

A bibliometric and webometric study of Mistra Urban Futures, 2010-2014

Summary

Nearly 400 publications have been produced since the start of Mistra Urban Futures (M-UF) in 2010, including peer-reviewed journal articles (28%) and conference papers (8%), book chapters (21%), books (7%), reports (29%) and theses (8%). Annual publication volumes are steadily increasing, and the number of journal articles have doubled in later years. The publication profiles of different M-UF locations vary considerably, however, with Cape Town standing out both in terms of total output and journal article production. Total publication coverage in the Scopus database also varies between locations, but is overall low (21%). Unsurprising as this is for a highly applied project, it means that Scopus-derived impact and collaboration data reported here should be regarded with caution.

As a measure of visibility in a scholarly context, a total of 78% of journal articles were published in international scientific journals. Furthermore, 18% of articles appeared in journals ranked as highly prestigious publication channels in the Norwegian national system. Although too early for a rigorous citation analysis, M-UF publications have received more than 500 citations showing a considerable geographic spread. Cape Town dominates the highly cited list, together with Greater Manchester, and Cape Town University forms the centre of the derived co-authorship network. Overall, relatively few publications (23%) were internationally co-authored, however.

A webometric analysis of M-UF's visibility and impact in a web context, showed that 27% of listed reports were available as full-texts. Mentions of these from different external websites and pdf documents have increased over time, and an average of 3,4 websites cite reports published in 2013. Among M-UF locations, Gothenburg dominates both in terms of report production and web-based impact, especially regarding coverage in social networks, pdf documents and mass media. A large proportion of reports written in Swedish may explain why the relative share of external attention is slightly lower for Gothenburg than for Greater Manchester, however.

Bibliometrics of M-UF publications

Scope and limitations of the bibliometric study

Bibliometric analyses of research performance typically involve quantification of productivity and impact, and sometimes also the extent of collaboration, using bibliographic databases like the Web of Science (Thomson Reuters), Scopus (Elsevier) or Google Scholar. Whereas each database provides more or less structured data on author affiliations, subject content and citation counts, their utility depends on the studied subject area as well as on requirements on data quality, and time available for data cleaning. In this bibliometric evaluation of Mistra Urban Futures, we have weighed database coverage against time expenditure. Except for statistics based directly on the *MASTER COLLECTED publication list* (provided on 2 Dec, 2014), bibliometric analyses are thus based on data in Scopus, which has slightly better coverage of M-UF publications (and likely also of citing documents) than the Web of Science, and far better data quality than the more comprehensive Google Scholar database. Our aim is to give a broad bibliometric picture of M-UF, including published material of different types where we can, but focusing on peer-reviewed journal articles for citation impact and collaboration analyses, where other data are difficult to acquire.

Although Scopus covers a reasonable share (75%) of M-UF articles, papers in Scopus constitute only a minor part (21%) of the total M-UF publication volume, including conference papers, book chapters, books, reports and theses. Total database coverage furthermore varies considerably between M-UF locations (from Cape Town: 37% to Kisumu: 2%). This means that analyses based on Scopus data may not be very representative of M-UF output in general. Although indexation in major international databases can be used as a measure of visibility in scholarly contexts, it is less useful for determining visibility and impact outside academia, as are most common bibliometric indicators. Given the explicit aims of M-UF to promote knowledge transmission and interaction with business, interest groups and general public, this is an important limitation of our study. The included webometric analysis is, however, an attempt to look at impact in a somewhat broader sense.

Scientific impact or quality is typically measured in terms of citation counts. Even disregarding the limited database coverage, rigorous citation analysis of M-UF publications would not have been possible, however, as the total number of journal articles having had at least one year to gather citations would be too low (<50) to give stable indicator values. To show that M-UF publications have indeed had impact on other research around the world, we still present some raw citation counts in the report. Readers should be aware that these have not been normalised for differences in citation rate between research sub-fields, publication types or years. As an alternative measure of quality, we have also used the share of M-UF publications published in high-ranked journals, using the Norwegian classification of publication channels.

