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Summary of activities in 2017

In 2017 the Centre for Land Tenure studies has produced 14 CLTS Working Papers and one CLTS Report. It has also registered 4 papers published in international journals by CLTS related researchers but probably this is an underestimate of the activity at NMBU as we face difficulties motivating NMBU staff to report relevant activities to CLTS and utilize the CLTS webpage. Staff members have also participated in various conferences including the World Bank Land and Poverty conference. Specifically professor Stein Holden and post doc researcher Mesfin Tilahun participated in this conference and presented two joint papers there. A separate report from this conference is included in an Annex.

The research by Stein Holden and Mesfin Tilahun on youth business groups that have been allocated rehabilitated lands in Tigray, Ethiopia, expanded with new surveys and experiments in 2017. The first paper on these youth groups based on the 2016 census was also accepted for publication in the international journal World Development. The paper investigates the compliance with Elinor Ostrom's Design Principles in their organization of collective action activities, and whether this degree of compliance was associated with group performance. They found both a high degree of compliance and significant correlations with a number of performance indicators. A research proposal for further work on these groups was submitted to NORGLOBAL2 in the Research Council of Norway but did not receive funding although it got a very favourable review by external experts. Towards the end of 2017 the Tigray Region received the Future Policy Gold Award for its youth inclusive land restoration policy and our research has contributed to the documentation that led to this Award.

The Adoption of Conservation Agriculture in Malawi project funded by CGIAR, led by Stein Holden with Samson Katengeza (PhD-student at NMBU) and Monica Fisher (University of Idaho) as research collaborators, finalized the writing of three papers that were submitted to journals. Christian Thierfelder (CIMMYT) was invited in as co-author of two of the papers.

Sarah Tione, PhD-student at School of Economics and Business, on the NORAD funded NORHED Climate Smart Natural Resource Management and Policy (CLISNARP), started her work for her PhD-dissertation on the analysis of data from Malawi on tenure security. Stein Holden is her supervisor.

Desta Brhanu, PhD-student at School of Economics and Business, on the NORAD funded NORHED Climate Smart Natural Resource Management and Policy (CLISNARP), started her work for her PhD-dissertation on the analysis of data from Tigray Region in Ethiopia on the determinants of land rental contract characteristics and their efficiency implications. Stein Holden is her supervisor.

Menasbo Gebru, PhD-student at School of Economics and Business, on the NORAD funded NORHED Climate Smart Natural Resource Management and Policy (CLISNARP), wrote a first paper co-authored by Stein Holden and Mesfin Tilahun (supervisors) on land rental markets and smallholder commercialization in northern Ethiopia. The paper is a CLTS WP and has been submitted to an international journal (revised and resubmitted once).

Øyvind N. Handberg defended his PhD dissertation on February 10th, 2017. The title of his dissertation was "Local forest use and conservation: Framed field experiments in Tanzania". Professor Arild Angelsen was his supervisor.

The "Tverrforsk" project "Land Renting and Agricultural Transformation in Norway" with Stein Holden, Geir Harald Strand, Erling Berge, Espen Sjaastad and Håvard Steinsholt, continued its work in 2017 and finalized a joint paper (in Norwegian) that was submitted to the Norwegian journal *Kart og Plan*.

In 2016 CLTS promised support for the publication of a book by Hans Sevatdal on the Norwegian history of land tenure, in Norwegian: "Eigedomshistorie". The book was published early 2017 by Universitetsforlaget (Sevatdal, Hans. 2017. *Eigedomshistorie*, edited by Per Kåre Sky and Erling Berge. Oslo: Universitetsforlaget.). It has already been decided to print a second issue.

In the series of publications from European Academy of Land Use and Development (EALD), the 2017 book by Hepperle, Erwin, Robert Dixon-Gough, Reinfried Mansberger, Jenny Paulsson, Józef Hernik, and Thomas Kalbro (eds. 2017). *Land Ownership and Land Use Development. The Integration of Past, Present, and Future in Spatial Planning and Land Management Policies*. Zürich: vdf Hochschulverlag AG an der ETH, Zürich, contained articles by Leikny Gammelmo ("Land Registration Systems"), August E. Røsnes ("Who governs?"), Berit Nordahl and Anders Eika ("Urban Redevelopment and the (Mixed) Blessing of Multiple Ownership"). The book is available in open access.

In 2017 CLTS started publication of a series of e-books based on older out-of-print reports (e.g. Sevatdal, Hans og Per Kåre Sky. 2003 [2017]. *Eigedomsteori: innføring i samfunnsvitskapleg teoritilfang for utøving av eigedomsfag*. Ås: Centre for Land Tenure Studies, NMBU.). The e-book section will also provide links to books like the above mentioned book by Hepperle et al. (eds. 2017).

In 2017 CLTS established a page with links (to the Brage database) to PhD-dissertations and MSc-theses with focus on land tenure related issues, see:

<https://www.nmbu.no/en/faculty/hh/research/centers/clts/research>

Centre for Land Tenure Studies

The Centre for Land Tenure Studies was opened at NMBU (earlier UMB) on the 27th of June 2011 resulting from a joint initiative by researchers at the Department of International Environment and Development (Noragric), the School of Economics and Business, and the Department of Landscape Architecture and Spatial Planning. In 2012 CLTS was joined by the Department of Ecology and Natural Resource Management.

Board of the Centre for Land Tenure Studies

Poul Wisborg (Chair), Department of International Environment and Development,
Inger-Lise Saglie, Department of Landscape Architecture and Spatial Planning,
Ragnar Øygaard, School of Economics and Business,
Sjur Baardsen, Department of Ecology and Natural Resource Management,
Eva Falleth, Dean, Faculty of Social Science.

