BRIN
BADAN RISET
DAN INOVASI NASIONAL

JIFAS

JAKARTA INITIATIVE FOR ASEAN ON FOSTERING SEAMLESS COLLABORATION ON STI

INDONESIA IS READY TO BECOME A HUB FOR RESEARCH COLLABORATION IN ASEAN

JIFAS

In line with the theme of the ASEAN Leaders' Summit 2025, "Inclusivity and Sustainability," as outlined in the Chair's Statement of the 45th ASEAN Summit held in Kuala Lumpur, Malaysia, on 26 May 2025, the ASEAN Committee on Science, Technology, and Innovation (COSTI) reaffirms its strong commitment to advancing collaboration in STI to promote inclusivity and sustainability across the region. This commitment is reflected in the establishment of structured mechanism that facilitate cross-border collaboration, talent mobility, and knowledge exchange. These collaborations empower ASEAN Member States to leverage shared expertise and an integrated research framework.

As a concrete contribution, Indonesia offers Jakarta Initiative for ASEAN on Fostering Seamless Collaboration on Science, Technology, and Innovation (STI), known as JIFAS. JIFAS contains nine research collaboration platforms accessible to AMS and ASEAN partners.

In line with the ASEAN spirit, these platforms have been incorporated into the ASEAN Plan of Action on Science, Technology, and Innovation (APASTI) 2026–2035. They are designed to strengthen engagement among academia, research institutions, the private sectors, and international knowledge networks, thereby reinforcing regional cooperation in STI.

By fostering talent mobility and funding scheme support, Indonesia is ready to become a Hub for research collaboration that enhance scientific excellence and drive sustainable innovation throughout ASEAN.

Maritime Expedition using BRIN Fleet of Research Vessel

Rationale:
Indonesia is the world's largest archipelagic country, comprising 75% of the ocean and 17,500 islands, with a coastline of 108,000 km; nevertheless. Indonesia's oceans, which are rich in biodiversity and geodiversity, have not yet been fully explored, particularly the deep sea. This collaborative platform aims to provide inclusive access to research vessel for Indonesian researchers, professors, student and their global partners to promote marine scientific research and exploration activities for sustainable use of marine resources in Indonesia waters and Exclusive Economic Zone.

Goals:
- Accelerating the development of research and innovation in the marine sector through the facilitation of research vessel infrastructure, funding support for human resource development (capacity building), and sustainable research financing.
- Enhancing marine research capacity by strengthening networks and research collaborations with international research partners.
- Building a knowledge management system in the field of marine biological resources and geology of Indonesian waters, as a sustainable national marine scientific data source for all relevant stakeholders.
- Educating and training the younger generation as marine and ocean researchers through the utilization of degree-by-research schemes, invited professors, and invited researchers. For technicians, operators, and research vessel fleet management personnel, tailored training and internship schemes are prepared in collaboration with global research vessel management institutions/organizations.

Scope of research, development, and collaborative initiatives:
Joint sailing, data acquisition, collecting sample.

Location:
Indonesian waters and Exclusive Economic Zone.

Deliverables:
Sailing using BRIN research vessel, high impact journal, intellectual property rights, data and sample.

Quota:
10 visiting researcher,
20 Post Doc,
20 Degree by research for ASEAN Member States

Collection, Characterization, and Pre-Breeding of Indonesian Wild Banana

Rationale:

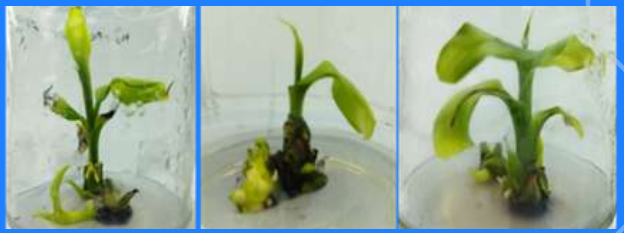
- Bananas are important source of food in many countries.
- Banana production harvests all year round and provides steady food supply despite extreme weather conditions.
- Indonesia has the best variety of bananas in the world, both cultivated and wild.
- Wild bananas seeds have genetic diversity that can be passed on, so they can be used for banana breeding.

