



# Integrated Water Resources Management – Model Region Mongolia –



## *Publications*

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# 1 Papers

## 1.1 Journals with Impact Factor (n=47)

AUS DER BEEK, T.; VOSS, F. & FLÖRKE, M. (2011): **Modelling the impact of global change on the hydrological system of the Aral Sea basin.** Physics and Chemistry of the Earth 36(13): 684-694.

AVLYUSH, S.; SCHÄFFER, M. & BORCHARDT, D. (2013): **Life cycles and habitat selection of two sympatric mayflies under extreme continental climate (River Kharaa, Mongolia).** International Review of Hydrobiology 98(3):141-154.

BATBAYAR, G.; PFEIFFER, M.; VON TÜMPLING, W.; KAPPAS, M. & KARTHE, D. (2017): **Chemical water quality gradients of the sub catchments of the Mongolian Selenga River basin.** Environmental Monitoring and Assessment 189:420. doi:10.1007/s10661-017-6123-z

CHALOV, S.; THORSLUND, J.; KASIMOV, N.S.; NITTRouer, J.; ILIYECHEVA, E.; PIETRON, J.; SHINKAREVA, G.; LYCHAGIN, M.; AYBULLATOV D.; KOSITKY A.; TARASOV, M.; AKHTMAN, Y.; GARMAEV, E.; KARTHE D. & JARSJÖ, J. (2016): **The Selenga River delta: a geochemical barrier protecting Lake Baikal waters.** Regional Environmental Change. doi: 10.1007/s10113-016-0996-1

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**support IWRM Planning in non-European countries? Lessons Learnt from the Introduction of IWRM and River Basin Management in Mongolia.** *Environmental Science and Policy* 75:27-37. doi:10.1016/j.envsci.2017.05.009

HOFMANN, J.; HÜRDLER, J.; IBISCH, R.; SCHAEFFER, M. BORCHARDT, D. (2011): **Analysis of Recent Nutrient Emission Pathways, Resulting Surface Water Quality and Ecological Impacts under Extreme Continental Climate: The Kharaa River Basin (Mongolia).** *International Review of Hydrobiology* 96(5):484-519. 10.1002/iroh.201111294

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MENZEL, L.; HOFMANN, J. & IBISCH, R. (2011): **Untersuchung von Wasser- und Stoffflüssen als Grundlage für ein Integriertes Wasserressourcen – Management im Kharaa-Einzugsgebiet (Mongolei).** Hydrologie und Wasserbewirtschaftung 55(2):88-103.

MINDERLEIN, S. & MENZEL, L. (2015): **Evapotranspiration and energy balance dynamics of a semi arid mountainous steppe and shrubland site in northern Mongolia.** Environmental Earth Sciences 73(2):593-609. doi: 10.1007/s12665-014-3335-1.

PFEIFFER, M.; BATBAYAR, G.; HOFMANN, J.; SIEGFRIED, K.; KARTHE, D. & HAHN-TOMER, S. (2015): **Investigating arsenic (As) occurrence and sources in ground, surface, waste and drinking water in northern Mongolia.** Environmental Earth Sciences 73(2):649-662. doi: 10.1007/s12665-013-3029-0.

PRIESS, J.; SCHWEITZER, C.; BATKHISHIG, O.; KOSCHITZKI, T. & WURBS, D. (2015): **Impacts of land-use dynamics on erosion risks and water management in Northern Mongolia.** Environmental Earth Sciences 73(2):697-708. doi: 10.1007/s12665-014-3380-9.

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ROST, G.; LONDONG, J.; DIETZE, S. & OSOR, G. (2015): **Integrated urban water management - an adapted management approach for planning and implementing urban water management measures – Case study area Darkhan, Kharaa catchment, Mongolia.** Environmental Earth Sciences 73(2):709-718. DOI: 10.1007/s12665-014-3701-z.

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SCHWEITZER, C.; DAS, S. & PRIESS, J.A. (2011): **SITE – a generic land-use modelling framework. Design, features and a case study application.** Environmental Modelling & Software 26(8):1052-1055.

