

Robert John Zomer, Ph.D.

Landscape Ecologist - Consultant
Euro-Mediterranean Center on Climate Change (CMCC)

Presidential Fellow
Center for Mountain Futures
Chinese Academy of Sciences (CAS)

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Summary

Management and research team leader, senior research scientist, landscape and systems ecologist, with broad background in plant community, forest and agricultural ecology, and advanced skills in statistical analysis, geographic information systems (GIS), remote sensing, environmental modeling, geospatial analysis, and computer programming. Special interests include agroforestry, biodiversity conservation, sustainable development, participatory approaches to community development, protected-area management, integrated natural resource management, and mountain landscapes. Extensive experience in the Himalayas, as well as East Africa, South America, and South, East, and Southeast Asia, including with large international projects on transboundary biodiversity conservation, wise-use of wetlands, small farmer timber production, application of advanced spatial tools at global to local levels and within participatory frameworks; integrated watershed management, characterization of marginal environments for livestock production, tree-based farming systems, agroforestry, and afforestation/reforestation for climate change mitigation. In-depth and practical experience in biodiversity conservation, sustainable agriculture, tree crops, and mountain farming and forest ecosystems. Substantial and successful proposal writing experience with wide variety of partners, NGO's, community groups, and other stakeholders for a range of donors, funding programs, and funding calls.

Education

Post-Doctoral Research Fellow

Center for Spatial Technologies and Remote Sensing (CSTARS)
Dept. of Land, Air and Water Resources
University of California - Davis, 1998-2000.

Ph.D. - Ecology: Landscape and Systems Ecology
Division of Environmental Studies
University of California, Davis, 1998.

Dissertation:

Landscape Ecology of the Makalu-Barun National Park, Nepal.

Academic Committee:

Major Professor: Dr. Jack Ives, UCD Division of Environmental Studies;
International Mountain Society; United Nations University.
Advisor: Dr. Susan Ustin: UCD Dept. of Land, Air and Water Resources.
Advisor: Dr. John Menke: UCD Dept. of Agronomy and Range Science.

Master of Science: Ecology, University of California, Davis, June 1992

Thesis: Site Index and Biomass Productivity Estimates for Himalayan Alder - Large
Cardamom Plantations: A Model Agroforestry System for the Mid-Hills of Nepal .
Major Professor: Dr. John Menke - Dept. of Agronomy and Range Science

Bachelor of Science: International Agricultural Development - Emphasis in Plant Science.
Dept. of Agronomy and Range Science, College of Agricultural and Environmental
Sciences, University of California, Davis, June 1984.

Current Position –

Centre on Euro-Mediterranean Climate Change (CMCC) - 2023

Senior Research Scientist / Landscape Ecologist: Consultant

Geospatial analysis and environmental stratification to understand the impacts of climate change on terrestrial ecosystems within the framework of the EU-funded collaborative project Nexio-Genesis.

Presidential Fellow – Chinese Academy of Sciences:

Center for Mountain Futures – Kunming Institute of Botany – Chinese Academy of Sciences, and the World Agroforestry Center – East and Central Asia Regional Office -

Previous Position – Center for Mountain Futures - 2012 - 2022

Visiting Professor / Senior Landscape Ecologist / Presidential Fellow:

Center for Mountain Futures – a joint laboratory of the Kunming Institute of Botany – Chinese Academy of Sciences, and the World Agroforestry Center – East and Central Asia Regional Office - From 2012 to 2022.

Responsible for the development, implementation, support, and management of a broad inter-disciplinary program focused on climate change and mountain ecosystems, enhancing socio-ecological resilience of mountain communities, and biodiversity conservation. Research and development activities are linked through participatory action research approaches and enhanced through partnerships and collaborations, both nationally and globally, with significant outreach and dissemination efforts.

Major Consultancies:

International Tree Cover Expert; Tree cover on agricultural land in the Asia-Pacific region. CGIAR, FAO-RAP, Asia-Pacific Association of Forestry Research Institutions. 2019.

International Climate Change and Protected Area Specialist:

ADB - SC 112751 MON – Lake Khuvsgul National Park – Climate change impact assessment. 2019.

