



INSTITUTE OF ADVANCED STUDY IN SCIENCE AND TECHNOLOGY
(AN AUTONOMOUS INSTITUTE UNDER THE DEPARTMENT OF SCIENCE AND TECHNOLOGY, GOVT. OF INDIA)
PASCHIM BORAGAON, GARCHUK
GUWAHATI- 781035

Minutes of the fifteenth meeting of the Scientific Advisory Council (SAC) of the Institute of Advanced Study in Science and Technology held during 11th to 12th February 2025 in the conference room of IASST and online (hybrid mode)

Members present:

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| 1. Prof. Amitava Patra, Director, INST, Mohali | Chairman |
| 2. Prof. Sandeep Verma, Department of Chemistry, IIT, Kanpur | Member |
| 3. Prof. Amita Das, Department of Physics, IIT, Delhi | Member |
| 4. Prof. Durga Charan Dalal, Department of Mathematics, IIT, Guwahati | Member |
| 5. Prof. Sanjay M. Jachak, NIPER, Mohali | Member |
| 6. Prof. Sridevi Annapurna Singh, Director, CFTRI, Mysuru | Member |
| 7. Prof. K. Dharmalingam
Director-Research, Aravind Medical Research Foundation, Madurai & DBT
Distinguished Biotechnology Research Professor | Member |
| 8. Prof. Sudip Chattopadhyay, National Institute of Technology, Durgapur | Member |
| 9. Prof. Srimonti Sarkar, Bose Institute, Kolkata | Member |
| 10. Prof. A. K. Mukherjee, Director, IASST | Member |
| 11. Prof. M. R. Khan, Head, Life Sciences Division, IASST | Member |
| 12. Prof. D. Chowdhury, Head, Physical Sciences Division, IASST | Member |
| 13. Prof. M. B. Sahariah, Head, R & D, IASST | Member |
| 14. Prof. Arup Ratan Pal, PSD, IASST | Member Secretary |

Leave of absentia granted to:

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| 1. Prof. Arindam Ghosh, Indian Institute of Science, Bangalore | Member |
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Arup Ratan Pal

Arup Ratan Pal

AGENDA ITEM NO. 1: Welcome addressed by the Director, IASST

At the outset of the meeting, Prof. A. K. Mukherjee, Director of IASST, extended a warm welcome to Prof. Amitava Patra, Chairman, along with the other distinguished members of the Scientific Advisory Council (SAC) of IASST. Professor Mukherjee subsequently invited Professor Patra, Chairman of the SAC, to deliver his opening remarks.

AGENDA ITEM NO. 2: Opening remarks by Prof. Amitava Patra, Chairman, SAC, IASST

In his introductory statements, the Chairman of the SAC, Prof. Amitava Patra, extended a warm welcome to all SAC members and the faculty of IASST. He proposed the preparation of a brochure detailing the various types of work being conducted at the Institute, which would be distributed among the SAC members in advance. He conveyed his eagerness to engage with the students in forthcoming meetings. Professor Patra solicited feedback from fellow members of the SAC. Prof. Sandeep Verma, Prof. Durga Charan Dalal, Prof. Sanjay Jachak, and Prof. Dharmalingam extended their greetings to the SAC members alongside the esteemed faculty of the Institute. Prof. Sudip Chattopadhyay remarked that the accomplishments of the faculty members should be emphasized. Professor Srimanti Sarkar recommended disseminating the annual report among the members of the SAC.

AGENDA ITEM NO. 3: Introduction about IASST and progress report of IASST since the last SAC meeting

Prof. A. K. Mukherjee, Director, IASST presented a brief genesis of the Institute along with the mission, vision, and objectives. He also highlighted about the following information:

1. Brief of manpower and essential bodies.
2. Major research activities, centers, and facilities.
3. Research addressing global issues:
 - a. Fermented food and beverages, and collaboration with industries e.g. Bharat Biotech International Ltd., Premium Serum Ltd., and Emami Ltd.
 - b. Biodegradable packaging material.
 - c. Green hydrogen using water splitting.
4. Research addressing national issues:
 - a. Snake and scorpion bite related drug-discovery.
 - b. Bio fungicide for organic tea production: technology transferred.
 - c. AI based authentication of traditional Assamese Gamosa.
 - d. Herbal formulation against metabolic disease
5. Academic activities and training programs, output indicators in terms of publications and Ph.D produced, extramural research projects.
6. Vision for next 3 years: societal activities, green hydrogen, upliftment of the SC/ST communities, rural entrepreneurship, science education in unprivileged communities.
7. Major research and other facilities at IASST