SIGEL, K.; ALTANTUUL, K. & BASANDORJ, D. (2012): **Household needs and demand for improved water supply and sanitation in peri-urban ger areas: The case of Darkhan, Mongolia.** Environmental Earth Sciences 65(5):1561-1566.

SIGEL, K.; HAGEMANN, N.; LEIDEL, M.; NIEMANN, S. & WEIGELT, C. (2014): **Insights regarding transdisciplinarity and knowledge transfer gained from two case studies on integrated water resources management in Ukraine and Mongolia.** *Interdisciplinary Science Review*. DOI: 10.1179/0308018814Z.00000000096

SIGEL, K.; STÄUDEL, J. & LONDONG, J. (2014): **Experiences with stakeholder involvement in strategic sanitation planning: a case study of the city of Darkhan, Mongolia.** *Water Science & Technology: Water Supply* 14(3):504-512. doi: 10.2166/ws.2014.001

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## 1.2 Other Peer-Reviewed Journals (n=10)

CHALOV, S.; KASIMOV, N.; LYCHAGIN, M.; BELOZEROVA, E.; SHINKAREVA, G.; THEURING, P.; ROMANCHENKO, A.; ALEXEEVSKY, N. & GARMAEV, E. (2013): **Water resources assessment of the Selenga – Baikal river system.** *GeoÖko* 34(1-2):77-102.

CYFFKA, B. & KARTHE, D. (2013): **Water resources and riverine ecosystems in Eastern Central Asia: Management perspectives in the context of multiple stressors.** *GeoÖko* 34(1-2):3-4.

KARTHE, D.; KASIMOV, N.; CHALOV, S.; SHINKAREVA, G.; MALSY, M.; MENZEL, L.; THEURING, P.; HARTWIG, M.; SCHWEITZER, C.; HOFMANN, J.; PRIESS, J. & LYCHAGIN, M. (2014): **Integrating Multi-Scale Data for the Assessment of Water Availability and Quality in the Kharaa - Orkhon - Selenga River System.** *Geography, Environment, Sustainability* 3(7):65-86.

KARTHE, D.; LONDONG, J.; REEH, T. & HUFERT, F. (2013): **Wassermanagement in mongolischen Tourist Ger Camps: Status Quo und Herausforderungen.** *tw – Zeitschrift für Tourismuswissenschaft* 5(2):215-221.

KARTHE, D.; MALSY, M.; KOPP, B.; MINDERLEIN, S. & HÜLSMANN, L. (2013): **Assessing water availability and its drivers in the context of an integrated water resources management (IWRM): a case study from the Kharaa River Basin, Mongolia.** *GeoÖko* 34(1-2):5-26.



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MALSY, M.; AUS DER BEEK, T.; EISNER, S. & FLÖRKE, M. (2012): **Climate change impacts on Central Asian water resources.** *Advances in Geosciences* 32:77-83.

MALSY, M.; HEINEN, M.; AUS DER BEEK, T. & FLÖRKE, M. (2013): **Water recourses and socio-economic development in a water scarce region on the example of Mongolia.** *GeoÖko* 34(1-2):27-49.

SCHÄFFER, M. (2011): **Illustrated description of a simple methodology for quantifying fine sediment input into river bed substrate.** In: DASHZEVEG, Ts. (2011) (Ed.): **Geocological Issues in Mongolia.** *Journal of the Geocological Institute of the Mongolian Academy of Science*, pp. 36-40.

WIMMER, F.; SCHLAFFER S.; AUS DER BEEK, T. & MENZEL L. (2009): **Distributed modelling of climate change impacts on snow sublimation in northern Mongolia.** *Advances in Geosciences* 21:117-124.

### 1.3 Papers in Conference Proceedings (n=26)

AUS DER BEEK, T.; WIMMER, F.; TÖRNROS, T. & MENZEL, L. (2009): **Hydrologische Aspekte des Projektes "Integriertes Wasserressourcen-Management in Zentralasien: Modellregion Mongolei (MoMo).** In: FOHRER, N.; SCHMALZ, B.; HÖRMANN, G. & BIEGER, K. (Hrsg.) (2009): **Hydrologische Systeme im Wandel - Beiträge zum Tag der Hydrologie 2009**, S. 101-107. Hefen: Forum für Hydrologie und Wasserbewirtschaftung.

