



## Agreement for Collaboration

between

**Karlsruhe Institute of Technology (KIT), Germany**

– hereinafter referred to as “KIT” –

and

**Khon Kaen University (KKU), Thailand**

– hereinafter referred to as “KKU” –

– hereinafter referred to as “Partner” or “Partners” –

1. Karlsruhe Institute of Technology (KIT), Germany and Khon Kaen University (KKU), Thailand, desiring to promote the cooperation in the fields of higher education and academic research and represented by the signatories, agree to the following collaboration points:

1.1 The subject of the present agreement shall be the cooperation of the partners under the project “Establishment of Joint Research Structures for the Development of a Sustainable Water Resources Management System in the Isan Region” for which KIT is funded by the Federal Ministry of Education and Research (BMBF).

1.2 The partners agree to cooperate under this project to establish the “Thai-German Competence Center for Sustainable Water-Resources Management”.

2. The partners shall execute inter-coordinated partial tasks. The type and scope of the cooperation shall result from the grant notices as amended and the work plan, inclusive of its updated versions, excerpt enclosed in Annex 1 as well as from the project description (Annex 2). The execution of any inter-coordinated partial tasks shall be subject to separate prior written agreements between the Parties (Specific Agreement). Each Specific Agreement shall contain all major details of the execution of the cooperation. These shall include provisions concerning:

- Sharing of costs; unless otherwise specifically agreed in writing, all costs resulting from cooperation shall be borne by the Party that incurs them
- Delegation / exchange of staff; (unless otherwise specifically agreed in writing the sending Party shall be responsible for the salaries, insurance, benefits, travel expenses, and allowances to be paid to its personnel)
- Warranty and liability;
- User rights of patentable and non-patentable results of work;
- Confidentiality and use of information;

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Dr. Elke Luise Barnstedt

Vice President  
for Human Resources and Law

Date: *March 9, 2016*

Khon Kaen University (KKU)  
Khon Kaen, Thailand

*[Handwritten signature]*

Assoc. Prof. Dr. Kittichai Tritatanasirichai  
President

Date: .....

*[Handwritten signature]*

Prof. Dr. Oliver Kraft

Vice President  
for Research

Date: *March 9, 2016*

*[Handwritten signature]*

Prof. Dr. Apirat Sirtaratwat  
Dean of Faculty of Engineering

Date: .....

## 1 Timetable

The following timetable gives an overview over the major joint activities. Both partners are engaged in the organization and the implementation of the activities.

2016	<p><b>January</b></p> <ul style="list-style-type: none"> <li>• Building up a <i>Homepage</i></li> <li>• Migrating the Wiki (Glossary) to KKU</li> <li>• Finalizing Project Description to request <i>Sponsorships for the Pilot Project</i></li> </ul> <p><b>February</b></p> <ul style="list-style-type: none"> <li>• Filling up the Glossary with content, orientated at the pilot project</li> <li>• Sponsoring Request to possible Sponsors</li> <li>• Decision about the topic and Planning of Workshops concerning the Pilot Project.</li> </ul> <p><b>March</b></p> <ul style="list-style-type: none"> <li>• Planning of next steps of pilot project, fixing dates for Workshops held from KIT</li> <li>• <i>Workshops</i> held from KKU</li> </ul> <p><b>April -</b></p> <ul style="list-style-type: none"> <li>• Implementing the <i>Pilot Project</i></li> </ul> <p><b>December</b></p> <ul style="list-style-type: none"> <li>• <i>Advertising Membership</i> in the Thai-German Competence Center on Water Resources Management for Stakeholders of the Pilot Project</li> <li>• <i>Workshops</i> from KIT and KKU for Stakeholders and Administrations</li> <li>• <i>Papers and Brochures</i> about the Workshop topics (Accessible on the Competence Center Homepage)</li> <li>• Open Access on the Wiki (Glossary) for all members</li> <li>• Searching for <i>new projects</i> which can be initial points for <i>increasing the radius of action</i> of the competence center</li> </ul>
2017	<ul style="list-style-type: none"> <li>• Increasing radius of action, advertising membership</li> <li>• Competence Center is <i>self-financing</i>, financing a <i>Director and Secretary</i></li> <li>• Workshops held from <u>Members</u> <u>for Members/Stakeholders/ Administrations</u></li> </ul>

## **1 Description of “Thai-German Competence Center for Sustainable Water Resources Management”**

The Institute of Water and River Basin Management (IWG) is very present in the Asian region with projects in Water and River Basin Management including technology transfer. This led to contact with the Thai Embassy in Germany and the interest of Thai Administrations, Ministries and the Embassy in cooperating with Germany in this field, especially with the IWG. As the North-East of Thailand is a complex area regarding water management, that area was chosen as project area and the Khon Kaen University (KKU) as project partner.

