

TUM Land Management: Academic and Societal Impacts in Sub-Saharan Africa

TUM Land Management: Akademische und gesellschaftliche Auswirkungen auf Sub-Sahara-Afrika

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Summary

African governments recognise the challenges they face in education and capacity development in land management. They have embraced international education to improve their education and capacity gaps. One of the educational initiatives that African countries have benefited from is the Master of Science Land Management and Land Tenure (MSc LMLT) programme offered by the Technical University of Munich (TUM), Germany. In 2020, it was converted to "Land Management and Geospatial Science". During the programme's first twenty-year (2001 to 2020) lifecycle, the MSc LMLT trained eighty-three (83) scholars from fifteen (15) African countries. This study examines how the programme contributed to the education and capacity development needs of Sub-Saharan Africa (SSA). It is based on a qualitative descriptive design and used a web-based survey to assess the academic and societal development impacts of the programme in the land sector in SSA. It found that the MSc LMLT alumni contribute to academic and societal development in their respective countries in multiple ways. It found that the programme produced a combination of practitioners, entrepreneurs, policymakers, and academic practitioners working in government agencies, the private sector, higher education, and international development organisations. The study underscores the importance of incorporating practicality into land-related programs to facilitate direct contributions to societal development.

Keywords: academic impact, alumni, capacity building, land management, societal impact

Zusammenfassung

Afrikanische Regierungen sind sich der Herausforderungen innerhalb der Landentwicklung bewusst, die es sowohl in der Lehre als auch in der Bildung von Kapazitäten gibt. Weshalb sie bereits in der Vergangenheit internationale Unterstützung angenommen haben, um die Lehre zu verbessern und Bildungslücken zu schließen. Eine dieser Bildungsunterstützungen ist das Masterprogramm »Land Management and Land Tenure« (MSc LMLT), welches von der Technischen Universität München angeboten wird. 2020 erfolgte dessen Umstellung auf »Land Management and Geospatial Science«. Während der ersten 20 Jahre von 2001 bis 2020, in welchen dieses Programm angeboten wurde, haben insgesamt 83 Studierende aus 15 Afrikanischen Ländern den Master erfolgreich abgelegt. Die folgende Studie zeigt, wie dieses Masterprogramm zur Weiterbildung und Kapazitäten-Ent-

wicklung im Sub-Sahara-Afrika beigetragen hat. Hierfür wurden qualitativ-deskriptiv unter Zuhilfenahme einer webbasierten Umfrage die akademischen und gesellschaftlichen Einflüsse des Masterprogramms auf den Land-Sektor in Sub-Sahara-Afrika ermittelt. Das Ergebnis zeigt, wie vielfältig die Einflussnahme des Weiterbildungsprogramms auf die Herkunftsländer war und ist. Im Detail konnte identifiziert werden, dass viele der Absolventen sich im Anschluss erfolgreich beruflich verwirklichen konnten, sei es als Selbständiger, innerhalb der Politik als Entscheidungsträger, in höheren akademischen Institutionen, an staatlichen Institutionen, in der Privatwirtschaft oder auch in internationalen Entwicklungsinstitutionen. Die Studie unterstreicht, wie wichtig es ist, die Praxisnähe in landbezogene Programme einzubeziehen, um einen direkten Beitrag zur gesellschaftlichen Entwicklung zu leisten.

Schlüsselwörter: akademischer Einfluss, Absolventen, Bildung von Kapazitäten, Landentwicklung, gesellschaftlicher Einfluss

1 Background and Context

The use of land can have unintended and intended implications in societies (Chigbu et al. 2024). Land is the foundation of all forms of development in the African continent. From a positive perspective, it is a critical factor of development in Africa because it is essential for enhancing the social (including the cultural and political), economic and environmental systems necessary for improving the living conditions of people in the continent. On the negative aspect, it is also the "subject of conflict in the increasing demand for food, fuel, dwellings and natural resources" (de Vries et al. 2020, p. 121).

Improving the positive impacts of land while reducing or managing its negative consequences in many parts of Africa has been a challenge. For land to serve as a basis for development on the continent, the governance of its availability, use, access, and security (including preservation, protection, conservation, and restoration) is crucial. Appropriate land-related policies, decisions and actions must also play significant roles in the macro-economic environment in which African countries operate to achieve their national development plans. Doing this requires appropriate education and capacity development in the land sector

and among African land practitioners. “Given the vital role of institutional and individual actors,” there are still “structural holes that require filling” in the teaching, researching and building of competencies in land-related education (Chigbu et al. 2021, p. 7). Furthermore, academic networking, crucial for continental knowledge-sharing for capacity building in the land sector, is still in its formative stage in Africa (Kuusaana et al. 2021). The high-level capacities in land management, mandatory for innovating and applying locally specific approaches to causing people-centred academic and societal impacts in Africa, are still progressing and ongoing (Mabakeng et al. 2021).

Improving land-related education and capacity development worldwide has depended on the capabilities of the professionals, internal and external support systems, and capabilities of the organisations and institutions that require a willingness to subject themselves to organic development processes (de Vries et al. 2016). In this regard, African institutions and organisations have constantly subjected themselves to external support systems worldwide to improve land management education, research and capacity development in land sector activities. Africa’s capacity needs in land management are well-recognised and acknowledged by the African Union Commission (AUC) in its continental report entitled *Framework and Guidelines on Land Policy in Africa: A Framework to Strengthen Land Rights, Enhance Productivity and Secure Livelihoods* (commonly called *Framework and Guidelines*), published in 2010. The African Union Commission (AUC) is the African Union’s secretariat which undertakes the day-to-day activities of the Union. It is based in Addis Ababa, Ethiopia. The AUC, the United Nations Economic Commission for Africa (UNECA) and the African Development Bank (AfDB) jointly initiated a process for the development of a framework and guidelines for land policy and land reform in Africa with a view to strengthening land rights, enhancing productivity, and securing livelihoods for most the continent’s population. This initiative officially recognised the lack of capacity in land management and land tenure and called for a need for capacity improvement in the land sector all over Africa. The “fundamental purpose” of the AUC’s *Framework and Guidelines* is “to engage development partners in resource mobilisation and capacity building in support of land policy development and implementation in Africa” (AUC 2010, p. xi).