International Consultant – Landuse Expert - Uganda – Albertine Rift Valley

Spatial analysis – biophysical, economic and spatial dimensions of land degradation, and landuse planning for optimizing sustainable development and investment. 2018.

International Consultant: Climate Change Impact Assessment - Protected Areas:

Conservation International – SPARC Global Assessment of Climate Change Impacts on Biodiversity and Protected Areas. 2017-2018

International Consultant: Climate Change Impact Assessment – Hazelnut Production Bhutan:

Helvetas – Swiss Inter-Cooperation / Asian Development Bank – Climate change expert for Mountain Hazel Nut Technical Support Project – Bhutan – 2017-2018

International Consultant for Climate Change Impact Assessment on Ecoregions:

Mekong River Commission - Climate Change and Adaptation Initiative (CCAI) - Environment Division: “Climate Change Impacts on Bioclimatic Conditions and Terrestrial Ecosystems in the Lower Mekong Basin” - 2015 - 2016

International Consultant for Climate Change Impact Assessment on Biodiversity:

Asian Development Bank / Yunnan Environment Protection Dept., PR China - Biodiversity Strategy and Action Plan for Yunnan Province – “Climate Change Impacts on Bioclimatic Conditions, Biodiversity, Terrestrial Ecosystems, and Effectiveness of Protected Area Network in Yunnan Province, China” - 2014 - 2015

Professional Experience – ICIMOD – 2008 – 2012

Acting Program Manager / Deputy Program Manager/ Senior Landscape Ecologist: International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal.

Senior Scientist / Acting Program Manager within the **Environmental Change and Ecosystems Services Programme**, responsible for the development, implementation, support, and management of a broad inter-disciplinary program focused on maintaining and enhancing ecosystem services and the socio-ecological resilience of mountain communities, with an emphasis on application of ecosystem management approaches and promoting regional cooperation to address global, national and local issues of sustainable development, biodiversity and environmental conservation, and poverty reduction. Research and biodiversity conservation activities are linked and enhanced through partnerships and collaborations, both nationally and globally, with significant outreach and dissemination efforts.

Focal Areas include: Applying, promoting and developing transboundary landscape, ecosystem management, and participatory approaches for conserving and managing biodiversity, rangelands, forest and other mountain ecosystems, including agro-ecosystems, climate change adaption and mitigation, environmental and ecosystem monitoring, and knowledge sharing, in the Hindu Kush - Himalayan region. Responsible for supporting programme management activities, and providing strategic, programme development and capacity building support.

Technical Coordinator - Kailash Sacred Landscape Conservation Initiative

Professional Experience – CGIAR – 2000 - 2008

Senior Landscape Ecologist: International Water Management Institute (IWMI),
Based at IWMI Headquarters in Colombo, Sri Lanka. From 2002 to 2007.

Senior Researcher within the **Global Research Division**, responsible for the development, implementation and management of a broad inter-disciplinary research program with an emphasis on application of advanced remote sensing and geospatial analytical tools to address global, national and local issues of sustainable development, increased agricultural and water productivity, biodiversity, environmental conservation, and poverty alleviation. Research activities are linked and enhanced through partnerships and collaborations, both nationally and globally, with significant outreach and dissemination efforts.

Research Focal Areas include: Carbon, land and water aspects of trees on farm and communitybased agroforestry, landuse suitability modeling, carbon sequestration, and hydrologic implications of afforestation and reforestation, in particular as proposed for climate change mitigation. Meso-scale landscape analysis for improved livestock management, poverty alleviation. and integrated watershed management in semi-arid areas.; Global wetland mapping and inventory, wise use of wetlands, and carbon implications of wetland loss. Geospatial information management, dissemination, networks and collaborations to enhance and empower geospatial communities of practices, capacity building for spatial data infrastructure, with emphasis on national partners, open source software applications for data sharing, and promotion of open access global information resources.

Landscape Ecologist/ Senior Landscape Ecologist: World Agroforestry Center (ICRAF) - Nairobi. Kenya. 2000-2002 – 2007-2008

Landscape Ecologist: Broad research program on land cover and land use analysis with a focus on East Africa. Research projects in Kenya and Uganda, including application of advanced remote sensing tools and spatial analysis for resource conservation and improved management. Significant training and capacity building activities with NARES partners throughout the region. Research on spatial information management and dissemination, particularly capacity building approaches for extension of geospatial capabilities to rural areas and local communities.