People at CLTS

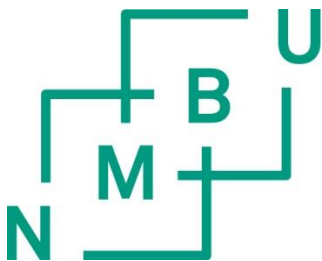
Core team: Ole Hofstad, Stein Holden, Berit Irene Nordahl and Espen Sjaastad.

Associates: Bernt Aarset, Arild Angelsen, Tor Arve Benjaminsen, Erling Berge, Einar Bergsholm, Per Kåre Sky, Sølve Bærug, Einar A. Hegstad, Darley Jose Kjosavik, Eirik Romstad, Dag Einar Sommervoll, Håvard Steinsholt, Steinar Taubøll, Arild Vatn, Pål Vedeld, Nikolai K. Winge.

Post doc researcher: Mesfin Tilahun

PhD students: Hadsh Tesfa Gebreab, Samson Katengeza, Desta Brhanu, Sarah Tione, Salem Afework, Menasbo Gebru Tesfay.

Administrative support: Kateryna Krutskykh.



Norwegian University of Life Sciences
Centre for Land Tenure Studies

Mission

The Centre for Land Tenure Studies (CLTS) at NMBU is established to further the study of land tenure. Land tenure studies define a broad and complex field of study cutting across many disciplines. For CLTS this entails, but is not limited to, the following activities:

- Provide a common arena for discussing land tenure issues, including a series of seminars directed to present new research or important theoretical perspectives. This may be designed as part of an educational program.
- Promulgate a joint series of working papers.
- Support international publication of articles and books.
- Develop and conduct joint courses at both Master and PhD level.
- Initiate and support exchange of researchers.
- Participate in research networks related to land tenure.
- Maintain a public list of collaborating institutions and researchers.
- Initiate and develop applications for research funds to support basic research on land tenure both by our own efforts and in collaboration with other research groups working on land tenure questions.

In its activities the centre will use English as its working language as far as practically possible.

In short we may say that the mission of the Centre for Land Tenure studies is to enhance collaboration across departments at NMBU; to strengthen the visibility of NMBU activities within the field of land tenure; to strengthen NMBU's international collaboration and networks within the field; to contribute to research and knowledge generation on land tenure issues; to help build capacity in the South and in Norway within the field; to disseminate policy lessons, and to contribute to policy debates.

CLTS Working Papers

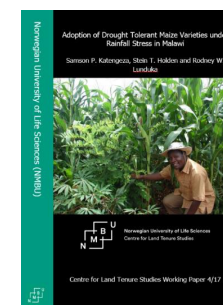
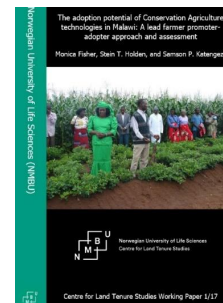
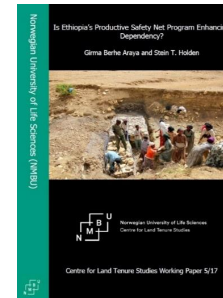
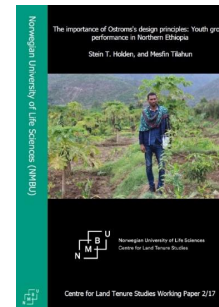
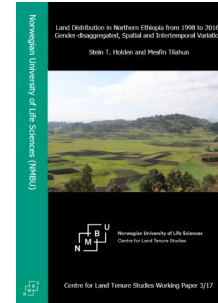
1. Monica Fisher, Stein T. Holden, and Samson P. Katengeza (2017). [The adoption potential of Conservation Agriculture technologies in Malawi: A lead farmer promoter-adopter approach and assessment.](#) CLTS Working Paper No. 1/2017. Centre for Land Tenure Studies, Norwegian University of

2. Stein T. Holden and Mesfin Tilahun (2017). [The importance of Ostrom's design principles: Youth group performance in Northern Ethiopia.](#) CLTS Working Paper No. 2/2017. Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

3. Stein T. Holden and Mesfin Tilahun (2017). [Land Distribution in Northern Ethiopia from 1998 to 2016: Gender-disaggregated, Spatial and Intertemporal Variation.](#) CLTS Working Paper No. 3/2017. Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

4. Samson P. Katengeza, Stein T. Holden and Rodney W. Lunduka (2017). [Adoption of Drought Tolerant Maize Varieties under Rainfall Stress in Malawi.](#) CLTS Working Paper No. 4/2017. Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

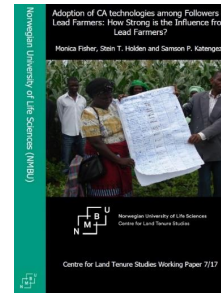
5. Girma Berhe Araya and Stein T. Holden (2017). [Is Ethiopia's Productive Safety Net Program Enhancing Dependency?](#) CLTS Working Paper No. 5/2017. Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.



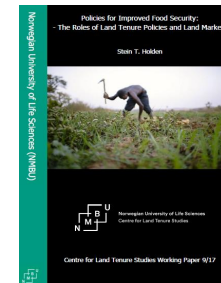
6. Bjørn Bendixen Leinebø, Frank Strømdal og André Torsnes (2017). [Minnelige avtaler ved grunnverv. CLTS Working Paper No. 6/2017](#). Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.



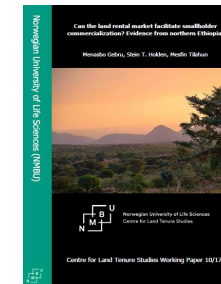
7. Monica Fisher, Stein T. Holden and Samson P. Katengeza (2017). [Adoption of CA technologies among Followers of Lead Farmers: How Strong is the Influence from Lead Farmers?. CLTS Working Paper No. 7/2017](#). Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.



