor will be required to implement the project, the End-User will take the responsibility for dissemination of knowledge. So, for example, in the case of a project implemented at a pilot NPP, NNEGC Energoatom would be responsible for rolling out the project to other NPPs.

6.5 Project Close-Out

Project closeout and monitoring of benefit delivered is an essential part of the project lifecycle. In respect of INSC projects, it is important that the EU Member states understand that real benefit has been delivered through implementation of the project. During post-project monitoring, the previously defined Key Performance Indicators are used as a means of measuring the benefits delivered by the project.

INSC AP Development Schedule

7 ACTION PROGRAMME DEVELOPMENT SCHEDULE

Development of Annual Action Programmes is done in line with a scheduled time frame. The schedule for development takes into consideration all durations for development of specific documentation, review and revision, together with the acceptance and approval.

The Schedule for Action Programme takes into consideration steps 1 to 3 of the Project Lifecycle:

7.1.1 November

The End-User starts the Process of project identification.

In respect of the Support to the Operator Sector, NNEGC Energoatom INSC Coordination Committee, request project proposals from within the company. In the case of the RAW, Decommissioning and Remediation Sector, there is an annual review of the PSRM. The review will look at changes in strategic requirements together with emergent requirements for new projects.

7.1.2 January

End-User finalises the list of Prioritized projects and submits it to the EC via the JSO, for information. The End-User commences the process of developing the Draft Action Fiche and Technical Annexes.

7.1.3 March

End-User presents the Draft Action Fiche and Technical Annexes to the Task Force and Joint Working Groups respectively.

It is important to note that any RAW, Decommissioning or Remediation (RDR) projects that are raised within the Operator Sector (i.e. by NNEGC Energoatom) should also be presented to the Task Force for inclusion and prioritisation for implementation under that Sector. The Task Force may decide that such Operator proposed projects are specific to the Operator Sector and therefore have no impact to the RAW Sector. Following acceptance by the Task Force or Joint Working Groups respectively, the End-User takes into consideration any comments raised and finalises the Action Fiche and Technical Annex for submission to EC.

7.1.4 April

End-Users submit the finalised Action Fiche together with its Technical Annexes to the EC for the process of review and approval.

7.1.5 April / May

End-User revises the Action Fiche and Technical Annexes according to EC Expert comments.

7.1.6 June

The USB endorses the Action Fiche, for both Sectors. The Endorsed Action Fiche forms the basis of the Annual Action Programme for the Raw and SO Sectors.

7.1.7 June

EC EuropeAid presents the Annual Action Programme to the EU INSC Committee for its opinion.

7.1.8 September

EC makes a formal decision regarding the financing and implementation of the Annual Action Programme.

7.1.9 October

EC Submits the Financing Agreement together with the Action Programme to the Ukrainian Authorities for Adoption. The process of adoption by the Ukrainian authorities normally takes up to one year.

Developing the Action Fiche

8 ACTION FICHE AND TECHNICAL ANNEX

Whilst the content of the Action Fiche and its Technical Annexes will be expanded in detail during the Planning Phase, during development of the contract TOR, significant changes to the project objectives, specific objectives, deliverables, etc as identified within the Action Fiche Technical Annexes will not be acceptable. It is therefore essential to ensure the Action Fiche Technical Annex is produced to be 100% aligned with End-User needs and INSC Programme objectives.

In order to simplify the process of project development and to ensure a standard approach to ensuring the appropriate information is included within the Action Fiche Technical Annex, the EC has approved a standard template. A blank copy of the template, together with a completed example of the Technical Annex can be found in Attachment 1 of this Guidance Document.

8.1 Developing the Action Fiche Technical Annex

8.1.1 Rules

As identified in previous sections, it is essential that the implementation of the project facilitate the transfer of maximum benefit; capability and knowledge. In order to ensure that this is achieved during project implementation, the Action Fiche and its Technical annex must include all necessary requirements, together with the strategy for achieving such transfer.

