

## **INSSP CONTRIBUTES TO STRENGTHENING NUCLEAR SECURITY REGIME AS SUDAN CASE STUDY**

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### **ABSTRACT:**

The overall objectives of an Integrated Nuclear Security Support Plan (INSSP) are to identify and consolidate the nuclear security needs of an individual State into an integrated document that includes the necessary nuclear security improvements, as well as to provide a customized framework for coordinating and implementing nuclear security activities conducted by the State, the IAEA and potential donors. The INSSP is designed to identify actions required to ensure that a State's national nuclear security regime is effective and sustainable, based on IAEA nuclear security guidance.

The purpose of the paper is intended to provide a information regarding all activities being undertaken, or planned to be undertaken, by Sudan which has the objective of enhancing nuclear security regime and Maximize Benefits from Integrated Nuclear Security Support Plans (INSSP) Implementation , Sudan has worked using the INSSP mechanism to improve the nuclear security regime in generally recognized as distinct functional areas in the field of nuclear security that aim to protect against nuclear terrorism: 1) Legal and Regulatory Framework;2) Threat and Risk Assessment; 3) Physical Protection Regime; 4) Detection of Criminal and other unauthorized acts involving material out of regulatory control ; 5) Response to nuclear security events; and 6)Sustaining a Sudan 's nuclear security regime. And how Sudanese Stakeholders coordination and collaboration to implementation INSSP.

### **1. INTRODUCTION:**

The IAEA-developed Integrated Nuclear Security Support Plan (INSSP) provides States, upon request, with a systematic and comprehensive framework for reviewing their nuclear security regimes and identifying areas where they need to be strengthened. The Plans also highlight any assistance needed to support the development of an effective and sustainable nuclear security REGIME. Sudan formal requested IAEA in 2014 and in same years had Meeting in Khartoum then officially approved 2015 reviewed with implementation plan to covered period 2017- third review at 2017 to covered 2017- 2020 Together with the IAEA, Sudan consolidates its prioritized nuclear security needs into an INSSP. In

addition, other information gathered during IAEA technical visits and expert missions can contribute to the plans.

The INSSP mechanism's systematized and graded approach aims to maximize the impact of any interventions and help Sudan ensure that their efforts in strengthening their nuclear security regime will be sustained over time. The Plans include all needs, irrespective of how they are to be fulfilled. The INSSP enables the Sudan concerned, the IAEA and other entities willing to provide nuclear security assistance to plan and coordinate activities from both a technical and a financial point of view. This optimizes the use of resources and reduces the risk for duplication. Furthermore, it aids States in preparing and implementing necessary nuclear security improvements. A typical INSSP presents six functional areas of work related to nuclear security;

### **1. Legislative and regulatory framework:**

Sudan established independent Regulatory Body according to nuclear act 2017 nuclear and Radiological Regulatory Control Act 2017 it's become into force as of the date of signature (juneury 2017) this Act shall be apply safety , security and safeguards for all the facilities nuclear material ,radiation sources and all the activities of peaceful uses of Nuclear energy and Radiological technology in Sudan in additional to that the Act 2017 established authority called the Sudanese Nuclear and Radiological Regulatory Authority which it effectively independent from the institutions promoting to nuclear and radiation technologies , the authority shall be the focal point authorized by the state regarding implementing of international and regional convention , treaties and protocols having connection with security and safety and safeguards this the appoint nominate the Sudanese Nuclear and Radiological Regulatory Authority as point of contact for INSSP with IAEA. One of the function and power of authority take the necessary measures to implementation the provision of Act , regulations , standards and technical guides , Sudanese Nuclear regulatory authority draft two regulation regards of Nuclear Security first one security of Radioactive material( during transport , used , storage ) second one its physical Protection for nuclear material and facilities including transport of Nuclear material both of regulation review and revise by expertise from IAEA through the INSSP implementation action plan . after approved of regulation of Security of Radioactive material become into force and the requirement of the regulation became part of authorization and license INSSP implementation plan Sudan participating in regional and international regards to authorization and inspection enforcement in additional to that Sudan planed to have national workshop for physical Protection regulation for final review with engagement all the relevant stockholders.