However, long before the AUC’s Frameworks and Guidelines document was introduced, governments all over Africa (national, regional, and local) acknowledged the capacity challenges in land management skills/education. They recognise the challenges they face in education and capacity development in land management. They have embraced international education as one of the ways to improve their education and capacity gaps. One of the international educational initiatives that African countries have benefited from is the Master of Science Land Management and Land Tenure (MSc LMLT) programme offered by the Technical University of Munich (TUM), Germany.

This study examines how the programme contributed to the education and capacity development needs of Sub-Saharan Africa (SSA). The study explores the contributions of the MSc LMLT to ascertain its spiral effects in land management and land tenure education and capacity-building within academic and community settings in SSA. It presents the state of knowledge and experiential capacities gained by the SSA participants during the life course of the MSc LMLT, as well as lessons for improving current land-related academic programs at TUM and elsewhere worldwide.

2 MSc LMLT – (Hi)Story and its Combined Academic and Societal Development Components

2.1 In a Nutshell: How It All Started

The MSc LMLT was an international postgraduate master’s program set up by Prof. Holger Magel as the Chair of Land Management at TUM in partnership with the German Academic Exchange Service (Deutscher Akademischer Austauschdienst or DAAD) and the German Agency for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit or GIZ). The programme was formally named “*Land Management and Land Tenure in Urban and Rural Areas for Professionals*” at the beginning of the twenty-first century. The vision for setting up the programme was to examine land management and land administration scenarios internationally to improve the decreasing land sector education and capacity in the global south (Magel 2009). The programme, which enrolled its first batch of participants in 2001, began with young professionals selected from the Global South (de Vries et al. 2020). The philosophy of the programme was “to demonstrate and illustrate the important role of land rights and land policy, land management and land administration for a sustainable urban and rural development in the broader context of good governance and to teach adequate approaches and tools for their implementation” (Magel and Triglav 2004, p. 489).

Being an international programme, the MSc LMLT focused on educating and developing capacity in land management and land tenure with the support of experienced individuals and organisations in Germany and the rest of the world. According to de Vries et al. (2020), the organisations that supported the establishment and contributed to the execution of the programme throughout its life-cycle included the DAAD, GIZ, Hanns-Seidel Foundation (HSF) and Förderkreis Bodenordnung und Landentwicklung München e. V. (Association for Land Management and Land Development of Munich). The DAAD supported the programme financially through scholarships. The GIZ supported it with high-level human resources for its successful implementation. The HSF provided it with

financial support for students from China and Mongolia. The Förderkreis supported it financially with tuition payments and sponsorships of capacity development workshops and excursions within Germany and around Europe. Also, different agencies of the federal government of Germany and the State of Bavaria (in Germany) provided financial and administrative support for the programme. In addition, specific land management experts (individuals) worldwide contributed to implementing the programme.

During the programme's lifecycle (i. e., 2001–2020), it educated and capacitated 219 participants. A survey done by de Vries et al. (2020) indicates that 20.43 % pursued a career in the Education sector, 30.10 % in Government agencies, 13.97 % in international organisations, 3.22 % in NGOs and 22.58 % in the private sector, while 9.67 % are still studying. The survey shows that the MSc LMLT alumni are from 15 African countries – except for two students from Libya, all African participants in the programme are from the SSA. However, no specific survey has been conducted to assess the particular contribution of the programme in Sub-Saharan Africa (SSA). This is the gap this study bridges.

2.2 Academic and Societal Development Impacts: A Focus of the MSc LMLT

The design of the MSc LMLT required participants to have academic and professional backgrounds. The professional component required applicants to have at least two years of national or international experience. The academic component required a land-related educational background at a bachelor's or master's level.

The professional component of the programme was designed to expose participants to practical knowledge and experience for solving real-life land-related problems. The academic component focused on educating participants in the theoretical knowledge necessary for academic careers to build a multiplier effect for further education of others seeking to enhance their land management knowledge through direct teaching, research or professional training. The MSc LMLT was expected to impact academic and societal development in the participants' countries based on its combined theoretical and practical experiential knowledge and curriculum structures. This meant that all the taught courses had theoretical and practical aspects. Operationally, "students carried out on-the-field research (culminating into a thesis)" (de Vries et al. 2020, p. 124). They were trained in applying practical methods and tools for land management. It also meant that "case studies, field trips and lectures given by experts with practical international experience were critical components of the programme" (de Vries et al. 2020, p. 124).

Based on its multiple curricula components, the MSc LMLT represented and delivered an all-in-one (specifically, a four-in-one) or multipurpose academic degree to its participants. First, it served as a professional degree for par-

ticipants aspiring to practice land management with their governments or NGOs (including the private sector and regional or global public sector organisations). Second, it served as an entrepreneurial degree for participants hoping to own (and run) land management organisations or firms to deliver land management services in their countries of origin or internationally. Third, it served as an academic degree for participants preparing to become future leaders (such as lecturers and professors) in the educational aspect of land management (such as in universities and research institutes). This academic component served as a stepping stone for participants hoping to earn doctoral degrees to progress further in the educational path in land management and other land-related academic areas. Fourth, it served as both an academic and professional (even in addition to entrepreneurship) degree to participants who wanted to simultaneously work in educational, professional and entrepreneurial environments (such as individuals working as academics while running a professional consultancy practice such as firms or engaged in entrepreneurship in land management).

How has this whole curriculum and programme design structure impacted the participants and their post-graduation activities (one or a combination of academic, professional, and entrepreneurial careers)? This is the question that this study has investigated through some methods that allowed for gathering and analysing relevant data from the participants of the MSc LMLT in SSA.