INSC projects are intended for implementation on a National basis. For the Operator Sector, this is to be achieved through the implementation of the project at a Pilot NPP, before being disseminated through the remaining NPPs and appropriate Headquarter Departments. Additionally, to the EC/Consultant contribution, the End-User will 'contribute' utilising their own Experts (from the Pilot Plant together with Experts from other NPPs as well as Headquarters) for maximising efficiency of implementation and maximum transfer of capabilities during project implementation.

In respect of Decommissioning or Remediation based projects originating from the Operator Sector, if it is decided by the Task Force to implement such projects nationally; the End-User project team should include Experts from both Beneficiaries in order to ensure appropriate implementation and dissemination. The implementation of RAW Sector projects should follow a similar approach of widespread implementation to multiple End-Users where appropriate.

8.1.2 The Technical Annex

All information established within the Action Fiche and its Technical Annex should be concise and free of ambiguity. It will be difficult for the EC to approve a Contract TOR during the Planning Phase if the information within the Action Fiche differs from that within the TOR. In this context, the Project title, Main Objective and Purpose should be kept simple but accurate in respect to what the project needs to achieve. The author should utilise the SMART approach when completing the Technical Annex i.e. objectives and KPIs should be:

SMART = Specific, Measurable, Achievable, Realistic and Timely

It is important to note that the Technical Annex should also include a description of the results to be achieved. The results should be directly related to the purpose (specific objectives) of the project.

The Technical Annex standard template, provided in Attachment 1, clearly identifies the information required. The first step in developing the Technical Annex is the responsibility of the End-User. A model (completed) Technical Annex is also provided in Attachment 1 as an example.

When completing developing the Technical Annex, the End-User should consider the following points:

The Project "U" and "T" numbers will be allocated by the EC. The following explanations of the various elements of the Technical Annex are aimed at supporting the End-User in drafting the Technical Annex. JSO will provide the End-User with the required level of support following the production of the initial draft.

- The Project Title should be concise and accurate. It should be able to describe the project accurately, but in few words.

- The End-User should implement a cost analysis in order to estimate both the EC and End-User cost to implement the project. A blank copy of the Cost Estimate template, together with a completed example can be found in Attachment 3 of this Guidance Document.

- The type of Co-Financing Arrangements

- The introduction should be concise but provide sufficient detail in order that all other stakeholders are able to understand the concept of the project without ambiguity.

- It is of the utmost importance to establish an appropriate Overall Objective. This information will be used at the time of producing the TOR and should not be changed.

- As with the Overall Objective, the Purpose/Specific Objectives will also be utilised at the time of TOR production. However, it is understood that the wording of the Specific Objectives may be revised according to the finalised and detailed set of deliverables that will be developed during the planning Phase.

- When developing the Results, the End-User Experts should utilise a high-level set of results to be achieved that can be divided into sub tasks during the Planning Phase. There should be enough detail in order to facilitate a more accurate cost estimate. The Cost estimate will also be refined in more detail during the planning Phase, but it should be noted that the overall cost estimate of the collective Action Fiche, might not be exceeded.

- The Specific Benefit of project implementation must be identified during the development of the Technical Annex. Benefit delivered by the project can be derived from the Overall Objective. As an example; if the Overall Objective is to improve reduced Reactor Trip rate during Reactor Start Up following an Outage through improved Maintenance performance. One of the key benefits could be Reduced Trip Rate due to poor or ineffective Maintenance during an Outage. The End-User should identify all key Benefits; this will further assist in the establishment of appropriate KPI.

- The End-User should identify the key target area for safety improvements, from which Benefits are to be derived from the project.

- Key Performance Indicators (KPI) and their development are detailed within section 9.

8.1.3 Action Fiche

Under normal circumstance a single Action Fiche will be establish for each sector. The Action Fiche forms the basis of Part B of the Annual Action Programme. Each Action Fiche will provide a short overview of each of the projects identified within the Technical Annexes, together with a combined budgetary requirement, associated key risks together with any other relevant information.