The Partners intend to cooperate in the field of Sustainable Water Resources Management. The goal of this cooperation is to establish a long-lasting bi-national collaboration in research, teaching and training. The overall goal of the cooperation is to establish a Competence Center for Sustainable Water Resources Management and to support the improvement of the water resources management in Thailand.

Many aspects have to be considered but an important part is to strengthen the competence and knowledge of the persons working in the field of water resources management or those who are directly dependent of a good and sustainable water management. As teaching and research institutions the parties are a good initial point for establishing a

“Thai-German Competence Center for Sustainable Water Resources Management”, which aims and vision is described below.

GODFRAY stated 2010 an approach which is based on the philosophy that water is a shared responsibility. Therefore the challenge of the future is the optimization of the available landscape which considers besides the production also environmental issues as well as social justice outcomes. The implementation of a Sustainable Water Resource Management (SWRM) is one approach to solve this challenge of water

short-term as well as a long-term solution. An overuse of groundwater causes a declining groundwater level and causes problems in the future and would therefore be a short-time solution. Sustainable solutions are always long-time solutions. Propagating this approach is one central aim of the “Thai-German Competence Center for Sustainable Water Resources Management”.

## **2 Description of the Pilot Area**

The northeastern region occupies the largest land area in Thailand, with more than 170,000 square kilometers in size or roughly one-third of the country as shown in Fig.1. It is made up of 20 provinces. The region is commonly referred to as I-san or E-san, which usually conjures up the image of an arid land area. The soil is mostly sandy, with substantial salt deposits. Most of the agricultural areas are rain-fed and lack of irrigation facilities. The economy of the region relies on the agricultural products such as rice, sugarcane, and cassava. Rainfall is unpredictable, but is concentrated in the rainy season from May to October. People in this region still confront problems of droughts and floods every year. In the dry season, people in some areas of the Northeastern scarcely have water to drink or to use due to insufficiency of water storage. At the same time, in the rainy season, people in some areas specifically those who live in the flood plain are affected by floods. In addition, the augmentation of population, the expansion of urban communities, the growing number of industries, the changes of land use, the climate changes, all of these affect the environment, resulting in pollution in mainland, in water, and in the air.

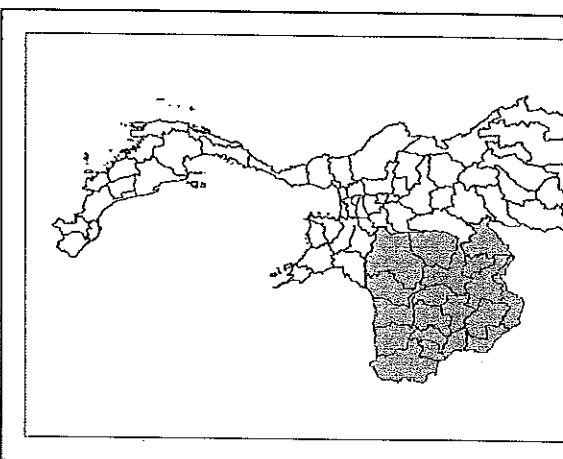


Figure 1: Map of Northeastern region

In the 1980s the Carl-Duisburg-Gesellschaft from Germany built together with the KKU the so called KKU-Weirs in Northeast Thailand. Those types of weirs are very common and have to be improved and also adapted to the state of the art, especially regarding ecological aspects. One pilot measure at one of those weirs should act as an initial point for the Competence Center. The Huai Sai Bat River basin was selected for pilot measure implementation.

The Huai Sai Bat River Basin is a small river basin and is part of the Chi River basin, which is one of the biggest river basins in Northeast Thailand.