3 Research Methodology

The methodology for this study is best described as qualitative descriptive (Lambert and Lambert 2012) in design and application. This study has adopted this methodology because of its objective – to describe the qualitative scenarios of the MSc LMLT participants to understand its academic and societal impacts in SSA. Qualitative descriptive studies describe phenomena rather than explain them. This is because they aim to provide comprehensive summaries of events. It is an essential and appropriate design for research questions focused on gaining insights about an unclear scenario (Kim et al. 2017). In the context of this study, the academic and societal impacts of the MSc LMLT on SSA represent an unclear scenario. This is justifiable, considering de Vries et al.'s (2020) study on the MSc LMLT did not put a particular focus on SSA. Before the study by de Vries et al. (2020), the only study that assessed the MSc LMLT was that of Masum (2012), which used the MSc LMLT as a case study to evaluate the role of international higher education in developing employment competencies. Masum (2012) did not focus on SSA as that study was done while the programme was still in its mid-phase implementation. Also, at the time of de Vries et al.'s (2020) study, the last cohort of the MSc LMLT had not graduated. Therefore, this study presents a complete SSA-specific scenario.

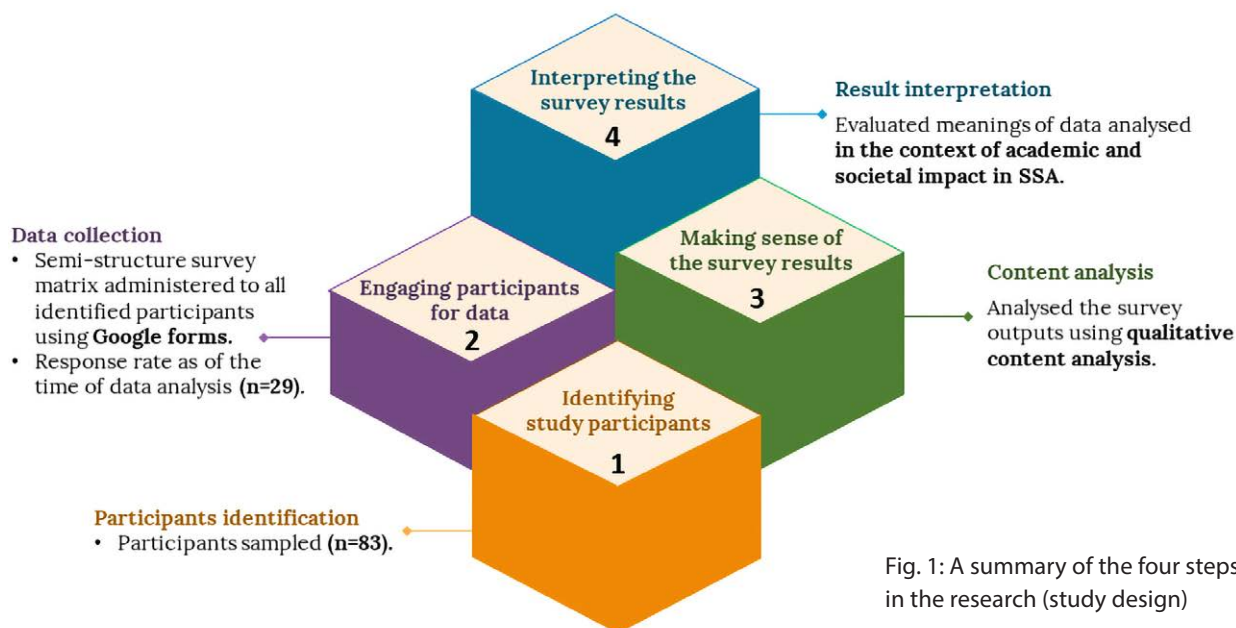


Fig. 1: A summary of the four steps applied in the research (study design)

Since the study is based on qualitative descriptive methodology, a qualitative content analysis was used to analyse the data collected. The study design is based on the four activity steps shown in Fig. 1.

In the context of development, the main research question for this study is: How has the MSc LMLT impacted its SSA participants academically and societally? Apart from demographic-focused questions. The specific (or sub) research questions investigated directly allude to:

- How well participants felt the MSc LMLT prepared them for their current roles;
- What social/societal impacts the MSc LMLT has inspired them to engage; and
- Whether it helped participants to develop land management related programmes in SSA.

The four-activity-steps study design was used to answer these research questions using empirical data collected, analysed and interpreted in relation to the object of enquiries in these questions. In doing that, four steps were taken.

The first step involved identifying the participants in SSA and their countries. In this regard, eighty-four ($n = 83$) participants were sampled for the study. It was possible to identify the participants using the alumni data at the Chair of Land Management at the TUM, Germany.

The second step was the data collection stage. Based on the participants identified, a survey matrix comprising semi-structured and open-ended questions was used to collect participant data. The 5-minute survey was administered using *Google Forms* and sent electronically to all participants through emails. The survey ran through a 10-day period, from 17–27 March 2024. *Google Forms* is a survey administration software that operates as a free web-based interview and questionnaire template offered by *Google*. Out of the 83 participants surveyed, only thirty-one ($n = 31$) or 37 % responded. Unlike quantitative research dealing with relationships and comparisons, this

response rate is acceptable for qualitative research because it provides quality information that gives insight into the scenario investigated (Chigbu et al. 2023).

The third step involved qualitative content analysis, adapted from the survey output (Graneheim and Lundman 2004). Since the focus of the study was to explore the impact of the MSc LMLT concerning academic and societal effects, the data analysis involved thematically linking participants' responses to expected academic and societal development outcomes available in literature and policies based on the Frameworks and Guidelines for land management in Africa (see AUC 2010).

The fourth step was interpreting the results in the context of the research questions. This interpretation aspect allowed for the evaluation of the meanings of data analysed regarding academic and societal impact on SSA (i.e., status and impact representations based on a vignette of responses from the alumni). Qualitative content analysis is the most appropriate approach to data analysis in qualitative descriptive studies (Kim et al. 2017, Khakbazan et al. 2023). The analysis employed visual communication as a tool for this study, which is a post-positivist qualitative study (Chigbu 2019, Gaddefors and Cunningham 2024).