Once approved the Action Fiche will be the reference document for the specific sector for that year. The Commission approves the Action Fiche rather than its Technical Annexes, in this way, there is a certain flexibility in respect of the budget allocation for each of the specific projects. Whilst the overall approved budget requirements may not be increased, corrections and adjustments may be made between the individual projects at the time of Project Planning.

Project Monitoring and KPI

9 KEY PERFORMANCE INDICATORS

9.1 What are Key Performance Indicators

Project Key Performance Indicators are pre-defined quantifiable or qualitative measurements that reflect the critical success factors of the project lifecycle. When applied appropriately, Project KPI will allow project sponsors and other key stakeholders to understand the success or failure of their project investment, during each phase of the lifecycle. In some cases, the KPI can be used as a hold point to ensure readiness for progression to the next phase of the project. In respect of INSC projects, the Principal Stakeholders (European Commission and their Ukrainian Partners), need to understand the following principals of developing KPI:

- Planning Phase; Required project readiness to allow EC to commence the Procurement Procedure
- Implementation Phase; Successful project implementation in respect of Time and Quality of project deliverables
- Project Close Out and Monitoring; Successful delivery and/or application of planned Project Benefit

In order to ensure effective monitoring of project success at each phase of the project Key Performance Indicators should meet the following essential criteria:

- Be direct (no complex calculations)
- Be objective
- Be adequate but meaningful
- Be quantitative and or qualitative
- Be practical

9.2 Identification of KPI

General Principles

Companies will utilize KPI in order to establish their own performance and to analyze how they might improve their performance against competitors or peers. KPI are set at various levels within an organization against the sphere of operation and accountability. Senior managers require a high-level snapshot of a company's performance but for greater understanding of a particular high-level KPI, subordinate lower level KPI's need to be reviewed. Indicators will also vary depending on the business of the company and the sector or industry in which the Company operates. For example:

- An Electricity Generation business would want to understand the amount of energy supplied to the market over a period of time, i.e. number of TWhr per 12 months. A drop-in performance could be caused by any number of reasons, so lower level subordinate KPI of TWhr would be utilised in order

complete the analysis. Performance during outages for example, failure rate of plant following maintenance, human performance, etc, would all contribute to the final analysis.

- A social service organization may have to do more with the number of people helped out. Hospitals for example may look at the waiting time for beds, or the number of outpatients treated together with the number of revisits by patients still suffering from the same problem. They would certainly want to understand their operational costs and then apply KPI to ensure that the costs are either improved or meet the annual business plan.

- If we consider schools and colleges, in order to understand the capability of their teachers and professors, they would monitor student performance during exams. Improving student performance can result in increased market share. i.e. Parents want their children to attend the best schools.

Considering the above identified company KPI, it can be seen that before identifying KPI, we need first to understand what we are trying to achieve from the business we are in.

INSC KPI's

In respect to any INSC Project the same principles should be applied

As stated above in section 2, the INSC Programme objectives are to improve:

- Nuclear safety, in terms of regulatory framework and management of nuclear plant safety

- The safe transport, treatment and disposal of radioactive waste

- The remediation of former nuclear sites and the protection against ionising radiation given off by radioactive materials

- Emergency preparedness

- Promotion of international cooperation in the field of nuclear safety.

These of course are high level objectives, which can only be achieved through the implementation of projects with many different, but sub-ordinate objectives that contribute to the overall objective. Also, these objectives can be described as being 'desired results', which can be measured (sub-ordinate KPI's) and achieved through the implementation of INSC Projects'.

However, in order to achieve the desired results, we must apply appropriate project planning and successful project implementation.

KPI therefore can and should be applied for the primary phases of the project development:

(i) Planning Phase: - Key milestones on preparation stage

(ii) Project Implementation Phase (e.g. Project Management key milestones); - Relate to Project deliverables

(iii) Project Close Out and Monitoring Phase: Performance Benefits Delivered - Project impact on performance

9.3 Establishing KPI for INSC Projects

Using the information in Section 9.1, we understand what performance we wish to monitor, i.e. Project Planning, Project Implementation and Benefit Derived. If we then consider Section 9.2, we can see that for each of the three areas we want to apply the KPI, we need to identify what we want to achieve in each of the three areas of the Project Lifecycle.