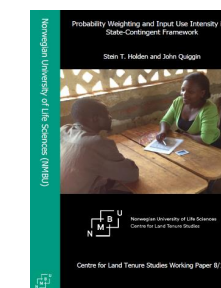
8. Stein T. Holden and John Quiggin (2017). [Probability Weighting and Input Use Intensity in a State-Contingent Framework. CLTS Working Paper No. 8/2017](#). Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.



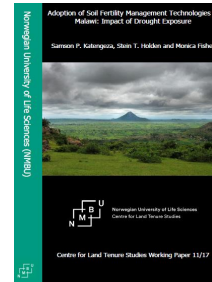
9. Stein T. Holden (2017). [Policies for Improved Food Security: - The Roles of Land Tenure Policies and Land Markets. CLTS Working Paper No. 9/2017](#). Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.



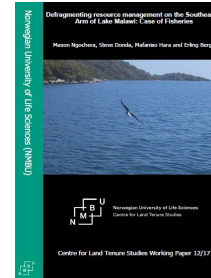
10. Menasbo Gebru, Stein T. Holden and Mesfin Tilahun (2017). [Can the land rental market facilitate smallholder commercialization? Evidence from northern Ethiopia. CLTS Working Paper No. 10/2017](#). Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.



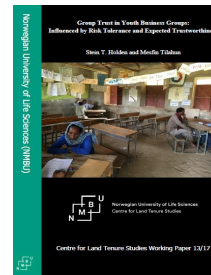
11. Samson P. Katengeza, Stein T. Holden and Monica Fisher (2017). [Adoption of Soil Fertility Management Technologies in Malawi: Impact of Drought Exposure. CLTS Working Paper No. 11/2017.](#) Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.



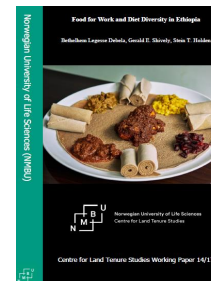
12. Maxon Ngochera, Steve Donda, Mafaniso Hara and Erling Berge (2017). [Defragmenting resource management on the Southeast Arm of Lake Malawi: Case of Fisheries. CLTS Working Paper No. 12/2017.](#) Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.



13. Stein T. Holden and Mesfin Tilahun (2017). [Group Trust in Youth Business Groups: Influenced by Risk Tolerance and Expected Trustworthiness. CLTS Working Paper No. 13/2017.](#) Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.



14. Bethelhem Legesse Debela, Gerald E. Shively, Stein T. Holden (2017). [Food for Work and Diet Diversity in Ethiopia. CLTS Working Paper No. 14/2017.](#) Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway.

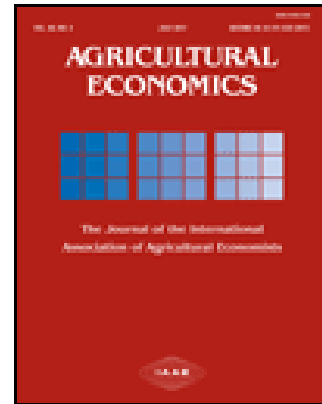


Journal papers

1. Tadesse, M. A., Alfnes, F., Erenstein, O. and Holden, S. T. (2017). [Demand for a labor-based drought insurance scheme in Ethiopia: a stated choice experiment approach](#). *Agricultural Economics*, 48 (4): 501–511.

Index-based weather insurance is increasingly used to manage weather-related risks in smallholder agriculture. However, cash-constrained smallholders often lack the resources to pay an insurance premium, which may undermine its wider adoption.

This article investigates alternative insurance payment methods that may help to enhance the adoption of index-based weather insurance. We use a choice experiment to elicit smallholders' willingness to pay in cash or labor for index-based weather insurance in four districts in the south-central highlands of Ethiopia.



The insurance schemes were created using a fractional factorial design with three factors: work, cash, and payout rate. We analyze the choice data using a random parameter mixed logit model. We find that the average participants need a subsidy to pay cash for insurance because their willingness to pay is less than the expected cost of the insurance. On average, they are willing to pay only 0.81 ETB (Ethiopian currency) to get an expected yearly payout of 1 ETB. However, most are willing to participate in work-for-insurance programs at lower daily wage rates than is common for other work programs in Ethiopia.

2. Holden, S. T. and Quiggin, J. (2017). [Bounded awareness and anomalies in intertemporal choice: Zooming in Google Earth as both metaphor and model](#). *Journal of Risk and Uncertainty*, 54 (1): 15-35.

This paper draws on recent developments in the theory of choice under uncertainty to model anomalies in intertemporal choice. Cognitive limitations leading to hyperbolic discounting and magnitude effects in intertemporal choice may be described in terms of bounded awareness, and represented by phenomena familiar from visualization software such as Google Earth.

Cognitive limits on visualization impose constraints on both the area being viewed and the level of detail of the view, with a trade-off between the two. Increasing detail at the expense of limiting the area viewed may be described as zooming.



Data from a field experiment were used to assess the theory with an incentive-compatible multiple price list approach involving magnitude levels of 5x, 10x and 20x the basic magnitude level with time horizons of one, three, six and 12 months. Without zooming adjustments in base consumption, very strong hyperbolic and magnitude effects were found, and present bias could

not explain the hyperbolic effects. The zooming model provides an explanation of what appear to be significant intertemporal anomalies in the data.

3. Gebregziabher, D., Soltani, A. and Hofstad, O. (2017). [Equity in the distribution of values of outputs from exclosures in Tigray, Ethiopia.](#) *Journal of Arid Environments*, 146: 75-85.

Land degradation is a widespread problem throughout the Tigray Region in Ethiopia, and establishing exclosures to restore degraded land has been in practice for many years. The authors examine how outputs obtained from exclosures are distributed among households adjacent to the exclosures and identify factors that influence the distribution of values of outputs.



