

# Living Joint Research

KIT ESTABLISHES VIRTUAL  
INSTITUTE FOR ECO-INDUSTRIAL  
DEVELOPMENT TOGETHER  
WITH UNIVERSITIES IN CHILE

BY DR. KLAUS RÜMMELE // TRANSLATION: MAIKE SCHRÖDER

About two years ago, scientists of KIT met to discuss projects with colleagues in Chile. Andreas Braun remembers: "Many participants were well informed about the country and culture." This marked the fruitful start of a series of talks "that eventually gave rise to a network identity – a 'we' feeling," says the professor of the Institute of Regional Science (IfR). By and by, more than 45 scientists from 17 KIT institutes joined the network. The round table for information exchange was initiated by Pascale Kohler. During alumni seminars in Chile, the Head of the Regional Strategy and Information Section of the International Affairs Business Unit had become aware of the large number of collaborative projects between KIT institutes and institutions in Chile. These activities had been combined in the Chile Cluster, which had become a very strong consortium by 2016 when the Federal Ministry of Education and Research (BMBF) invited applications for funding "research structures with Argentina, Brazil, Chile, Columbia, and Mexico." The Cluster succeeded in convincing the BMBF to establish the German-Chilean Institute for Eco-Industrial Development (IEDE).

On November 01, 2017, BMBF started to fund the establishment of the virtual institute. KIT closely cooperates with the Universidad de Chile UCh (Santiago), the Universidad de Concepción UdeC (Concepción), and the Universi-

dad Austral de Chile UCh (Valdivia). In the initial phase of two years, the KIT consortium will be granted nearly EUR 300,000. After an evaluation, it will receive another EUR 600,000 in the consolidation phase of three years.

The name of the institute refers to the conception of "industrial ecology." It is related to business concepts for efficient production with little impact on the environment and society. According to Andreas Braun, the scientific spokesperson of the Chile Cluster, this leads to a number of fascinating topics for international collaboration. "Industry of developed countries often has to make its structures more sustainable over time. Countries, whose industrialization is just beginning, by contrast, have the opportunity to directly implement sustainable technologies."

*Im Gespräch:  
Vizepräsident für  
Innovation und  
Internationales  
Thomas Hirth und  
Alumni des KIT in Chile*

*Having a conversation:  
Vice President for  
Innovation and  
International Affairs  
Thomas Hirth and  
alumni in Chile*



FOTO: PRIVAT

*Erste Abschlüsse:  
Der Doppelstudiengang  
von KIT und der  
Universidad de Concepción  
ist erfolgreich gestartet*

*First certificates:  
The double-degree program  
of KIT and the  
Universidad de Concepción  
has started successfully*



In the opinion of Professor Thomas Hirth, KIT Vice President for Innovation and International Affairs, it is only logical that the new virtual institute has partners in Chile: "Chile is the most stable country in Latin America. Politics in Chile strives for modernization and specifically looks for strategic partnerships with high-performance international institutions." Chilean partners are highly interested in long-term cooperation with KIT: "Chile's economy is growing strongly, the demand for energy will increase – this results in the necessity to invest in renewable energies and increasingly complex technologies. Joint research is the basis."

Within the new virtual institute, the partners plan to work on scientific projects that are of high relevance to practice. From the very beginning, industry of both countries will be integrated. The three topics "Resources and Water," "Energy," and "Climate" will be studied in four work packages: Sustainable use of water and energy in the urban context, biomass utilization for energy production, eco-industrial use of underground resources, and climate-compatible, decentralized regional electrical supply.

Andreas Braun, who contributes significantly to the project on the scientific level, considers the topic of industrial ecology to be ideal for a research network. "It is sufficiently broad for coverage by all actors of the Cluster and narrow enough to be scientifically precise." Industrial ecology offers enough space for various disciplines at KIT and, at the same time, is focused and opens up new perspectives. This is also confirmed by a study of the perspectives of industrial ecology in Chile, which was car-

## Gemeinsame Forschung als Grundlage

### KIT baut mit Universitäten in Chile ein virtuelles Institut für öko-industrielle Entwicklung auf

Vor etwas mehr als zwei Jahren trafen sich Wissenschaftlerinnen und Wissenschaftler des KIT, um sich über Projekte mit Kolleginnen und Kollegen in Chile auszutauschen. Es war der fruchtbare Start einer Reihe von Gesprächen, „in denen sich eine Netzwerkidentität entwickelt hat“, sagt Andreas Braun, Professor am Institut für Regionalwissenschaft (IfR). Nach und nach bekannten sich dazu mehr als 45 Wissenschaftlerinnen und Wissenschaftler von 17 Instituten des KIT. 2016 überzeugte der Chile-Cluster das Bundesministerium für Bildung und Forschung (BMBF) mit seiner Idee – dem deutsch-chilenischen Institute for Eco-Industrial Development (IEDE).

Seit 1. November 2017 fördert das BMBF den Aufbau des virtuellen Instituts. Dabei arbeitet das KIT eng mit der Universidad de Chile UCh (Santiago), der Universidad de Concepción UdeC (Concepción) und der Universidad Austral de Chile UACH (Valdivia) zusammen. In der zweijährigen Anbahnungsphase erhält das Konsortium des KIT knapp 300.000 Euro, nach einer Evaluierung in der dreijährigen Konsolidierungsphase noch einmal 600.000 Euro. Der Name des Instituts greift den Begriff der „Industriellen Ökologie“ auf. Er beschreibt unternehmerische Konzepte für eine effiziente Produktion mit geringen Auswirkungen auf Umwelt und Gesellschaft.