9.3.1 Planning Phase

By considering Section 6, we can see that for the Planning Phase we need to ensure that before commencing the EC Procurement Procedure, the following needs to be established:

1. Contract Terms of Reference
2. End-User Project Quality Programme and Plan
3. End-User Draft Project Schedule
4. End-User Project Manager appointed
5. End-User Experts nominated
6. Adoption of the Financing Agreement by the Beneficiary Country

In respect to items 1 through to 5, the activities are all within the control of the Management and Experts of the End-User and EC Services responsible for implementing the planning phase. As these requirements are the same for all INSC Projects, we can identify them as the standard set of KPI for the Project Planning Phase. Dependent upon the requirements, it may be appropriate to apply delivery or target dates for the completion of each of the five activities. In some cases, additional activities and deliverable may need to be established.

In respect of Activity 6, as this is out of the control of the End-User and or EC, the adoption of the financing agreement by the Ukrainian Authorities, should be treated a Hold Point. In other words, if activities 1through 5 are completed satisfactorily to the appropriate level of quality and approved by the respective organisations, the implementation of the EC Procurement Procedure may only commence following the completion of activity 6.

9.3.2 Implementation Phase

Utilising the same basic principles as above, we can easily identify KPI for Project Implementation. In respect of INSC Projects it is a requirement that KPI are initially identified during the Development Phase (Ref Action Fiche Technical Annex). However, this does not mean that the initial KPI cannot be developed and improved through the project lifecycle.

It should be noted, that in respect to INSC Projects, whereby both the End-User and Contractor will have a responsibility for the implementation of project tasks and

activities, the KPI for project implementation should be focused on the monitoring of success across the whole project rather than one or the other party.

It is normally advisable however, to ensure that the KPI are fully understood and agreed by the Principal Stakeholders at the start of project Implementation. Therefore, developing the key performance indicators is best done during the Contract Inception Phase and agreed by all parties during the kick-off meeting. They can then be included within the Contract Inception Report and approved by the Customer. By taking such an approach, the customer (EC and End-User) is clarifying his expectations of the Project and Contract Deliverables.

Therefore, KPI should be further developed during the Contract Inception period collaboratively between the Customer and the Contractor utilising the following process:

- Carefully consider each of the KPI for Project Implementation that were initially identified and approved within the Project Action Fiche Technical Annex.
- Carefully consider each of the KPI for Project Implementation that was identified by the Contractor within his Tender Proposal.
- Carefully consider the Overall and Specific Project Objectives and desired results of the project
- Carefully Consider the Desired Project Benefit
- Carefully consider the Project Deliverables and Implementation Schedule
- Establish a set of KPI against Schedule Milestones, each identifying a requirement based on the quality of the deliverable or deliverables that are aimed at achieving the project objectives and delivering the maximised benefit
- Avoid statements that infer broad results. They should be specific
- Develop a number of possible but appropriate indicators during a short brain storming session.
- Assess each indicator against the above criteria (be direct, be objective...)
- Select the best performance indicators

It can be an iterative process: if the resulting indicators do not look too good, review what has been identified and identify improvements.

The finally accepted KPI should be presented during the Contract Kick-Off meeting and be included for approval within the Inception Report.

9.3.3 Project Close Out and Monitoring Phase/ Performance Benefits Delivered

All projects, without exception, are implemented to deliver benefits to the organisation or organisations funding the project. The benefits could range from financial gain, through to improving the environment, whereby the benefits would be more perceptive and therefore much more difficult to identify appropriate indicators.