Coordinator: ICRAF-HQ Decision Support Systems (GIS) Laboratory.

Global Coordinator: CGIAR Consortium for Spatial Information (CGIAR-CSI),
From 2002 to 2006.

Global Coordinator and Chair of the CGIAR-CSI, responsible for facilitating and further developing a large network of scientists across the globe, notably within the CGIAR centers and their respective Geo-Spatial Laboratories, working on sustainable development, natural resource management, environmental conservation and poverty alleviation. The existing CGIAR-CSI network addresses objectives of the CGIAR Geospatial Community of Practice, through advanced ICT/KM technologies, facilitating increased networking and collaboration, development of infrastructure for geo-spatial data sharing, common spatial data management, and providing a platform for the wide dissemination of CGIAR geo-spatial science, based on international standards and global Spatial Data Initiatives.

ICIMOD Representative To:

UNFCCC – Designated Contact Point
IPCC - Observer

IWMI Representative To:

CGIAR System-wide Genetic Resources Program (SGRP)
CGIAR ICT/KM Program - Advisory Committee Member
IWMI ICT/KM and Spatial Data Advisory Committees: Member

CGIAR-CSI Representative To:

United Nations Geographic Information Working Group (UNGIWG)
CGIAR Inter-Center Working Group for Climate Change (ICWG-CC)
FAO OpenSource GeoNetwork Project: Steering Committee Member
CGIAR System-wide Genetic Resources Program (SGRP)
United Nations Spatial Information Advisory Group (SIMAG)
CGIAR System-wide Information Network for Genetic Resources (SINGER)
United Nations Spatial Information Advisory Group (SIMAG)

Earlier Professional Experience

Consultant - Spatial Analyst: Pacific Forest Trust, Inc., California, USA - 1997-2000.

Resident Faculty for Natural Resource Management - Center for Island Management, School for Field Studies (Boston University), Republic of Palau, Western Pacific. 1995.

Research Analyst: USDA Sustainable Agriculture Research Program - 1996.

Research Associate: Sierra Nevada Ecosystem Project (SNEP), University of California. 1995-1996. SNEP Report to U.S. Congress, 1996. Dr. Peter Moyle, Dept. of Wildlife Biology

Research Associate: Dept. of Agronomy and Vegetable Production, University of California. 1994-1997

Lecturer / Program Coordinator- Wildland Studies Dept., San Francisco State University - 1990 to 1997.

Post Graduate Researcher: Sustainable Agriculture Research and Education Program (SAREP), University of California, 1987-1995.

U.S. Peace Corps Volunteer - Nepal: July 1984 - October 1986: Seed Production, Input, and Storage Program (SPIS), Ministry of Agriculture, Nepal

Agricultural Extension / Local Administrator - Terathum District: Technical and administrative support to local small farmer seed multiplication and storage program. Introduction and distribution of improved varieties of maize, wheat and rice, on-farm field trials, farming systems research, on-farm training and extension, farmer trainings, and program monitoring and evaluation.

Teaching Experience

Lecturer/Program Coordinator- Wildland Studies, San Francisco State University - 1990 to 1997

Environments of Nepal: Ecological Field Studies: Five semesters completed.

Biology 315: Field Studies in Biology (15 units cumulative)
Geography 320: Environmental Wildlands Studies - Physical (15 units cumulative)
Geography 320: Environmental Wildlands Studies - Cultural (15 units cumulative)

Environments of the Pacific: Ecological Field Studies: One semester completed.

Biology 315: Field Studies in Biology (3 units cumulative)
Geography 320: Environmental Wildlands Studies - Physical (3 units cumulative)
Geography 320: Environmental Wildlands Studies - Cultural (3 units cumulative)

Resident Faculty for Natural Resource Management - Center for Island Management, School for Field Studies (Boston University), Republic of Palau, Western Pacific. Fall Semester, 1995.