4 Descriptive Findings and Interpretations

4.1 MSC LMLT: A Contributor to Career Progression in Multiple Land Sectors

The 31 respondents came from 10 African countries. The MSc LMLT alumni are from 15 African countries, so the response rate per country was high (67 %). Libya (with 2 alumni) was the only country that did not respond. This is why the study has an SSA focus instead of an African focus. The respondents came from Ethiopia, Ghana, Kenya,

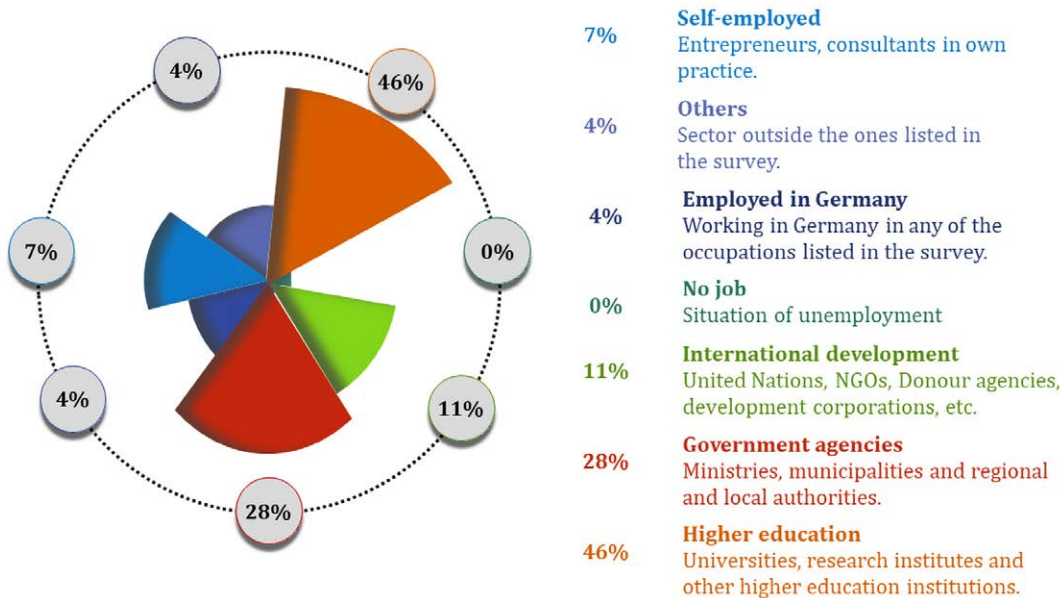


Fig. 2: The occupational scenario of MSc LMLT alumni

Namibia, Rwanda, Tanzania, Uganda, Nigeria, Zimbabwe and Zambia. The respondents are alumni who graduated from 2011 to 2020. Since the programme started in 2001, this implies that the data for this study only represents the situation of the alumni from the second-half of the programme’s lifecycle. The gender ratio of respondents was 69 % male and 31 % female. The occupation of the respondents by sector is represented in Fig. 2.

All respondents are employed. As Fig. 2 shows, some are engaged in self-employment. However, the three top employment sectors are higher education (56 %), government agencies (28 %) and international development agencies (11 %). A substantial group (7 %) are self-employed either as entrepreneurs (business owners) or consultants directly working on land matters in multiple sectors in SSA. Survey evidence shows that about 4 % of the sampled alumni work in Germany. This group includes individuals who may be working in Germany while continuing to pursue their PhD degrees at various universities in the country. The primary revelation from this finding is that most are positioned to contribute to academic and societal impacts in their different countries or for their countries from wherever they are currently living or working.

To ascertain whether their jobs (or employment progression) directly resulted from their participation in the MSc LMLT, they were asked to describe “how well” the programme may have prepared them for their current roles (Fig. 3).

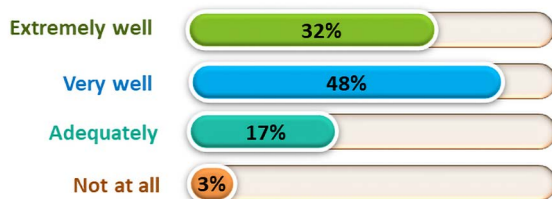


Fig. 3: Satisfaction levels based on the influence of MSc LMLT on alumni career paths

Except for a 3 % response that came in negative, the majority (48 %) noted that the programme prepared them for their current roles. 32 % admitted that it prepared them *extremely well*, while 17 % indicated that it prepared them *adequately* for their current positions. In summary, about 97 % of the respondents attribute their current jobs (or progress thereof) to their participation in the MSc LMLT.

Considering that the critical areas of employment that emerged from the survey are academia and development-oriented employment, it was necessary to specifically analyse the status of the alumni in these areas separately before any discussions on potential impacts.

4.2 MSc LMLT: An Influential Factor in the Academic Impact Positions

Since the vision for setting up the MSc LMLT was to improve the decreasing land sector education and capacity in the global south (Magel 2009), it is necessary to identify the SSA scenario of its academic impact. In this regard, the academic impact is a measure (qualitative or quantitative) of the contribution of the MSc LMLT to academic advancements through the lived lives of the alumni. A starting point is to grasp the current academic positions and the Hirsch index of those employed in the academic fields – that is, the 46 % who are in academic positions (Fig. 4).

Within the academic fields (land management, planning, surveying and related subjects), most alumni are lecturers (44 %). Another 19 % comprise those pursuing PhDs and senior lecturers, respectively. A further 12 % are researchers working in universities or research institutes but are not directly engaged in academic lecturing but are focused squarely on the research aspect of land management. A further 6 % hold professor positions – based on the sample size for this study, this translates to an individual (3 %) who is a university professor and another individual (30 %) who is an associate professor.