If we consider the Objectives of INSC once more, then we can see that the desired benefits have one common goal, “Improved Safety”. In many cases this is also

difficult to identify appropriate indicators for success. However, if the initial Project Development and Planning Phases are implemented appropriately, there will be sufficient information within the Action Fiche, Technical Annex and Contract Terms of Reference, to establish appropriate KPI to measure Benefit Delivered.

As an example, if we consider the Project for the Completion of the National Training Centre for Maintenance and management at ZNPP, the overall objective of implementing the project is to:

"Enhance the safety of Ukrainian NPPs through further improvement of the training system for maintenance and management personnel of NNEGC Energoatom"

By looking at the above overall objective, then it might difficult to establish a single KPI that would indicate that the objective has been met. However, if we break this objective into more specific objectives, which by default contribute to meeting the overall objective, we can start to see how suitable KPI might be established.

As identified within the TOR of the above-mentioned Project the specific objectives are identified as follows:

"More specifically, the objective is to establish a state-of-the-art national training centre for training of NNEGC Energoatom maintenance and management personnel, to ensure":

- *Sustainable improvements in safety culture and improvement of the overall safety management capabilities of NPP personnel at all levels*
- *Sustainable and continuous improvement in the management capability of NNEGC Energoatom junior and middle management*
- *Sustainable and continuous improvement in maintenance activities with regard to NPP plant and equipment, through;*
    - *Improvement in the quality assessment system of maintenance personnel training*
    - *Improvement in the quality on maintenance works*
    - *Reduction of the period of exposure of NPP staff to ionising radiation in accordance the ALARA Principle, due to training for complex maintenance operations in realistic simulated conditions prior to execution in radiation hazardous areas*
    - *Promote the adoption of maintenance tools following the needs emerging from the training feedback from plant managers*

If we consider the more specific objectives, we can start to see that there are specific issues that can be measured, and therefore KPI can be established in order to ensure appropriate measurement.

E.g. Considering object above "Improvement in the quality on maintenance works"

Sub-ordinate KPI's can be applied:

- Maintenance Human areas failings reduced (number of errors recorded and trended) (By NPP and by NPP departments)

- Reliability improved (Trend by key equipment, running hours without a failure or number of failures/1,000 running hours)
- Average availability of key systems
- Improved predictability of failure modes and timing
- Defect back logs decreasing (trend # in backlog by type/department)
- Routine Maintenance number overdue reduced
- Number of SCRAMs reduced
- The dose rate of the staff working within hazardous areas reduced.

Of course, the above are only examples of what might be utilised as KPI for benefit delivered. The main objective with identifying suitable KPI in respect of benefit delivered is there alignment with Company goals and objectives and company KPI. It is equally important to ensure the KPI align with the five objectives of INSC.

Post AP Approval by EC

10 TERMS OF REFERENCE

10.1 Introduction

The principle purpose of the 'Terms of Reference' (TOR) under the INSC programme is to define the scope of the work under a specific project and key responsibilities of all project partners. The Terms of Reference are prepared for projects in any of the following main INSC sectors:

- *'Support to the Operator'* (SO)
- *'Radioactive Waste Management, Decommissioning and Remediation' (RWM)*
- *'Regulatory'*

TOR is primarily used for the procurement of Consultancy services from a Contracting Company with expertise relevant to the project objectives. Once the service contract is awarded, TOR is used as a guide for the project implementation, monitoring and result verification.

10.2 Principles of TOR preparation

Fundamental principles have evolved through the co-operative approach established with the Ukrainian parties, EC and the JSO.

In order to satisfy the main TOR purposes, the following principles have to be observed.

(i) As the managerial and administrative provisions of the contracts will be generic across the INSC Programmes (nationally applied), the Terms of Reference have to follow a pre-defined template including instructions, standard 'clauses and descriptions' that will generally be common for all INSC projects in all above-mentioned sectors.

(ii) Beneficiary/End Users through their Head Offices will both nominate and actively involve relevant experts at all key stages of the TOR development and project implementation.

