

Introduction to the EcoCAR Project:

Ecosystem Assessment and Capacity Building for Sustainable Management of
Floodplains along the **C**entral **A**sian **R**ivers Tarim/China and Naryn/Kyrgyzstan

中亚内陆河流域生态系统服务价值评估和可持续管理能力建设——以中国塔里木
河和吉尔吉斯纳伦河为例

www.ecocar-centralasia.com

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Motivation

- In the Central Asian drylands the inland rivers and their floodplains have an enormous ecological importance.
- The riparian vegetation is not only a hotspot of biodiversity, but also provides a number of ecosystem functions and services like the avoidance of erosion, the reduction of the effects of sand and dust storms or the provision of pastoral land.
- Despite this importance the Central Asian floodplains are heavily endangered or already destroyed by anthropogenic influences (e.g. overexploitation of water resources, intensive agriculture and overgrazing by pastoral use) as well as climate change.
- Nevertheless there is no systematic monitoring of riparian ecosystems and its functions (ESF) or services (ESS). Although these problems recently occur in many Central Asian countries, there are no functioning networks of scientists and decision makers to exchange experiences and to develop strategies for conservation and sustainable management of floodplain ecosystems.

Project Partners

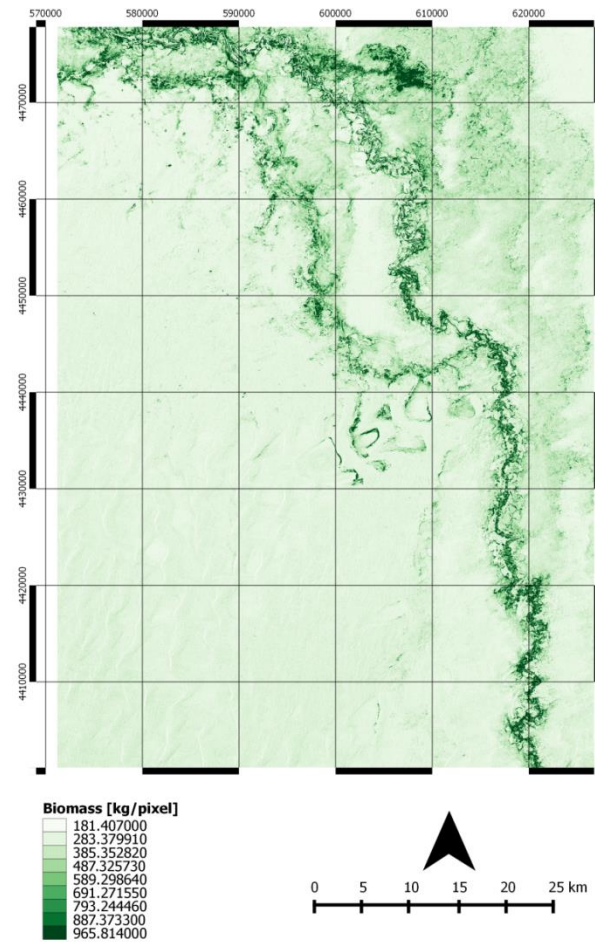
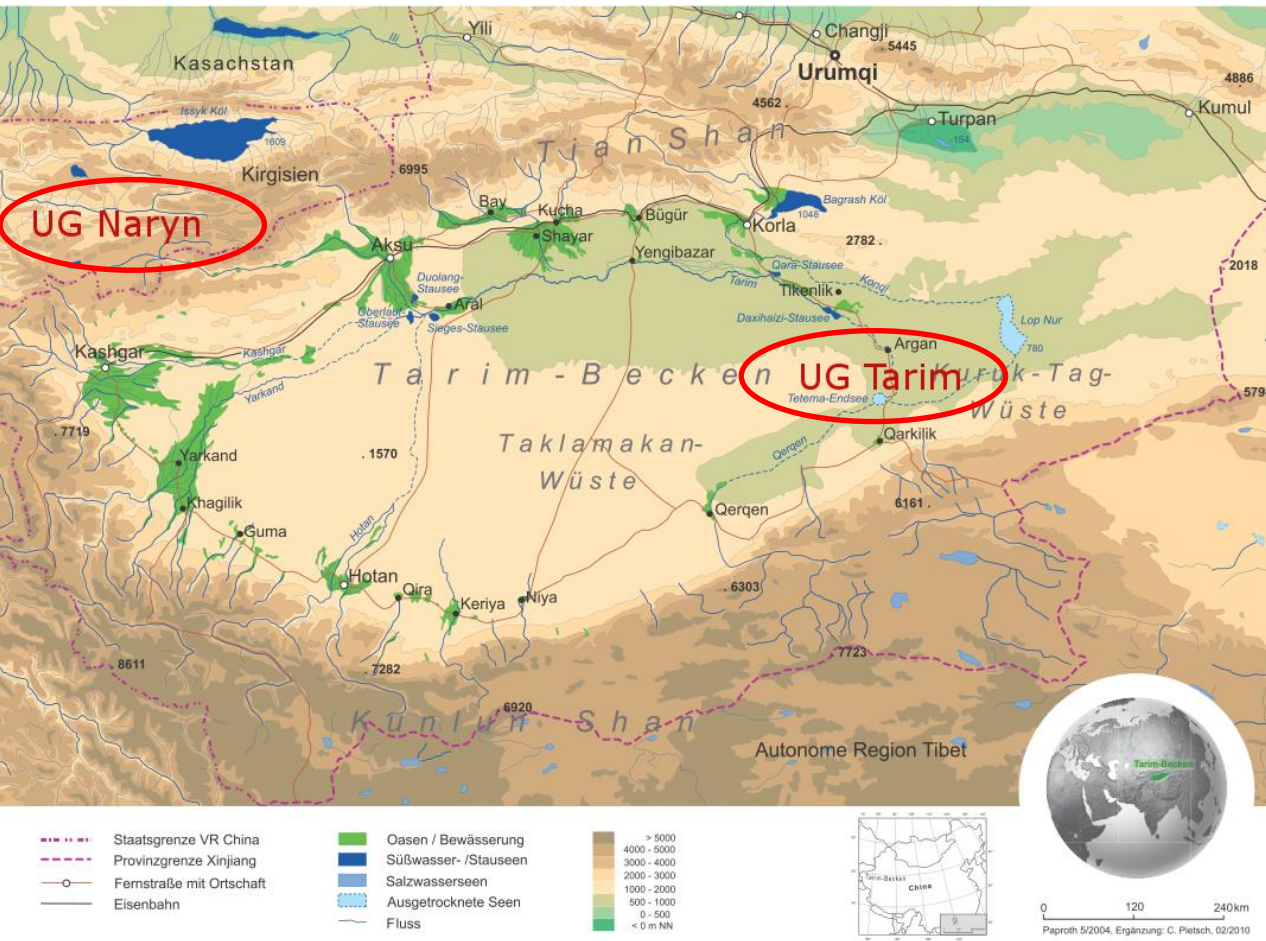