Goals:

- Generate technological novelty and other scientific outcomes related to banana collection, characterization, and pre-breeding.
- Address challenges in banana genetic improvement through a redesigned breeding framework, encompassing collection, characterization, and pre-breeding, to strengthen its role as a staple food.

Deliverables:

- Banana Parents (BBTV-FOC Resistance, Superior Bunch and Parthenocarpy, Drought Resistance, High Quality and Nutrition)
- Publications,
- IPR,
- MTA SOPs



Location:

Sumatera, Jawa, Kalimantan, Nusa Tenggara Timur, Sulawesi and Papua.

Quota:

24 PhD and Master's students, 5 overseas visiting researchers and 5 Indonesian visiting researcher

Decommissioning and revitalization of nuclear facilities for medical and industry application at BRIN

Rationale:
The urgent need to develop technologies for the recovery of two key BRIN nuclear facilities, the RSG-GAS research reactor and the radioisotope/radiopharmaceutical (RIRF) production facilities (Buildings 10/13), is a strategic priority to restore domestic isotope supply and research capacity. RSG-GAS faces ageing and fuel-element supply constraints, while the RIRF production line was halted due to high radioactive contamination. This program targets the safe operational revitalization of safety, security, and safeguards (3S), a sustainable RIRF supply, and strengthened national–ASEAN collaboration for health, industry, and research capacity building.

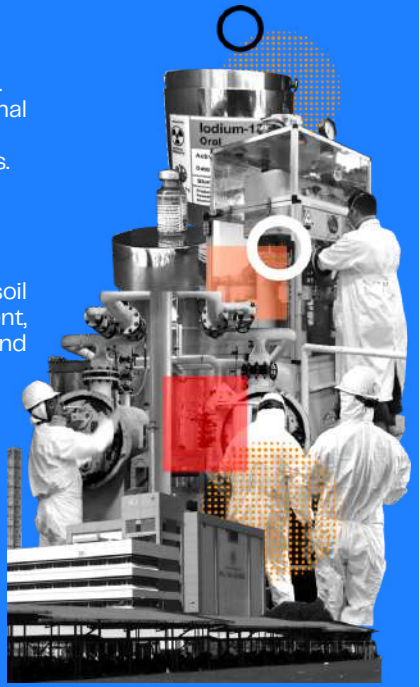
Goals:
- Revitalize and optimize utilization of RSG-GAS.
- Decontaminate RIRF production facilities to meet clearance standard and prepare for revitalization.
- Improve efficiency/capacity for I-131 and Mo-99/Tc-99m production and develop additional isotopes (Lu-177, Sm-153, Sc-46, P-32, Au-198, Ho-166).
- Manage radioactive waste (legacy and secondary) and conduct long-term storage/ disposal studies.
- Revitalize the nuclear fuel fabrication facility (IPEBRR) to support RSG-GAS.
- Strengthen human resources, partnerships, and digital safety/instrumentation systems.

Scope of research, development, and collaborative initiatives:
Decontamination and dismantling; radiological survey and characterization; waste management and soil remediation; RSG-GAS upgrades (flux optimization, digital RPS/I&C, HVAC, ageing management, radiation protection, neutron-beam user facilities); IPEBRR recovery and fuel-bundle fabrication; R&D and optimization of priority isotope production; training, internships, and partner engagement

Location:
KST BJ Habibie, Serpong: RSG-GAS, Buildings 10 & 13 (RIRF), Building 60 (IPEBRR). Long-term storage/disposal site study: Tulang Bawang, Lampung

Deliverables:
Year 1 : 18 journal papers (submitted); 6 Intellectual Properties/IPs (filed)
Year 2 : 18 journal papers (published) + 18 (submitted); 6 IPs (registered) + 6 (filed)
Year 3 : 18 journal papers (published) + 18 (submitted); 6 IPs (registered) + 6 (filed)

Quota:
~30 core researchers across BRIN/universities/industry; internship/RA/DBR opportunities for ~60 participants over the program both for national and ASEAN-member



Archeological Excavation of Bumiayu and North Serayu Mountain

Rationale:
The Bumiayu excavation site in Indonesia holds significant archaeological importance due to its rich historical and cultural findings. It provides valuable insights into ancient human settlements and their interaction with the environment. Since the site was considered the eastern shore of Asian peninsula during the pre-historic age, the site serves as a window into the past, helping us to explore the roots of Bumiayu's cultural identity and its significance in the broader historical narrative, in particular with the establishment of South-East Asian earlier kingdom.

