



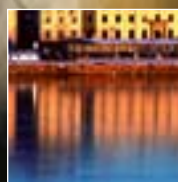
norden

NordForsk

Urban development

Nordic strengths and challenges under the heading of a new global agenda

NORDFORSK POLICY BRIEFS 2007-3



For NordForsk by NIBR and NORDREGIO

Urban development

Nordic strengths and challenges under the heading of a new global agenda

NordForsk Policy Briefs 3–2007

URBAN DEVELOPMENT

Nordic strengths and challenges under the heading of a new global agenda

NordForsk, 2007
Stensberggata 25
N-0170 Oslo
www.nordforsk.org
Org.nr. 971 274 255

Design: Millimeterpress AS
Printed by: Rolf Ottesen AS

ISSN 1504-8640



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Foreword

NordForsk works to promote efficient cooperation between the Nordic countries in research and researcher education of the highest international quality. Our three main tasks are coordinating Nordic research priorities, funding research cooperation and providing policy advice.

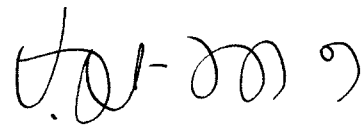
Within its policy advice role, NordForsk aims to encourage debate on relevant Nordic research policy issues, by regularly producing reports and studies and organising seminars and workshops on a variety of topical issues. Our ambition is to make a significant contribution to strategic intelligence in the Nordic research field, and to this effect we launched a series of policy briefs in 2007.

This study is the third in the series. The subject, Nordic urban research, is one that is increasing in importance. In 2007, for the first time in history, half of the world's population live, work, consume and pollute in cities. In the European Union, 80% of all citizens already live in urban areas. Consequently, many of the challenges we currently face, such as ensuring continued economic development, sustainable energy, public health and environmental quality are in part urban-based. In commissioning this study, NordForsk wished to explore the potential of Nordic research cooperation in the field of urban research as one means of meeting these challenges. It is however important to underline that the recommendations and conclusions of the report reflect the opinions of the research group and not those of NordForsk as an organisation.

The report concludes that a solid basis for Nordic cooperation in the field of urban research exists. Urban research in the different Nordic countries presents many similarities, essentially due to the geography, history and welfare systems they share. Seen collectively, Nordic urban research also has a comparatively strong position in the international research community. The analysis goes on to point out three important research themes for the future:

- The diversity of cities – creativity and segregation
- The roles and functions of cities in regional and (trans)national development
- The post-carbon city – mitigation and adaptation to climate change

These are themes that will be essential when seeking to meet the challenges outlined above. We hope that this report can contribute to a broad discussion on the themes and on the potential of Nordic collaboration in urban research more generally.



Liisa Hakamies-Blomqvist
NordForsk Director

URBAN RESEARCH IN
THE DIFFERENT NORDIC
COUNTRIES PRESENTS
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RESEARCH ALSO HAS
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STRONG POSITION IN
THE INTERNATIONAL
RESEARCH COMMUNITY.

Research team

The work was carried out from June to October 2007 by a team consisting of researchers from Nordregio and NIBR, led by Nordregio and followed by a reference group.

NORDREGIO:

Ole Damsgaard – Director

Peter Schmitt – Senior Research Fellow

Petri Kahila – Senior Research Fellow

Veli-Pekka Tynkkynen – Senior Research Fellow

Alexandre Dubois – Research Fellow

Per Francke – Research Assistant

Stefanie Lemser – Internee

Chris Smith – Language Editor

NIBR:

Berit Nordahl – Research Director

Terje Skjeggedal – Senior Researcher

Ove Langeland – Senior Researcher

Inger-Lise Saglie – Senior Researcher

REFERENCE GROUP:

Brita Hermelin – Associate Professor,
Stockholm University, Department of
Human Geography

Hans Thor Andersen – Associate Professor,
University of Copenhagen, Department of
Geography & Geology

Karl Otto Ellefsen – Director, The Oslo
School of Architecture and Design

Mark Stephens – Professor, University
of York, Centre for Housing Policy

Kimmo Lapintie – Professor, Helsinki Uni-
versity of Technology, Department
of Architecture





Sammendrag

DEN GLOBALE UTFORDRINGEN

For første gang i historien bor mer enn halvparten av verdens befolkning i byområder. Den store økningen i urban befolkning de senere årene, spesielt i fattige land, er en del av den *andre bølgen* av demografiske, økonomiske og urbane transformasjoner. Denne bølgen er mye større og utvikler seg raskere enn den første, som begynte i Europa og Nord-Amerika tidlig på 1700-tallet og fortsatte til tidlig på 1950-tallet.