Data were collected from 446 households living next to nine exclosures in Tigray. The Gini coefficient, probit regression, and multiple linear regression were applied to the data sets. The results revealed that the distribution of values of outputs varied from fairly equal to quite unequal, depending on the exclosures' attributes and the appropriators' attributes.

A more equal distribution values of outputs from exclosures was found where the density of appropriators was higher or/and in villages next to exclosures that were protected for longer periods.

Wealthier households with larger herd sizes obtained a larger share of outputs from the exclosures, while households in the lowest income quantile received almost nothing. This may raise concerns among those interested in pro-poor measures. The authors did not find any evidence that household responsibility for managing and protecting exclosures had significant impacts on the distribution of values of outputs.

4. Stein T. Holden and Mesfin Tilahun (2017). [The importance of Ostrom's Design Principles: Youth group performance in northern Ethiopia.](#) *World Development*, 104: 10-30.

Youth unemployment and migration are growing challenges that need more political attention in many countries, particularly countries with rapid population growth and economic transformation. Proactively mobilizing the youth as a resource in the creation of sustainable livelihoods can potentially be a win-win-win solution that Ethiopia is currently attempting.



The new youth employment strategy includes allocation of rehabilitated communal lands to youth groups. This study investigates the extent to which Ostrom's Design Principles (DPs) are followed and matter for the early performance of youth groups in terms of their stability, trust and overall performance.

Data from a census of 742 youth groups in five districts in Tigray in northern Ethiopia is used. This study utilizes econometric methods to assess correlations between the DPs and a range of

early performance indicators. The study contributes to the limited literature on local collective action utilizing large samples. We find a high degree of compliance with the DPs. Some of the DPs appeared more important for early performance of the youth groups. The Ethiopian youth group approach to mobilize landless and unemployed youth is promising and should be tested elsewhere. Further longitudinal research is needed on the Ethiopian model as it is still at an early stage of testing as most groups are less than five years old.

CLTS Reports

Reports published by CLTS present background material or supporting information relevant for land tenure studies. The intention with the series is to make available and preserve documents that are not usually publishable as journal articles. Technical documentation of data and data collection is not often published in sufficient detail to be helpful for replication studies. Such detailed documentation is nevertheless important and sometimes necessary background material to understand also published articles.

1. Hagos, F. and Holden, S. T.. [Incentives for Conservation in Tigray, Ethiopia: Findings from a Household Survey. CLTS Report No. 1/2017](#). Reprint from 2002. Centre for Land Tenure Studies, Norwegian University of Life Sciences, Aas, Norway

Understanding the problem of land degradation in a given spatial and temporal context, requires looking at the community baseline conditions such as the natural resource base, human resources, existing institutions and infrastructure base, and how these conditions interact with policies and institutions to influence human responses and thereby affect productivity, livelihood security and the natural resource base.

This study provides a description of the land users' priorities, attitudes and perceptions, household characteristics and socio-economic status, access to credit, and farm inputs, tenurial arrangements and variations in land quality and technology characteristics and their effects on the households' interest in and ability to invest in conservation technologies based on a preliminary statistical analysis from a survey of 400 households in 16 communities carried out in 1998. Furthermore, it poses important questions that could serve as basis for further rigorous econometric analysis and future research endeavor.

CLTS Papers statistics at S-WoPEc and RePec

S-WoPEc acts as a clearing house and central repository for bibliographic data about Nordic working papers in Economics. In most cases, the working papers are also available in electronic form and can be downloaded from S-WoPEc. S-WoPEc is part of RePEc (Research Papers in Economics), an effort to coordinate the dissemination of information about Working Papers in Economics.

Table 1. Download statistics from RePec in 2016 - 2017

| Month | Abstract views 2016 | Abstract views 2017 | Downloads 2016 | Downloads 2017 |
|-----------|------------------------|------------------------|-------------------|-------------------|
| January | 57 | 64 | 14 | 21 |
| February | 81 | 100 | 28 | 51 |
| March | 67 | 89 | 68 | 43 |
| April | 79 | 78 | 24 | 41 |
| May | 62 | 78 | 15 | 54 |
| June | 47 | 42 | 16 | 20 |
| July | 87 | 46 | 14 | 8 |
| August | 61 | 173 | 14 | 34 |
| September | 67 | 85 | 18 | 59 |
| October | 56 | 61 | 13 | 30 |
| November | 77 | 87 | 27 | 49 |
| December | 56 | 49 | 8 | 15 |

*Downloads are the files downloaded from RePec.
Source: RePec

RePEc statistics for 2017 shows that there were in total 425 file downloads and 952 abstract views of the CLTS working papers in RePec. Total number of file downloads have increased from year 2016, when there were 259 file downloads. Total number of abstract views has increased as well by 155 compared to year 2016.

Table 2. Download statistics from S-WoPEc in 2016-2017

| Month | Abstract views 2016 | Abstract views 2017 | Redirected files 2016* | Redirected files 2017* |
|-----------|---------------------|---------------------|------------------------|------------------------|
| January | 130 | 87 | 2 | 9 |
| February | 131 | 99 | 34 | 14 |
| March | 56 | 131 | 19 | 7 |
| April | 81 | 140 | 3 | 19 |
| May | 57 | 153 | 2 | 14 |
| June | 89 | 135 | 19 | 10 |
| July | 72 | 195 | 4 | 5 |
| August | 104 | 156 | 2 | 6 |
| September | 129 | 145 | 2 | 8 |
| October | 186 | 162 | 4 | 8 |
| November | 128 | 177 | 4 | 5 |
| December | 124 | 127 | 23 | 12 |

*Redirected files are the files downloaded from the CLTS website.