Accredited university-level field studies course in Natural Resource Management. Curriculum includes island biogeography, terrestrial ecology, agroecology, and island resource management. Advise students and supervise ecological field research projects.

University of California - Davis - Teaching Experience - 1997 - 1998

ABT 180: GIS Spatial Analysis - Associate Instructor
Dept. of Biological and Agricultural Engineering 1998.

ABT 180: GIS Spatial Analysis - Teaching Assistant
Dept. of Biological and Agricultural Engineering 1997 and 1998.

ABT 182: Environmental Risk Analysis - Teaching Assistant
Dept. of Agricultural and Biological Technology 1997

ASM 122: Database Management for Biological Sciences - Teaching Assistant
Dept. of Agronomy and Range Science - 1997

Peer Reviewed Publications

- Zomer RJ, Xu J, Spano D and Trabucco A. 2024. CMIP6-based global estimates of future aridity index and potential evapotranspiration for 2021-2060 [version 1; peer review: 3 approved with reservations]. *Open Res Europe*, 4:157 <https://doi.org/10.12688/openreseurope.18110.1>
- Zomer, RJ Trabuco, A. Future Global Aridity Index and PET Database (CMIP_6)[DS/OL]. V6. Science Data Bank, 2024. <https://cstr.cn/16666.11.sciencedb.nbsdc.00086>. CSTR:16666.11.sciencedb.nbsdc.00086.
- Zomer RJ, Yang J, Spano D, Trabucco A. 2023. Irrecoverable carbon in mountains and the global mitigation potential of agroforestry and increased tree cover in mountain agricultural systems. *Circular Agricultural Systems* 3:11 doi: [10.48130/CAS-2023-0011](https://doi.org/10.48130/CAS-2023-0011)
- Zomer, R.J.; Xu, J.; Trabucco, A. 2022. Version 3 of the Global Aridity Index and Potential Evapotranspiration Database. *Scientific Data* 9, 409.
- Zomer, RJ; Bossio, DA; Trabucco, A; van Noordwijk, M; Xu, J. 2022. Global carbon sequestration potential of agroforestry and increased tree cover on agricultural land. *Circular Agricultural Systems* 2 (1), 1-10.
- Pomoim, N.; Zomer, RJ; Hughes, AC; Corlett, RT. 2021. The Sustainability of Thailand's Protected-Area System under Climate Change. *Sustainability* 13: 2868
- Bezuijen, Mark R; Russell, Michael; Zomer, Robert J.; Enkhtaivan, D. 2020. Building the Climate Change Resilience of Mongolia's Blue Pearl: The Case Study of Khuvsgul Lake National Park. Asian Development Bank, Manila, Philippines. ISBN 978-92-9262-608-2. <http://dx.doi.org/10.22617/TCS200404-2>
- Nwe, T.; Zomer, R.J.; Corlett, R.T. Projected Impacts of Climate Change on the Protected Areas of Myanmar. *Climate* 2020, 8, 99.
- Johnston J.M., Zomer R.J., Wang M. (2020) Predicting Future Vegetated Landscapes Under Climate Change: Application of the Environmental Stratification Methodology to Protected Areas in the Lower Mekong Basin. In: O'Higgins T., Lago M., DeWitt T. (eds) *Ecosystem-Based Management, Ecosystem Services and Aquatic Biodiversity*. Springer, Cham. https://doi.org/10.1007/978-3-030-45843-0_28
- Bossio, D.A., Cook-Patton, S.C., Ellis, P.W., Fargione, J., Sanderman, J., Smith, P., Wood, S., Zomer, R.J., von Unger, M., Emmer, I.M., Griscom, B.W. 2020. The role of soil carbon in natural climate solutions. *Nat Sustain* 3, 391–398. <https://doi.org/10.1038/s41893-020-0491-z>
- Aynekulu E, M Suber, R Zomer, D Mboi, Jacobo Arango & TS Rosenstock. 2020. Quantification of climate change mitigation benefits from expansion of silvopastoral systems: An analytical proof of concept for Colombia. CCAFS Working Paper no. 295. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Wageningen, the Netherlands. Available online at: www.ccafs.cgiar.org
- Zomer R, Öborn I, Xu J. 2019. Tree cover on agricultural land in the Asia-Pacific region. Working Paper 294. Bogor, Indonesia: World Agroforestry (ICRAF) Southeast Asia Regional Program. DOI: <http://dx.doi.org/10.5716/WP19005.PDF>
- Xu, J., Badola, R., Chettri, N., Chaudhary, R.P., Zomer, R., Pokhrel, B., Hussain, S.A., Pradhan, S., Pradhan, R., 2019. Sustaining Biodiversity and Ecosystem Services in the Hindu Kush Himalaya, in: Wester, P., Mishra, A., Mukherji, A., Shrestha, A.B. (Eds.), *The Hindu Kush Himalaya Assessment: Mountains, Climate Change, Sustainability and People*, The Hindu Kush Himalaya Assessment: Mountains, Climate Change, Sustainability and People. Springer International Publishing, Cham, pp. 127–165.
- Zomer, R., Xu, J., Wang, M., 2018. Climate Change Impacts On Bioclimatic Conditions And Terrestrial Ecosystems In Central Asia. In: *Practical Geography And XXI Century Challenges: International Geographical Union Thematic Conference dedicated to the Centennial of the Institute of Geography of the Russian Academy of Sciences*. 6–6.