Denne andre urbaniseringsbølgen vil på mange måter utfordre den globale utviklingens fremtid når det gjelder miljø, velferd og sosiale forhold. I forhold til miljøet fordi den urbaniserte del av verden har sterk innvirkning på det globale klimaet og det globale ressursforbruket. Velferdsproblematikken vil komme til uttrykk gjennom lavere gjennomsnittlig forventet levealder for den urbane befolkningen og lavere generell livskvalitet på grunn av trafikk tetthet, luftforurensning, støy og utrygge omgivelser. De sosiale utfordringene vil omfatte utviklingen av store og permanente isolerte områder med arbeidsløshet og immigranter i de store byene.

På den annen side kan byene, særlig de store byene, sees som motorer i den globale økonomien. Storbyutvikling gir typisk fordelaktige kontraster i form av spesialisering og mangfold. Store arbeidsmarkeder og ulike former for industriell virksomhet gir konkurranse

og spesialisering som fører til økt effektivitet. Spesialisering finner sted i selskaper med høy merverdi som både har fordelene av klynge-samarbeid og global tilgang på kunnskap og innovasjonskapasitet.

Denne spesialiseringen får sitt «romlige» uttrykk i de fleste europeiske og alle de nordiske landene, som en pågående polariseringsprosess, der økende forskjeller kan observeres mellom hovedstadsregionen og andre store storbyområder på den ene siden, og de mer perifere små og mellomstore byene på den andre siden. På globalt nivå pågår også en spesialiseringsprosess, som fører til fremvekst av et lite antall megabyer som forventes å skulle spille en stadig viktigere rolle som beslutnings- og innovasjonssentre, mens nasjonale hovedsteder mister kraft som nasjonale beslutnings-sentre. Drivkraften i denne prosessen er den globale økonomiens pågående integrasjonsprosess.

Globale utfordringer i fremtiden vil med andre ord være nært knyttet til urbaniseringsprosessen og til utviklingen av verdens urbane regioner. Den beste responsen på disse globale utfordringene vil i hovedsak finnes i styring og planlegging av byer på regionalt og lokalt nivå.

BETYDNINGEN AV NORDISK URBAN FORSKNING

I dette henseende spiller nordisk urban forskning en viktig rolle fordi globaliseringens betydning og effekt alltid vil være avhengig av den spesifikke regionale og lokale situasjonen – potensialet for og kapasiteten til å respondere på globale utfordringer. Nordisk urban forskning fungerer som en fortolker av globaliseringsprosessenes effekter i lys av ulike nordiske regionale og lokale omstendigheter, og kan dermed hjelpe til å bane vei for innovative og proaktive *nordiske* strategier for fremtiden.

Nordisk urban forskning kan videre bidra til å posisjonere de nordiske landene i front innenfor forskningen gjennom å introdusere nordiske studier og dokumenterte resultater i den internasjonale vitenskapelige diskursen. Målt i forhold til størrelsen på de nordiske landene i global sammenheng, innehar nordisk urban forskning samlet en fremtredende stilling i internasjonale vitenskapelige tidsskrifter og europeiske forskningsprogrammer. Videre vil økt potensial for finansiering av samarbeid mellom nordiske forskere og forskere fra raskt urbaniserende land, som Kina og India, åpne for muligheten til å eksportere avanserte og kunnskapsbaserte tjenester til disse landene. Dette kan være tjenester som berører ulike områder som ledelse, sosiale tjenester, planlegging, ingeniørtjenester og arkitektur.

BEHOVET FOR EN PAN-NORDISK TILNÆRMING

Den nordiske byforskningens infrastruktur består av tre hovedelementer som er mer eller mindre sammenflettet: forskningsinstitusjoner, forskningsprogrammer og formelle og uformelle nettverk mellom de to første på nasjonalt, nordisk og internasjonalt nivå.