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KARTHE, D. (2014): **Wasser, Landschaft und Mensch in der Mongolei: Entwicklung und Umsetzung eines Integrierten Wasserressourcen-Managements im Kharaa-Einzugsgebiet.** In: СУФКА, В. (2014): **Wasser – Landschaft – Mensch in Vergangenheit, Gegenwart und Zukunft. Beiträge zum Tag der Hydrologie am 20./21. März 2014 an der Katholischen Universität Eichstätt-Ingolstadt**, pp. 71-78. Forum für Hydrologie und Wasserbewirtschaftung, Heft 34.14. Hefen: Fachgemeinschaft Hydrologische Wissenschaften in der DWA.

KARTHE, D.; BORCHARDT, D. & KAUS, A. (2011): **Towards an Integrated Water Resources Management for the Kharaa Catchment, Mongolia.** In: ГУРИНОВИЧ, А.Д. (Hrsg.) (2011): **Proceedings of the IWA**

**1st Central Asian Regional Young and Senior Water Professionals Conference, Almaty/Kazakhstan, S. 79-93.**

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KARTHE, D.; CHALOV, S.; THEURING, P. & BELOZAROVA, E. (2012): **Integration meso- und makroskaliger Ansätze zum Wasserressourcen-Monitoring und Management im Baikal-Selenga-Einzugsgebiet.** In: CHIFFLARD, P.; CYFFKA, B.; KARTHE, D. & WETZEL, K.-F. (Ed.) (2012): **Beiträge zum 44. Jahrestreffen des Arbeitskreises Hydrologie 2012, WasserCluster Lunz am See**, pp. 95-99.

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## 1.4 Other Papers

AUS DER BEEK, T. & MALSY, M. (2011): **MoMo: Integriertes Wasserressourcen-Management in Zentralasien - Modell-Region Mongolei**. *Hydrobrief* 52:3-5.

BORCHARDT, D. & IBISCH, R. (2009): **Integriertes Wasserressourcen-Management in Zentralasien: Modellregion Mongolei (MoMo)**. In: IBISCH, R. & BORCHARDT, D. (Ed.) (2011): **Integriertes Wasserressourcen-Management: Von der Forschung zur Umsetzung**, pp. 18f. 1<sup>st</sup> Edition. Leipzig & Magdeburg: Helmholtz-Zentrum für Umweltforschung.

BORCHARDT, D. & IBISCH, R. (2009): **Integrated Water Resources Management for Central Asia: Model Region Mongolia (MoMo)**. In: IBISCH, R. & BORCHARDT, D. (Ed.) (2009): **Integrated Water Resources Management: From Research to Implementation**, pp. 18f. 1<sup>st</sup> Edition. Leipzig & Magdeburg: Helmholtz-Zentrum für Umweltforschung.

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BORCHARDT, D. & KARTHE, D. (2011): **Integrated Water Resources Management in Central Asia: Model Region Mongolia (MoMo)**. In: IBISCH, R.; KIRSCHKE, S.; STÄRZ, C. & BORCHARDT, D. (Ed.) (2011): **Integrated Water Resources Management: From Research to Implementation**, pp. 24f. 2<sup>nd</sup> Edition. Leipzig & Magdeburg: Helmholtz-Zentrum für Umweltforschung.

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**Modellregion Mongolei (MoMo).** In: IBISCH, R.; KIRSCHKE, S.; STÄRZ, C. & BORCHARDT, D. (Ed.) (2013): **Integriertes Wasserressourcen-Management: Von der Forschung zur Umsetzung**, pp. 36-38. 4<sup>th</sup> Edition. Leipzig & Magdeburg: Helmholtz-Zentrum für Umweltforschung.