The main vulnerability of the Huai Sai Bat River Basin is an insufficient water management. For instance water storage is inadequate. The hydraulic structures are in many cases in damaged conditions or not controllable, which limits their effectiveness.

### 3 Aim

The aim of the “Thai-German Competence Center for Sustainable Water Resources Management” is to transfer research into practice and also to derive needed research

agement under participation of multiple partners

- Joint research projects by KIT and KKU, also participation of further local universities possible
- Exchange of information;
- Scientific consultation;
- Joint publication in the field of the cooperation; including guidelines for administrations and stakeholders.
- Participation of experts in research and development, testing, and design activities performed at the facilities of the Parties in the course of their respective research programs; and
- Organization of technical meetings, symposia or training courses.

This Center should also strengthen the research cooperation between KKU and KIT in short term and also in long-term between Germany and Thailand.

#### **4 Initial Point: Pilot Project**

A Pilot Project should act as an initial point as it can show the focus, possibilities and the frame of such a competence center and also gives a starting point for parts of the competence center such as content for the glossary/wiki, publications, first guidelines or workshop topics for stakeholders (for example administrations and farmers). The described improvement of the KKU Weirs can be used as such a pilot project. It can deepen the cooperation of the parties and requires the participation of the local community. First actions were already taken as first meetings and discussions with the communities and administrations regarding that project took place in April 2015.

Don't partners are recognized experts of water resources management. In this function they are ideal partners to establish a competence center in this field. With the same aim, namely to make progress in research and teaching the gained knowledge they are ideal partners for that project.

The partners can offer the following expertise and fulfil the tasks connected:

KKU	<ul style="list-style-type: none"> <li>• National wide good standing in Water Resources management and Agricultural Engineering and so a Partner in Thailand with the local knowledge about             <ul style="list-style-type: none"> <li>○ Project area</li> <li>○ Local politics</li> <li>○ Network/ Contact to local authorities and administrations</li> </ul> </li> <li>• Expertise in Agricultural Engineering, Land use and Water Management</li> <li>• Water Laboratory with the possibility to conduct studies on physical models.</li> <li>• Provision of storage space for data transfer, and a "wiki".</li> <li>• Provision of rooms for meetings, symposia or training courses</li> <li>• Knowledge sharing in combination with local wisdoms for local stakeholders</li> <li>• Research supervisor for the exchange graduate students/interns during the exchange periods (both in KKU and KIT).</li> </ul>
KIT	<ul style="list-style-type: none"> <li>• With the expertise and experience in various international Sustainable Water Resources Projects KIT will give scientific consultation on different topics related to Sustainable Water Resources Management, i.e.</li> </ul>



	<ul style="list-style-type: none"> <li>• Provision of Storage Space for a website representing the project during the project time.</li> <li>• Research supervisor for the exchange graduate students/interns during the exchange periods (both in KKU and KIT).</li> </ul>
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The partners will *profit* in the following fields:

KKU	<ul style="list-style-type: none"> <li>• Upholding and building up the reputation as research institute for water resources management</li> <li>• Expertise as national hydraulic research center and in physical modelling</li> <li>• Research orders, which thus guarantee an additional long-term financing beyond government funding.</li> <li>• Joint publications</li> <li>• Expanding own research and project network in Europe and Germany</li> </ul>
KIT	<ul style="list-style-type: none"> <li>• Upholding and building up the reputation as research institute for water resources management</li> <li>• Research orders, which thus guarantee an additional long-term financing.</li> <li>• Joint publications</li> <li>• Possibility of using KKU infrastructure (e.g. Rooms) for workshops</li> <li>• Expanding own research and project network in Thailand</li> <li>• Expanding and gaining research fields and the radius of action through transferring and applying knowledge earned in a European Surrounding to other catchments and climate characteristics.</li> </ul>

In order to ensure the sustainability and visibility of the Thai-German Competence Center for Sustainable Water Resources Management, the center shall function as a central hub for research & development, training and implementation activities in the field of Sustainable Water Resources Management. The project partners are planning to initiate and establish long-term, strategic partnerships with national counterparts (e.g. government (Royal Irrigation Department (RID), Department of Water Resources Management(DWR)) and NGOs) in order to ensure the sustainability of the center in future. Through these strategic partnerships the center can directly give its consultancies to the national authorities and decision makers and directly participate in defining e.g. national standards. Through this close linkage to the authorities, the Competence Center will also be able to react quickly in case of changes in the priority of Thailand's future development and water management plans and to respond rapidly to changed requirements. The center can then extend its scope of expertise. The visibility of the center will be strengthened by its growing number of projects and network. In the first phase, potential members of the network will be addressed directly (e.g. administrations, municipalities, universities but also interested and engaged individuals). Those members directly profit from the competence center but will also contribute with own activities and later with membership fees. The next step concerning visibility will be the setting up of a Project-Homepage propagating the main goals of the project and acting as joint information platform to advertise the idea of the Competence Center.