(iii) For each particular project, the Beneficiary/End user(s) will include in the TOR template project objectives, expected results and tasks specification including deliverables according to Beneficiary/End User needs or expectations. These main project characteristics must be as determined in the Action Fiche Technical Annex documents. They have to be formulated clearly, unambiguously and be as specific as possible, without being too prescriptive. There have to be clear links and logic between the objectives, expected results and tasks going as 'the golden thread' throughout the document.

Remember: "We will only get what we ask for, so be explicit!"

(iv) A "Gap Analysis", measuring the areas for improvement against 'world best practice' should be included in the contract work scope whenever appropriate.

(v) To ensure sustainable Beneficiary's capability to use project results, the TOR must emphasize careful selection of the Beneficiary experts/personnel to be involved in project implementation, who should include the "process users" and trainers.

Note: They should be the best experts and NOT those most convenient to 'release'.

(vi) The TOR must also provide for assignment of End User personnel to continue implementation, development and verification of project results during post project phases, to ensure continued validity against changing international practices and experience (project feedback).

(vii) The TOR should be "tailored" to a specific "pilot" NPP. The pilot plant should be carefully considered and generally should be selected on the basis of being the 'lead' NPP in the project subject. This will ensure the contractor will not have to 'expend' time and money in establishing the basic principles. The projects should 'build' upon End User's good practices and established bases, if they already exist.

Please remember overloading' of one particular NPP or Department should be avoided!

(viii) The TOR has to include also a process of continuous and parallel dissemination of project result to the non-pilot plants. The dissemination should be based, wherever appropriate, on interactive 'informative and training workshops' organized by the Consultant and End-User upon completion of relevant tasks. The workshops should summarize the achievement within each particular task providing the main ideas for consideration to the non-pilot personnel and provide them with the opportunity to start preparatory work for implementation of the results at the non-pilot plants. Typically, the workshops should be attended by experts and trainers from the pilot NPP directly involved in the project implementation, by experts from relevant departments of the non-pilot plant, headquarter organization and regulatory body.

(ix) TOR must request produce Key Performance Indicators (KPI's) from Consultant, to measure 'project delivery' (project management) but also 'Performance Improvement (efficiency of the project results)'.

(x) The use of 'diagrams' and 'flow charts' is encouraged to assist the 'Tenderer' to understand more complex or unusual managerial links and interactions between various processes and individual bodies, to explain the existing processes, systems and equipment configurations, etc.

(xi) The TOR should also include:

- List of acronyms including explanations of all acronyms used in the document
- A Glossary explaining terms frequently used in the TOR that can be anyhow specific or of unclear meaning. In general, any peculiar terms should be avoided in the TOR, directly explained or and replaced by commonly used terms, if available.

The TOR must be written from the contractor's point of view bearing in mind that it should clearly explain what is expected without prescribing how to do it. Remember that the prospective contractor should have a good general background in the field but may have very little knowledge of the specific issues or the current pilot plant conditions. This especially applies to site-specific plants, NPP jargon and acronyms

In order to simplify the process of project development during, and to ensure a standard approach to ensuring the appropriate information is included within the Terms of Reference, the EC has approved a standard template. A blank copy of the template, together with a completed example can be found in Attachment 2 of this Guidance Document.

Post Contract Award

11 IMPLEMENTING THE PROJECT

Up to this point in time, we implemented the following steps:

- Identification of a project as a concept
- Developed the concept into an Action Fiche Technical Annex or Project Proposal, detailing the project outline or strategy, objectives, key deliverables, benefits, target area for improvement, KPI, etc
- Contract Terms of Reference
- Customer require schedule,
- Quality framework
- Customer's project team
- Etc

Now we are introducing a new element to the project, the Contractor. The Contractor will be responsible to deliver the project in line with requirements as specified within the Contract TOR and his interpretation of the TOR requirements that will be defined within the Annex III of his Tender Proposal.