AGENDA ITEM NO. 4: Action taken report on the decisions of the last SAC meeting

Prof. Arup Ratan Pal, Member-secretary, SAC, IASST, presented the action taken report on the decisions of the last SAC meeting held during 18th - 19th December, 2023, as follows:

Recommendation	Action taken
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Arup Ratan Pal

Dr. Chandra

The Chairman appreciated the scientists of IASST for their scientific achievements and work on social issues in the region. He opined that combining diverse research areas of science and providing them to society is the unique combination of this Institute. There are endless possibilities for this Institute to achieve higher goals.	The societal activities of the Institute have so far been conducted under the DST-funded project, 'ST/SC development program at IASST' as per the mandates of the project. This project is over now and IASST has set up a dedicated center named, 'B R Ambedkar Centre for Community Empowerment (BRACE)' to meet its societal goals. The comments of the Chairman have been noted and faculty members have been intimated to carry out research works of higher standards.
The number of post-doctoral fellows should be increased, and the PDF program should be more attractive.	At present there are 7 postdoctoral fellows including 4 institutional postdoctoral fellows(I-PDF) are working at IASST. Depending on the financial condition, I-PDF intake will be considered. In addition to I-PDF, faculty members can take N-PDF.
The research on microbiomes and probiotics should be continued on a large scale, and the study and other activities of IASST should be communicated to society at national and international levels.	Our investigation into the microbiome and probiotics is gaining traction with two forthcoming projects: one in collaboration with JIPMER, Puducherry, and another with the industrial partner, Bharat Biotech Int. Ltd.
The Institute should work on science communication and outreach for the broader audience.	IASST has inducted a Scientist-D from erstwhile, 'Bigyan Prasara' to disseminate science to society. The scientists and research scholars are participating in outreach programs via AcSIR Ph.D. coursework.
Finally, the members of the committee agreed with the following points/minutes for the meeting: 1. The Institute should introduce the program to engage visiting scientists and visiting professors.	As per the Rules and Regulations, Bye-Laws/MOA 2024 of IASST, notified as per the Officer Circular No. IASST/771/24-25/12242-12252 dated 29-11-2024, a provision is kept for engaging Adjunct Faculty and Visiting Scientists. It was also decided in the GC meeting that a committee under the chairmanship of the Director will frame the guidelines for the appointment of Adjunct faculty and Visiting scientists. A separate budget is required for inviting visiting scientists from other parts of the country and abroad. Budgetary requirement and proper guidelines will be prepared to initiate such program.
2. The Institute should increase the number of national and international research collaborations and start joint research programs like Joint Ph.Ds with other international universities and institutes.	Intra-institutional collaboration in many interdisciplinary research work is going on and the scientists have published joint papers in reputed journals. Collaboration with Deakin University, Australia for Ph.D research scholars exchange programme is continued.
3. Collaboration with industries should be increased, and the possibility of commercialization of products should be explored.	IASST has signed a 'R & D collaboration and product development agreement' with Bharat Biotech Int. Ltd. for development of probiotics. Also an agreement with Premium Serum and Vaccines Pvt. Ltd, Pune and Araynak (NGO) was

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	signed for the development of the NE India specific antisnake venom.
4. Members suggested increasing the number of Institute's post-doctoral fellows and making the PDF program more attractive with increased salaries and incentives for them.	At present there are 7 postdoctoral fellows including 4 institutional postdoctoral fellows(I-PDF) working at IASST. Depending on the financial condition, I-PDF intake will be considered. In addition to I-PDF, faculty members can take N-PDF.
5. Members unanimously agreed that the students having national research fellowships could join the Institute at any time throughout the year following an assessment by a committee. However, they may be registered for Ph.D. in the next session as per the IASST and AcSIR rules and are subject to qualifying for the entrance test.	Draft regulations, rolling advertisement format and application format have been prepared for intake of NET-JRF-qualified students.
6. Members agreed on introducing academic programs like Master's degrees and Integrated Ph.D. programs in the future, subject to getting more faculty positions from the funding agency. However, certificate courses and diplomas may be started with due approval from UGC or a relevant agency.	To initiate an academic program, it is necessary to attain designated university status. Currently, IASST is ineligible for this status because of a limited number of permanent academic seats and insufficient land and infrastructural resources. To fulfill this demand, IASST has requested the relevant authorities for land allocation and the establishment of new academic jobs.
7. Members suggested that from the next SAC meeting, presentations from the faculties should show only the highlights of the work and achievements.	This suggestion has been acknowledged, and faculty members have been informed to present only the key highlights of their work and achievements during the SAC meeting.