- Zomer, R.J., Bossio, D.A., Sommer, R., Verchot, L.V. 2017. Global sequestration potential of increased organic carbon in cropland soils. *Scientific Reports* 7, 15554. <https://doi.org/10.1038/s41598-017-15794-8>
- Ahrends A, Hollingsworth PM, Beckschafer P, Chen H, Zomer RJ, Zhang L, Wang M, Xu J. 2017 China's fight to halt tree cover loss. *Proc. R. Soc. B* 284: 20162559. <http://dx.doi.org/10.1098/rspb.2016.2559>
- Kim, K., Wang, M., Ranjitkar, S., Liu, S., Xu, J., Zomer, R.J. - 2017. Using leaf area index (LAI) to assess vegetation response to drought in Yunnan province of China. *Journal of Mountain Science*, 14(9):1863-1872
- Zomer, R.J., Neufeldt, H., Xu, J., Ahrends, A., Bossio, D.A., Trabucco, A., van Noordwijk, M., Wang, M. 2016. Global Tree Cover and Biomass Carbon on Agricultural Land: The contribution of agroforestry to global and national carbon budgets. *Scientific Reports* 6, 29987; doi: 10.1038/srep29987.
- Ranjitkar, S., Sujakhu, N.M., Lu, Y., Wang, Q., Wang, M., He, J., Mortimer, P.E., Xu, J., Kindt, R., Zomer, R.J., 2016. Climate modelling for agroforestry species selection in Yunnan Province, China. *Environmental Modelling & Software*.
- Zomer, R.J.; Trabucco, A.; Wang, M.; Xu, J.C., 2016. Projected Climate Change Impact on Hydrology, Bioclimatic Conditions, and Terrestrial Ecosystems in the Asian Highlands. ICRAF Working Paper 222. World Agroforestry Centre East and Central Asia, Kunming, China. 56 pp.
- Zomer, R. J., Xu, J., Trabucco, Wang, M., Zhuoqing L. 2015. Projected Impact of Climate Change on the Effectiveness of the Existing Protected Area Network for Biodiversity Conservation within Yunnan Province, China. *Biological Conservation*. 184(C), 335–345. doi:10.1016/j.biocon.2015.01.031
- Ranjitkar, S.; Sujakhu, N.M.; Budhamagar, K.; Rimal, S.; Xu, J.; Merz, J.; Zomer, R.J. 2015. Projected climate change impacts on climatic suitability and geographical distribution of banana and coffee plantations in Nepal. ICRAF Working Paper 204. Kunming, China. World Agroforestry Centre East and Central Asia. 32 pp. Doi: <http://dx.doi.org/10.5716/WP15294.PDF>
- Zomer, R; Wang, M.; and Xu, J., 2015. Projected climate change and impact on bioclimatic conditions in Central and South-Central Asia. ICRAF Working Paper 187. World Agroforestry Centre East and Central Asia, Kunming, China. pp 50. Doi: <http://dx.doi.org/10.5716/WP14144.PDF>
- Djanibekov, U; Dzhakypbekova, K; Weyerhaeuser, H; Zomer, R; Villamor, G.; Xu, J. 2015. Agroforestry for landscape restoration and livelihood development in Central Asia. ICRAF Working Paper 186. Kunming, China. World Agroforestry Centre East and Central Asia. 41 pp. Doi: <http://dx.doi.org/10.5716/WP14143.PDF>
- Zomer, R.J., Trabucco, A., Coe, R., Place, F., van Noordwijk, M., Xu, J., 2014. Trees on farms: an update and reanalysis of agroforestry's global extent and socio-ecological characteristics. Working Paper 179. World Agroforestry Center, Bogor, Indonesia. doi:10.5716/WP14064.PDF
- Trabucco A., and Zomer R. (2014). Drivers of Change: Influence of Aridity on Vegetation. In K. Sebastian (Ed.), *Atlas of African Agriculture Research & Development. Revealing agriculture's place in Africa*, International Food Policy Research Institute (IFPRI), Washington, D.C. http://dx.doi.org/10.2499/9780896298460_23 - Available from <http://agatlas.org>
- Zomer, R. J., Trabucco, Metzger, M. J., Wang, M., Oli, P., Xu, J. 2014. Projected climate change impacts on spatial distribution of bioclimatic zones and ecoregions within the Kailash Sacred Landscape of China, India, Nepal. *Climatic Change*. DOI 10.1007/s10584-014-1176-2.
- Zomer, R. J., Trabucco, A., Wang, M., Rong, L., Chen, H., Metzger, M., Smaijl, A. Beckshafer, P., Xu, J. 2014. Environmental Stratification to Model Climate Change Impacts on Biodiversity and Rubber Production in Xishuangbanna, Yunnan, China, *Biological Conservation*. 170: 264-273. DOI: 10.1016/j.biocon.2013.11.028.