However, many ancient sites around the world hold significance in this field because they reveal how early civilizations observed and interpreted celestial phenomena. As part of ASEAN country, Indonesia is open to study whether Bumiayu has any connections to archaeo-astronomy, it might involve alignments of structures or artifacts that reflect an understanding of astronomical events. This open the opportunity to study relation between tangible objects, like remain of temple and megalithic structure, with nature (celestial objects) need to be studied further.

Goals:
Exploring the Bumiayu site for finding evidence of earlier civilization landmark, specifically using astronomy method.

Scope of research, development, and collaborative initiatives:
Site excavating, expert exchange, and data processing workshop.

Quota:
6-12 PhD and Master's students.
6-12 visiting researchers.

Time Domain Astrophysics

Location:
Indonesia new astronomy optical observatory in Timor island (Timau National Observatory, BRIN)

Deliverables:
Utilization of optical facility of 380 cm telescope in Timau, and other researcher mobility among ASEAN Member State and ASEAN partners under the framework of SEAAN (South East Asian Astronomy Network).

Quota:
5 Visiting Researchers, 1 postdoc, and 3 Degree by Research for SEAAN member state.

Rationale:
This research collaboration provide network of optical telescope for smaller enterprise, better observation yields more transient objects, modern instrumentations for multi messenger science, driving for big data piling, and faster response toward automatization.

Goals:
- Developing science network of 3.8 meter optical telescope,, new emerging observation with telescope less than 1 meter and other new facility beyond optical spectrum.
- Sharing large amount of data and expertise, as well as discovery of new occurrence with time constraint (fast transient phenomenon).
- Addressing issue of satellite constellation which affect astronomy observation and the system need to support Space Situational Awareness (SSA) in Southeast Asia region.

Scope of research, development, and collaborative initiatives:
Sharing facility and join research and development, expert exchange, and data processing workshop.

The Indonesian Biodiversity Structural Biology

Rationale:
Indonesia has an incredibly high level of biodiversity including plant, animal, and microorganism, with many species remaining unidentified and uncharacterized. Structural biology is a field of science that studies the structure and function of biomolecules, such as proteins, nucleic acids, and lipids.

By understanding the structure and function of biomolecules, we can develop drugs, vaccines, and other technologies that can improve the quality of life for communities. By establishing a structural biology platform in Indonesia, BRIN aims to make significant contributions to the development of science and technology in Indonesia and improve the quality of life in the region.

CRYO-ELECTRON MICROSCOPY

Goals:
To develop structural biology research capabilities using Cryo-EM in Indonesia, to enhance international networking in structural biology, and to cultivate young scientists in structural biology.

Scope of research, development, and collaborative initiatives:
Sharing infrastructure, joint research, and exchange training program (knowledge and technology).

Location:
Genomic Building, 1st Floor. KST Dr. (HC). Ir. Soekarno
Jl. Raya Bogor KM 46, Cibinong, 16911. West Java, Indonesia

Deliverables:
Workshop 1. Protein purification techniques
Workshop 2. Cryo-EM data processing methods

Terrestrial Geological Expedition for Geohazard Mitigation

Rationale:
The geological and tectonic setting of Indonesia lead to high potential for geological risk. However, geohazard data scarcity is major issues which lead to lack of understanding the geohazard mechanism and ineffective preventive strategies. Therefore, it is necessary to conduct comprehensive exploration on geohazard in Java Island to provide a comprehensive data of geohazard source and mechanism.

Goals:
- To develop a comprehensive understanding of geohazard sources and mechanism in Java Island.
- To strengthen research collaboration with researchers from ASEAN members and partners.
- To enhance young scientist expertise in the geological hazard mapping research.