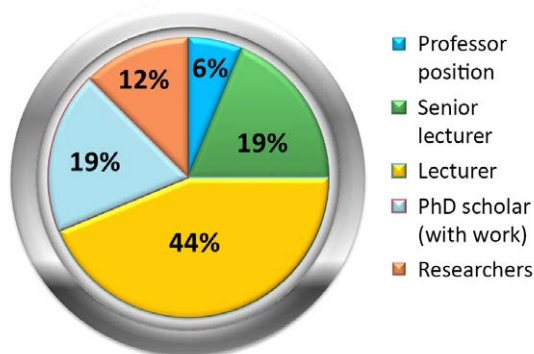


Fig. 4: Status of academic positions of MSc LMLT alumni

Despite the known academic positions of the alumni, it is difficult to benchmark their academic positions with others elsewhere since each institution, country, or region has different academic standards. Therefore, it was necessary to identify their Hirsch Index (h-index) levels for a more standard outlook of their academic influence or contributions. The h-index measures the citations received by a scientist (as an indicator of the relevance of their work) (Hirsch and Buela-Casalb 2014). Since it considers the number of articles published and the citations to those publications in a balanced manner, academics embrace it as a way to compare themselves with others (Bihari et al. 2023). However, considering that the h-index reflects influence within academia, it has been identified purely as academic impact in this study. Hence, the h-index is differentiated from social or societal impact, which relates to the influence of actions conducted on the living conditions of people or communities (Pereira-Moliner and Molina-Azorín 2024). In this study, the h-index is those tracked on either *Google Scholar* or *ResearchGate*. *Google Scholar* is a freely accessible web search engine that tracks and indexes scholarly literature across all disciplines and publishing formats. *ResearchGate* is an academic social networking website for scientists and researchers. It tracks the h-index of registered scientists based on the number of articles uploaded.

Identifying the alumni’s h-index helped gauge their influence level relative to their positions. This is because the impact of a scholar’s publications among readers or other scholars is crucial in defining their level of academic influence or reputation as a researcher and author. This also applies to land management and related subjects and disciplines. According to Stapleton (2023), on average, “a good

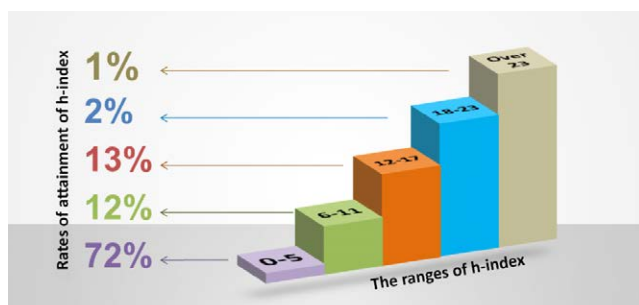


Fig. 5: State of h-index of MSc LMLT alumni involved in academia

H-index for a PhD student is between 1 and 5, a postdoc between 2 and 17, an assistant professor between 4–35 and a full professor typically about 30+”.

The h-index of the surveyed alumni (Fig. 5) indicates that 72 % are within the range of 0–5, 12 % are within 6–11, 13 % within 12–17, 2 % within the 18–23 bracket and 1 % is above 23. When benchmarked against Stapleton’s (2023) h-index standard, it can be inferred that most alumni are at a stage where they have started creating academic influence in the land management arena. About 25 % are at a mid-level stage of academic impact, while about 3 % are at an advanced level. Judging that this survey catered only to those who participated in the MSc LMLT in the second half of its lifecycle (2011–2020), these levels of academic impact are high.

4.3 MSc LMLT: A Progressive Factor in the Societal Impact Positions

Concerning career paths in land management, it is noteworthy that since the MSc LMLT was a postgraduate programme, all participants had already gained bachelor’s or master’s level education before enrolment. Participation in the programme was motivated by the need for some participants to transition from non-land sector jobs to land sector employment or (for others) reinvent their land sector careers. However, when it comes to business or career, “no one reinvents themselves in a vacuum” (Ibarra 2024).

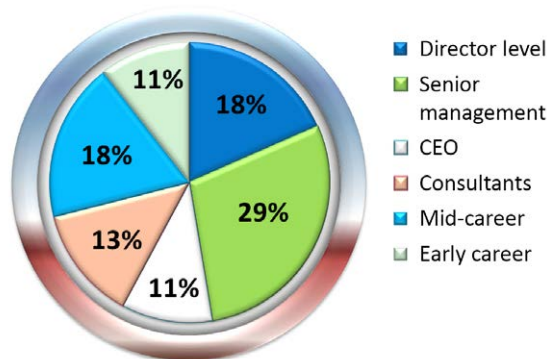


Fig. 6: Career levels of the alumni working in national and international development practice

The survey indicates that 97 % of respondents (out of the 34 % in non-academic fields) identified their participation in the programme as a progressive factor in their current career roles (which has positioned them to make a societal impact in their immediate communities. The career status of the 34 % who are non-academic in the overall survey is presented in Fig. 6.

Most of the alumni (29 %) in the non-academic employment work at the senior management level. Eighteen per cent (18 %) work at the director (including deputy director) and mid-career levels, respectively. Thirteen per cent (13 %) work as consultants for government agencies, NGOs, development corporations and international de-

velopment organisations. Eleven per cent (11 %) are Chief Executive Officers (CEOs) who established start-up business outfits for land management services. CEOs differ from consultants because they are entrepreneurs who own and operate their businesses as private companies or partnerships.

With the statuses of the alumni identified in terms of their career (academic and non-academic), it was necessary to grasp how they have been able to use their MSc LMLT knowledge to make a societal impact in their immediate communities or elsewhere.

5 Qualitative Findings and Discussion: The Societal Impact of Alumni in SSA

Since the key objective of the MSc LMLT was (put differently) to capacitate scholars from the global south to gain land management knowledge and skills that would enable them to resolve land challenges in their communities, societal impact contribution presents the best metrics for evaluating its progress. This implies a focus not only on academic impact but also on societal or social impact (Magel 2009). From the land management perspective, societal impact results from individuals or groups’ effects on communities through actions, inactions, and policies. Societal impact happens when the actions of individuals or groups (e.g., organisations) lead to “real and tangible benefit to other people, the community, or the environment” (Antonucci and Venditti 2023, p. 12082).

From the qualitative findings of this study, it is notable that all alumni employed in academic and non-academic aspire to contribute to societal changes in SSA. Among the sampled respondents, even those currently living outside SSA (17 %) are engaged indirectly in activities they are hopeful would allow them to contribute to societal changes in the land sector (e.g., research and writing on solutions to land problems in SSA).