#### **a. Threat assessment and risk:**

Normally Sudan Identifying strategic and sensitive locations of combat illicit trafficking of nuclear material long transmit by road ,social challenges ,nuclear and other radioactive material are widely used in regional instability , Sudan has building detection capabilities at entry point detect currently No threat assessment in place but nuclear Act 2017 according to function and power of the Sudanese Nuclear and Radiological Regulatory Authority coordination with relevant competent authorities implementing the emergency preparedness , response and early warning plans at domestic level in anticipation to any potential radiological exposure as any arise from a source inside the state , trans- boundary or from orphan or smuggled sources or from accidents , to care out the threat assessment and risk informed from relevant competent authorities in Sudan starting through INSSP capacity Building for different in stakeholders by regional and national training course on threat assessment and DBT and threat assessment and risk informed of Nuclear and other radioactive material out of regulatory control , continues to achieved that established executive committee to conducting threat assessment analysis .general secretariat of SNRRA in cooperation with the relevant bodies and stakeholders lay down , monitor and update threat assessment:

**b. Physical protection regime:**

Specific the requirement pertaining to physical protection of Nuclear and other radioactive materials including the classification of nuclear radioactive materials , necessary protection measures , accounting and control measures , authorization requirements and proceedings and inspection measures and the proceedings in case of non-compliance with the regulations or the authorization conditions to maintain physical protection regime INSSP assistance in field of physical protection regime facilitate adherence to specific treaties by arise awareness for high level government revise and review physical protection for nuclear material and facilities and capacity building of human resource development through Sudan participate in regional and international training ,workshops related to physical protection regime , as Sudan embarking Country for nuclear power program with cooperation with IAEA through INSSP providing specific implementation plan to enhance and improve physical protection regime .Sudan Received assessment mission to upgrade physical protection at national waste facilities operation by Sudan Atomic energy commission

**c. Detection of criminal and unauthorized acts involving material out of regulatory control:**

Detection of Nuclear and other radioactive materials out of regulatory control is a complex issue requiring the cooperation of several entities organizations taking this into account the nuclear Act 2017 gave the mandate to implements legal provision on nuclear security to SNRRA in coordination with relevant authorities , through INSSP Implementation plan establishment of Nuclear Security Detection Architecture Sudan (NSDA) objectives of the project

assessment mission for development and sustainable national nuclear security detection capabilities mission to Sudan ,To understand the existing legal and legislative framework including its ability to adhere international instruments relate to nuclear security ( detection -response )to unauthorized acts involving nuclear and other radioactive material , Identify currently status and needs for development an effective comprehensive detection systems and measure for Sudan in additional to that assess measure related to the security of Radioactive sources and activities ,facilities in preventing for material going outside of regulatory control .through the project identify role and responsibilities each stakeholders involving in detection architecture , assessment of threat and risk by determination of the strategy to design the architecture , determine necessary additional nuclear security systems and measurement , determine the instrument deployment plan , determine the human resource plan , implement human resources plan , descript concept of operation for detection , standard operation procedure . this project considering successful because provide forms for coordination among all involved competent authorities in Sudan in pillar with implementing the project through INSSP Sudan participate in regional and international training course related to detection and response .

**d. Response to criminal and unauthorized acts including material out of regulatory control:**

Sudanese Nuclear Act 2017 as comprehensive law considered emergency preparedness and response and lay down through regulations or authorization conditions , the response to criminal acts including out of regulatory control needs to involving multi agency and national framework for response to nuclear security events with role and responsibilities each competent authority and scenarios suspects , response its take parity in INSSP implementing plan achievement Table Top Exercise to test the higher – level command functions such as plan activation and implementation , command decision – making , communications or coordination of response also focus on how the different response agencies , together with appropriate technical support agencies , communication and coordination their ongoing response to ensure that its effective in additional to the protect sensitive information and managed shared between agencies .the Second part of response nuclear Forensics and crime scene management its provider insight into the origin and history of this material its scientific support methodology to ensure that evidence any criminal investigation is secure Sudan being considered capacity building for Sudan general administration of forensic evidence through implementation plan starting by assessment and analysis existing capabilities in forensic laboratory then national workshop orientation on nuclear Forensics hosting in IAEA Headquarter for expertise from General Administration of forensics (Sudan) the workshop give them guideline to how to start and what the gaps need to fill it through INSSP implementing plan will continue to improving the capabilities of national framework response to nuclear

