Establishment of Assessment Software for Nuclear Forensics Signatures to Deter Unauthorized Activities Involving Nuclear and Radioactive Materials in Thailand

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รายละเอียดสรุป
Nuclear forensics assessment software is used to respond to nuclear security incidents in Thailand. This project is one of the procedures aimed at increasing nuclear forensics capability. The software was created to fill the gap from the post-evaluation of the field exercise, as competent authorities could not obtain critical information quickly enough to manage the situation. The project goal is to create assessment software for evaluating suspect samples by acquiring the necessary components in terms of safety, security, and safeguards to respond to malicious activity immediately.
Furthermore, the software is a critical component in the capacity building of national nuclear forensics, particularly in assisting nuclear forensics staff in linking data from crime scenes to nuclear and other radioactive materials signatures for further investigation. As a result of the outcomes, the authority can identify information about nuclear and radioactive material rapidly. The software concept idea is to integrate all critical data of safety, security, and safeguards for supporting first responders, frontline officers, nuclear security networks, and nuclear forensics staff in effectively managing the nuclear security event.

Nuclear and other radioactive materials are used in alarming quantities, posing a threat to public health, safety, and national security. Radioactive materials can be found in a variety of forms that are highly vulnerable to theft, including those used in industry, medicine, research, and development. Nuclear materials are also monitored because they have the potential to be used to create a weapon of mass destruction. Even small amounts of plutonium and highly enriched uranium pose a threat to the Improvised Nuclear Device. Consequently, the nuclear and other radioactive materials have been chosen as sensitive materials: Am-241, Co-60, Cs-137, Ir-192, Pu, U-235, U-238, Depleted uranium, and Thorium. As a result, the assessment program can provide the necessary data to respond to material that is not under regulatory control, such as answering questions about nuclear and other radioactive material types, major radionuclides, category, and origin, as well as whether the materials are subject to illicit trafficking and violations of the law.

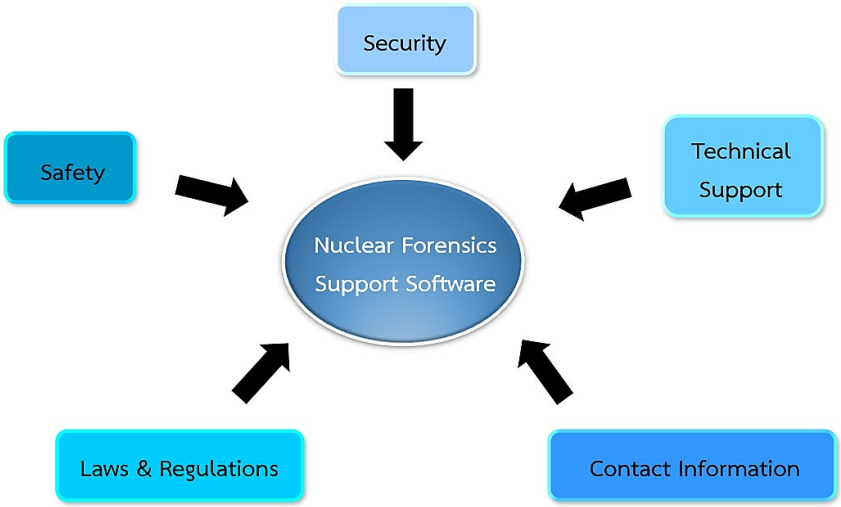

Fig. 1. Architecture of nuclear forensics support software.

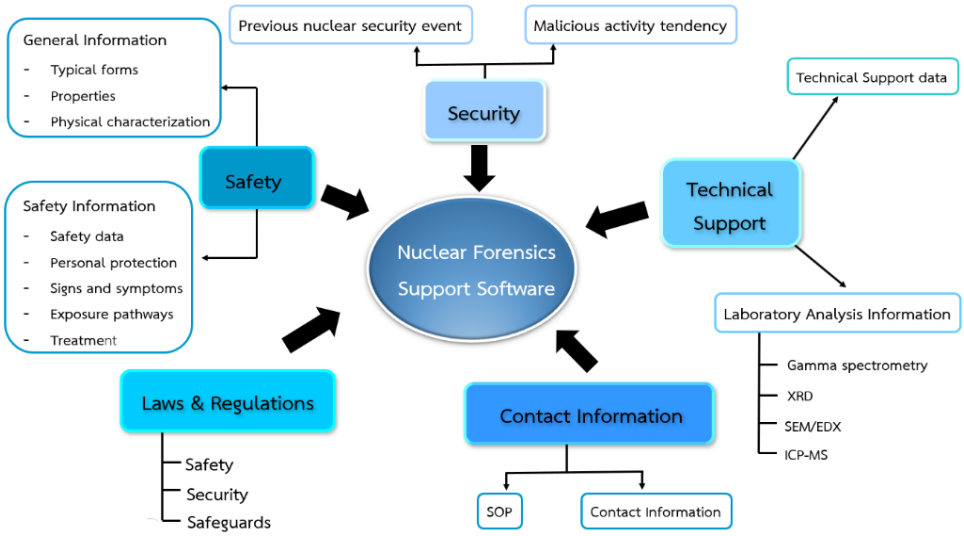

Fig.2. Architecture of nuclear forensics support software is described in detail.