

Land administration for food security: selected results from a synthesis

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Key words: land administration, food security

SUMMARY

Food security remains an ongoing global concern: the challenge of ensuring food availability, access, and utility for all, at all times, is yet to be met. The body of literature relating to food security is growing immensely. Land administrators are part of the discourse. Their arguments are spread disparately across academic and professional publications. The distinction between scientific work and political rhetoric is increasingly blurry: the role of land administration needs to be more concisely articulated. This paper provides a new synthesis on the link(s) between land administration and food security. It undertakes a review of land administration literature relating to food security. It aims at crystallizing understandings of how land administration supports, or fails to support, food security at conceptual, strategic, and operational levels. The link between land administration and food security appears to be conceptually agreed, however, at management and operational levels the link is less evident. Conceptually, land administration can deliver secure land tenure and appropriate land uses. This secures subsistence farming, development of local agricultural sectors and markets, and wealth creation that might enable access to non-local food markets. In general, the literature tends to focus on problem identification rather than system design. Additionally, the large amount of positivism needs better validation in many cases. Future work might concentrate on examining the utility of land information and geospatial tools for food security, extracting lessons from the land administration systems of developed contexts, and examining the links in a more quantitative fashion. This paper is an abstracted version of a more extensive work submitted to an academic journal.

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1. INTRODUCTION

Land administration is regularly described as an enabler of food security (c.f. Dekker, 2001; 2003; de Soto, 2003; Deininger, 2003; Dekker 2006; Bell, 2009; Enemark et al, 2010; IOB, 2011; Bennett et al, 2012). In this paper, *land administration* is defined as the “processes run by government using public- or private sector agencies related to land tenure, land value, land use and land development” (Williamson et al, 2010). Land administration systems, or cadastres and land registration, are traditionally used for tax or land tenure purposes (Simpson, 1976; Larsson, 1991; Dale and McLaughlin, 1999; Williamson and Ting, 2001; Van der Molen, 2002; Williamson et al, 2010). *Food security* is defined as “sustained and assured access by all social groups and individuals to food adequate in quantity and quality to meet nutritional needs- to live an active and healthy life” (Dekker, 2001). Food security remains an issue of global significance (FAO, 1996; Cotula et al, 2009; UN, 2010).

To date, there has been little consolidated work synthesizing the different lines of discourse linking land administration to food security (apart from perhaps Dekker, 2001): it is spread across numerous journals, books, policy documents, and so on. Consequently, there is a lack of clarity surrounding the role of land administration and the strength of the relationship with food security. Arguably, this impedes informed land (administration) policy development, land administration design, and further research- at national and international levels. This paper provides part of this synthesis. It focuses on land administration literature that touches on food security. The objective is to identify how land administration perceives itself to support (or fail to support) food security. The methodology utilized is described briefly, results are presented and discussed, and the paper concludes with a summary.

2. METHODOLOGY

The research type utilized for the study was a *research synthesis* (Rossiter, 2011). There is much written on the nature and application of research syntheses (Cooper, 1998; Hart, 1998; Handoll and Smith, 2003; Bowman, 2007; Alison, 2009). The study type can be applied to the study area of land administration. Fifty (50) articles were studied and data from each was recorded under a range of classifications. Following classification, analysis of patterns was undertaken. The aim was to identify and synthesize recurring and validated themes.

Limitations of the study that should be taken into account when studying results include: only documents published between 1995-2012 were examined; only scientific repositories were examined (i.e. Elsevier Science Direct; Springer Link; Geobase; Sciverse Scopus, and Thomson-Reuters Web of Science); some proceedings websites of UN-FAO, UN-Habitat, and

FIG proceedings were also examined; the search methodology concentrated only on keyword, title, and abstract searches; and due to time constraints a limitation of 50 (fifty) papers was placed on the study.