Source: S-WoPEc

In 2017 there were 117 downloads from the CLTS website and 1707 abstract views of the CLTS working papers in S-WoPEc. This is a decrease of one in the number of downloads from the CLTS website from year 2016 and an increase of 420 in the number of abstract views in S-WoPEc compared to the previous year.

Conference participation

January 3rd-4th: Stein T. Holden presented paper with the title "[Bounded awareness and anomalies in intertemporal choice: Google Earth as metaphor and model](#)" written together with John Quiggin at the [39th Annual Meeting of the Norwegian Association of Economists](#) at Oslo Business School.

March 20th-24th: Stein T. Holden held presentation with the title "[THE IMPORTANCE OF OSTROM'S DESIGN PRINCIPLES: Youth Group Performance in Northern Ethiopia](#)" and Mesfin Tilahun Gelaye held presentation with the title "[LAND DISTRIBUTION IN NORTHERN ETHIOPIA FROM 1998 to 2016: Gender-disaggregated, Spatial and Intertemporal Variation](#)" at the Annual World Bank Conference on Land and Poverty in Washington.

April 20th-21st: Stein Holden presented the paper (co-authored with Sosina Bezu) with the title "Exchange Asymmetries in Productive Assets: -Tools, Fertilizer or Cash?" at the 2017 Symposium on Economic Experiments in Developing Countries (SEEDEC) that was held at the University of East Anglia, Norwich, UK.

June 12th-13th: Stein T. Holden presented paper with the title "Probability Weighting and Input Use Intensity" at the Nordic Conference in Development Economics, Göteborg University.

June 12th-13th: Mesfin Tilahun Gelaye presented paper with the title "How fair is the gendered land distribution? –Evidence from northern Ethiopia" at the Nordic Conference in Development Economics, Göteborg University.

Contributed to Documenting Award winning policy

A research team from the Norwegian University of Life Sciences (Stein Holden and Mesfin Tilahun) have contributed to documenting the Award winning land restoration policy. Their census of 740 youth groups in five districts in Tigray was an important reference in identifying the winner of the Award (Holden and Tilahun 2017).

They concluded that there is a high degree of compliance with Elinor Ostrom's Design Principles across the youth groups, and that the youth group model shows promise as an approach for engaging landless and unemployed youth in productive activities and as environmental custodians. Ultimately, they recommend that it be tested in other countries.



Stein T. Holden

The paper on winning land restoration policy with the title "[THE IMPORTANCE OF OSTROM'S DESIGN PRINCIPLES: Youth Group Performance in Northern Ethiopia](#)" was presented by Stein Holden (co-authored with Mesfin Tilahun) at the Annual World Bank Conference on Land and Poverty in Washington, DC.

This paper was also published as CLTS Working paper with the title "[The importance of Ostrom's design principles: Youth group performance in Northern Ethiopia](#)" written by Stein T. Holden and Mesfin Tilahun.

The World Bank, which has been involved in the project, points out that the project "*is reducing youth unemployment, and incentivizing good land stewardship among the next generation of community leaders, while boosting the climate resilience and carbon storage potential of production landscapes by bringing land back into production*".



Mesfin Tilahun

Tigray's approach provides an integrated landscape management model for the restoration of sub-Saharan African drylands. Its evolution from top-down, centralised programmes to more bottom-up, decentralised, and participatory programmes shows how a stepwise or sequential series of steps can help garner local and international support and scale up sustainable land management interventions. The effective mobilisation of local farmers was a key success factor and is a cost-effective way to enhance welfare and sustainable land management.

The NMBU research team continues its research on the performance of youth groups consisting of youth who were landless and unemployed and that have been allocated rehabilitated communal lands. They are required to conserve these lands while they at the same time have established a joint business on this land (such as forestry, irrigation, horticulture, animal rearing, beekeeping).

Articles in Forskning.no

Easier for women in Ethiopia to own land with land registration

[Land registration](#) generally describes systems by which matters concerning ownership, possession or other rights in land are recorded (usually with a government agency or department) to provide evidence of title, facilitate transactions and to prevent unlawful disposal.

Can measure the effect of land registration on child health

In countries such as Ethiopia land registration shows that there is a difference between farms run by men and women, and provides the opportunity to measure the quantitative effect of land reforms.

This also makes it possible to tell whether a specific reform has had a positive effect on women's rights, or whether a land reform has affected children's health in agricultural households with different types of owners.

"With our data, combining land registration data and household survey data, we can, for example, measure the effect of land registration on the Body Mass Index of children, and assess whether there is a difference between households headed by women or men. We have found a positive effect of land registration on children's Body Mass Index, and it is greater in female-headed households than in male-headed households," says Stein Holden.

He is professor in Development and Resource Economics in the School of Economics and Business at Norwegian University of Life Sciences (NMBU).

The first study of its kind

Together with associate professor Mesfin Tilahun he recently published the first study of its kind that in detail examines the distribution of men's and women's documented rights to agricultural land in Africa. It is based on two land registry and certification reforms in Ethiopia.

In agrarian based economies where population density have continued to increase, land scarcity has increased. At the same time land as a source of livelihood remains crucial for large populations - e.g. in Sub-Saharan Africa. There is a close correlation between land holdings and the level of poverty in such economies. .

This makes documenting the rights to manage agricultural property extra important.

In Ethiopia, all rural residents without other means of livelihood enjoy a constitutional right granting access to agricultural land in order to ensure a livelihood. However, the population growth has made this right increasingly difficult to satisfy, and redistribution of land has created tenure insecurity.

Specifically strengthens women's rights

The first land registration and certification reform was implemented in Ethiopia in 1998 based on a new land law and has been described as the largest, fastest and most cost-effective land registration and certification reforms in Africa.



Photo: Luisa Puccini / Shutterstock

Several studies have described how the reform increased tenure security to agricultural land. Female-headed households benefitted especially from the the improved tenure security provided by legal written documents in the form of land certificates. With the reforms the country obtained its own registry of who owned what area.