Deliverables:
- Joint geohazard expedition in central region of Java Island (Dec 2025 – Nov 2027).
- Scientific data and specimen collections related to geohazard (Dec 2025 – Nov 2027).
- Joint research publications in a high-impact journal.

Scope:
- Joint geological expedition in Java Islands (expert exchanges, and field training program
- Joint project seminar/ workshop.

Location:
West Jawa – 2026; and East Jawa – 2027.

Quota:
4 Visiting Researcher, 4 Post Doctoral, 10 Degree by Research for ASEAN Member States and partners.

Terrestrial Biodiversity Expedition and Exploration

Rationale:

- The Indonesian region has a very high level of seismic and volcanic activities because it is situated in the boundary area where three major tectonic plates converge, so that the Indonesian region is prone to earthquakes, volcano eruption, and also geological collateral hazards, such as tsunamis and landslides.
- Geological hazard related data such as earthquake sources, return periods of earthquake, tsunami and volcano activities) are still minimally available in Indonesia so leading to a lack of understanding of the geohazard mechanism and ineffective mitigation strategies (incl. prediction and early warning system).
- Thus, conducting a geological hazards expedition in the region will provide comprehensive geohazard data required to develop a better mitigation strategies in the region

Goals:

- To develop a comprehensive understanding of geohazard sources and mechanism in Java Island,
- To strengthen research collaboration with BRICS members, and (3) to enhance research capabilities of young scientist in the geological hazard mapping.

Deliverables:

- Joint geohazard expedition in central region of Java Island (July to October 2025).
- Joint research publications in a high-impact journal (end of semester II 2025).
- Scientific data and specimen collections related to geohazard (end of semester II 2025).

Potential Collaboration:

Visiting Professor, Visiting Researcher, Post Doctoral, Degree by Research Scholarship (Master and PhD), On-site Training.

Quota:

10 Participants

Scope of research, development, and collaborative initiatives:

- Joint geological expedition in Java Islands (expert exchanges, and field training program)
- Joint project seminar/ workshop.

Locus of Expedition:

Central Regions of Java Island

Accelerator Technology for Industry and Medical

Rationale:

- Accelerators are machines that use electromagnetic fields to accelerate charged particles and to focus them in beams. They are mainly used for industrial and medical applications.
- Beams can interact with the atoms of a target material — for example, to make the material more durable.
- Beams are used to sterilize medical equipment and produce radioisotopes required to synthesize radiopharmaceuticals for cancer diagnosis and therapy. Large accelerators can destroy cancer cells, reveal the structure of proteins and viruses, and optimize vaccines and new drugs.

Goals:

It's critical for medical and industrial innovation. The collaboration platform focuses on:

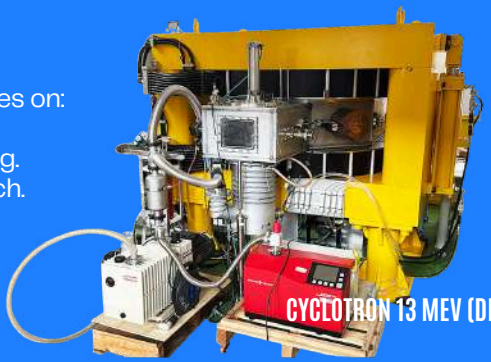
- Advancing medical radioisotope production for diagnostics and therapy.
- Enhancing proton beam applications in industrial research and material testing.
- Leveraging global partnerships and infrastructure for groundbreaking research.

Scope of research, development, and collaborative initiatives:

- Accelerator Technology Development
- Cyclotron Design and Applications (13 MeV, 30 MeV)
- Radioisotope Technology for Medical Applications
- Development of Fluorine-18 for PET Scans
- Utilization of Proton Beams for Industrial Applications
- Proton Activation Analysis (PAA) and Proton Irradiation Testing (PIT)

Quota:

- 10 Postdoctoral
- 5 visiting researcher



CYCLOTRON 13 MEV (DECY-13)

CYCLOTRON CS-30

CYCLOTRON 30 MEV (SCARLA)

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Additional information and opportunities for collaboration are available online–simply scan the QR code to visit our program site