3. RESULTS AND DISCUSSION

3.1 Year of publication: the rise of food security literature

The body of literature linking land administration and food security is growing at an increasing rate. The years 2011 and 2012 were incomplete at the time of the study: lower numbers in these years were recorded. Maxwell (1995) provides an example of earlier literature. Urban farming is demonstrated to deliver higher levels of household food security: access to land is highlighted as a major constraint to urban farming. Others also make reference to access to land, security of tenure, sustainable land use, and the capacity to use land productively (ECA, 2004). More contemporary land administration literature advocates for sound land tenure policies and land-use planning to ensure livelihood of farmers. The application of land registers and cadastres beyond the traditional purposes of markets and taxation could assist in climate change adaptation and mitigation (Van der Molen, 2009). Others reiterate the need to ensure the land administration system play a role in ensuring sustainable development (Enemark, 2010).

The increases evident from 2009 onwards were most likely caused by the 2007-08 global food price hikes. This period generated much discourse in relation to ‘land grabbing’, ‘large-scale land acquisition’, land for bio fuel production, and food security more generally. Land administrators most likely took the opportunity to link into these discussions and consequently made use of the terms.

3.2 Research type: observational over design

Most land administration studies dealing with food security are focused on explaining existing circumstances, rather than designing potential technical solutions. Research types were classified as experimental, observational, comparative, design, synthesis, or data mining (Rossiter, 2011). Comparative studies (35%) and syntheses (34%) were the most popular choice of research. Only two (2) studies were found to be design oriented (4%). The large number of comparative studies is due the overarching objective of many papers being to understand persistent land issues in countries with similar backgrounds. The considerable number of syntheses appears to suggest that most land administrators are attempting to impose new conceptual frameworks on a previous data for more unifying explanations. The extensive use of comparative studies and syntheses might also suggest food security currently attracts specific branches of land administration research: social scientists and lawyers tend to utilize observational and synthesis study techniques. It could also be hypothesized that researchers are still attempting to understand existing country conditions and contexts- only then can informed design of technical systems be undertaken. The limited use of design research might also be explained by the nature of the technical parts of land administration systems: their design and testing is extremely difficult due to the geographic scales of systems and long lead times required for measuring the success of implementation.

3.3 Nature of relationship: positive viewpoints dominate negative

The nature of the relationship articulated in the publications was examined in the study. This related to whether a publication suggested land administration was a positive or negative influence (or both, or neither) to the achievement of food security. The results show that more than half the articles (54%) revealed a positivist viewpoint (in the sense of being positive, rather than the definition used in philosophy) (Figure 3). Negative relationships were articulated in eleven (22%) articles, whilst no relationship was found in ten (20%). Two papers demonstrated both positive and negative links (2%).

As a specific example, Barrett et al (2009) and ECA (2004) make positive links to food security. They suggest that land and its administration is a fundamental factor for agricultural production: it is directly linked to food security. In contrast to positive links, Kabumbuli et al (2008) and Yang and Li (2000) demonstrate a negative links: inadequate land acts and administration result in insecure tenure, gender discrimination, landlessness, and ultimately food insecurity. Meanwhile, Li et al (2008) ultimately draw no link between food security and land administration.

The results suggest that land administration has a strong positive association with food security. An alternate view could be that many of the articles overstate the positive influence of land administration (or at least ignore potential drawbacks): land administration is a relatively new study area and land administrators sometimes seek to promote the field's importance. This sort of promotion is not necessarily wrong: political issues such as good land governance often need championing. However, such promotion should not cloud or tamper with scientific enquiry.

3.4 Strength of evidence: both weak and strong

The study also attempted to classify the publications according to strength of evidence provided. For example, some publications merely assert a relationship between land administration and food security, whilst others provide far more rigorous proof. The classification scheme for this study was rather coarse: only 'strong' and 'weak' categorizations were used. Dekker (2001; 2003) is considered an example of 'strong' evidence: in-depth case studies tentatively demonstrated that land tenure security increases investment and result in higher farm productivity. However, even Dekker suggests that conclusive evidence was elusive in the study. Therefore, the categorizations of 'weak' and 'strong' need to be treated with caution.