Results and discussion

Publication volume

The *MASTER COLLECTED publication list* from 2 Dec, 2014 included 556 records of different types of research output. The following bibliometric analyses, however, exclude 159 of these records listed either as *forthcoming / in preparation / in press* etc. (95 records), or as *unpublished oral or poster presentations* (64 records). In addition, one guest editorship, two duplicates, and two records where either journal or article title could not be substantiated,

were excluded. The remaining data show a steadily growing volume of M-UF publications from 2010 to 2013 (Fig.1). In particular, the number of peer-reviewed journal articles doubled from 2012 to 2013, and judging from the list of forthcoming articles this growth is likely to continue. But it is also clear that alternative publication types, such as reports and book chapters are equally important outlets of M-UF research.

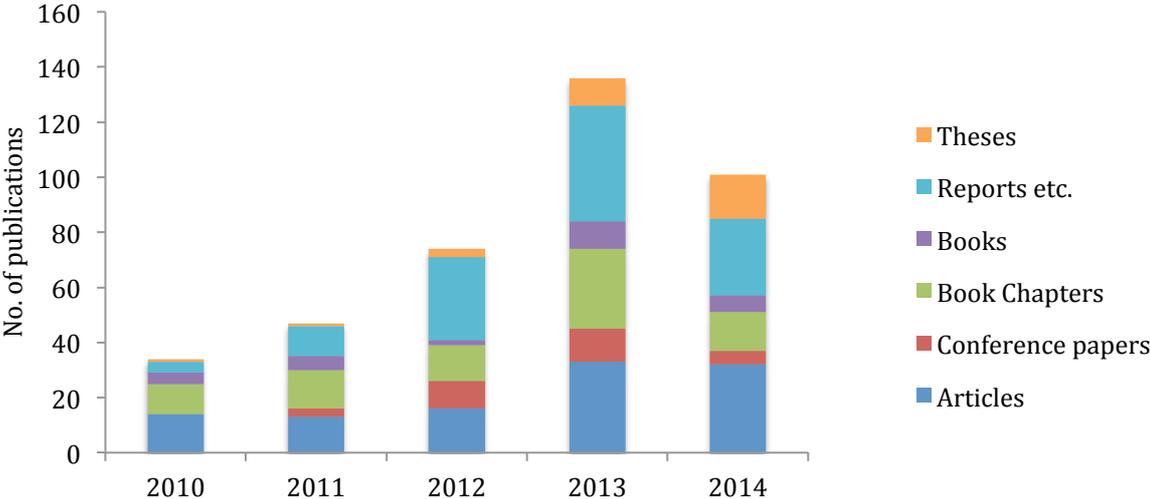


Figure 1. Publication volume over time, grouped by publication type. Note that data are still incomplete for publishing year 2014.

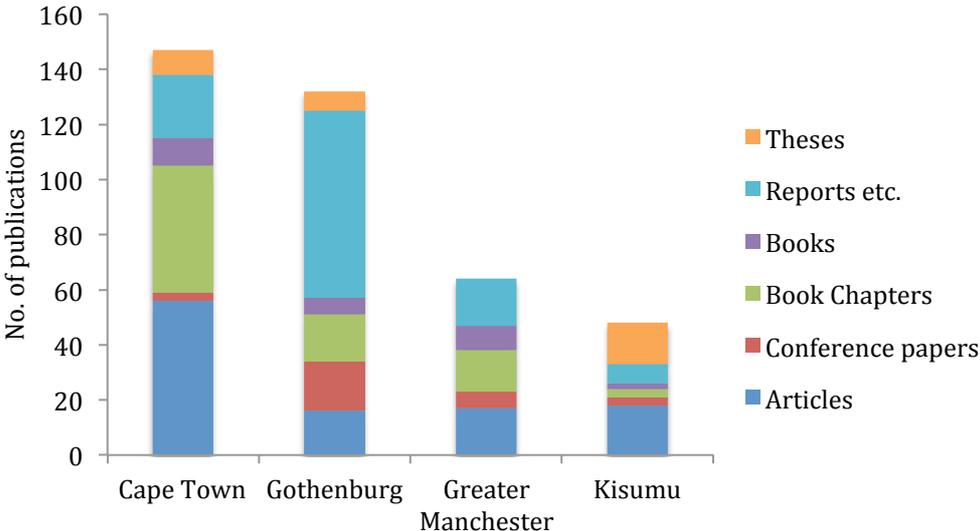


Figure 2. Publication volume by M-UF location. Excluding one publication classified as *International collaboration*.