- Zomer, R.J., Trabucco, A., Metzger, M., Oli, K.P., 2013. Environmental Stratification of Kailash Sacred Landscape and Projected Climate Change Impacts on Ecosystems and Productivity: ICIMOD Working Paper 2013/1. International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal.
- Metzger, M., Jongman, R., Sayre, R., Trabucco, A., Zomer, R.J. 2013. A high resolution bioclimate map of the world: a unifying framework for global biodiversity research. *Global Ecology and Biogeography* 22: 630-638.
- Metzger, M.J., Brus, D.J., Bunce, R., Carey, P.D., Goncalves, J., Honrado, J.P., Jongman, R., Trabucco, A., Zomer, R., 2013. Environmental stratifications as the basis for national, European and global ecological monitoring. *Ecological Indicators* 33: 26-35..
- Chettri N., E. Sharma and R. Zomer. 2012. Changing paradigm and post 2010 targets: Challenges and opportunities for biodiversity conservation in the Hindu Kush-Himalayas. *Tropical Ecology* 53(3): 245-259.
- Zomer, R.J., Oli, K.P. 2011. Kailash Sacred Landscape Conservation Initiative: Feasibility Assessment Report. ICIMOD: Kathmandu. SBN: 978 92 9115 211 7
- Zomer, R; Sharma, E. and Chettri N. 2011. A need for a mountain perspective – Impact of climate change on ecosystem services of the greater Hindu Kush-Himalayan *region*. In K Richardson, W. Steffen and D. Liverman (eds) *Climate Change – Global risk, challenges and decisions. Cambridge, UK. Pp 110-112.*
- Zomer RJ, Trabucco A, Coe R and Place F. 2009. Trees on Farm: Analysis of Global Extent and Geographical Patterns of Agroforestry. ICRAF Working Paper no. 89. Nairobi, Kenya: World Agroforestry Centre.
- Zomer, R.J., Trabucco, A., Ustin, S.L., 2009. Building spectral libraries for wetlands land cover classification and hyperspectral remote sensing. *J. Environ. Manage.* 90, 2170–2177.
- Zomer, R. J; Bossio, D. A.; Trabucco, A.; van Straaten, O.; Verchot, L.V. 2008. Climate Change Mitigation: A Spatial Analysis of Global Land Suitability for Clean Development Mechanism Afforestation and Reforestation. *Agric. Ecosystems and Environment*. 126:67-80.
- Trabucco, A.; Zomer, R. J.; Bossio, D. A.; van Straaten, O.; Verchot, L.V. 2008. Climate Change Mitigation through Afforestation / Reforestation: A global analysis of hydrologic impacts with four case studies. *Agric. Ecosystems and Environment*. 126: 81-97.
- Zomer, R. J.; Trabucco, A.; Verchot, L.V.; and Muys, B. 2008. Land Area Eligible for Afforestation and Reforestation in the CDM: A Global Spatial Analysis of Forest Definition. *Mitigation and Adaptation Strategies for Global Change – MITI*. 13 (3): 219-239.
- Zomer, R. J; Bossio, D.A. Trabucco, A.; Yuanjie, L.; Gupta, D.C.; Singh, V.P. 2007. Trees and Water: Smallholder Agroforestry on Irrigated Lands in Northern India. Colombo, Sri Lanka: International Water Management Institute. pp 450. (IWMI Research Report 122).
- Verchot, L. V.; Zomer, R. J.; van Straaten, O.; and Muys, B. 2007. Implications of country-level decisions on the specification of crown cover in the definition of forests for land area eligible for afforestation and reforestation activities in the CDM. *J. of Climate Change*. 81:3-4: 415-430.
- Place, F., Kristjanson, P., Staal, Kruska, R., de Wolff, T., Zomer, R., and Njuguna, E.C. 2006. Development Pathways in Medium – High Potential Kenya: A Meso Level Analysis of Agricultural Patterns and Determinants. In: *Strategies for Sustainable Land Management in the East African Highlands*, edited by John Pender, Frank Place, and Simeon Ehui (eds.) International Food Policy Research Institute, Wash. D.C.
- Zomer, R. J.; Trabucco, A.; van Straaten, O.; Bossio, D. A. 2006. *Carbon, land and water: A global analysis of the hydrologic dimensions of climate change mitigation through afforestation / reforestation and the Kyoto Protocol Clean Development Mechanism*. Colombo, Sri Lanka: International Water Management Institute. pp 48 . (IWMI Research Report 101).
- Zomer, R. S. Ustin, J. Ives 2002. Using satellite remote sensing for DEM extraction in complex mountainous terrain: Landscape analysis of the Makalu Barun National Park of eastern Nepal. *Int. J. of Remote Sensing* 2002, Jan 10, V23 N1:127-145.