Dass das neue virtuelle Institut Kompetenzen am KIT und in Chile zusammenbringt, ist für Professor Thomas Hirth, Vizepräsident für Innovation und Internationales am KIT, naheliegend: „Die Wirtschaft Chiles wächst stark, die Nachfrage nach Energie wird steigen – daraus ergibt sich die Notwendigkeit zur Investition in erneuerbare Energien und zunehmend komplexere Technologien. Gemeinsame Forschung ist dafür die Grundlage.“

Auf beiden Seiten ist jeweils eine Geschäftsstelle vorgesehen, am KIT wird ihr Dr. Fredy Rios angehören. Diese Strukturen auf beiden Seiten zu entwickeln, ist nun der nächste große Schritt. Er braucht engagierte Ansprechpartner an den chilenischen Universitäten. In Valdivia übernimmt diese Rolle Gonzalo Tampier, Professor für Schiffs- und Meerestechnik. ■

Kontakt: andreas.braun@kit.edu

Audio-Interview mit Andreas Braun: [http://www.intl.kit.edu/download/Braun\\_Interview.mp3](http://www.intl.kit.edu/download/Braun_Interview.mp3)

ried out by the IfR, the Institute for Technology Assessment and Systems Analysis (ITAS), and partners from Heidelberg with funds of the Heidelberg Karlsruhe Research Partnership HEIKA.

The IEDE considers itself a virtual Institute with digital infrastructure. MOOCs enrich education, researchers develop their ideas in audiovisual sessions, work on documents takes place in clouds. The institute is supported by the team of Professor Gerd Gidion of KIT's Center for Technology-Enhanced Learning (ZML). "Our approach is to enhance international cooperation by digital interconnection," Gidion says. He also helps balance comfortable work in online environments with data security: "The project gives us the opportunity to test digital collaboration."

In parallel, the IEDE is "a real institute," Andreas Braun says. "There will also be physical structures," he points out. Offices will be established on both sides. Dr. Fredy Rios will work at the KIT office. The next big step now consists in developing these structures at KIT and in Chile. The devil is in the details. Legal aspects play a central role, Braun says, but so do specific features that distinguish Chile from Germany. An example: Usually, obstacles between departments are much higher in Chile than in Germany.

Andreas Braun knows this from teaching collaborative projects with Chilean partners. The first students are now completing the double-degree program of KIT and Concepción. "Academic education at Chilean universities is organized differently; the master's program usually is

a part-time program parallel to the job," Braun says. Consequently, two models are now being offered in Concepción – a scientific master's program for a double degree with KIT and a part-time master's program. According to Braun, language acquisition by the students is most important.

Without committed partners at the Chilean universities it would be impossible to develop these structures. People are needed to establish new contacts, build up confidence and trust, overcome reservations, and convince the boards of institutes and universities. At Valdivia, Gonzalo Tampier does this. In February, the professor for ship technology and marine engineering returned from a research stay of six months at TU Berlin. During a visit in Karlsruhe, he explained the tasks of the contact partners at the Chilean universities.

Tampier coordinates institutional cooperation between UACH and KIT. "We need small, concrete objectives, new projects that are of interest to both sides," he says. That is how he thinks the relationship between industry and research can be strengthened by IEDE. "Many companies in Chile are fighting for daily survival and are hardly concerned with research," he says. Tampier also hopes that IEDE will contribute to enhancing interdisciplinary cooperation in the areas of energy and sustainability at UACH.

Tampier's research focuses on how renewable energy can be produced in oceans and marine facilities. He thinks that sustainability in science is gaining importance, particularly in Chile. In the eight programs offered by the Department

*Erkennt Anknüpfungspunkte vieler Disziplinen zur industriellen Ökologie:  
Professor  
Andreas Braun*

*Sees many disciplines with links to industrial ecology:  
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Foto: Lydia Albrecht



of Engineering in Valdivia, sustainability is a cross-sectional topic. "This fits the profile of IEDE," Tampier says.

Andreas Braun emphasizes that the "commitment of the KIT board" is important to both the universities in Chile and the Chile Cluster. Strong support of the Chile Cluster by KIT and KIT's Presidential Committee, in particular by Vice President Hirth, was an encouraging sign. When he traveled to Chile in November last year, Hirth was accompanied by some Cluster members, talked to representatives of the partner universities, participated in scientific workshops, visited the German Chamber of Commerce and the DAAD, and additionally met alumni of KIT. "All partners expressed their interest in close cooperation," Hirth says.

Doctoral students play a central role in planning. A graduate school, for instance, is to be established. "Further development of academic education in Chile is important," Andreas Braun explains. "A graduate engineer in Chile is not that highly regarded – we want to change that." Research will profit, as doctoral students spend all of their time on research. "They are living joint research." ■

Kontakt: andreas.braun@kit.edu

Audio interview with Andreas Braun: [http://www.intl.kit.edu/download/Braun\\_Interview.mp3](http://www.intl.kit.edu/download/Braun_Interview.mp3)