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## 2 Books

### 2.1 Books with ISBN

AVLYUSH, S. (2011): *Effects of surface gold mining on macroinvertebrate communities. A case study in river systems in the North-East of Mongolia*. Saarbrücken: Lambert Academic Publishing.

### 2.2 Reports

BOCK, F. (2014): *Water Supply, Sanitation and Hygiene in Mongolia - an Institutional Analysis*. Ulaanbaatar: ACF Mongolia.

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MoMo-KONSORTIUM (2009): *MoMo - IWRM in Central Asia – Model Region Mongolia (MoMo): Case Study in the Kharaa River Basin. Final Project Report*.

### 2.3 Book Chapters (n=15)

BATBAYAR, G.; KARTHE, D.; PFEIFFER, M.; VON TÜMPLING, W. & KAPPAS, M. (2015): *Influence of urban settlement and mining activities on surface water quality in northern Mongolia*. In: KARTHE, D.; CHALOV, S.; KASIMOV, N. & KAPPAS, M. (Eds.) (2015): *Water and Environment in the Selenga-Baikal Basin: International Research Cooperation for an Ecoregion of Global Relevance*, pp. 73-86. Stuttgart: ibidem.

DOMBROWSKY, I.; HOUDRET, A.; HORLEMANN, L. (2014): *Evolving river basin management in Mongolia?* In: HUITEMA, D. & MEIJERINK, S. (Eds.): *The politics of river basin organisations*, pp. 265-297. Cheltenham: Edward Elgar.

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HOFMANN, J.; OCZIPKA, M.; RUHTZ, T. & DÄMPFING, H. (2016): *How could unmanned aerial systems*

**(UAS) be used for ecohydrological and ecosystem research? Experiences from first operations of UAS in river flood plains of Northern Mongolia.** In: STUBBE, A.; KACZENSKY, P.; WESCHE, K.; SAMJAA, R.; STUBBE, M.; READING, R.P. & GARDNER, S.L. (Eds.) (2016): *Erforschung biologischer Ressourcen der Mongolei*, Band 13, pp. 245-262. Halle/Saale, Germany: Selbstverlag der Martin-Luther-Universität Halle-Wittenberg.

HOFMANN, J.; TUUL, D. & ENKHTUYA, B. (2016): **Agriculture in Mongolia Under Pressure of Agronomic Nutrient Imbalances and Food Security Demands: A Case Study of Stakeholder Participation for Future Nutrient and Water Resource Management.** In: BORCHARDT, D.; BOGARDI, J. & IBISCH, R. (2016): *Integrated Water Resources Management: Concept, Research and Implementation*, pp. 471-514. Heidelberg, Germany & New York, USA: Springer.

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RODE, M.; HARTWIG, M.; WAGENSCHNEIN, D.; KEBEDE, T. & BORCHARDT, D. (2015): **The importance of hyporheic zone processes on ecological functioning and solute transport of streams and rivers**. In: CHICHARO, L.; MÜLLER, F. & FOHRER, N. (2015) (Eds.): **Ecosystem Services and River Basin Ecohydrology**, pp. 57-82. Dordrecht, The Netherlands: Springer Science + Business Media.

TÖRNROS, T. & MENZEL, L. (2010): **Heading for knowledge in a data scarce river basin: Kharaa, Mongolia**. In: HERRMANN, A. & SCHUMANN, S. (Eds.) (2010): **Status and Perspectives of Hydrology in Small Basins**, pp. 270–275. Wallingford: IAHS Publication 336.

WESTPHAL, K.; SULLIVAN, C.; GREGENSEN, P.; KARTHE, D. (2015): **Potential and feasibility of willow vegetation filters in Mongolia**. In: KARTHE, D.; CHALOV, S.; KASIMOV, N. & KAPPAS, M. (Eds.) (2015): **Water and Environment in the Selenga-Baikal Basin: International Research Cooperation for an Ecoregion of Global Relevance**, pp. 301-320. Stuttgart: ibidem.