"The position of women in Ethiopia was weak to begin with, consequently better documentation of owner's rights to land has had a bigger impact for women than for men," Holden explains.

For many women, proof of land ownership can end years of economic uncertainty, vulnerability, and fear.

"For women, the increased security concerning their own legal position has made them feel safer, which again has made women more likely to invest in the land and more able to rent out their land through sharecropping contracts. For example, they have been able to lease land to good farmers with oxen and get half of the crop output from these farmers, thereby improving food security and the children's nutrition. Better documentation of land tenure rights have also made it easier for women to lease out land to those who pay best, and not just to family," Holden says.

However, this first reform was to a great degree a reform without modern technology. The registration was recorded in handwritten registration books, making it difficult and cumbersome to update records. Moreover, these paper-based records were not easily accessible for administrative purposes such as planning and policy analysis.

From paper to GPS, satellite images and aerial photography

Holden and Tilahun's new study compares data from the reform in 1998 using simple technologies with a new reform in 2016 using modern technology.

As a result, they can also document the impact of new technology on land registration and certification since the most recent reform was carried out with satellite imagery, GPS and aerial photos as the basis for mapping. This was then combined with field verification of borders and land right holders, and the holders receive parcel-level certificates with maps showing their land – creating a new set of digital public registration data.

The aim of this technological upgrade is, among other things, to strengthen the security of land tenure and to establish land registries that are easier to maintain and update.

"New technology has made land registration significantly cheaper than previously, and it has lowered the threshold for developing countries to implement this type of reform since costs have fallen so drastically," says Holden.

In Ethiopia, this modern registration method costs around eight US dollars per parcel of land. Classic land registration cost several hundred US dollars and was simply too expensive for smallholder farmers.

However, farmers are not charged for the registration/certification costs in Ethiopia. The state covers the cost partly with help from foreign donors, but the cost reduction lowers the threshold for similar registration and certification in other developing countries. This will also facilitate measurement and monitoring of some of the new Sustainable Development Goals that recently replaced the Millennium Development Goals.

A surprising amount of land owned by women

The new registry data are also more detailed than the old ones. The new data allows the researchers to see the gender of all land owners. Each parcel of land can have many owners. It is possible to assess the distribution of land among women, among men, between women and men, and the variation in gender-distribution of land within households.

In the latest land registry and certification reform in 2016, women owned as much as 48.8 percent of all privately held agricultural land in the area that the researchers studied in the Tigray region in northern Ethiopia.

Male-headed households owned on average 34 percent more land than female-headed households, but this difference was reduced to less than 10 percent after correcting for differences in family sizes between these households.

Using land registry data gathered in 2016, researchers analysed the degree of inequality in land distribution for 31,150 households in four districts for nearly 80,000 registered parcels of land, each with up to 8 owners. In the dataset one can see the differences in ownership distribution in female-headed versus male-headed households, the inequalities between households within the communities, within districts and gender-based distribution of land within households, within male-headed households, and within female-headed households.

Reference: Holden, S.T. and Tilahun, M. (2017): [«Land Distribution in Northern Ethiopia from 1998 to 2016: Gender-disaggregated, Spatial and Intertemporal Variation»](#)

Unemployed Ethiopian youth start sustainable businesses

The population in Ethiopia is growing rapidly. The country had over 100 million inhabitants in 2016 and continues to grow. At the same time, the country's economy has been one of the fastest growing economies in the world in the last ten years.

Population and economic growth have also led to a strong growth in migration of youth in search of work both nationally and internationally. Employment of young people in Ethiopia is therefore important in order to maintain political stability in the country.

In light of these challenges, Stein T. Holden, professor at the School of Economics and Business and Mesfin Tilahun Gelaye, researcher at the School of Economics and Business and employee at Mekelle University conducted a survey of 740 youth groups in five districts in the Tigray region in 2016.

- We looked at, among other things, the extent to which youth groups organized themselves according to Elinor Ostrom's design principles for sustainable collective resource management, says professor Holden.

An interesting research finding was that the youth groups were largely organized according to Ostrom's design principle, even if they had never heard or formally learned about them.

It seems that they were influenced by Ostrom's "invisible hand", where local institutions are shaped as needed.

[Read more at forskning.no](#). This research can be found in CLTS Working Paper "[The importance of Ostrom's design principles: Youth group performance in Northern Ethiopia](#)" written by Stein T. Holden and Mesfin Tilahun.

This paper has been accepted for publication in the international journal World Development (Forthcoming).



Photo: Privat

Won Poster Prize at the 3rd International Congress "Hidden Hunger"

Paper "Does Ethiopia's Productive Safety Net Program Improve Child Nutrition?" written by Bethelhem L. Debela, Gerald Shively and Stein T. Holden that published as CLTS Working Paper and in addition in the journal Food Security won a Third Poster Prize at the 3rd International Congress "Hidden Hunger" in Stuttgart, Germany on the 22nd of March.

[Paper can be obtained here.](#)



Bethelhem L. Debela



Gerald Shively



Stein T. Holden

PhD defences in 2017

Øyvind N. Handberg has defended his PhD thesis with the title "Local forest use and conservation: framed field experiments in Tanzania" on 10th of February.

Prescribed subject of the trial lecture:

"To what extent can we generalize findings from framed field experiments about forest conservation to real life behaviour?"

Evaluation committee:

First opponent: Professor Bjørn Vollan, University of Marburg

Second opponent: Professor Kjetil Bjorvatn, NHH – Norwegian School of Economics

Committee coordinator: Associate Professor Nicolay Worren, School of Economics and Business, NMBU



Øyvind N. Handberg

Supervisors:

Main supervisor: Professor Arild Angelsen, School of Economics and Business, NMBU

Website

The activities of the centre are documented at the website www.nmbu.no/clts. Our main page is in English, but we also have a Norwegian website <https://www.nmbu.no/fakultet/hh/forskning/forskningssentre/clts>, where research and activities are published in Norwegian.