5.1 Alumni are Engaged in One or a Combination of Society-changing Activities

In a traditional setting, one would expect academics to focus on delivering academic impacts in land management and related disciplines, focusing on h-index (Hirsch 2005). Similarly, practitioners and those working in the land policy environment must focus on delivering practical and societal outcomes. However, this is not the case among the MSc LMLT alumni in SSA. Those in academia are engaged in “conceptualising how land governance activities should be conducted and implemented” in SSA (Chigbu 2022). However, those in non-academic employment are also engaged partly in multifaceted academic or practice backgrounds. A key emerging issue from the study is the differences between academic impact (h-index) and social or societal impact (Tab. 1).

Tab. 1: Difference between academic and societal impacts (based on analysis of alumni activities)

Academic impact (h-Index)	Societal impact (people)
Focused on citation impact	Focused on causing societal impact
Quantitative focus	Qualitative focus
Successful actors are viewed to be intellectuals	Actors are viewed to be practitioners, policymakers, and politicians. Academics involved in it are called academic practitioners.
Writing focused	Human relationship focused
Achievable through academic writing and publications	This is achieved through project implementations, multiple forms of publications, networking, and politics.

Specifically, both those in academia and non-academic employment are engaged in responsibilities that can directly or indirectly contribute to changes in the land sector. Some of the main change-making activities in which the respondents are engaged include teaching, research project fund sourcing, research on entrepreneurial innovations on land, and supervision of land management topics. Some are involved in social activism on land matters, mentorship of land experts, research and publication, motivational speeches at land management events, programme development and curricular reviews to help improve education and capacity development in land management. Others are engaged in community and direct consultancy services to resolve land management challenges in the SSA. Some are involved in all of these activities.

5.2 Vignette of Societal (knowledge and Community) Impacts Caused

Societal or social impact is a highly qualitative issue. It can be measured based on how activities (such as academic, professional and policy work in land management) have improved the quality of life of people or put in place a tool or mechanism that improved their lives. It relates to how an activity has helped to empower or provide positive changes in people’s lives. Such people can be students, local communities, professionals or government institutions experiencing land sector challenges. When asked whether they have caused any social impact inspired by their participation in the MSc LMLT, some identified activities they have engaged in to improve situations in their communities, workplace and project areas. Some selected or notable impactful activities mentioned by alumni (identified

as knowledge-focused or community-based) are presented below in their own voices.

“Land management, although a very common practice in the world and a tool of livelihood sustainability in sub-Saharan Africa, has not always been done responsibly. I co-innovated the responsible land management matrix which is now being used in Africa to assess how responsible land management initiatives are in the context of people-centeredness and sustainability. This approach has been used as a methodology in PhD and post-doctoral theses. It has also been used to assess land management projects in Nigeria, South Africa, Rwanda and Ethiopia.” Knowledge and community project impacts in Ethiopia, Nigeria, Rwanda, Namibia and South Africa.

“Land conflicts are prevalent in Northeastern Uganda. I have directly reduced conflict by introducing conflict resolution mechanisms that increased transparency in land rights in central Uganda and customary areas in Northeastern Uganda.” Rural community impacts in Uganda.

“Since returning to Ghana, I have advised and adapted 2 of the best practices in rural development from Germany and applied them the Ghanaian customary land tenure sector.” Rural land management impact in Ghana.

“Networking is a key aspect of human relationships needed for making changes in the land sector. I currently coordinate the largest land governance network (supported by the African Union and the German government) in the Southern part of Africa.” Knowledge and community impacts in countries of Southern Africa.

“I have contributed to research projects focusing on responsible land-based investments, rural land tenure, land rights, land governance, women land rights and gender issues, sustainable mangrove conservation and land conflicts contributing to scientific knowledge and informing policy decisions.” Knowledge impact. Country not mentioned.

“I worked with the Ministry of Land reform in Namibia after my graduation. My work was under a GIZ supported programme for communal land development. The programme is a rural development intervention to support small-scale commercial farmers with infrastructural development. It involved the registration of customary land rights and provision of land and farming advisory services.” Community development impact in Namibia.

“The MSc set me apart in terms of the international exposure I gained. With my further Postgraduate studies, I expanded my critical thinking, negotiation and critical thinking skills. The attainment of the MSc allowed me the opportunity to work closing with High level politicians on land and related matters which was a true privilege.” Knowledge and societal (political) impact. Country not mentioned.

“After graduation in 2012, I have done much to improve society with my land management teaching and training sessions. I have trained more than 100 individuals on the best approaches to land governance and land management, which they use to improve land problems in various areas of Africa.” Knowledge impact across Eastern, Southern and Western Africa.

“I have used my knowledge of curricula development in land management to review the PhD programme in Land Policy and Governance at the Bahir Darr University in Ethiopia. I have also contributed to developing the Curricula Guidelines for and governance in Africa for the African Union.” Knowledge impact in Ethiopia and the whole of Africa.

“I have led the production of a practical land use planning guide for simultaneously conducting land use planning and tenure security improvement, which has influenced the classroom and communities. It has influenced academic theories in planning. It has also been applied by the UN-Habitat and the Netherlands Governments in rural land registration to secure tenure for more than 30,000 small-holder farmers in the Mount Egon region of Uganda. The Namibian Housing Action Group has also applied it for informal settlement upgrading in Okahandja in Namibia.” Knowledge and rural and urban community impacts in Namibia and Uganda.

The above vignette represents some of the most notable responses depicting the impactful contributions of the alumni in SSA. However, multiple responses were received when the alumni were specifically asked to mention or explain specific activities they have engaged in and its land management influence in SSA societies. The responses received have been presented in Tab. 2, showing the particular activities the alumni have engaged in their contribution to societal impacts in SSA.

All the activities identified in Tab. 2 provide a broader scope (and yet more specific) view of the efforts of the alumni to influence their societies through their communities.

6 Conclusion and Implications for Land Management Education

“Education and capacity development are essential” for producing better land management experts to develop African urban and rural areas (Kohima et al. 2023, p. 11). Although the MSc LMLT was not designed only for Africans, it has (to an extent) contributed to the education and capacity development in land management in SSA. A critical outcome of this study is that the MSc LMLT produced a combination of practitioners, policymakers and academic practitioners.

