Workshop **Biodiversity Research**

Research as a key driver for new technologies and innovative applications

Background and challenges

Vietnam represents a global biodiversity hotspot and harbours a unique and extremely diverse fauna and flora, which in many parts is still not well documented, understood or adequately used for developing a sustainable bio-economy. Similar, the composition and functions of microbial communities in Vietnam are largely unknown and there is a great potential for future applications of microorganisms in biotechnology, agriculture and waste water treatment.
While new and emerging technologies, such as (meta-)genomics & metabolomics, robotics, tools for digital data capture including for image and sound recognition, and artificial intelligence (AI), greatly advance bio-discovery and biodiversity research including knowledge management, challenges and threats of the natural ecosystems in Vietnam still increase and lead to a continuing and irreversible loss of critical habitats and species, before their role and potential is even only partially known. By putting innovative approaches and technologies currently being developed for advancing biodiversity knowledge into megadiverse conditions, these tools and technologies can be tested, significantly improved and brought closer to markets in cooperation with partner institutions in Vietnam. Jointly developed applications from such cutting-edge technologies can provide for more effective protection and sustainable use of biological resources in Vietnam. It can stimulate further discoveries and research, but also can drive technological innovations towards a more bio-based economy in emerging markets in SE-Asia.

Long existing and well-established co-operations between several biodiversity research institutions in Vietnam and Germany, including several networks and projects successfully supported by BMBF and MOST, provide for a sound basis for re-newed and strengthened R+I bilateral partnerships, which will also greatly facilitate future co-operations. Apart from relying on existing partnerships, the workshop will strive to reach out and network additional stakeholders and partners, including representatives from relevant industries and SMEs.

While past and present co-operations have focused on providing capacity building and support measures via dedicated training of technical and scientific skills in Germany and knowledge transfer, this workshop will open the path to bring new approaches, technologies and applications relevant for biodiversity discovery, research and management from both sides together for further refinements and new joint developments and to take place mainly in Vietnam.

Aims of the Workshop

The workshop aims at bringing together relevant partners from various fields of biological, biotechnical, bioeconomic and environmental research and development for an open exchange of cutting-edge ideas and new technologies in biodiversity research. Next to discussing and defining concrete concepts/topics for joint research initiatives and projects, the workshop will also provide a forum for strengthening and initiating new networks and partnerships between institutional partners and organizations. As a concrete outcome, joint R+D interests and priorities for new technologies in biodiversity research will be formulated by the workshop participants, which will be forwarded to funding organizations, and used to broaden existing and new bilateral networks and initiatives, as well as a framework setting for possible future joint projects and programs.

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Key-questions for in-depth discussions in the workshop

- How can new technologies and innovations accelerate biodiversity discovery & characterization?
- How can new approaches effectively support biodiversity conservation, habitat protection, and sustainable agro-economy?
- How can new tools unlock innovative potentials and new uses for biodiversity and bio-based resources?

Potential benefits to Vietnamese and German participants

- Insights to and exchange of cutting-edge approaches and innovative technologies in biodiversity research.
- Common interests and plans to jointly develop further specific new technologies and innovative tools for biodiversity research.
- New partnerships between Vietnamese and German institutions and stakeholders.
- New joint projects and co-operations in the broader fields of biodiversity and ecosystem research.

Target participants

- Senior and younger researchers from leading institutions in the broader field of biodiversity, biotechnology, agro-biodiversity, conservation and biological resources studies
- Invited participants from SMEs and technology firms
- Partners from NGOs active in the field of biodiversity conservation and management
- Representatives of competent ministries and agencies, including R&D funding organizations

Keynote speakers and workshop leaders

- **Dr. Christoph Häuser** & **Dr. Thomas von Rintelen**, Museum fuer Naturkunde Berlin

Facilitators

- **Assoc. Prof. Vũ Văn Liên** Vice-Director Vietnamese National Museum of Nature / Vietnam Academy of Science and Technology (VAST, Hanoi)
- **Prof. Lưu Hồng Trường**, Southern Institute of Ecology / Vietnam Academy of Science and Technology (VAST, Ho Chi Minh City)

Selected BMBF funded research projects or GER-VN HEI-cooperation

- VIETBIO: Innovative approaches to biodiversity discovery and characterization-capacity building for partnerships in SE-Asia, exemplified in Vietnam (MfN); [2017-2022; BMBF]
- Priorities for biodiversity conservation in the Truong-Son Mountains (IZW); [BMBF et al.]
- Biodiversity round table "Biodiversity and Ecosystem Research in Vietnam"; Hanoi, Oct. 2019 [BMBF/MOST].

Outreach

Impulses, ideas and concrete suggestions on how to enhance the impact of biodiversity research, new technologies and HEI cooperation between Germany and Vietnam developed in this workshop are intended to be presented in the GVSD plenary session on Day II. In addition, plans and suggestions for

concrete actions will be shared via press/media releases through, and presented to the wider scientific and technological communities in Germany and Vietnam at relevant conferences and meetings.

Contact

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Agenda

April 26th, Duy Tân University

Time	Program	Speaker/Comments
13:30 – 13:40	Welcome, opening remarks, workshop goals	**Christoph Häuser** & **Vũ Văn Liên**
13:40 – 13:55	Accelerating biodiversity discovery in hyper diverse invertebrate taxa with robots and nanopore sequencing	**Rudolf Meier** MfN, Berlin
13:55 – 14:10	Digital database of biodiversity in Vietnam: current situation, opportunities and recommendations	**Lưu Hồng Trường**, SIE/VAST, Ho Chi Minh City
14:10 – 14:25	Using high-tech to revolutionize wildlife research: Near-real time monitoring of biodiversity and wildlife pathogens for science-based conservation actions.	**Andreas Wilting** IZW, Berlin
14:25 – 14:40	Applying SMART program for monitoring biodiversity in the Kon Ka Kinh National Park, a lesson learnt from the field	**Hà Thăng Long** Frankfurt Zoological Society (FZG), Da Nang
14:40 – 14:55	Which Organism can be the New Rising Star? – Selection Support by Digital and Metabolomic Tools	**Ludger Wessjohann** IPB, Halle
14:55 – 15:10	Natural compounds from plants	**Nguyễn Mạnh Cường** VAST, Hanoi
15:10 – 15:20	IUCN's One Plan Approach - zoo conservation initiative for Vietnam	**Thomas Ziegler** Kölner Zoo, Cologne
15:20 – 15:30	Questions & discussion; conclusions & next steps	**Christoph Häuser**, **Thomas von Rintelen** & **Vũ Văn Liên**
15:30 – 16:00	*Coffee break*	