The study results were evenly split: twenty-three (46%) articles were considered to provide strong evidence, whilst twenty-seven (54%) provided only weak supporting evidence. The mixed result supports the argument that the strength of the link between land administration and food security is unclear. At any rate, much of the literature is able to provide strong evidence to support claims.

3.5 Regions of interest: a focus on the south

The literature was classified by country or region of interest. The areas of focus were mainly

Africa (16%), Asia (8%), Latin America (4%), and lastly 'generic' (70%) which denotes any developing countries. The focus on the developing context (or south) is not surprising, although, a higher number of African studies might have been expected. The large number of 'generic' studies sits reasonably comfortably with the 'weak evidence' and 'positivist' results of the previous sections: there appears to be the desire to highlight the problem and promote a land administration solution, however, the hard evidence may not always have been at hand. It also appears that approaches from developed countries (where levels of food security are generally higher) do not appear to be published.

Recurrent themes: land tenure, agriculture, and governance

Perhaps of most interest and importance from the study was the identification of recurrent themes or schools of thought. These were classified as: land tenure, agriculture, and governance. Each is now discussed.

3.5.1 Land tenure and food security

Much literature asserted land tenure security as an avenue through which food security may be achieved. For example, ECA (2004) describes how "both direct and indirect linkages exist between land tenure and food security". Access to land and security of tenure are the main means through which food security can be realized. Others such as Kabumbuli (2008) describe how land administration systems are unable to secure land rights of widowed women in Uganda. This results in landlessness and food insecurity as a result of family or communal land grabbing. These examples show how secure land tenure affects food security positively and negatively. In countries where land administration inadequately protects the land rights of the citizen, food insecurity can be a consequence. Meanwhile, access to land, citizen power, and credit availability provided by secure tenure can enhance food access and availability (through access to food markets and farmlands)

3.5.2 Agriculture and food security

The importance of agriculture was another recurrent theme. Agricultural production relies on land and creates food (Barrett et al, 2009). Onyido (2011) suggests this nexus (of agriculture, land and food) means governments should deploy all possible resources towards development of a sustainable agricultural sector (presumably underpinned by sound land administration). Meinzen et al (2007) provides a similar argument: for those with access to land, the strength of their rights over land shapes their incentives for continued production. Stronger land rights will help ensure both their food security and a steady supply of products to the local market. These works illustrate the integrated nature of land, agriculture, and food provision. National land policies and regulations help to determine how land is used. In food insecure nations, such linkages may need clearer articulation (i.e. what lands must be used for agricultural production), regulatory controls, and enforcement. The right of people to their lands and its use, through appropriate land acts in a country, is important to ensuring food security.

3.5.3 Land governance and food security

Land governance for food security was another recurrent theme. It ensures sustainable development of natural resources. Enemark et al (2010) describes land governance as strengthening relationships between people and land. They emphasize that sound land

governance is fundamental in achieving sustainable development and poverty reduction, and achievement of the Millennium Development Goals. Indeed, the first goal relates directly to reducing hunger. The use and control of land is an important activity that must be handled appropriately by governments in order to address the current issues of climate change and food shortages. In relation to land governance, some authors also touch on the importance of land tenure and use information management to enable monitoring and strategic decision making in relation to food security (Bennett et al, 2011; 2012; Deepali, 2011).

4. CONCLUSION

The link between land administration and food security appears to be conceptually agreed, however, at management and operational levels the link is less evident. Conceptually, land administration can deliver (or not deliver) secure land tenure and appropriate land uses. This improved land governance enables subsistence farming (sometimes even in urban areas), development of local agricultural sectors and markets, or wealth creation that enables access to non-local food markets (in areas where food cannot be produced). The body of literature dealing with these principles is increasing, however, problem identification rather than system design continues to be the focus. Additionally, the large amount of positivism needs to be kept in check and more thoroughly validated in many cases. Areas for further research are: better land information utilization; better understanding the linkages between land administration and food security in developed countries; using more quantitative approaches to explore the links between land administration and food security; and broader studies on food security literature (without a direct focus on land administration).