## 3 Theses

### 3.1 Bachelor Theses

BRÜCK, O. (2013): **Hydrologische Modellierung mit HBV-D auf der Grundlage großskaliger Klimamodelldaten des Water and Global Change Project (WATCH) im Einzugsgebiet des Kharaa Gol, Mongolei.** {B.Sc. Thesis; Department of Geography, Heidelberg University; project supervisor: Prof. Dr. Lucas Menzel}

DREES, L. (2011): **Abschätzung der durchschnittlichen Erosion im Einzugsgebiet des Kharaa, Mongolei – Einfluss der Auflösung des digitalen Geländemodells.** {B.Sc. Thesis, Institute for Landscape Ecology, WWU Münster; project supervisors: Dr. Jörg Priess und Dr. Christian Schweitzer}

EVERS, L. (2012): **Die Algorithmen von Entscheidungsprozessen und die Anwendung des Analytisch Hierarchischen Prozesses (AHP) am Beispiel siedlungswasserwirtschaftlicher Maßnahmen.** {B.Eng. Thesis, Department Urban Water Management, Bauhaus-Universität Weimar; project supervisor: Prof. Dr. Jörg Londong}

GRÖNING, J. (2016): **Untersuchung der Vegetation und Ufererosion in der Flussaue des Kharaa Gol (Mongolei) mittels aktueller hochauflösender Luftbilder von Kleindrohnen als konzeptioneller Beitrag für ein ökologisches Auenmonitoring.** {B.Sc. Thesis, Department of Geography, FU Berlin; project supervisor: PD Dr. Jürgen Hofmann}

HELDT, E. (2012): **UN Menschenrecht auf sauberes Trinkwasser und Sanitärversorgung – Eine Herausforderung für die Siedlungswasserwirtschaft.** {B.Eng. Thesis, Department Urban Water Management, Bauhaus-Universität Weimar; project supervisor: Prof. Dr. Jörg Londong}

JOSSA, P. (2011): **Aufbau und Betrieb einer häuslichen Toilettenanlage mit Stoffstromtrennung als zentraler Bestandteil eines integrativen Sanitärsystems für Jurten-Siedlungen in der Stadt Darkhan, nördliche Mongolei.** {B.Eng. Thesis, Department Urban Water Management, Bauhaus-Universität Weimar; project supervisor: Prof. Dr. Jörg Londong}

MEWES, B. (2012): **Simulation der Schneebedeckung im Kharaa-Einzugsgebiet (Mongolei) mit Hilfe des hydrologisch-klimatologischen TRAIN-Modells.** {B.Sc. Thesis, Department of Geography, Heidelberg University; project supervisor: Prof. Dr. Lucas Menzel}

PAMLER, A. (2016): **Evaluierung und exemplarische Auswertung der bisher verfügbaren Fernerkundungsdaten in der Google Earth Engine oder anderer Quellen für Monitoringaufgaben in der Mongolei.** {B.Eng. Thesis, Faculty of Spatial Information, HTW Dresden; project supervisor: Prof. Dr. Martin Oczipka}

RIECHMANN, M. (2013). **Identifikation und Beschreibung der Kernelemente eines funktionalen Designs eines leitungsungebundenen, stoffstrombasierten Sanitärsystems anhand der iPiT®.** {B.Eng. Thesis, Department Urban Water Management, Bauhaus-Universität Weimar; project supervisor: Prof. Dr. Jörg Londong}

SCHWEMMLE, R. (2015): **Abflussentwicklung im oberen Einzugsgebiet des Tuul (Mongolei).** {B.Sc. Thesis, Department of Geography, Heidelberg University; project supervisor: Prof. Dr. Lucas Menzel}

WENZEL, F. (2014): **Temperaturentwicklung in Zentralasien. Analyse ausgewählter Meßstationen von 1950 bis 2010.** {B.Sc. Thesis; Department of Geography, Heidelberg University; project supervisor: Prof. Dr. Lucas Menzel}

ZIERGÖBEL, R. (2012): **Analyse und Vergleich von Klimadaten verschiedener meteorologischer Stationen aus dem Flusseinzugsgebiet des Kharaa (Mongolei).** {B.Sc. Thesis, Department of Geography, Heidelberg University; project supervisor: Prof. Dr. Lucas Menzel}