Urban forskning i de forskjellige nordiske landene har mange likheter, hovedsakelig på grunn av geografien, historien og velferdssystemene de deler; men det finnes også mange forskjeller, knyttet til den spesifikke nasjonale konteksten. Disse forskjellene kan både være relatert til ulikheter i de nasjonale forskningsinfrastrukturene og til de distinkte nasjonale forskningspolicyene som ligger til grunn. I en

europaisk kontekst er de nordiske landene i noen sammenhenger unike, ettersom de har lav befolkningstetthet og store områder med spredt bosetting. Disse unike nordiske forutsetningene byr på visse utfordringer for den nordiske sosiale strukturen, men kan også gi et felles grunnlag for urbant forskningssamarbeid.

De nasjonale urbane forskningsprogrammene, gjennomført i hvert av de nordiske landene mellom 2000–07, reflekterer mangfoldet i *Norden*. Programmene er ofte nasjonale i karakter, ikke bare i valg av temaer, men også med hensyn til sammensetningen av styrer og prosjekter. Ikke desto mindre eksisterer det omfattende kontakt og samarbeid mellom nordiske forskere innenfor fagområdet. Imidlertid er dette samarbeidet i stor grad formalisert i forskningsprosjekter, og det finnes hovedsakelig kun som en del av større internasjonale nettverk.

Nasjonale urbane forskningsprogrammer pleier i en viss grad å oppfordre byforskere og institusjoner til å samarbeide i et transversalt forskningsfelt, for eksempel ved å bringe sammen deltakere fra flere sektorielle interesseområder og flere profesjonelle disipliner. Det faktum at nasjonale urbane forskningsprogrammer har engasjert et bredt utvalg av forsknings- og policydeltakere, viser også den sterke koblingen mellom urbane temaer fra et forsknings- og policyperspektiv.

Forskningen har gradvis blitt mer internasjonalisert, og institusjonenes suksessrate når det gjelder å få finansiering hviler på deres kapasitet til å bygge forskningssamarbeid. Analyser av europeiske ESPON og de europeiske rammeverkprogrammene har vist at mange nordiske institusjoner allerede er godt synlige på den internasjonale scenen på grunn av kontinuerlige engasjement i internasjonale prosjekter. Men mens *profesjonell nettverksbygging* på nordisk nivå allerede er godt utviklet, finnes det for tiden ingen fora for utvikling av *institusjonell* og *praktisk nettverksbygging*. Utarbeiding og implementering av et nordisk urbant forskningsprogram vil fremme utviklingen av disse to formene for nettverk: ved å samle forskningsinstitusjoner og policydeltakere til i felleskap å definere de mest rel-

evante forsknings- og utviklingstemaene, ved å oppfordre institusjoner til å forske på spesifikt nordiske temaer, og ved å fremme utviklingen av empiriske og komparative studier av nordiske byer.

NORDISKE «STYRKEPOSISJONER» INNEN URBAN FORSKNING

I de nordiske landene er det mange institusjoner som arbeider med urban forskning. Innenfor rammene for denne studien er det helt enkelt ikke mulig eller realistisk å prøve å gi en uttømmelig oversikt over alle disse. Målet med studien, «å kaste lys over nordiske styrkeposisjoner innen urban forskning», fokuserer imidlertid oppmerksomheten mot de mest prominente av disse institusjonene. Kompetansen til instituttene som er valgt, ligger hovedsakelig i deres kapasitet til å utføre studier på tvers av sektorer og disipliner innen urbane temaer, og fremme urban forskning som et transversalt tema fremfor et sektorielt tema. Videre virker det mest sannsynlig at disse, ofte store, forskningsinstitusjonene vil bli styrken i et fremtidig pan-nordisk urbant forskningsprogram, og vil kunne fungere som en kobling mellom de forskjellige nasjonale urbane forskningssystemene og det nordiske.

Eksisterende forskningsinstitusjoner i de nordiske landene dekker de fleste dimensjonene innen urban forskning; en komparativ undersøkelse av publiserte artikler viser at nordisk forskning allerede har etablert en høy standard og sterk synlighet på den internasjonale arenaen. Imidlertid står hvert av de nordiske landene bare for en liten del av det totale volumet av publiseringer innen urban forskning. Dette er kanskje forventet, gitt den relative størrelsen på de nordiske landene. Utviklingen av et nordisk forskningsprogram innen urban forskning vil bidra til sterkere sammenheng i det nasjonalt fragmenterte nordiske forskningslandskapet på området. Videre vil det muliggjøre en integrering av de forskjellige nasjonale forskningsinfrastrukturene og dermed etablere en større kritisk masse for mer målrettet og bedre forskning.