Tab. 2: Activity scenarios engaged in by the alumni with societal impacts in different SSA countries

Activity engaged for social impact	University or agent	Land management influence	Country
Development of MSc real estate finance and development	Copperbelt University	Real estate and land development	Zambia
Development of programme in MSc Land management	Makerere University	Land management	Uganda
Informal settlement improvement	Government of Kenya	Urban upgrading	Kenya
Development of a practical guide for land use planning	Global Land Tool Network/ UN-Habitat	Simultaneous application of land use planning and tenure security improvement	Ghana, Namibia, Kenya & Uganda
Development of BSc & MSc programmes in land management	SDD University of Business and Integrated Development Studies	Land management	Ghana
Contribution to curricula development and review for BSc Land administration	Namibia University of Science and Technology	Land administration	Namibia
Development of BSc land administration and management	Ines-Ruhengeri Institute of Applied Sciences	Land administration and land management	Rwanda
Contribution to curricula review urban and rural planning	Namibia University of Science and Technology	Spatial planning	Namibia
Coordination of regional development spatial plan	Government of Ethiopia/ UN-Habitat	Spatial planning	Ethiopia
Contribution to curricula review Master in Spatial Sciences	Namibia University of Science and Technology	Spatial Sciences	Namibia
Preparation and execution of short courses in land management	African Union	Land management	Anglophone SSA countries
Contribution to curricula review of BSc property studies	Namibia University of Science and Technology	Property studies	Namibia
Responsible land policy	BMZ/GIZ	Land policy	Uganda
Coordination of National land administration projects	Lands Commission	Land administration and land information	Ghana
Coordination of National Land Policy Review	Ministry of Lands	Land policy	Zimbabwe
BSc Property and Asset Management	Bunyoro University	Valuation and property/ asset management	Uganda
Development of curricula guidelines for land governance	African Union	Guidelines for curricula development in land governance for universities and institutions all over Africa	All over Africa
Mentoring younger academics in land management career	Various institutions	Various land management areas and career paths	Parts of Africa (13 countries)
MOOC: Responsible Land Administration teaching essentials	Global Land Tool Network / UN-Habitat	Learning resources (ongoing)	All over Africa

Many academics and governments (globally) now care about the societal impact of their university programmes (Seneviratne and O'Malley 2022). In the past decade, University World News has called on universities to “treat communities as partners to improve social impact” (Mitchell 2021). Many academic institutions now claim to deliver development impacts to societies through their teaching programmes and research projects. This study reflects the idea that university education should foster relationships with and respond to their communities. It was embedded in the MSc LMLT from its commencement in 2001. The programme was designed to be flexible enough to embrace the changing paradigms in Higher education at the beginning of the 21st century. The courses and modules taught in the programme encouraged the mindset and behaviour of making changes in the context of using land to improve the quality of life of people in the global south. The degree to which a person or community is empowered through practical and academic activities was vital to ascertain how the different modules were delivered. This study highlights the need for a vision in programme design in land management education. The responses from the alumni sampled in this study show that the MSc LMLT had a science-policy interface because it made the societal impact of academic research a central concern in its teaching (classwork), excursion (visual and practical learning), and research (MSc theses). Hence, the preliminary implications that can be drawn from this study, particularly from the ongoing experience of the alumni, are that any land-related programme being conducted anywhere in the world should have multiple focuses beyond academics. This is necessary for participants who graduate from such programmes to be able to make direct contributions to the development of their society. Irrespective of the type of land management programme or the region of the world where the programme is located, it is essential to put the interest of the society at the centre of the university programme design and delivery. This is the critical lesson from the MSc LMLT.