## **7 Financing**

In general the declarations in the Agreement for Collaboration are valid. Until 30.06.2017 the financing can be managed from both parties out of the ongoing everyday work and the BMBF grants (such as coordination, storage space, rooms and visits.). In long-term the competence center has to finance itself through project work ordered i. e. from administrations and membership fees.

The Institute of Water and River Basin Management (IWG) has a long term experience on this kind of financing. Since more than 50 years the major amount of finan-

petence Center by setting up scholarships for additional staff. Prof. Nestmann is a Hector Fellow Professor and can directly admission scholars. Another possible financing for PhD Students could be the DAAD.

### 8 Organization of the Thai-German Competence Center

The organization chart of the Thai-German Competence Center is given in Figure 2.

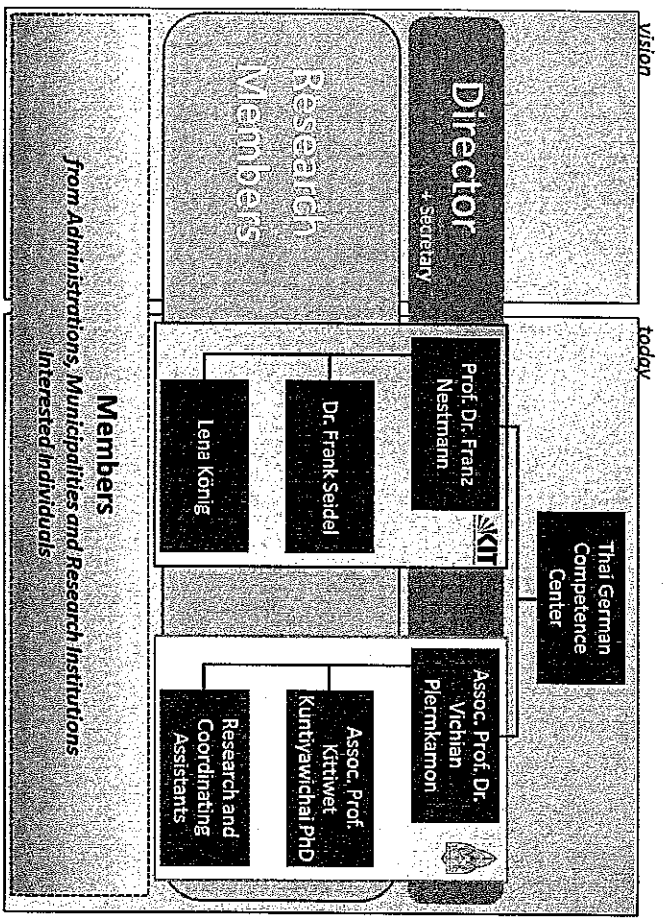


Figure 2: Organization of the Thai-German-Competence Center today (right side) and the positions in the future, respectively

The vision is that the Competence Center becomes a self-learning center with many members such as administrations, municipalities, universities but also interested and engaged individuals. All members will see the benefit in acting as a network of specialists each with its own competence. The members contribute in giving workshops to other members or preparing information for stakeholders for example in workshops or guidelines. The center is not limited to the region of Huai Sai Bat or Khon Kaen, but shall increase its radius of action to whole Thailand. The center will then act as a non-profit institution giving consultancy to the national authorities of Thailand and setting up and defining national standards in Water Resources Management.

## **10 Literature**

The integrated plan project of water resources management on the Chi River Basin, Department of Water Resources, Ministry of Natural Resources and Environment (August 2006).

Godfray, et al. (2010): Food Security: The Challenge of Feeding 9 Billion People. Science. 327, 812. DOI: 10.1126/science.1185383.