ZIPFEL, M. (2012): **Bedeutung von Salz für die Bodennutzung und Urindüngung.** {B.Eng. Thesis, Department Urban Water Management, Bauhaus-Universität Weimar; project supervisor: Prof. Dr. Jörg Londong}

## 3.2 Master Theses

BATBAYAR, G. (2012): **Arsenic Content in Water Samples of Mongolia: Using an Arsolux Test Kit Based on Bioreporter.** {M.Sc. Thesis, Institute of Geography, National University of Mongolia; project advisors: Martin Pfeiffer, Konrad Siegfried, Daniel Karthe}.

BEHRENS, S. (2011): **Modellierung des Schwebstoffaustrags in einem mesoskaligen Einzugsgebiet in der Mongolei.** {Diploma Thesis; Institute Geosciences and Geography, Halle University; project supervisor: Dr. Michael Rode}

BERNER, S. (2007): **Hydromorphologische Untersuchungen an einem Fließgewässer im Norden der Mongolei (Kharaa-Einzugsgebiet): Grundlagenerarbeitung für die Interpretation biologischer Daten.** {Diploma Thesis; Center for Environmental Systems Research, Kassel University; project supervisor: Dr. Michael Rode}

BOCK, F. (2015): **Analysing Institutions for Water Supply and Sanitation Services in Ulan Bator, Mongolia - A New Institutional Economics Perspective.** {Master Thesis; Institute of Infrastructure and Resources Management, Leipzig University; project supervisor: Dr. Katja Sigel}

ENDERS, M. (2016): **Google Earth Engine – ein Cloud basiertes Werkzeug für die Fernerkundung :**

**Prüfung und Test hinsichtlich der Eignung für Umweltanalysen.** {M.Eng. Thesis, Faculty of Spatial Information, HTW Dresden; project supervisors: Prof. Dr. Martin Oczipka, PD Dr. Jürgen Hofmann}

FLÖRL, M. (2017): **Verbreitung der Auengehölze am Fluss Kharaa: Eine Fernerkundungsstudie mit Sentinel-2 Daten.** {Master Thesis; Department of Geography, Göttingen University; project supervisor: Dr. Daniel Karthe}

GRAU, M. (2011): **Co-Vergärung von Klärschlamm und Fäzes aus Trockentrenn-toiletten.** {M.Eng. Thesis, Department Urban Water Management, Bauhaus-Universität Weimar; project supervisor: Prof. Dr. Jörg Londong}

HEINEN, M. (2012): **Modellierung der Auswirkungen von Landnutzungsänderungen auf die Wasserressourcen der Mongolei im Zeitraum 1971-2100, mit Hilfe WaterGAP3.** {Diploma Thesis, University of Bonn; project supervisors: Dr. Tim aus der Beek and Marcus Malsy}

HELDT, S. (2014): **The EU-WFD as an Implementation Tool for IWRM in non-European Countries. Case Study: Drafting a River Basin Management Plan for the Kharaa River in Northern Mongolia.** {Master Thesis, University of Duisburg-Essen and University Nijmegen; project supervisor: Daniel Karthe}

HEPPELER, J. (2012): **Optimization of the operation of a Sequencing Batch Reactor on the example of the pilot wastewater treatment plant in Darkhan, Mongolia.** {Master Thesis, Stuttgart University; project supervisor: Dr.-Ing. Buren Scharaw}

HOSER, S. (2016): **Landnutzungsklassifizierung in Flussauen des Kharaa-River-Basins, Mongolei mit dem Schwerpunkt Daten und Software der ESA Copernicus Mission.** {M.Eng. Thesis, Faculty of Spatial Information, HTW Dresden; project supervisors: Prof. Dr. Martin Oczipka, PD Dr. Jürgen Hofmann}