However, the Contractors interpretation of the TOR may not be exactly the same as the interpretation of the Customer or End-User. The Contractor will commence his contract with an Inception Phase, this is the period of time whereby the End-User and Contractor should optimise discussion and understanding in order to align the Contractors understanding and the End-Users Expectations. This aligned understanding shall be presented and agreed via the Kick-Off meeting and approval of the Inception Report.

11.1 Clarification of Objectives, Scope and Deliverables

Redefining the scope and objectives, does not mean that anything should, or can be changed, but it is useful to establish appropriate discussion with the Contractor at the start of the Contract Inception Period. This period should be utilized to ensure there are no ambiguities and that the End-User Expectations can be met in full. If such discussion is not implemented, the Contractor will almost certainly implement the project exactly described within his proposal, which will almost certainly not meet Customer or End-User Expectations.

It is fully recognized that the contractor should understand what is to be delivered as his tender proposals was based on the TOR, but things can and often still go wrong.

For any project to be successful all parties involved in its delivery must understand what the project is supposed to achieve and how it will be achieved. Agreeing and fully understanding the real aims and objectives, together with End-User quality requirements and implementation schedule expectations, will help to ensure that the Contractor aligns his project implementation planning and quality framework with the needs of the End-User. This will additionally make the planning and management of the project during implementation easier for all parties.

Also, it is essential that both the Contractor and End-User fully understand on their specific responsibilities and interactions / interfaces, in respect to implementing project tasks and activities. Again, this information is specified within the TOR, but it is better to ensure full understanding of what has to be done by whom and when, than to incur delay after delay because one party has not implemented his responsibilities appropriately.

11.2 Redefining the Implementation Schedule

In addition to ensuring the alignment of Contractor Understanding with Customer Expectations during the Inception period, it is also essential that the Project Team establish an integrated schedule. i.e. a Project Implementation Schedule based on the schedule produced during the Planning Phase but taking into account the Contractors view. Again, it is not acceptable, to simply give the End-User developed schedule to the Contractor and expect him to deliver the project to time. The Contractor will have specific information in respect of the project implementation logic that was not considered by the End-User during the Planning Phase. Likewise, the Contractors implementation logic will need to take into consideration various working or operational constraints of the End-User.

When finalising the project implementation schedule, the project manager is often under pressure to produce a plan, which meets the (unrealistic) expectations of some of the stakeholders. It is essential that the project team agrees a realistic final integrated project implementation schedule with the Contractor. No one would benefit from the approval of a schedule that is unrealistic. Remember to follow the SMART principle, Sensible, Measurable, Realistic and Timely.

11.3 Quality Framework and Communication

Even the best made project plans are useless unless they have been communicated effectively to the team. Everyone on the team needs to know exactly what is expected of them, what their responsibilities are, and what they are accountable for. Project communications planning is an essential project management tool that can contribute to the success of the project.

A project communications plan consists of a simple matrix, which lists each stakeholder, their information requirements during the project, and the individuals responsible for producing that information, together with the frequency and method of communication. For example, you might identify that a key stakeholder requires a written weekly status report of project progress. This report will be produced by the project manager and will be circulated via email to the appropriate stakeholders. Project communications planning is vital to ensure that everyone concerned gets the right information at the right time from the right person.

It is often wise to consider appropriate External Project Communications in order that other stakeholders understand what the project objectives are and what it will deliver. This can be done via, company intranet, company web site, new journals, specialist magazines etc.

As part of the Contract Inception Period the Contractor is required to establish a Quality Framework for project implementation. The Quality Framework might consist of a Quality Programme with subordinate documents such as Quality Plan, Procedures, and Work Instructions etc. However, the complexity of the Quality Framework would also vary dependent upon the size and complexity of the Project.

Therefore, it is normal for the Contractor to integrate his Quality Framework with that of the End-User, which was developed during the Project Planning Phase. It is a normal requirement within INSC Service Contracts that Contractors work within a Quality Framework to the standard of ISO 9000: 2008. It is therefore a relatively simple process to ensure that the quality framework established by the Contractor is both acceptable to the standard of ISO 9000:2008, as well as being aligned with the Quality Framework of the End-User.