The publication profiles of the different Local Interaction Platforms differ considerably (Fig. 2). Whereas Cape Town and Gothenburg dominate in terms of total published volume, South African M-UF researchers have primarily published journal articles and book chapters, and Gothenburg participants have mainly produced reports. Greater Manchester and Kisumu, in turn, have a higher proportion of journal articles than Gothenburg, but absolute volumes that are still small in comparison to Cape Town. These differences are important as the visibility, collaboration and citation data shown in this report are based on journal articles only, meaning that results could be rather different, had we been able to analyse other publication types. That said, journal articles are generally considered to be particularly important in scholarly publishing, and as such demand special attention here.

Mistra Urban Futures is financed by several foundations and organisations, and the publications included in this report have, in turn, been classified according to their level of M-UF dependence. A summary of this information (Fig. 3) shows that only about 40% of M-UF publications are fully financed by M-UF. These are predominantly reports, whereas a large part of the included journal articles seems to have a more indirect connection to M-UF.

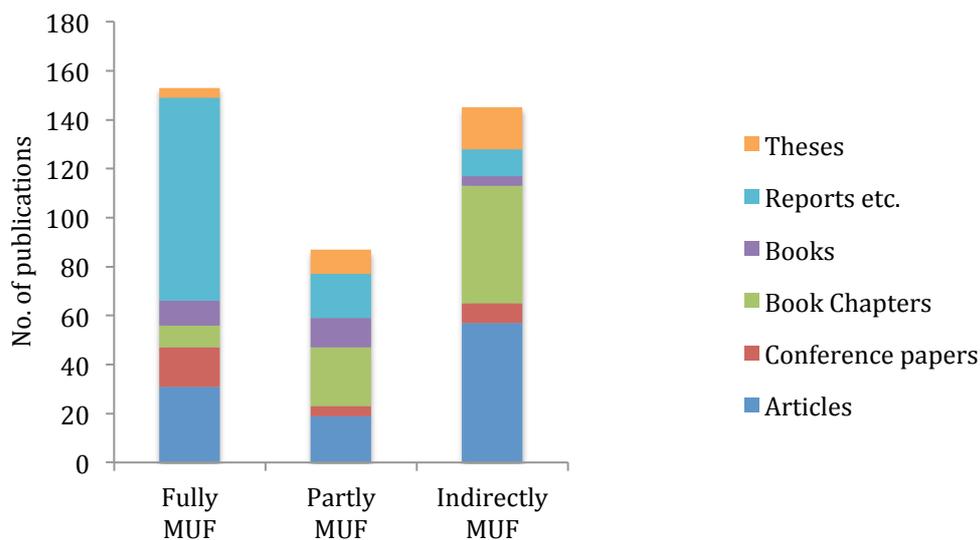


Figure 3. Publication volume by funding type. Publications are classified either as fully or partly funded by M-UF, or as indirectly linked to M-UF (meaning that they are based on knowledge gathered during the project), but not directly financed by Mistra. Excluding 7 publications with unspecified funding.

Visibility in major international databases and journals

A total of 84 journal articles (78%) were published in international scientific journals, defined as journals covered by at least one of the databases Web of Science (Thomson Reuters) or Scopus (Elsevier) by 2014. Among these, 19 (18% of total no. of articles) appeared in journals ranked as highly prestigious publication channels (level 2) in the Norwegian funding system for research. This is slightly less than expected, as ca. 20% of the publication volume within a research field is published in Level 2 journals, overall (<http://dbh.nsd.uib.no/kanaler/>). A list of journals, numbers of papers and Norwegian ranks is presented in Appendix A.