HÜLSMANN, L. (2012): **Process-based Hydrological Modeling using SWAT: The Effect of Subarctic Conditions on Water Resources in the Large-Scale River Catchment Kharaa, Mongolia.** {M.Sc. Thesis, Institute of Geology, Göttingen University; project supervisors: Dr. Daniel Karthe, Dr. Jörg Priess and Dr. Christian Schweitzer}

KÖRNER, A. (2011): **Schneehydrologische Prozesse in der Mongolei. Eine explorative Studie zur Anwendbarkeit des Simulationsmodells TRAIN.** {Diploma Thesis; Department of Geography, Heidelberg University; project supervisor: Prof. Dr. Lucas Menzel}

KÖSER-UNRUH, O. (2014): **Fernerkundliches Monitoring von Flussauen in der Mongolei auf Basis von Landsat-, ASTER- und RapidEye-Daten.** {Diploma Thesis, Faculty of Spatial Information, HTW Dresden; project supervisor: Prof. Dr. Martin Oczipka}

LOHMEYER, T. (2017): **Kartierung der Landbedeckung im Selenga-Baikal Einzugsgebiet auf Basis multitemporaler Proba-V Aufnahmen.** {Master Thesis; Department of Geography, Göttingen}

University; project supervisor: Dr. Daniel Karthe}

MÜLLER-MEISSNER, M. (2011): **Veränderung des Wasserhaushaltes nach Brand in der Taiga im Westkhentej, Nordmongolei: Charakterisierung hydroklimatischer Standortparameter sowie Analyse des Blattflächenindex durch Fernerkundung (MODIS)**. {Diploma Thesis; Department of Geography, Heidelberg University; project supervisor: Prof. Dr. Lucas Menzel}

MUNKHTSETSEG, Z. (2008): **Hydrological modelling in the Kharaa basin, north-eastern Mongolia**. {M.Sc. Thesis; National University of Mongolia / Center for Environmental Systems Research, Kassel University; project supervisor: Prof. Lucas Menzel}

OKURDIL, J. (2011): **Untersuchung des Forstbestandes in der Mongolei. Exkurs: Brandbekämpfung mithilfe von MODIS als Modell der Fernerkundung**. {Thesis for the First State Examination, Department of Geography, Heidelberg University; project supervisor: Prof. Dr. Lucas Menzel}

PAILLIART, B. (2011): **Räumliche und zeitliche Variabilität der Schneebedeckung im Einzugsgebiet des Kharaa (Mongolei). Eine Untersuchung der Winter 2000/2001 bis 2009/2010 mit MODIS-Schneeprodukten**. {Diploma Thesis, Department of Geography, Heidelberg University; project supervisor: Prof. Dr. Lucas Menzel}

POSTELT, T. (2013): **Förderung der Umweltbildung mongolischer Jugendlicher – Bewertung der Bildungsmaßnahme im Rahmen des Projektes Integrated Water Resources Management Model Region Mongolia (MoMo)**. {M.Ed. Thesis; University of Education, Heidelberg; project supervisor: Prof. Dr. Dr. h.c. Michael Walther}

SCHLÜTER, J. (2013): **Qualitative Evaluation des Umweltbildungsprojektes „Schulnetzwerk Kharaa: Schulen für einen lebendigen Fluss“. Ein Vergleich von Schülervorstellungen und wissenschaftlichen Konzepten des Integrierten Wasserressourcen-Managements (IWRM) zur didaktischen Rekonstruktion der Wasserproblematik in der Mongolei**. {Master Thesis, Department of Geography, Göttingen University; project supervisors: Prof. Dr. Michael Walther and Dr. Steffen Niemann}

SCHUSTER, C. (2012): **Technische Entwicklung und ökonomischer Vergleich angepasster, leitungsungebundener Sanitärsysteme mit integrierter Abfallentsorgung für Jurten-Siedlungen in der Stadt Darkhan, Mongolei**. {M.Eng. Thesis, Department Urban Water Management, Bauhaus-Universität Weimar; project supervisor: Prof. Dr. Jörg Londong}