References

- Antonucci, G., Venditti, M. (2023): Social Impact. In: Farazmand, A. (ed.): *Global Encyclopaedia of Public Administration, Public Policy, and Governance*, 12082–12090. Springer, Cham. DOI: 10.1007/978-3-030-66252-3_3045, last access 28/03/2024.
- AUC – African Union Commission (2010): *Framework and Guidelines on Land Policy in Africa: Land Policy in Africa – A Framework to Strengthen Land Rights, Enhance Productivity and Secure Livelihoods*. Addis Ababa, Ethiopia. <https://archive.uneca.org/publications/framework-and-guidelines-landpolicy-africa>, last access 20/02/2024.
- Bihari, A., Tripathi, S., Deepak, A. (2023): A review on h-index and its alternative indices. In: *Journal of Information Science*, 49(3), 624–665. DOI: 10.1177/016555152111014478, last access 28/03/2024.
- Chigbu, U.E. (2019): Visually Hypothesising in Scientific Paper Writing: Confirming and Refuting Qualitative Research Hypotheses Using Diagrams. In: *Publications*, 7(1), 22. DOI: 10.3390/publications7010022, last access 28/03/2024.
- Chigbu, U.E. (2022): Land Governance and Gender for a Tenure-Responsive Future. In: Chigbu, U.E. (ed.): *Land Governance and Gender: The Tenure-Gender Nexus in Land Management and Land Policy*, 234–240. CABI Digital Library, United Kingdom. DOI: www.cabidigitallibrary.org/doi/book/10.1079/9781789247664.0000, last access 28/03/2024.
- Chigbu, U.E., Atiku, S.O., Du Plessis, C.C. (2023): The Science of Literature Reviews: Searching, Identifying, Selecting, and Synthesising. In: *Publications*, 11(1), 2. <https://www.mdpi.com/2304-6775/11/1/2>, last access 28/03/2024.
- Chigbu, U.E., Kuusaana, E.D., Mabakeng, M.R. (2021): Structural Holes in Academic Networks: Lessons from Bridging Competency Gaps in Land-Related Education and Learning in Africa. *International Federation of Surveyors (FIG) e-Working Week*, 20–25 June. https://www.researchgate.net/publication/352560291_Structural_Holes_in_Academic_Networks_Lessons_from_Bridging_Competency_Gaps_in_Land-Related_Education_and_Learning_in_Africa, last access 12/03/2024.
- Chigbu, U.E., Paradza, G., Nghitevekwa, R.V., Klaus, M. (2024): Current research and opinion on land governance for societal development in and on the global south. In: *Land Use Policy*, 141, 107112. DOI: 10.1016/j.landusepol.2024.107112, last access 28/03/2024.
- de Vries W.T., Groenendijk, E.M. C., Musunguzi, M., Seleballo, C. (2016): Developing capacity assessment tool for land policy implementation: Experience from Kenya, Mozambique and Uganda. 17th Annual World Bank Conference on Land and Poverty 2016. Scaling up Responsible Land Governance. Washington, DC, USA. <https://research.utwente.nl/en/publications/developing-capacity-assessment-tool-for-land-policy-implementation>, last access 01/03/2024.
- de Vries, W.T., Chigbu, U.E., Duran-Diaz, P. (2020): Twenty Years of Building Capacity in Land Management, Land Tenure and Urban Land Governance. In: Home, R. (ed.): *Land Issues for Urban Governance in Sub-Saharan Africa*, 121–136. Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-030-52504-0_8, last access 28/03/2024.
- Gaddefors, J., Cunningham, J. (2024): Anatomy of a qualitative methods section: embracing the researcher as an engaged author. In: *Entrepreneurship & Regional Development*, 1–16. DOI: 10.1080/08985626.2024.2315156, last access 28/03/2024.
- Graneheim, U.H., Lundman, B. (2004): Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. In: *Nurse Education Today*, 24(2), 105–112. DOI: 10.1016/j.nedt.2003.10.001, last access 28/03/2024.
- Hirsch, J.E. (2005): An index to quantify an individual's scientific research output. In: *The Proceedings of the National Academy of Sciences*, 102 (46), 16569–16572. DOI: <https://doi.org/10.1073/pnas.0507655102>, last access 28/03/2024.
- Hirsch, J.E., Buela-Casal, G. (2014): The meaning of the h-index. In: *International Journal of Clinical and Health Psychology*, 14(2), 161–164. DOI: 10.1016/S1697-2600(14)70050-X, last access 28/03/2024.
- Ibarra, H. (2024). Reinventing Your Career — When It's Not Just About You. *Harvard Business Review*, 16th January. https://hbr.org/2024/01/reinventing-your-career-when-its-not-just-about-you?utm_medium=email&utm_source=newsletter_daily&utm_campaign=mtod_notactsubs, last access 20/03/2024.
- Khakbazan, Z., Ebadi, A., Geranmayeh, M., Momenimovahed, Z. (2023): Factors in the Provision of High Quality Midwifery Care: A Qualitative Content Analysis. In: *Journal of Caring Sciences*, 12(1), 50–56. DOI: 10.34172/jcs.2023.25576, last access 28/03/2024.
- Kim H., Sefcik, J.S., Bradway, C. (2017): Characteristics of Qualitative Descriptive Studies: A Systematic Review. In: *Research in Nursing and Health*, 40(1), 23–42. DOI: <https://onlinelibrary.wiley.com/doi/10.1002/nur.21768>, last access 28/03/2024.
- Kohima, J.M., Chigbu, U.E., Mazambani, M.L., Mabakeng, M.R. (2023): (Neo-)segregation, (neo-)racism, and one-city two-system planning in Windhoek, Namibia: What can a new national urban policy do? In: *Land Use Policy*, 125, 106480. DOI: 10.1016/j.landusepol.2022.106480, last access 28/03/2024.

- Kuusaana, E. D., Chigbu, U. E., Kidido, J. K., Biitir, B. S., Zevenbergen, J., Morenikeji, G. B., Azupogu, U. W. (2021): Co-creating land governance research agenda by, for, in, and on Africa: Experience of Network of Land Governance Researchers on Africa (NELGRA). In: *Local Development & Society*, 2(1), 61–79. DOI: <https://www.tandfonline.com/doi/abs/10.1080/26883597.2021.1891840>, last access 28/03/2024.
- Lambert, V. A., Lambert, C. E. (2012): Qualitative descriptive research: an acceptable design. In: *Pacific Rim International Journal of Nursing Research*, 16(4), 255–256. <https://he02.tci-thaijo.org/index.php/PRIJNR/article/download/5805/5064>, last access 28/03/2024.
- Mabakeng, M. R., Chigbu, U. E., De Villiers, S., Awala, C., Christensen, A., (2021): Supporting Capacity Development in Land Administration in Namibia: The NUST Experience. *International Federation of Surveyors (FIG) e-Working Week*, 20–25 June. https://www.researchgate.net/publication/352678733_Supporting_Capacity_Development_in_Land_Administration_in_Namibia_The_NUST_Experience, last access 19/03/2024.
- Magel, H. (2009): Director's speech. Sixth graduation ceremony for MSc Programme Land Management Land Tenure. www.landentwicklung-muenchen.de/master/news/graduationceremony2009/Speech_Magel.pdf, last access 20/02/2024.
- Magel, H., Triglav, J. (2004): New Challenges to Education in Geodesy and Geoinformation. *Geodetski Vestnik*, 48 (4), 477–491. <https://doaj.org/article/0af2adf6c5ae4d86a7a895ed33182d61>, last access 28/03/2024.
- Masum, F. (2012): Role of International Higher Education in Developing Employability: Limitations and Opportunities. In: *Mediterranean Journal of Social Sciences*, 3(10), 37–47. www.semanticscholar.org/paper/Role-of-International-Higher-Education-in-and-Masum/6af5752aacb11e78bed344d47c1696d5f78e9a2d, last access 28/03/2024.
- Mitchell, N. (2021): Treat communities as partners to improve social impact. *World University News*, 29th January. <https://www.universityworldnews.com/post.php?story=20210129084451125>, last access 22/02/2024.
- Pereira-Moliner, J., Molina-Azorin, J. F. (2024): Conducting responsible research in hospitality management with greater societal impact. In: *International Journal of Contemporary Hospitality Management*, 36(3), 893–905. <https://www.emerald.com/insight/0959-6119.htm>, last access 28/03/2024.
- Seneviratne, K., O'Malley, B. (2022): How can we measure universities' contribution to society? *University World News*, 4th December. <https://www.universityworldnews.com/post.php?story=20221202140209503>, last access 25/02/2024.
- Stapleton, D. (2023): What is a good H-index for each academic position? *Academia Insider*, 21st September. <https://academiainsider.com/what-is-a-good-h-index-for-each-academic-position/>, last access 20/03/2024.

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