AGENDA ITEM NO. 5: Presentation by the faculty members

The faculty members from the Life Sciences Division (LSD) and Physical Sciences Division (PSD), including the Director, presented their research activities for the period January 2024 to January 2025 as follows:

- (i) Prof. A. K. Mukherjee (LSD)
- (ii) Prof. D. Chowdhury (PSD)
- (iii) Prof. (Mrs) A. Devi (LSD)
- (iv) Prof. D. Thakur (LSD)
- (v) Prof. (Mrs) L.B. Mahanta (PSD)
- (vi) Prof. A. R. Pal (PSD)
- (vii) Prof. S. Kundu (PSD)
- (viii) Prof. M. R. Khan (LSD)
- (ix) Prof. (Mrs) M.B. Sahariah (PSD)
- (x) Dr. B. Choudhury (PSD)
- (xi) Dr. A. Bala (LSD)
- (xii) Dr. Santu Das (PSD)
- (xiii) Dr. (Mrs) Kamatchi S (PSD)
- (xiv) Dr. S. Biswas (PSD)

Prof. G. Choudhury (PSD) could not present his work due to health issues. However, he submitted a printed copy of his presentation before the committee.

Comments/suggestions of the Chairman and other SAC members on the presentations:

1. Prof. A. K. Mukherjee(LSD)

Comments:

1. The committee members acknowledged the contributions made by Prof. Mukherjee and recommended proceeding with clinical trials to advance the research further. They also proposed pursuing a start-up, contingent upon the approval of the DST.
2. A joint extramural research project of national significance, financed by ICMR, focusing on the production of snake venom-specific antivenom for Northeast India, together with the BIRAC-supported BioNest project, is being executed by Prof. Mukherjee as the Principal Investigator. In light of the significance of the Antivenom project, scheduled to conclude in March 2027, and the Supreme Court's recent directives for nationwide initiatives to guarantee the availability of antivenom and snakebite treatment, alongside the shortage of specialists in snake venom research within the country, the committee advised the Governing Council to extend Prof. Mukherjee's tenure as Director by one year to safeguard the project's progress. Additionally, Prof. Mukherjee reminded the committee that six researchers are under his supervision and expected to conclude their Ph.D. work by mid-2026. If he departs from the IASST before that, in that case, it will create challenges in integrating the students with other faculty members in the Division of Life Sciences since their student registration limit is already at capacity.
3. One member suggested studying the stability and efficacy of the snake-venom-derived neuroprotective peptides.
4. Governing council may be approached for special funding from the Institute or from DST to augment these works.

2. Prof. D. Chowdhury(PSD)

Comments:

1. Background information about the presenter should be mentioned at the beginning.
2. Next time present one or two works which are significant and highlight the importance of other works.
3. Suggested to make sure that the packaging materials are not attached by bacteria or fungus.
4. Try to gain funding from outside sources.
5. The committee asked about the connection of the ongoing research with the industry.
6. If you can show the clinical relevance, DBT/ICMR fund may be applied.

3. Prof. A. Devi(LSD)

Comments:

1. Suggested to plan future implementation of the research findings worth pursuing by IASST after their superannuation.
2. Suggested to study the correlation between microbiome (specifically Archae) and heavy metals.

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4. Prof. D. Thakur(LSD)

Comments:

1. Instead of the identification of new strains of endophytes, a detailed study of the use of compounds from the known endophytes needs to be carried out.
2. Committee suggested to work on a comparative study with the available formulation in the market for novelty and efficacy.
3. Metabolite profiling of the tea endophytic isolates need to be carried out that acts on the microbial pathogens.
4. A microbial database of tea plants needs to be developed.
5. Tea pathogens markers need to be searched out.

5. Prof. L. B. Mahanta(PSD)

Comments:

1. A start-up enterprise could be established to facilitate the advancement of the project, proving beneficial in the execution of the developed software.
2. Endeavor to engage in the practice of forecasting.
3. It is advisable to incorporate a mathematical model, particularly a multi-model approach, in future endeavors.

6. Prof. A. R. Pal(PSD)

Comments:

1. Need to try for transfer of technology.
2. DFT may be used to validate the experimental findings.

7. Prof. S. Kundu(PSD)

Comments:

1. Study the viscoelastic properties of the membrane.
2. Suggested to plan for getting extramural funds with fresh ideas and not to fully depend on in-house funding.
3. Suggested to study the utilization of your material in applications of biological/medical relevance.