Citations according to Scopus

A total of 538 citations of M-UF publications were found in the Scopus database (Table 1). The collective Hirsch index (h-index) was 12, i.e. there were 12 publications cited at least 12 times. Nine of these twelve publications derive from Cape Town and three from Greater Manchester. A list of the most highly cited publications is presented in Appendix B.

Publication year	M-UF articles	Citations
2010	13	349
2011	11	42
2012	11	91
2013	23	52
2014	19	4

Table 1. Citation impact of M-UF publications over time, according to Scopus 10 December 2014).

According to Scopus, 464 papers have cited M-UF articles. The authors of citing papers are mapped by country in Figure 4, showing a considerable geographic spread of impact, although dominated by high output countries like the United Kingdom and the United States.

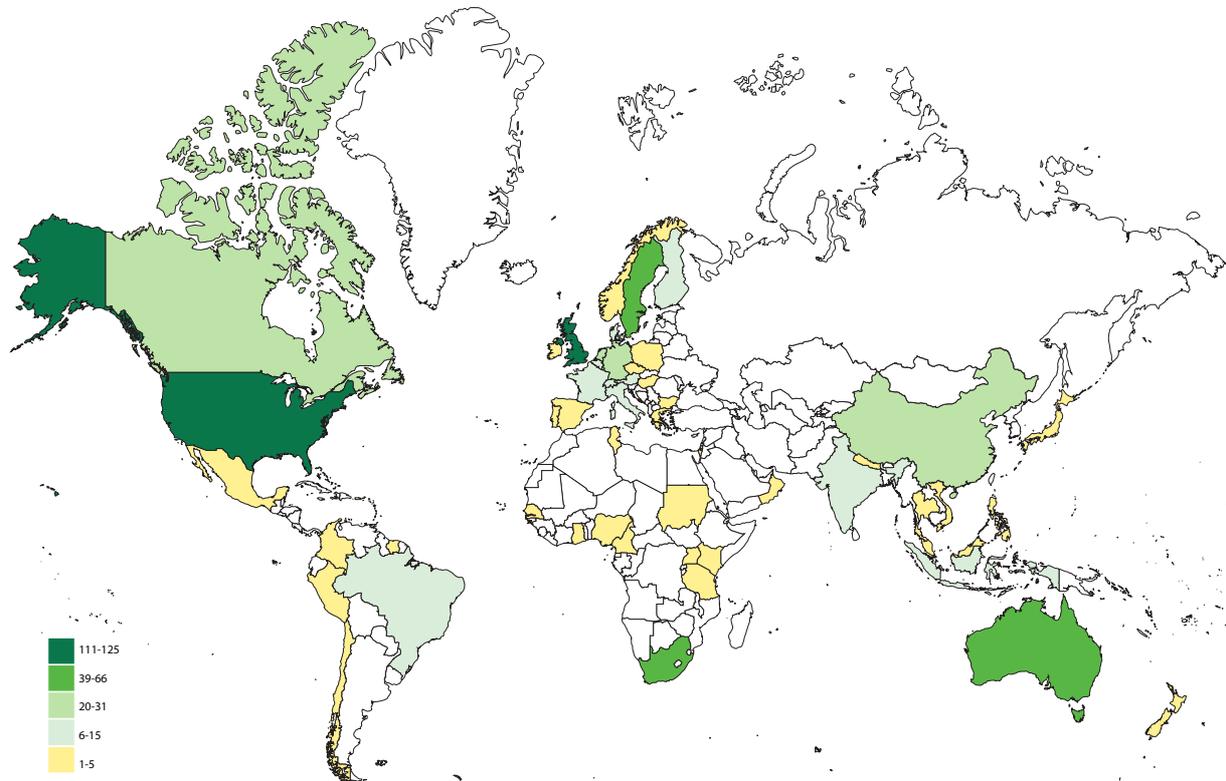


Figure 4. The geographic spread of M-UF impact, i.e. addresses included in papers citing M-UF articles in the Scopus database 2010-2014. Colour saturation indicate numbers of papers with at least one author address in a particular country.