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REFERENCES

- Alison, N. (2009). A guide to systematic literature reviews. *Surgery (Oxford)*, 27, 381-384.
- Barrett, C., Bell, R., Lentz, E., & Maxwell, D. (2009). Market information and food insecurity response analysis. *Security*, 1(2), 151-168.
- Bell, K. C. (2009). Land Governance and Land Administration: Trends in Land Administration and Management with Particular Reference to World Bank Support for Projects in the East Asia Region, *7th FIG Regional Conference*, Hanoi, Vietnam, 19-22 October 2009
- Bennett, R., Rajabifard, A., Kalantari, M., Wallace, J., and Williamson, I. (2011). Cadastral Futures: Building a New Vision for the Nature and Role of Cadastres. *International Federation of Surveyors (FIG) Article of the Month – June 2011*.
- Bennett, R., Rajabifard, A., Williamson, I., & Wallace, J. (2012). On the need for national land administration infrastructures. *Land Use Policy*, 29(1), 208-219.
- Bowman, K.G. (2007). A Research Synthesis Overview. *Nursing Science Quarterly*, 20, 171-176.

- Cooper, H. (1998). *Synthesizing research : a guide for literature reviews*, Thousand Oaks etc., Sage.
- Cotula, L., Vermeulen, S., Leonard, R., and Keeley, J. (2009). Land grab or development opportunity? Agricultural Investments and International Land Deals in Africa. *IIED/FAO/IFAD Publication*.
- Dale, P., & McLaughlin, J. (1999). *Land Administration*, Oxford University Press 1999 Available from <http://fds.oup.com/www.oup.com/pdf/13/9780198233909.pdf>
- Deepali, R. (2011). Agriculture gets a makeover. from geospatial world, august, 2011. Retrieved from http://www.esri.com/news/rss/pdfs/geospatial-world-agriculture_11_21_11.pdf
- Deininger, K. W. (2003). *Land policies for growth and poverty reduction*: World Bank.
- Dekker, H. (2001). *A new property regime in Kyrgyzstan: an investigation into the links between land reform, food security, and economic development*: Universiteit van Amsterdam.
- Dekker, H. (2003). The invisible line: land reform, land tenure security and land registration from http://books.google.nl/books?hl=nl&lr=&id=_9AuGJ5oXpYC&oi=fnd&pg=PR11&dq=cadastre+food+security&ots=PErJDKbM3m&sig=9XCfa32aErvC_06_UJS_BomFrZg#v=onepage&q=cadastre%20food%20security&f=false
- Dekker, H. (2006). *In Pursuit of Land Tenure Security*: Amsterdam University Press.
- De Soto, H. (2003). *The mystery of capital: why capitalism triumphs in the West and fails everywhere else*: Basic Books.
- ECA. (2004). Land Tenure Systems and their Impacts on Food Security and Sustainable Development in Africa. *Economic Commission for Africa (ECA/SDD/05/09)* Retrieved from http://www.uneca.org/eca_resources/publications/sdd/land_tenure_systems.pdf
- Enemark, S. (2010). From Cadastre to Land Governance in Support of the Global Agenda. The Role of Land Professionals and FIG 1. Article of the Month December 2010. *FIG publication*.
- Enemark, S., McLaren, R., & van der Molen, P. (2010). Land governance in support of the millennium development goals : a new agenda for land professionals. *In: XXIV FIG International congress 2010 : facing the challenges: building the capacity. 11-16 April 2010, Sydney, Australia : technical programme and proceedings. 16 p.*
- FAO. (1996). *World Food Summit: 1996, Rome, Italy : synthesis of the technical background documents*: Food and Agriculture Organization of the United Nations.
- FAO. (2006). *FAO Policy Brief*, June 2006, Issue 2. from ftp://ftp.fao.org/es/esa/policybriefs/pb_02.pdf accessed 31st October, 2011
- Handoll, H.G., and Smith, A.F. (2003). How to perform a systematic review. *Current Anaesthesia and amp; Critical Care*, 14, 251-257.
- Hart, C. (1998). *Doing a literature review : releasing the social science research imagination*, London etc., Sage.
- HLPE. (2011). Land tenure and international investments in agriculture. A report by The High Level Panel of Experts (HLPE) on Food Security and Nutrition in Rome, Committee on World Food Security, July 2011. Retrieved from http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPE-Land-tenure-and-international-investments-in-agriculture-2011.pdf
- IOB, (2011), Improving food security: A systematic review of the impact of interventions in agricultural production, value chains, market regulation, and land security, IOB Study No. 363, Ministry of Foreign Affairs of the Netherlands, The Hague, Netherlands.
- Kabumbuli, R., Mubangizi, J., Kindi, F., and Ssebuliba, J. (2008). *Land ownership and food security in Uganda. A Study of Land Use and Control among Households of Women Living with HIV in Four Districts*, International Food Policy Research Institute