8. Prof. M. R. Khan(LSD)

Comments:

1. It is advisable to also explore the health benefit claims associated with the ethnic community from which the fermented food was sourced. It is also advisable to investigate the genome profiling of the beneficiary population.
2. It is advisable to ensure that the developed product offers distinct advantages when compared to other products currently available in the market.
3. A metaproteomics study presents a promising avenue for securing funding.

9. Prof. Munima B. Sahariah(PSD)

Comments:

1. Experimental data (if available) may be used to validate your model.
2. IIT Guwahati computational facility may be used if necessary.
3. Suggested to use multiscale method to reduce the computation time.

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10. Dr. Biswajit Choudhury (PSD)

Comments:

1. Suggested to work on reducing the over potential.

11. Dr. Asis Bala(LSD)

Comments:

1. Measures for marketing of the proposed repurposed drug need to be carried out.
2. Registration of the repurposed drugs for initiating clinical trial to be done.
3. Study of the combinatorial effect of plant products on their claimed efficacy.

12. Dr. Santu Das(PSD)

Comments:

1. Study the dependence/limitations of different viscoelastic models for growth of waves.
2. Compare with physical data.

13. Dr. Kamatchi S.(LSD)

Comments:

1. The presentation was excessively lengthy and should be condensed in future iterations.
2. The potential for materials developed through CAP to emulate biological processes warrants exploration. It is imperative that an examination of the biological applications of the materials be conducted as well.
3. It is proposed to explore the potential of Keratin in addressing environmental challenges.

14. Dr. Subir Biswas (PSD)

Comments:

1. No comments

15. Dr. Vijay K. Singh (LSD)

Comments:

1. It is imperative to implement new ideas rather than persist with the postdoctoral work pursued at abroad.
2. One ought to refrain from engaging in an excessive number of projects. Engage in the concentrated endeavor, particularly regarding the themes of national significance.

Overall comments from the members of SAC after the presentations:

1. All members expressed unanimous appreciation for the scientific and comprehensive advancements of the IASST in recent years, congratulating the Director and faculty for their diligent efforts.
2. Faculty members concentrated primarily on the quantity of publications and their corresponding impact factors. The quality of publications is more significant than their quantity or impact factor.
3. Faculty members should select one or two key research areas and concentrate efforts towards achieving significant discoveries in those domains.
4. Faculty members are encouraged to collaborate with internal and external institutions to prevent the repetition of similar ideas.
5. Facilitate company investment and engagement.

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6. It is recommended to publish in reputable society journals and to avoid journals that exhibit predatory characteristics. Open-access journals not affiliated with reputable societies should be avoided.
7. It has been suggested that during presentation, the title of the topic must be included.
8. Demonstrate the technology to facilitate potential industry collaboration; i-Connect meetings may be scheduled annually.
9. Thematic research areas must align with current national research policies be carried out.
10. Each faculty should secure at least one extramural funding source. The plasma group may seek funding from DAE or other sources.
10. The development of the database may be prioritized as a contribution from the institute.

DAY 2 (12/02/2025)

AGENDA ITEM NO. 6: Presentation on SAIC by Prof. S. Kundu, Head, SAIC

Dr. Sarathi Kundu, Head of the Sophisticated Analytical Instrument Centre (SAIC), delivered a comprehensive presentation on the activities and recent developments of SAIC. He emphasized the variety of advanced instruments at hand and presented data on their usage and sample records, income generated from external samples, and the instruments acquired over the past year, in addition to previous records. Prof. Kundu presented the procurement of a new instrument - High Resolution Mass Spectrometry (HRMS) to the committee for recommendation, as the required budget exceeds Rs. 50.00 Lakh. The proposed instrument is priced at Rs.8.00 Crores, which includes manpower and a warranty for five years. This instrument has received preliminary approval from the Department of Biotechnology (DBT) as part of the QA & QC project, which will be funded by the DBT. As IASST is a research institute, according to the policy of the DBT, 25% of the cost of the instrument must be covered by IASST. After thorough discussion, the committee recommended purchasing this instrument, with IASST contributing 25% (Rs.2.00 Crores) of the total cost.

The committee also recommended securing an additional three years of Annual Maintenance Contract (AMC) when acquiring the instrument.

The committee recommended that IASST appoint the operator, with the company providing training for the individual to operate the instrument, rather than having an operator selected by the company who would come, learn, and then operate the instrument.