Collaboration

Of the 79 publications covered by the Scopus database, only 18 (23%) were internationally co-authored, i.e. included author addresses from at least two different countries. The most common affiliation, excluding M-UF countries (Kenya, South Africa, Sweden and the United Kingdom), was the United States (Fig. 5). The University of Cape town furthermore appears to be as a central actor among collaborating organizations (Fig. 6). As discussed above, Cape Town also had by far the largest production of journal articles among M-UF locations (Fig. 2), and a collaboration network based on other publication types could possibly look very different.

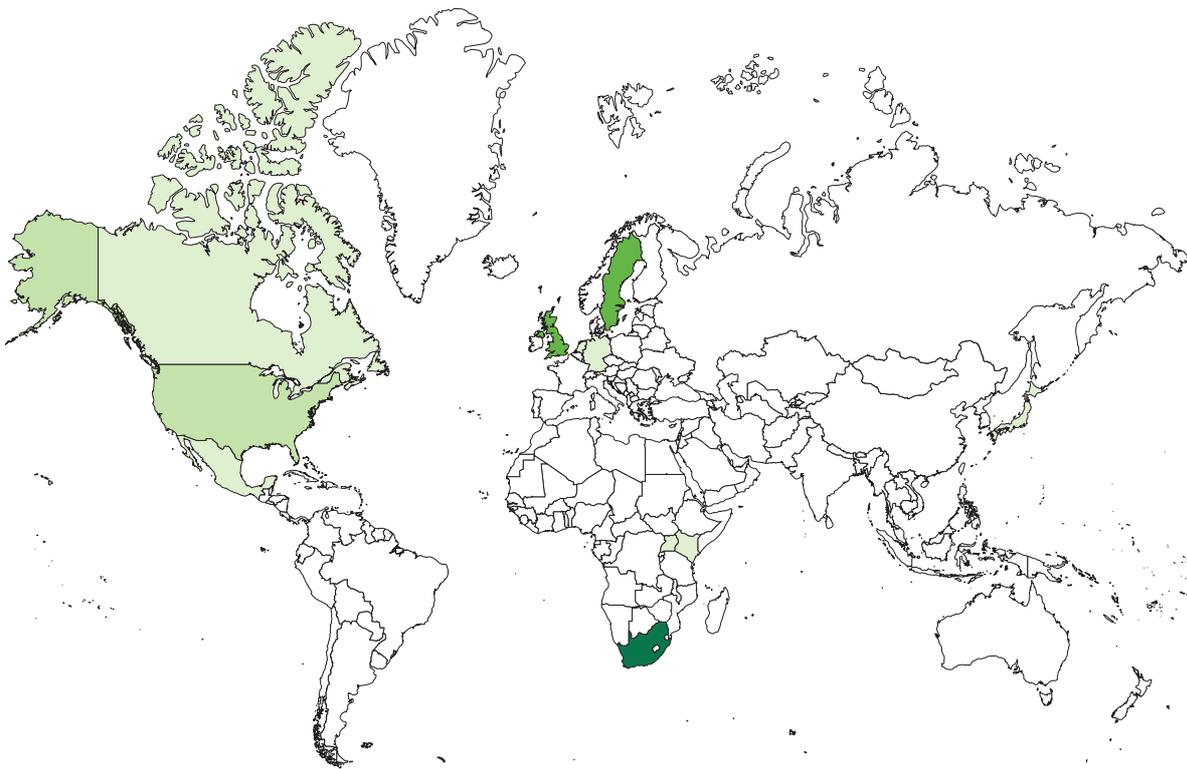


Figure 5. Geographic origin of authors to M-UF publications in the Scopus database 2010-2014. Colour saturation indicate numbers of papers with at least one author address in a particular country.

The main limitation of a webometric approach is the low reliability of the unstructured data used in the analysis. Here the titles of reports are used to determine the web-based impact of the reports produced under the M-UF umbrella. Potential name variations in the references could, therefore, mean that the search engine, in this case Google, cannot retrieve the mentions to these reports. Similarly, if there are documents with word strings similar to the titles of the reports analysed, this could lead to erroneous counting of non-relevant references. However, a manual check of the results has been done to minimise this problem. In this way, two reports with very general titles have been removed. Another important limitation is the difficulty to determine the level of the performance, due to the lack of standards to compare M-UF against.