- (IFPR). Retrieved from <http://programs.ifpri.org/renewal/pdf/RFbrief18.pdf>
- Larsson, G. (1991). *Land registry and cadastral systems: tools for land information & management*, London: Longman Group UK Limited. Retrieved from <http://www.geo21.ch/cadastrallibrary/international/Larsson1991-LandRegistrationAndCadastralSystems-Chapters2-3-9.pdf>
- Li, W., Feng, T., and Hao, J. (2008). The evolving concepts of land administration in China: Cultivated land protection perspective. from Elsevier science direct. *Land Use Policy*.
- Maxwell, D. G. (1995). Alternative food security strategy: A household analysis of urban agriculture in Kampala. *World Development*, 23(10), 1669-1681.
- Meinzen, D., Suseela, R., Kameri-Mbote, P., and Markelova, H. (2007). Property rights for poverty reduction.
- Onyido, P. (2011). Land Reform, Agriculture and Food Security in Nigeria. 2007 - 2011 Michael Okpara University of Agriculture, Umudike, Nigeria. Retrieved from <http://www.mouau.edu.ng/handbook/eloquent-testimony-purposeful-leadership-2006-2011/7-part-four-further-papers-economic-0>
- Rossiter, D. G. (Ed.). (2011). *Research concepts and skills, volume 1. University of Twente, faculty of Geo-information Science and Earth Observation (ITC)*.
- Simpson, R.S., (1976), *Land Law and Registration*, Cambridge University Press.
- UN-ECE. (1996). *Land Administration Guidelines*. Meeting of Officials on Land Administration, UN Economic Commission for Europe. ECE/HBP/96 Sales No. E.96.II.E.7, ISBN92-1-116644-6,111p.
- UN. (2010). *Resolutions and Decisions Adopted by the General Assembly During Its Sixty-fourth Session: Resolutions, 15 September - 24 December 2009*: United Nations Publications.
- Van der Molen, P. (2002). The dynamic aspect of land administration: an often-forgotten component in system design. *Computers, Environment and Urban Systems*, 26(5), 361-381.
- Van der Molen, P. (2009). Cadasters and Climate Change. *International Federation of Surveyors- Article of the Month August 2009*, FIG Publication.
- Williamson, I., Enemark, S., Wallace, J., and Rajabifard, A. (2010). Land Administration for Sustainable Development. FIG International Congress 2010, Sydney, Australia, 11-16 April, 2010, Publisher - ESRI Press Academic.
- Williamson, I., and Ting, L. (2001). Land administration and cadastral trends -- a framework for re-engineering. *Computers, Environment and Urban Systems*, 25(4-5), 339-366.
- Yang, H., and Li, X. (2000). *Cultivated land and food supply in China*. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0264837700000089#ORFB>

BIOGRAPHICAL NOTES

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