The committee also recommended addressing the following points and planning accordingly to ensure the smooth operation of all instruments in SAIC:

1. It is advisable to consider the future of the instruments once the AMC/CMC concludes or the project period ends, as well as how to operate them and manage the ongoing costs.
2. The utilities of instruments should be documented, and the usage of each instrument should be categorized. This will provide insight into which instruments are functioning or not.
3. Recommended for documenting the maintenance expenses related to instruments and the Animal House maintenance charge (AMC, consumables, manpower, animals).
4. A suitable protocol to be adhered to for enabling scientists to construct or enhance instrument infrastructure.
5. It is recommended to create a 5-year plan for instrument purchases, serving as a roadmap to be presented to the finance committee.

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AGENDA ITEM NO. 7: Remarks by the members of the SAC

The members of the SAC appreciated the faculty members of IASST for their scientific achievements and made the following comments/recommendations:

I. Comment from Prof. K. Dharmalingam

1. The formation of smaller clusters among the faculty members is necessary to tackle a focused thematic research issue.
2. Usage of major instruments at IASST, research outcome from those instruments, and proper acknowledgment of the facility to be recorded.
3. More workshops involving the instruments to be arranged and collaborations from rest of India.
4. Skill development certificate course to be arranged to train manpower and build job opportunity in the region.
5. One area per LSD and PSD should be identified and developed to show case a focus achievement of the institute. I recommend for LSD, the Microbiome -research, development and application as thematic area.

II. Comment from Prof. Sridevi Annapurna Singh

1. Collaborations among the faculty members and with industry must be prioritized.
2. A brief report to be provided on students, scientists, research areas in same format for each faculty to the members of SAC beforehand to get a clear view of the research activities of IASST.

III. Comment from Prof. Sandeep Verma

1. Future scope of the research must be emphasized in addition to what has been done in one year.
2. Aligning the research activities with the Government identified issues of national importance.
3. Suggested to involve industry in the group's work.
4. Suggested to look for funding from outside agencies and each group head must have one R&D project with them.
5. Invite representatives of DST/DBT/ICMR or any other funding agencies and arrange workshop on project funding.
6. Try for funds from State Govt.

IV. Comment from Prof. Sudip Chattopadhyay

1. Publication quality should be given priority over impact factor.
2. Eminent Scientists/administrators should be invited to interact with the students/faculties.
3. IASST scientists should visit other research institutions and deliver talks.
4. Recruit/hire plant scientists into the group especially considering the biodiversity of plants in the region.

V. Comment from Prof. Sanjay M. Jachak

1. Advantages of geographical uniqueness and biodiversity should be taken into account and work on those aspects. Build a library of plants species/phyto-pharmaceuticals.
2. Suggested to collaborate with NIPER for phyto-pharmaceutical work.
3. Scientists should work on bringing their technology to commercialization.
4. Training programs, workshop and certificate courses should be prioritized.

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VI. Comment from Prof. Srimonti Sarkar

1. Student talks, faculty presentation should be included in the SAC overall presentation.

VII. Comment from Prof. Durga Charan Dalal

1. It is recommended to develop mathematical models capable of predicting experimental or observational values.
2. May concentrate on biodiversity and associated matters in the north-east region and engage in collaboration.
3. Utilize the advanced computational resources available at IITG.
4. Engage industry professionals in discussions, seminars, workshops, and training programs to generate additional ideas and secure funding for scientific endeavors.
5. Scope of engaging or retaining retired scientists on a short-term basis for IASST's research initiatives.

AGENDA ITEM NO. 8: Concluding Remarks by Prof. Amitava Patra, Chairman, SAC

The Chairman appreciated the faculty members of IASST for their scientific achievements and made the following comments/recommendations:

1. Improve visibility of scientists of IASST by adopting the followings:
 - a. Enhance the scope of visitors for showcasing IASST's research and technologies.
 - b. Increase the internship programs.
 - c. MoU signing with other institutes to be emphasized for research collaboration.
 - d. Collaborative research work – roadmap for next 5 years to be prepared.
 - e. Research Scholar Day to be organized.
 - f. Thematic conference (national or international) to be arranged.
2. Industry should be involved and their visits to be arranged.
 - a. Thematic projects of global and local importance should be undertaken.
3. In the upcoming SAC meeting, each department head will present their research work for thirty minutes, followed by the committee spending half a day with the students. Students may have the opportunity to arrange poster presentations. One or two faculties may present in a single meeting, while others may present in later meetings, continuing in this manner.
4. Workshop on IPR, technology transfer, policy making to be arranged.
5. Collaborative project proposal to be undertaken.

The meeting ended with Vote of Thanks from Prof. A. R. PAL, Member-secretary, SAC.

Signature of the Member-secretary:

Arup Ratan Pal

(Arup Ratan Pal)

Minutes Approved

Amitava Patra
(Amitava Patra)

Chairman, SAC, IASST

Arup Ratan Pal