However, whether the Contractor requires a Quality Management Programme or simply a Project Quality Plan, it should identify process and procedures relating to all project management issues such as:

- Internal Project Communication
- External Project Communication
- Quality Procedures and Processes to be applied
- Project Team Structure
- Responsibility Matrix
- Stakeholder Management
- Progress and technical meetings
- Reporting
- etc.

11.4 Project Tracking

Once the project is underway and there is an approved Inception Report, Quality Framework and Integrated Schedule, the project will require progress monitoring. The project will require constant monitoring of actual progress against the planned progress. This will require Progress reporting by team members who are actually doing the work. Any variations between the actual and planned schedule and scope will need to be recorded. It is normal that such information is reported during a frequently held Project Progress Meeting, whereby in addition to reporting the delays or deviations, the Project Team are able to discuss and implement appropriate solutions.

Consistent and lengthening delays are a sign that the project is failing to be implemented as planned. The root cause of the delays could be numerous or one single issue that is preventing progress. Without the appropriate tools and information (Progress Reporting and Communication), it would be impossible to mitigate or recover lost time.

In many projects we find that the project manager is constantly juggling numerous issues at the same time. The utilisation of perfect planning together with application of the appropriate project management tools and resources minimises the number of issues being juggled at any one time.

11.5 Change management

All projects change in some way and managing changes is as essential in a project as it is within a business. Often, a key stakeholder in the middle of a project will change their mind about what the project needs to deliver. On projects of longer

duration, as the business and technical environment has often changed since the start of the project. It is essential to resist any such change, as accepting the change in scope will result in delay and overspend.

However, is some cases assumptions made at the beginning of a project may no longer be valid at some time during project implementation. This often results in the scope or deliverables of the project needing to be changed. If a project manager simply accepted all of these changes into the project, the project would inevitably be delivered late (and in the case of large-scale equipment projects, it would perhaps would never ever be completed) and would inevitably go over budget.

By managing changes, the project manager can make decisions about whether or not to incorporate the changes immediately or in the future, or to reject them. This increases the chances of project success because the project manager controls how the changes are incorporated, can plan when and how the changes are made, and can allocate resources accordingly. Not managing changes effectively is often cited as a major reason why projects fail.

11.6 Risk management

Risks are any events, which can adversely affect the successful outcome of the project. Projects risks included: staff lacking the technical skills to perform the work properly, hardware not being delivered on time, risk of resources not being made available and many others. Risks will vary from project to project but it is important to identify the key risks to a project as soon as possible and to plan the actions necessary to avoid the risk, or, if the risk cannot be avoided, to at least mitigate the risk in order to lessen its impact if it does occur. This is what is known as risk management.

Do you manage all risks? No, because there could be too many to manage, and not all risks have the same impact. So a simple way is to identify as many risks as you can, estimate the likelihood of each risk occurring on a predefined scale (say 1 to 3; 3 being the worst case), estimate its impact on the project on a predefined scale (say 1 to 3 ; 3 being the worst case), then multiply the two numbers together. The result is the risk weighting. A high-risk weighting is the most severe risk. It is important that the higher weighted risks are managed appropriately. Constantly review the risks and constantly be on the lookout for new risks since they have a habit of jumping up at unforeseen moments.

Not managing risks effectively is also often cited as a major reason why projects fail.

11.7 Project Stakeholders

Understanding who the key stakeholders are is also crucial if you are going to enlist their support and understand what each person expects to be delivered from the project. Once you've defined the scope and objectives, you will need to get the stakeholders to review them and agree to them or in some cases ask for their opinion. In the case of INSC Projects in Ukraine, one such Key Stakeholder for many projects would be the SNRIU. Involving the Regulator at the earliest opportunity in the project is essential. Over the years, whilst the Regulator remains independent due to their role in licensing and inspection of nuclear installations, early involvement of the SNRIU in the project as an observer, has facilitated timely approvals of design documentation and licensing.