Sett fra et institusjonelt synspunkt kan vi allerede identifisere fire hovedområder innen

urban forskning som kan vise til eksisterende nordisk kompetanse på et anerkjent høyt nivå: *Byenes rolle i nasjonal/regional utvikling og global konkurranse; Byutviklingens sosiale dimensjoner; Bymiljøet og miljømessige effekter av byer; og Byplanlegging og -styring.*

De nordiske forskningsinstituttene har som helhet allerede dekket disse feltene og har potensial til å videreutvikle sin sterke internasjonale profil på disse områdene.

FREMTIDIGE FORSKNINGSTEMAER

Tre allmenne forskningstemaer er prioritert som de viktigste områdene innen fremtidig urban forskning i de nordiske landene. Disse temaene integrerer de fire nordiske kompetanseområdene (se over) og de allmenne globale utfordringene, slik at nordisk kompetanse og nordiske «styrkeområder» kan utnyttes mest mulig effektivt i forhold til fremtidige urbane utfordringer, sett fra et globalt og/eller et nordisk perspektiv.

Prioriteringsprosessen fant sted i løpet av sommeren 2007, basert på intervjuer og dialog med byforskere og beslutningstakerne i alle de fem nordiske landene. De tre temaene kan betegnes som følger:

1. Mangfoldige byer – kreativitet og segregasjon
2. Byenes rolle og funksjon i regional og (trans)nasjonal utvikling
3. Den karbonfrie by – reduksjon av den menneskeskapte drivhuseffekten og tilpasning til klimaendringer

I tillegg til disse allmenne «fremtidige» forskningstemaene ble det også identifisert fire tverrgående dimensjoner. Disse står i relasjon til de tre hovedforskningstemaene på ulike måter og på ulike nivåer, og bør dermed alltid tas i betraktning når man behandler et av hovedtemaene. De fire «tverrsnittene» kan defineres som: *bærekraftig utvikling; det nordiske velferdsregimet i endring; globaliseringen og dens påvirkning på nordiske byer; og urban styring.*

De tre fremtidige forskningstemaene vil bli omtalt videre i den følgende teksten.

1. Mangfoldige byer – kreativitet og segregasjon

Innenfor kunnskapsøkonomien regnes mangfold som en viktig egenskap ved den moderne byen, som dermed blir ansett som «innovasjonsinkubator» eller som «kulturell smeltedigel». Et slående aspekt ved den kontaktintensive kunnskapsøkonomien er at veksten i økonomisk aktivitet ser ut til å bli både mer romlig konsentrert og mer bybasert. På grunn av gunstige forhold både for virksomheter og mennesker, har særlig de større byene utviklet diversifiserte produksjonsstrukturer og sterke grupperinger med kunnskapsintensive og kreative industrier.

Kunnskapsøkonomien påvirker imidlertid byenes indre struktur ved at den skaper ubalanse. For eksempel vil økonomisk og sosial ubalanse føre til polariserte arbeidsmarkeder, med grupper av lønnsinntakere med høyt kunnskapsnivå og høyt lønnsnivå og andre grupper med lavt kunnskapsnivå og lavt lønnsnivå, og boligmarkeder som blir segregert av sosiale og etniske skiller. Et viktig spørsmål for fremtiden blir hvordan vi kan sikre at de nordiske byene utvikler seg på en harmonisk måte.

2. Byenes rolle og funksjon i regional og (trans)nasjonal utvikling

Et av de dominerende spørsmålene innen nasjonal og internasjonal utviklingspolicy omhandler hvilke urbane systemer som vil være best egnet til å tjene sosial velferd og økonomisk vekst. Gitt gjeldende bekymringer om økende globalisering, er dette spørsmålet mer relevant enn noen gang. Debatten har i stadig sterkere grad spredt seg fra det nasjonale nivået, og beveget seg nedover mot regionalt og oppover mot transnasjonalt nivå. På bakgrunn av en slik virkelighetsforståelse er det fornuftig å sammenligne endringene og utfordringene i de nasjonale urbane systemene i *Norden*, men også å stille spørsmål ved hvor langt de allerede har blitt integrert i et nordisk, europeisk eller globalt urbant system. Urban forskning må se på de kritiske drivkreftene ved denne urbane geografien i tillegg til de policyimplikasjoner som denne strukturelle endringen medfører.