SUNJIDMAA, N. (2018): **Turbidity dynamics during storm events in a Mongolian River with a high environmental gradient (A case study of Kharaa River Basin, Mongolia)**. {M.Sc. Thesis, Institute of Hydrobiology, Technical University Dresden; Project supervisors: Prof. Dr. Dietrich Borchardt; Dr. Dr.h.c. Martin Pfeiffer; Project advisor: Katja Westphal}

UNGER, J. (2013): **Institutional Analysis of the Urban Drinking Water Supply and Sanitation Services in Ukraine and Mongolia – a cooperative study**. {Master thesis, Humboldt-Universität zu Berlin, Faculty of Agriculture and Horticulture; project supervisor: Dr. Katja Sigel}

WESTPHAL, K. (2013): **Scenario development of a large-scale willow based wastewater treatment for the village of Khongor in Mongolia with special focus on design and dimensioning.** {M.Sc. Thesis, Brandenburg University of Technology Cottbus, Faculty of Environmental Sciences and Process Engineering; project supervisors: Chris Sullivan, Dr. Manfred van Afferden}

WITHANACHCHI, S.S. (2013): **An analysis of politics of scale in water governance and management in Mongolia.** {M.A. Thesis, Kassel University; project supervisor: Dr. Annabelle Houdret}

### 3.3 Doctoral Theses

AUS DER BEEK, T. (2011): **Large scale modelling of irrigation water use and its impact on water resources.** {Dissertation, Department of Geography, Heidelberg University; project supervisors: Prof. Dr. Lucas Menzel and Prof. Dr. Dietrich Borchardt}

AVLYUSH, S. (2013): **Life cycle and secondary production of Ephemeroptera, Plecoptera and Trichoptera (Insecta) under an extreme continental climate (River Kharaa, Mongolia).** {Dissertation, Department for Hydrosiences, Technical University Dresden; project supervisor: Prof. Dr. Dietrich Borchardt}

HARTWIG, M. (2016): **Impact of fine sediment and nutrient input on the hydroheic functionality: A case study in Northern Mongolia.** {Dissertation, Department for Hydrosiences, Technical University Dresden; project supervisor: Prof. Dr. Dietrich Borchardt}

KAUS, A. (2018): **Ecological assessment of salmonid populations in a country undergoing rapid environmental and socioeconomic transitions (Mongolia).** {Dissertation, Department for Hydrosiences, Technical University Dresden; project supervisor: Prof. Dr. Dietrich Borchardt}

KOPP, B. (2016): **Runoff generating processes in a mountainous headwater in the transition zone between steppe and taiga in northern Mongolia.** {Department of Geography, Heidelberg University; project supervisor: Prof. Dr. Lucas Menzel}

KRAETZ, D. (2009): **Ökologie der Fischbestände in Fließgewässern des Khentii-Gebirges (Mongolei): Bestandsaufbau, Dynamik und Gefährdung durch den Gold-Tagebau.** {Dissertation, Faculty of Forest, Geo and Hydrosiences, TU Dresden; project supervisor: Prof. Dr. Dietrich Borchardt}

MALSY, M. (2016): **Assessing the impacts of global change on water quantity and quality: Large-scale modelling studies for Central Asia.** {Dissertation, Department for Hydrosiences, Technical University Dresden; project supervisor: Prof. Dr. Dietrich Borchardt}

SCHWEITZER, C. (2012): **Modelling land-use and land-cover change and related environmental impact in Northern Mongolia.** {Dissertation, Martin-Luther-Universität Halle-Wittenberg; project

supervisor: Dr. Jörg Priess}

STÄUDEL, J. (2017): **Development, Implementation and Operation of Integrated Sanitation Systems Based on Material-Flows: Integrated Sanitation in the City of Darkhan, Mongolia - A Practicable Example.** {Dissertation, Bauhaus-Universität Weimar; project supervisor: Prof. Dr. Jörg Londong}

### 3.4 Habilitation Theses

KARTHE, D. (2017): **Water in Central Asian Drylands: Major Challenges, Recent Developments and Management Options.** {Habilitation thesis, Institute of Geography, Göttingen University}.