

MEMORANDUM OF UNDERSTANDING
BETWEEN

CHIANG MAI UNIVERSITY
Mueang Chiang Mai, Thailand

AND

NANJING AGRICULTURAL UNIVERSITY
Nanjing, China

AND

MICHIGAN STATE UNIVERSITY
East Lansing, Michigan, USA

1. PREAMBLE

This Memorandum of Understanding (hereinafter referred to as 'MOU') is made and entered into by and between Chiang Mai University (hereinafter referred to as 'CMU'), Nanjing Agricultural University (hereinafter referred to as "NAU") and Michigan State University (hereinafter referred to as 'MSU') in order to promote international research and academic exchanges among faculty, staff and students between these institutions, to jointly address global challenges in the areas of water-energy-food-land systems under a changing climate, social and economic environment in Asia. CMU, NAU and MSU (hereinafter referred to as 'the Parties') will endeavor to deepen international partnerships to co-generate knowledge and co-develop solutions to meet these challenges through research and academic exchanges including data sharing, joint publications, proposal developments and scholar exchanges.

2. BACKGROUND

2.1 Challenges in Asia: The highly diverse and dynamic ecological and social systems of the region present unique challenges for resource management in the 21st century. Asia's population is growing rapidly, increasingly concentrating in large urban centers with widening economic disparity. Given the expected impacts of climate change on the region's monsoon, as well as snowpack and glacial melt dynamics, these demographic trends pose unprecedented challenges and perhaps, opportunities at the nexus of water, energy, food (WEF) systems.

Of particular concern, here as elsewhere, is the expectation of increases in the frequency, duration, magnitude, and spatial extent of extreme climate. The grand challenge is to improve food, water, and energy security for the region, in the context of rapid environmental and social change. In order to adequately address challenges, it will require a broad, systems approach that is regional rather than constrained by national borders, that is integrative rather than narrow and issue-specific, and that deals realistically with the impact of rising economic aspirations in the context of climate change.

2.2. The Asia Hub Concept: The Asia Hub is an international initiative led by Michigan State University and Nanjing Agricultural University that builds on a long history of global partnerships with many institutions and on-going research collaboration with scientists and policy makers in many countries in Asia. The creation of the Asia Hub is a new mode of international collaboration: moving beyond individual effort to a coordinated, holistic system endeavor to co-

generate knowledge about and co-develop solutions to emerging challenges in an era of rapid globalization. With financial support from Nanjing Agricultural University and Michigan State University, the Asia Hub was formally launched in November 2017 at Nanjing Agricultural University with numerous institutions from within China and Southeast Asian countries. The Hub's initial focus is on the water, energy, food and land nexus in Monsoon Asia. The Asia Hub operates in concert with international programs including Future Earth in Asia, the Future Earth Core Project MAIRS, the Global Land Programme's (GLP) North America Nodal Office, as well as numerous regional networks in Asia.

The mission of the Asia Hub is to serve as a knowledge hub to address emerging challenges at the nexus of water, energy, food and land systems under a changing climatic and socio-economic environment in Asia, through innovative international partnerships and collaborative research and education. The Asia Hub fosters multidisciplinary collaboration through engaged research projects, exchanges of scholars and students, and training programs. The goal is to facilitate innovative international partnerships in the region to co-create knowledge for regional sustainable development.

3. OBJECTIVE

This MOU seeks to facilitate the implementation of the Asia Hub mission through collaborative research to share knowledge, techniques, data and information and research findings between the CMU, NAU and MSU. The collaboration is expected to provide a basis for the improved assessment, monitoring, and management of shared resources among the Lower Mekong member countries. The mutual goal is that any policy recommendations from the collaboration will contribute to science-based decision-making for sustainable basin management. Specifically, the main purpose of this MOU is to:

- a) Promote scholar exchanges and joint publications between CMU, NAU and MSU;
- b) Identify funding sources and develop joint proposals to address grand challenges in Asia to achieve the Asia Hub mission;
- c) Coordinate improved access to, and dissemination, of data, and information, as well findings of joint research undertakings;
- d) Improve the understanding of existing hydrological, ecological, and socio-economic conditions in order to better anticipate the impacts of dam construction and climate change;
- e) Identify and propose effective policy recommendations for sustainable and equitable water resource management and hydropower development; and
- f) Enhance local capacity for improved use of state-of-the-art data, methods, and technologies to build human capital to address regional water, energy, food nexus issues to support decision-making.