Project Partners



Project Contractors

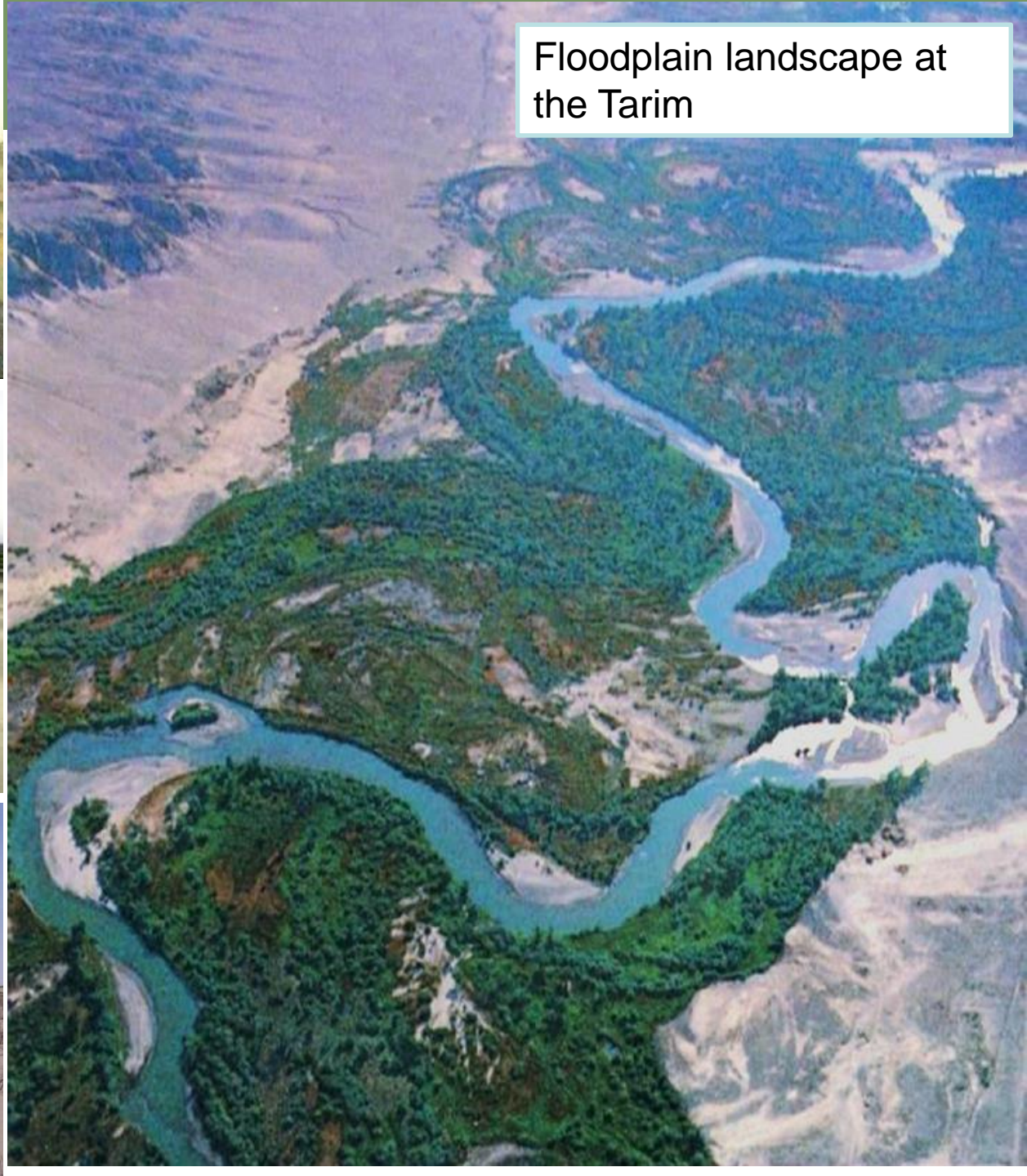
Research area



Floodplain Landscape at the Naryn

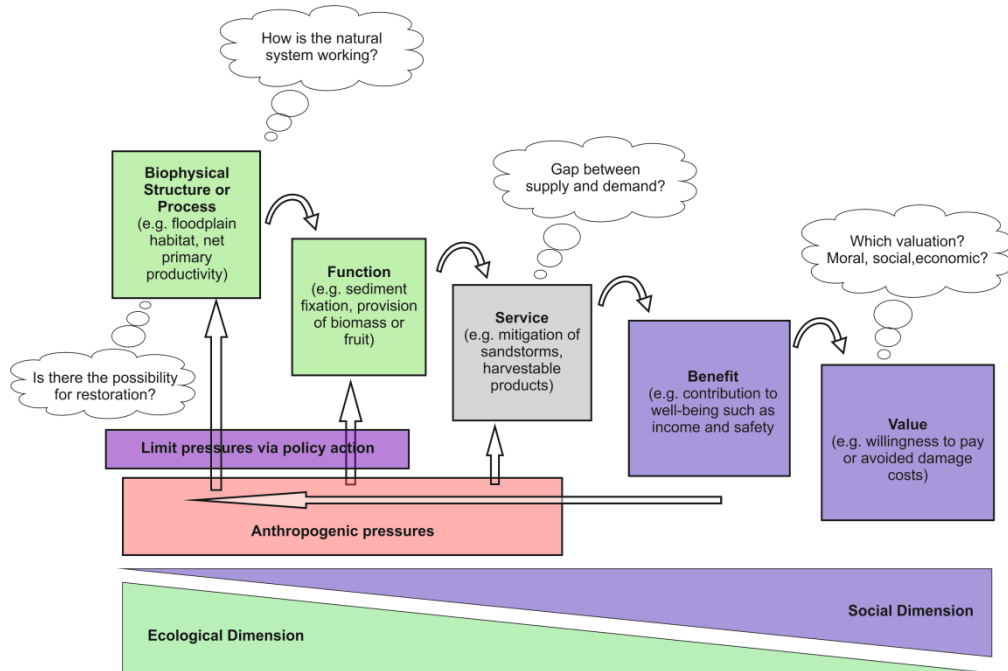


Floodplain landscape at the Tarim

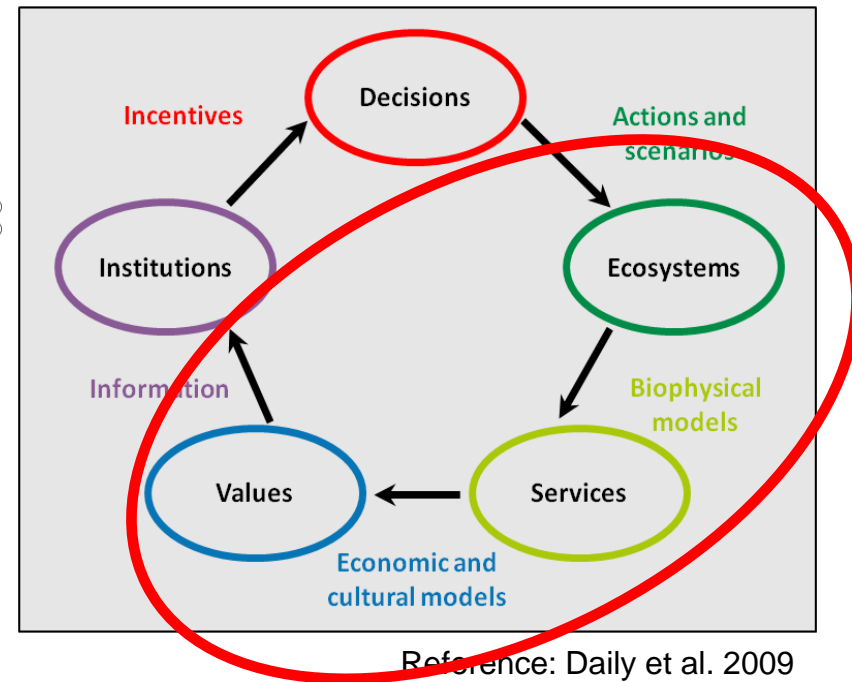


Project Objectives

„Ecosystem Services are benefits, people obtain from ecosystems“
(Millenium Ecosystem Assessment 2003)



Modified from Potschin and Haines-Young (2011)



EcoCAR is focused around ecosystem services. Theoretical basis is the cascade model also used for the well known TEEB study.

Project Structure

Capacity Building
Hands on Training, Project oriented Workshops, Summer School

1.1 terrestrial investigation

- ecosystem structure (vegetation, soil)
- supply of ecosystem services (supporting, provisioning, regulating)
- potentials for restoration



1.2 socio-economic investigation

- demand for ecosystem services
- anthropogenic pressure on ecosystems
- values of ecosystem services

Ecosystem Functions and Services on a Local Scale



2.1 remote sensing

- provision of high resolution satellite images
- calibration of remote sensing data
- provision of landcover data delivering input data for the models



2.2 modelling ecosystem services

- implementation of models for the ESS
- creating data of ESS on a regional scale
- creating and evaluating scenarios

Ecosystem Functions and Services on a Regional Scale



3.1 Developing Recommendation

- potential for restoration
- alternative land management



3.2 Stakeholder Dialogue

- knowledge exchange with the stakeholders
- implementation of recommendation

Development of Recommendations for a Sustainable Floodplain Management

Project Objectives

- The project develops methods for the terrestrial and remotely sensed monitoring of riparian ecosystems and its most important stress indicators in two selected investigation areas at the Tarim (Xinjiang) and the Naryn (Kyrgyzstan).
- Based on this, the potential of providing certain ecosystem services will be predicted and suggestions for sustainable land use will be given.
- A special focus will be on the integration and networking with and among local scientists, decision makers and students to build up the necessary capacities to use the methods developed within this project.
- This helps them to cope with the environmental problems in their countries on the way to more sustainability in riparian ecosystems.
- Therefore the results of the project can be used for regional development under involvement of local stakeholders in Northwest of China as well as in the other Central Asian countries.