- D. Riaño , E. Chuvieco, S. Ustin, R. Zomer, P. Dennison, and D. Roberts, Salas, J. 2002. Assessment of the regeneration after fire through the multitemporal analysis of AVIRIS images in the Santa Monica Mountains. *Remote Sensing of the Environment*. 79: 60-71.
- Zomer, R.J., Ustin, S.L., and Carpenter, C.C. 2001. Land Cover Change Along Tropical and Subtropical Riparian Corridors Within the Makalu Barun Conservation Area, Nepal. *Mountain Research and Development* 21(2):175-183.
- Zomer, R. ,C. Carpenter , S. Ustin, J. Ives, 2001. Structure, composition and community ordination of tropical monsoon forest within the Makalu Barun Conservation Area of Nepal. *Phytocoenologia*. 31 (2): 161-184.
- Carpenter, C. and Zomer, R. 1996. Forest Ecology of the Makalu-Barun National Park and Conservation Area, Nepal. *Mountain Research and Development* 16 (2): 135-148.
- Moyle, P.B., Kattelman, R., Zomer, R., and P. Randall, 1996. Management of Riparian Areas in the Sierra Nevada. *Sierra Nevada Ecosystem Project: Final Report to Congress, vol. iii. Assessments, Commissioned Reports, and Background Information*. Davis, University of California, Center for Water and Wildland Resources. pp. 1-37.
- Zomer, R. J. and J. Menke, 1993. Site Index and Biomass Productivity Estimates for Himalayan Alder - Large Cardamom Plantations: A Model Agroforestry System of the Eastern Mid-Hills of Nepal. *Mountain Research and Development* 13 (3): 235-255.