Brage

All of CLTS Working Papers and Reports can be obtained in Brage:

CLTS Working Papers: <https://brage.bibsys.no/xmlui/handle/11250/2446458>

CLTS Reports: <https://brage.bibsys.no/xmlui/handle/11250/2446455>

Forskning.no

Two articles have been published in forskning.no in 2017.

Lettere for kvinner å eie jord i Etiopia med landregistrering:

<https://forskning.no/2017/05/digital-landregistrering-styrker-afrikanske-kvinner-rettigheter/produsert-og-finansiert-av/norges-miljo-og-biovitenskapelige-universitet>

Arbeidsløs, etiopisk ungdom starter bærekraftige bedrifter: <https://forskning.no/arbeid-barn-og-ungdom-innovasjon-bedriftsokonomi/2017/11/arbeidsløs-etiopisk-ungdom-starter>

Attachment 1

CLTS-related activities in 2018

School of Economics and Business

Professor Stein Holden and Associate professor Mesfin Tilahun are continuing their studies of youth business groups that have been allocated rehabilitated communal lands in Tigray Region of Ethiopia. A new research proposal to NORGLOBAL2 is prepared for further expansion of this work. Collaboration with two Japanese researchers and Emiru Birhane from Mekelle University on a property rights experiment is continuing with Japanese funding. A paper on the importance of Ostrom's design principles for the performance of the youth business groups has been accepted for publication in the journal *World Development* in 2018. Stein Holden is also presenting papers on this youth research at the CSAE conference in Oxford, UK, 18-20th March 2018, and at the Nordic Conference in Development Economics in Helsinki, 11-12th June 2018.

Stein Holden will present at a joint symposium on "Land Rental Markets as a Pathway into Agriculture for Youth in sub-Saharan Africa" at the International Conference of Agricultural Economics, 2018; Vancouver, Canada, with researchers from IFPRI, CIMMYT, and Purdue University.

Professor Dag Einar Sommervoll joined HH in 2017. He is currently interested in spatial price variation in housing markets and how machine learning algorithms may improve housing market models. Recently, he has started collaboration with Stein Holden on the analysis of experimental data from Malawi and Ethiopia. He is also included among the researchers involved in the NORGLOBAL2 project proposal. The same is the case for professor Arild Angelsen.

Desta Brhanu, PhD-student at HH under the NORHED Climate Smart Natural Resource Management and Policy (CLISNARP) and Stein Holden have a joint paper accepted for presentation at the International Conference on Agricultural Economics in Vancouver, Canada, 28th July-2nd August 2018. The paper is on sharing arrangements in sharecropping contracts in northern Ethiopia.

Sarah Tione, PhD-student at HH under the NORHED Climate Smart Natural Resource Management and Policy (CLISNARP), participates in an international land tenure course in South Africa in January/February 2018. Sarah is writing her PhD-dissertation on land tenure reforms and tenure insecurity in Malawi with Stein Holden as main supervisor.

Samson Katangeza, PhD-student at HH under the NORHED Climate Smart Natural Resource Management and Policy (CLISNARP), is planning to submit his PhD-dissertation on adoption of climate smart agricultural technologies in Malawi in the summer 2018. He has also worked with Stein Holden and Monica Fisher on the Adoption of Conservation Agriculture technologies project in Malawi with three joint papers submitted to journals.

Girma Berhe, PhD-student at HH under the NORHED Climate Smart Natural Resource Management and Policy (CLISNARP), is planning to write one paper in his dissertation on the impact of the Productive Safety Net Program (PSNP) in Ethiopia on land renting. His other papers also focus on PSNP and he also

has a paper accepted for presentation at the International Conference of Agricultural Economics, 2018, Vancouver, Canada.

Selam Afework, PhD-student at HH under the NORHED Climate Smart Natural Resource Management and Policy (CLISNARP), is doing her fieldwork for her PhD-dissertation in northern Ethiopia on land tenure, land markets and land rehabilitation in spring 2018. She combines land registry data from First and Second Stage Land Registrations in 1998 and 2015 with field surveys.

Federico Camelli, PhD-student at HH with Arild Angelsen as main supervisor, defends his PhD-dissertation "Persistent miscoordination: an economics of Amazon fires" on 21st March, 2018. His given topic for public lecture is "Forest fires: Causes, Effects and Policy Implications".

Amare Tekaly, PhD-student at HH with Arild Angelsen as main supervisor, defends his PhD-dissertation "Incentivized forest conservation: spatial econometric and experimental evidence" on 25th April, 2018.

LANDSAM

Finalization and possibly defense of dissertation of Ph. D. student Hadsh Tesfa Gebreab.

As a follow up to Ph. D. Student Hadsh Tesfa Gebreab from Mekelle a student from Property and Law has proposed to write her MA thesis on urban land tenure security based on the primary material collected by Hadsh for his dissertation. If this happens, we should support her travel to Mekelle for her field observations.

Dr. Daisaku Shimada from Department of Environmental Science, Fukuoka Women's University and with support from Japan Society for the Promotion of Science, is currently a visiting scholar in the Department of property and law. There will be held a half-day seminar on the management of cultural landscapes in Japan and Norway.

Possible research application on the dynamics of land tenure in rapidly expanding urban environments (to be discussed); possible seminar on the same topic in the Autumn.

Continued work on livelihoods and vulnerability in the Indian Sundarbans, where land tenure forms part of the picture.