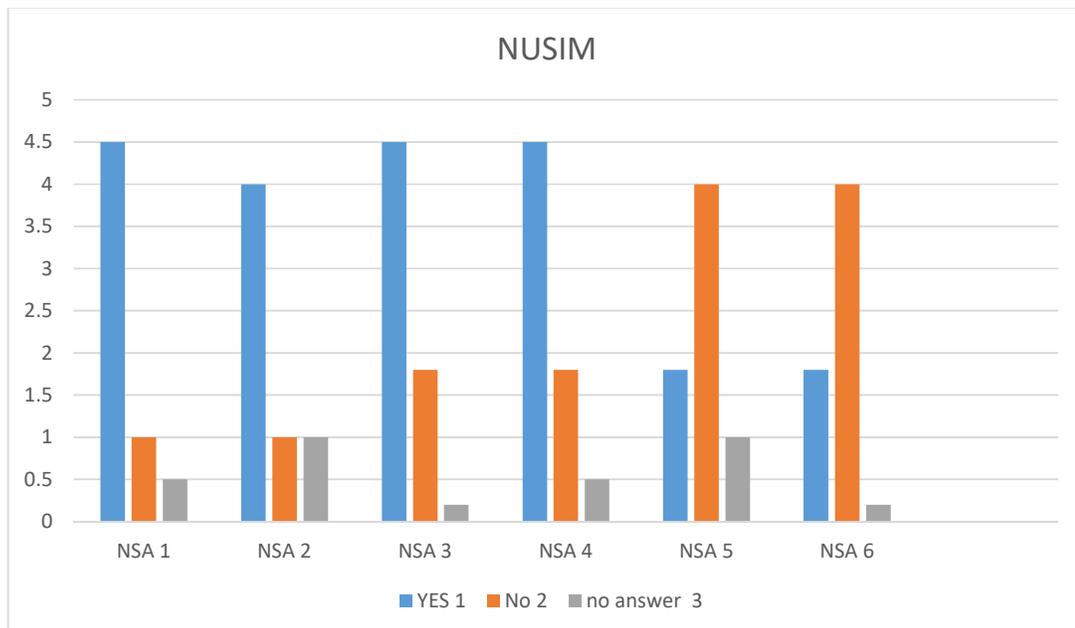
security events .

**e. Sustainable nuclear security regime:**

An important component of such sustainability for Sudan to have a sufficient number of well -educated and trained staff with right competence , skill and security culture to advance and maintain nuclear security across many different disciplines Sudan establishment Sudan established nuclear security support centre as decentralized share the exciting capabilities with different competent authorities for optimization the resources for human resource development the main priority then providing scientific support and later technical support INSSP have been created support efforts to development nuclear security training and educations through the international nuclear security support centre and International nuclear security education network through the INSSP Consultant Meeting on Establishment and Operating Nuclear Security Support Centre Sudan hosted this meeting in IAEA headquarter outcome of meeting Sudan applied Tecdoc1713 new version its very help full.

**f. Evaluation INSSP implementation:**

In Sudan vulnerability assessments are performed, according to NUSIMS is a web-based platform designed to provide Member States and the IAEA with secure means to aggregate and analyse country-specific nuclear security related information, to assist in identifying improvements, needs and priorities in their national nuclear security regimes. And to track progress, and assists with the planning of future activities in a holistic and coordinated manner.



**g. Conclusions and Future Challenges:**

Efforts are being made by IAEA through INSSP to contribute strengthening nuclear security regime, by offered to share experience in review legislative framework and regulation for nuclear security including raise awareness for senior decision markers for ratification of key international instruments related to nuclear security.

Key of successful of contribute INSSP to strengthening nuclear security regime for states its Commitment of government, Communication and coordination among different competent authorities, role and responsibilities should be very clarify and continuous and improvement in additional to coordination and fellow up between a point of contact from the states and INSSP officer (IAEA) .

It is believed that this study will provide basis to future actions under the INSSP scope to perform changes in the current Nuclear Security Regime in Sudan.

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