A part from these important limitations, this approach can also give insight into the full-text availability of M-UF reports and to what extent the research network have made an effort to disseminate the knowledge gain within M-UF. This aspect is also very important as the free accessibility and a wide dissemination of the project is one of the best strategies to strengthen the links within the complex and wide network of actors involved on the M-UF collaborative platform, and likewise plays a key role in reaching out to the wider society in general.

Webometric results and discussion

The large number of M-UF reports started to be published in 2012, reaching a total of 119 published reports by December 2014 (Table 2). This makes reports the main communication and dissemination channel of M-UF. However, the number of documents that can be found as full-text only covers 27% of the total production and suggests that actors outside M-UF may struggle to get access to preliminary results and works-in progress that are published in the form of reports. On the other hand, the number of web domains¹ that mention our reports, beyond the website of M-UF and of the institutions writing the reports (i.e., *excluding self-mentions*), indicates that in only half of the websites that mention our reports are websites from actors or organisations outside the M-UF umbrella. After 2012 there is a growing number of external websites that pay more attention to our reports. Already 48% of the websites citing our reports published in 2014 are external, despite the short citation period. This suggests that further mentions could be expected during the next year.

	M-UF documents		Mentions (citations)		Excl. self-mentions (self-citations)			
	Reports	Full-texts	Webpages	Websites	Websites	Sites per Report	Social Network	PDFs
2010	4	3	15	6	2 (33%)	0,50	0	0
2011	11	5	71	50	15 (30%)	1,36	18	14
2012	30	8	195	143	84 (59%)	2,80	26	30
2013	43	8	384	273	146 (53%)	3,40	64	59
2014	31	8	195	120	57 (48%)	1,84	37	14

Table 2. Web-based impact of M-UF publications over time (publication years). Data show mentions from unique webpages and domains, as well as from social network sites and PDFs. Categories are further explained in Appendix C.

¹ Throughout this report the terms web domains and websites are used interchangeably and refer to the same thing, i.e. the top level of a URL address.

One of the main explanations for increased impact could, however, be the growing number of reports published during the last years rather than an actual increase in the number of citing websites. Still, the growing number of websites per report between 2012 (2,8) and 2013 (3,4) confirms that our reports are increasingly drawing more attention on the web. On average only two web domains have mentioned our reports during the five years, but this number could be considered as relatively good if we take into consideration the low number of citations that most scientific publications receive during their first years. The growing number of grey literature that cites M-UF reports published in the last three years is the strongest proof that M-UF reports have contributed to new knowledge and more publications.

An aggregation of publications and mentions according to MUF location, illustrates the importance of Gothenburg as the main M-UF hub in relation to report and grey literature production (table 3). Gothenburg has also provided the most full-text documents online, and gathered the highest number of citations from internal and external websites. However, the percentage of references made from external websites shows that Gothenburg, along with Kisumu and Cape Town, draw relatively less outside attention than Greater Manchester. In the case of Gothenburg, the high number of reports written in Swedish may limit international dissemination, and explain the lower external impact. As for the number of citing websites per report, Cape Town, Gothenburg and Manchester show very similar performances. It is rather the great number of citing PDFs, together with the large mass media coverage at Swedish regional and national levels, that primarily illustrate the leading role of Gothenburg in terms of web-based M-UF impact (but see media coverage commentary in appendix C).

	M-UF documents		Mentions (citations)		Excl. self-mentions (self-citations)			
	Reports	Full-texts	Webpages	Websites	Websites	Sites per Report	Social Network	PDFs
Cape Town	24	9	188	129	67 (52%)	2,80	32	19
Gothenburg	70	19	558	378	190 (50%)	2,71	94	86
Gr. Manchester	18	3	87	73	45 (62%)	2,50	15	12
Kisumu	7	1	27	12	6 (50%)	0,89	0	4

Table 3. Web-based impact of M-UF publications by location. Data show mentions from unique webpages and domains, as well as from social network sites and PDFs. Categories are further explained in Appendix C.