Attachment 2

CLTS Accounts 2017 and Budget 2018

| Budget 2017 | | Accounts 2017 | | Budget 2018 | |
|---------------------------------|---------------|---------------------------------|--------------|-------------------------------|--------------|
| Available funding | 115166 | Available funding | 115166 | Available funding | 67474 |
| Noragric admin expenses (10%) | 7000 | Noragric admin expenses (10%) | 4336 | Noragric admin expenses (10%) | 6000 |
| Web-page and IT purchases | 30000 | Web-page and IT purchases | 22618 | Web-page and IT purchases | 30000 |
| Seminars | 40000 | Seminars | 0 | Seminars | 15000 |
| Travel to World Bank Conference | 25000 | Travel to World Bank Conference | 20738 | Conference travel | 10000 |
| | | | | Student stipend | 5000 |
| Sum | 102000 | | 47692 | | 66000 |
| Transfer to 2018 | 13166 | | 67474 | Transfer to 2019 | 1474 |

Attachment 3

Stein Holden

March 24, 2017

Travel report to CLTS: Participation in the 2017 World Bank Land and Poverty conference March 20-23, 2017.

The Annual World Bank Land and Poverty conference takes place at the headquarters of the World Bank in Washington DC. I travelled there Sunday March 19th. Conference links:

Website: <http://www.worldbank.org/landconference2017>

Agenda: <https://www.conftool.com/landandpoverty2017/sessions.php>

I had been invited to a meeting Monday morning March 20th by International Food Policy Research Institute (IFPRI), at their headquarter located not far from the WB headquarter in DC.

**Consultative Meeting on the
Monitoring and Evaluation of Land in Africa (MELA) project
(A joint LPI-IFPRI pilot study to track progress in implementation of the
AU Declaration on Land Issues and Challenges in 10 selected African countries)
March 20, 2017
IFPRI Headquarters**

The African Union Assembly requested the AU Commission, in collaboration with the Regional Economic Communities (RECs), ECA, the AfDB and other partners, to undertake measures for the establishment of mechanisms for progress tracking and periodic reporting by Member States on progress achieved.

The LPI (Land Policy Initiative) Consortium (AU-ECA-AfDB) was established in 2006. The LPI's goal is to assist member states in the implementation of the Declaration on land issues and challenges in Africa, in accordance with the Framework and Guidelines on Land Policy in Africa in order to achieve socio-economic development, peace and security, and environmental sustainability.

LPI and IFPRI have recently agreed to collaborate on this and have established the Monitoring and Evaluation of Land in Africa (MELA) project to contribute to the implementation of the AU Declaration on Land Issues and Challenges in Africa by supporting member states' commitments to track progress in land policy formulation and implementation in order to improve processes and outcomes of land reforms. The project will specifically aim to enhance knowledge in land policy development and implementation processes and outcomes as well as strengthen capacity in regular tracking and reporting of progress made in land policy development and implementation in the following proposed countries: Cote d'Ivoire, DRC, Madagascar, Malawi, Niger, Nigeria, Rwanda, Tanzania, Uganda and Zambia.

Hosaena Ghebru (my former PhD-student with MSc and PhD from HH-NMBU) is a Research Fellow at IFPRI and has now been appointed as the project manager of this new MELA project. The project has just started and is now working on the development of indicators to be monitored as part of the project. They want inputs into this process from invited the participants and others. The initiative also needs to relate to the new Sustainable Development Goals (SDGs) some of which are more specific on land-related issues and require new forms of data collection. This was also one of the themes in the WB conference.

Mesfin Tilahun, Postdoc researcher at HH-NMBU, also participated at the WB conference where we presented two joint papers, one on youth groups in northern Ethiopia and one using land registry data to assess land distribution in northern Ethiopia combining data from the First Stage Land Registration in 1998 with the Second Stage Land Registration from 2016 to assess the gender distribution and the changes in the distribution over this 18 year period. The powerpoints used for our presentations have been made available at the CLTS webpage: www.nmbu.no/clts

We used the opportunity also to contact the Federal Director of Land Administration in Ethiopia to get acceptance to access data from another region (Amhara) in Ethiopia, to implement a similar study there. We have already obtained data from five districts there but hope to access additional data to have a broader coverage which gives a stronger basis for generalizations about the gender-distribution of land among others. This is pioneering work in Africa that has not been done before as far as we know. It also fits right into the new gender-focused SDG land-related goals.

We also got useful feedbacks on our papers and work on refining them for submission to journals.

I was also contacted just before the conference by Gunnar Köhlin, at Göteborg University, director of the Environment for Development (Efd) network. They are trying to organize a PhD-course or set of courses to be hosted at Cape Town University for PhD-students from many African countries. I was asked whether I was willing to contribute as one of the teachers in these courses teaching land tenure, land policy analysis and impact assessment. The World Bank and partners are funding the course which is planned to take place in January/February 2018. This is also an element in the preparation to build capacity to become more able to measure SDGs across more countries in Africa.

I also met a researcher from Nanjing Agricultural University (PhD from Wageningen, I was in her PhD committee there) who contacted me last year about a project on rural transformation in China where they want to link up with international researchers. I received a request last year from them whether I would be interested (I responded positively). They have now received funding and the project is for five years and will cover travel and joint research activities. So I am invited there for more detailed planning. Rural wages have started to increase in China and farm sizes have also started to increase, meaning that land rental activity is expanding. Policies related to this process is the main focus of the project.

The last day of the conference, Thursday, I was chairing a session on formalization of land rights/tenure security related to food security and value chain development with focus on the situation in Mozambique (two presenters from Mozambique). Investors have come in and

smallholders have some places been displaced and this has caused increasing food insecurity. Provision of strengthened land rights to smallholders and how best to do this in a cost-effective way was a major issue for discussion.

We also met Henrik Wiig (NIBR-Høyskolen i Oslo) who had a presentation on a proposed oilpalm project in Columbia. The idea is to produce palmoil for fuel without causing deforestation by planting oilpalm on grasslands.