Before these activities can be implemented, all parties shall discuss the problems involved to the satisfaction of each party and enter into specific activity agreements based on the mutually agreed objectives and outcomes of the relationship.

4. SCOPE OF MOU

This MOU is not considered to be a contract creating legal and financial relationships between the parties. Rather, it is designed to facilitate and develop a genuine and mutually beneficial exchange process for teaching, research and outreach activities.

5. EQUAL OPPORTUNITY

All institutions subscribe to a policy of equal opportunity, non-discrimination and affirmative action. University programs, activities and facilities are available to all without regard to race, color, gender, religion, national origin, political persuasion, sexual orientation, marital status, disability, height, weight, veteran status, age or familial status.

6. TERM, AMENDMENT, AND TERMINATION

6.1 The MOU will become effective as of the date of signatures of all Parties for an initial duration of five years from the date of signing. It will thereafter be automatically renewed for succeeding terms of five years unless any Party gives written notice to the other parties at least six months prior to the expiration of any term of Party's intention not to renew. Activities in progress at the time of termination of this MOU shall be permitted to conclude as planned unless otherwise agreed.

6.2 This MOU may be amended only by the written consent of all parties.

7. CONTACTS

Each party shall designate a person or office to serve as liaison for implementing this MOU.

For **MSU**, the contact person will be:

Name: Jiaguo Qi
Title: Director, Center for Global Change & Earth Observations
Address: 1405 S. Harrison Road, Manly Miles, Room 218, East Lansing, MI 48823
Telephone: (517) 353-8736
Email: qi@msu.edu

For **CMU**, the contact person will be:

Name: Professor Dr. Sanchai Jaturasitha
Title: Director, Science and Technology Research Institute
Address: 239 Huay Kaew Road, Muang District, Chiang Mai 50200, Thailand
Telephone: +66 53 942478
E-mail: sanchai.j@cmu.ac.th

For **NAU**, the contact person will be:

Name: Wei Wei
Title: Deputy Director, Office of International Relations
Address: No. 1 Weigang, Nanjing, Jiangsu, China 210095
Telephone: +86-25-84395897
E-mail: weiwei@njau.edu.cn

8. SIGNATURES

CHIANG MAI UNIVERSITY

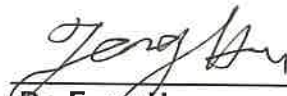
NANJING AGRICULTURAL UNIVERSITY

MICHIGAN STATE UNIVERSITY



Dr. Niwes Nantachit
President

Date: _____



Dr. Feng Hu
Vice President for
International Affairs

Date: _____



Dr. June Youatt
Provost

Date: 5.8.19



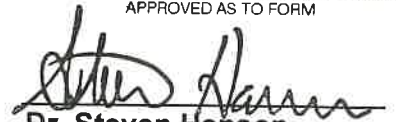
Dr. Sanchai Jaturasitha
Director, Science and
Technology Research
Institute, Chiang Mai
University

Date: _____



Dr. Jie Chen
Director, Office of
International Relations

Date: _____



Dr. Steven Hanson
Associate Provost & Dean,
International Studies and
Programs

Date: _____

Jacquelyn Keth 5/8/19
OFFICE OF THE GENERAL COUNSEL DATE
APPROVED AS TO FORM



Dr. Rachel T.A. Croson
Dean, College of Social
Science

Date: 5-6-19