Appendix A. Papers in international scientific journals, 2010-2014

Journal	ISSN	Level*	No. papers
Urban Forum	1015-3802	1	9
South African Geographical Journal	0373-6245	1	7
Ecology and Society	1708-3087	1	3
Social Dynamics: A journal of African studies	0253-3952	1	3
Ambio	0044-7447	1	2
Building Research and Information	0961-3218	2	2
Built Environment	0263-7960	1	2
Cities	0264-2751	1	2
Current Opinion in Environmental Sustainability	1877-3435	1	2
Ecological Economics	0921-8009	1	2
Geography Compass	1749-8198	1	2
International Journal of Knowledge-Based Development	2040-4476		2
Journal of Industrial Ecology	1088-1980	2	2
Landscape and Urban Planning	0169-2046	2	2
Planning Theory and Practice	1464-9357	2	2
Antipode	0066-4812	2	1
Applied Geography	0143-6228	1	1
City	1360-4813	1	1
Critical Arts: South-North Cultural and Media Studies	0256-0046	1	1
Current Issues in Tourism	1368-3500	1	1
Development	1011-6370	1	1
Development Southern Africa	0376-835X	1	1
Disability, CBR and Inclusive Development	2211-5242	1	1
Diversity and Distributions	1366-9516	1	1
Environmental Pollution	0269-7491	1	1
Environment and Planning A	0308-518X	2	1
Environment and Planning C: Government and Policy	0263-774X	1	1
Environment and Urbanization	0956-2478	1	1
European Planning Studies	0965-4313	1	1
Footprint	1875-1504	1	1
Higher Education	0018-1560	2	1
International Development Planning Review	1474-6743	1	1
International Journal for Urban and Regional Research	0309-1317	2	1
International Journal of Sustainability in Higher Education	1467-6370	1	1
International Journal of Urban and Regional Research	0309-1317	2	1
Journal of Arid Environments	0140-1963	1	1
Journal of Cleaner Production	0959-6526	2	1
Journal of Health Politics, Policy and Law	0361-6878	1	1
Journal of Tourism History	1755-182X	1	1
Journal of Urban Health	1099-3460	1	1
Local Economy	0269-0942	1	1
Planning Practice and Research	0269-7459	1	1
Planning Theory	1473-0952	1	1
Policy Futures in Education	1478-2103	1	1
Policy Sciences	0032-2687	1	1

Political Geography	0962-6298	2	1
Progress in Human Geography	0309-1325	2	1
Research Policy	0048-7333	2	1
Resources, Conservation and Recycling	0921-3449	1	1
Sustainability Science	1862-4065	1	1
Territorio	1825-8689	1	1
The Design Journal	1460-6925	1	1
Third Text	0952-8822	1	1
Urban Geography	0272-3638	1	1
Urban Studies	0042-0980	2	1

* Level according to the Norwegian publication channel ranking scheme (see <http://dbh.nsd.uib.no/kanaler/>), where Level 1 = *Ordinary publication channels*, covering about 80% of the publication volume within a research field, and Level 2 = *Highly prestigious publication channels*, representing about 20% of the published volume.

Appendix B. The most highly cited publications*, according to Scopus

79 citations

Hodson, M. & Marvin, S. 'Can cities shape socio-technical transitions and how would we know if they were?' *Research Policy*, vol. 39, no. 4, 2010, pp. 477-485

50 citations

Ernstson, H., van der Leeuw, S.E., Redman, C.L., Meffert, D.J., Davis, G., Alfsen, C. & Elmqvist, T. 'Urban transitions: on urban resilience and human-dominated landscapes'. *Ambio*, vol. 39, no. 8, 2010, pp. 531-545

50 citations

Ernstson, H., Barthel, S., Andersson, E. & Borgström, S.T. 'Scale-crossing brokers and network governance of urban ecosystem services: the case of Stockholm'. *Ecology and Society*, vol. 15, no. 4, 2010, pp. 28