Expected Results

Terrestrial Investigation:

Generation of an Inventory regarding the situation of floodplain forests in selected investigation areas (Vegetation, soil, geomorphology, potentials for ESS),
Restoration potential

Socio-Economy:

Identification of the attitude of local people regarding environmental issues and ESS,
identification of drivers of land degradation

Remote Sensing:

Mapping of Sensitive areas of riparian forests for upscaling the results from local to regional scale

Ecosystem Services:

Elaboration of relevant ESS which are suitable to serve as key factors for environmental management in the investigation areas

Recommendations:

Development of recommendations based on a transdisciplinary approach with the involvement of stakeholders and based on scientific findings

Stakeholder Dialogue

Identification and cooperation with local stakeholders

Capacity Building

“Today’s students are tomorrows decision makers”

Workshops and a summer school for training of students

Hands on exchange of knowledge in the project work

Joint work on the project topics with intensive exchange during the field work

Stay of Chinese and Kyrgyz young scientists at the KU Eichstaett

Theses with topics related to Floodplain’s ESS and its assessment

Cooperation of German and Chinese/Kyrgyz students in their theses

Networking activities among scientists and decision makers



Intended Work Sharing

Work packages	Research area 1: Xinjiang/China	Research area 2: Kyrgyzstan
WP 1.1: Terrestrial Investigations	Ümüt Halik (XJU/KUE) Nurbai Abdusalih (XJU)	Bernd Cyffka (KUE) Nadira Degembaeva (NSU)
WP 1.2: Socio-economic Investigations	N.N. (XJU) Martin Welp (HNEE)	Dinara Bekirova (NSU) Martin Welp (HNEE)
WP 2.1: Remote Sensing	Alishir Kurban (XIEG) Ding Jianli (XJU)	Akylbek Chomyrov (ACAGIS) Alishir Kurban (XIEG)
WP 2.2: Ecosystem Services	Ding Jianli (XJU) Ümüt Halik (XJU/KUE)	Bernd Cyffka (KUE) Ermek Baibagyshov (NSU)
WP 3.1: Management Suggestions	All together	All together
WP 3.2: Stakeholder Dialogue	Martin Welp (HNEE) N.N. (XJU)	Ermek Baibagyshov (NSU) Martin Welp (HNEE)
Workshops Organization	Ümüt Halik (XJU/KUE), Alishir Kurban (XIEG), Ermek Baibagyshov (NSU)	
Summer School Organization	Ümüt Halik (XJU/KUE), Bernd Cyffka (KUE), Ding Jianli (XJU), Alishir Kurban (XIEG), Ermek Baibagyshov (NSU)	

The Project kick-off meeting

- **Venue:** Key Laboratory of Oasis Ecology, Xinjiang University
- **Date :** 25 September, 2014
- **Participants:** project partners from the KU Eichstaett, XJU, CAS, NSU, and Master/PhD students



Field work and GIS training in Kirgizstan

- **Venue:** Naryn State University
- **Date :** 13 -26 October, 2014
- **Participants:** Florian Betz, Aishan Tayierjiang, Ermek and Kirgiz Bachelor, Master and PhD students



Meeting with project partners and visiting relevant research in institutions

- **Venue:** The Austria-Centre for GIScience in Bishkek, ACA GIScience
- **Date :** 20-26 October, 2015
- **Participants:** project partners from the KU Eichstaett, XJU, NSU, and Master/PhD students



Field work in the Tarim

- **Venue:** Arghan, Yingbazar, Aksu
- **Date :** 1 January, 2015
- **Participants:** project partners from the KU Eichstaett, XJU, and Master/PhD students



Conference in Urumqi/China

- **Venue:** Xinjiang University
- **Date :** 3-6 February, 2015
- **Participants:** project partners from the KU Eichstaett, XJU, NSU , and Master/PhD students



Field work in the Tarim

- **Venue:** Arghan, Aksu
- **Date :** 22 April – 01 May, 2015
- **Participants:** Umut Halik, Master and PhD students from the XJU



Field work and GIS training in Kirgizstan

- **Venue:** Naryn State University
- **Date :** 12 -28 May, 2015
- **Participants:** Florian Betz, Maierdang Keyimu, Bernd Cyffka, Ermek and Kirgiz Bachelor, Master and PhD students



- **Venue:** Yining
- **Date :** 15-16 August, 2015
- **Participants:** project partners from the KU Eichstaett, XJU, and Master/PhD students

Conference (The Geographical Society of China (GSC) in Yining

- **Venue:** Yining
- **Date :** 15-16 August, 2015
- **Participants:** project partners from the KU Eichstaett, XJU, and Master/PhD students



Field work in the Tairm

- **Venue:** Arghan
- **Date :** 07-17 September, 2015
- **Participants:** project partners from the KU Eichstaett, XJU, CAS ,and Master/PhD students



Workshop in Almaty/ Kazakhstan

Venue: Almaty

Date : 13-19 September, 2015

Participants: Master/PhD students from the XJU



Vielen Dank für Ihre Aufmerksamkeit!

Thank you very much! 谢谢大家!



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