38 citations

Cumming, G. S., Bodin, Ö., Ernstson, H. & Elmqvist, T. 'Network analysis in conservation biogeography: challenges and opportunities'. *Diversity and Distributions: Conservation biogeography - foundations, concepts and challenges*, vol. 16, no. 3, 2010, pp. 414-425

36 citations

Parnell, S. & Pieterse, E. 'The 'right to the city': institutional imperatives for tackling urban poverty'. *International Journal for Urban and Regional Research*, vol. 34, no. 1, 2010, pp. 146-162

31 citations

Parnell, S. & Robinson, J. '(Re)theorizing cities from the global south: looking beyond neoliberalism'. *Urban Geography*, vol. 33, no. 4, 2012, pp. 593-617

30 citations

O'Farrell, P.J. & Anderson, P.M. 'Sustainable multifunctional landscapes: a review to implementation'. *Current Opinion in Environmental Sustainability*, vol. 2, no. 1-2, 2010, pp. 59-65

23 citations

Hodson, M. & Marvin, S. 'Urbanism in the anthropocene: Ecological urbanism or premium ecological enclaves?' *City*, vol. 14, no. 3, 2010, pp. 298-313

22 citations

Pieterse, E. 'Cityness and African urban development'. *Urban Forum*, vol. 21, no. 3, 2010, pp. 205-219

20 citations

Lawhon, M. & Murphy, J. 'Socio-technical regimes and sustainability transitions: insights from political ecology'. *Progress in Human Geography*, vol. 36, no. 3, 2012, pp. 354-378

13 citations

Ernstson, H. 'The social production of ecosystem services: a framework for studying environmental justice and ecological complexity in urbanized landscapes'. *Landscape and Urban Planning: Urban Ecosystem Services*, vol. 109, no. 1, 2013, pp. 7-17

13 citations

Perry, B & May, T. 'Urban knowledge exchange: devilish dichotomies and active intermediation'. *International Journal of Knowledge-Based Development*, vol. 1, no. 1/2, 2010, pp. 6-24

* Note that these are raw citation data, i.e. not normalised for differences in citation rate between research fields, publication years or types.

Appendix C. Explanation of the webometric terminology used in the study

Mentions (web-based citations) are in this context references to a particular report that can be found in a webpage or similar web-document.

Self-mentions (web-based self-citations) are the references to a particular report that is found in a webpage or document hosted in the website of the project (e.g. *mistraurbanfutures.org*) or of the institution that has written the given report (e.g. *gu.se*; *salford.ac.uk*; *uct.ac.za*). However, this is limited to the main research actors involved in the project and other sporadic actors contributing to the research activity (e.g. *mah.se/ks*; *oru.se*) are likely to be ignored.

Webpages are pages that mention or cite the document. A single website (e.g. *mistraurbanfutures.org*) can have one or more webpages which cite the document.

Websites, or **domains**, are hierarchical sets of interrelated webpages that are identified by a unique name or identification string (e.g. *chalmers.se*). A single domain can contain several subdomains, such as *lib.chalmers.se*; *publications.lib.chalmers.se*. In this analysis only top-level domains (TLDs) are considered, i.e. lower levels are counted as the same domain.

Social network websites are websites dedicated to share and disseminate scientific publications. It can be websites that require the authorisation and action of the authors (e.g. *researchgate.net*; *linkedin.com*; *academia.edu*) or websites that function automatically with the help of robots (e.g. *sv.cyclopaedia.net*; *citec.repec.org*). This may be used to some extent to determine the authors' engagement in disseminating their work, but not as impact. Therefore these websites are excluded from the total counts of websites.

PDFs are PDF documents that refer to a particular report. PDFs derive primarily from grey literature and are considered as stronger proofs of the impact of the analysed reports.

Mass media represent the main print and audiovisual media channels in the Västra Götaland region, heart-quarter of the project, and Sweden (e.g. *gp.se*; *sverigesradio.se*; *dn.se*). M-UF references made in these could be considered as the dissemination of the project in mass media and an indicator of impact on society in general. A coverage of Swedish media could be seen as a potential bias, although a manual check could not reveal any references from international media companies.