3. Den karbonfrie by – reduksjon av den menneskeskapte drivhuseffekten og tilpasning til klimaendringer

Urbane områder er viktige i forhold til klimaendringer. Urbane områder huser et stort antall mennesker og er målet for konsentrerte investeringer i jobber, infrastruktur og bygging. Denne konsentrasjonen av aktiviteter medfører en konsentrasjon i utslipp av drivhusgasser. Det betyr også at innsatsen for reduksjon av effekten av klimaendringer må ta utgangspunkt i byene, og ta i bruk deres fysiske struktur og funksjonsevne. Offentlig administrasjon på nasjonale, regionale og lokale nivåer trenger slik kunnskap når de vurderer reduksjonstiltak, og når de blir konfrontert med effekten av klimaendringer og kravene til tilpasning. En spesiell utfordring her dreier seg om effektiv bruk av abstrakt kunnskap om klimaendringer i lokal beslutningstaking.

KONKLUSJONER OG ANBEFALINGER

Fremtidens globale utfordringer vil være nært knyttet til urbaniseringsprosessen, og dermed til utviklingen av verdens urbane regioner. Nordisk urban forskning spiller en viktig rolle som en fortolker av disse utfordringene og deres påvirkning i forhold til spesifikt nordiske regionale og lokale forhold.

Basert på analyser av den nordiske urbane forskningens infrastruktur, anbefaler vi at et fellesnordisk forskningsprogram og forum for videre nettverksbygging mellom nordiske forskningsinstitutter, både i nordisk og internasjonal kontekst, legger vekt på at:

- En pålitelig forskningsinfrastruktur som et nordisk program kan ta utgangspunkt i, allerede eksisterer i de nordiske landene
- Forskningsinstitusjonene i hvert land allerede har bred erfaring innen flere spesialiserte felt innenfor urban forskning, og dette gir
 - potensial for fellesprosjekter med en klar nordisk dimensjon og
 - evnen til å dekke mange felt og disipliner innen urban forskning

Sett i sammenheng indikerer dette en solid basis for utvikling av et *nordisk urbant forskningsprogram*

- Forskningsinstitusjoner i de nordiske landene er sterkt involvert i forskjellige typer nettverksbygging. Imidlertid dekker disse nettverkene ofte bare enten et nasjonalt eller internasjonalt nivå, ettersom det for tiden ikke eksisterer et forum for utvikling av nettverk med spesialitet innenfor den *nordiske* dimensjonen. Dette tyder på at det finnes betydelig potensial for merverdi ved utvikling av spesifikke fora for *nordisk nettverksbygging*
- Det nordiske urbane forskningsprogrammet kan sikre at nordiske urbane temaer blir utdypet mer sammenhengende på den internasjonale forskningsagendaen, og kan fungere som en kobling mellom internasjonale og nasjonale interesser

Videre anbefaler vi at et nordisk byforskningsprogram skal rette seg mot tre spesifikke forskningstemaer som også fokuserer på nordiske behov, nordiske kompetanseområder og allmenne globale utfordringer på en integrert måte.

De beslektede temaene og spørsmålene innen fremtidig urban forskning kan sees som grunnleggende steg mot en bedre forståelse av dynamikken, de interne relasjonene og utfordringene som nordiske byområder allerede står overfor. En pan-nordisk strategi som tar for seg disse temaene, kan også bidra til å opprettholde og videreutvikle særlige nordiske forskningskompetanser og -tradisjoner, og kan gi beslutningstakerne et sikkert kunnskapsgrunnlag å henvise til på dette feltet.



FUTURE CHALLENGES CAUSED BY GLOBAL

CLIMATE CHANGE,
GLOBAL ENVIRONMENTAL,
ECONOMIC INTEGRATION,
OF THE WORLD
ECONOMY AND THE
ONGOING PROCESS
SOCIAL AND
C SEGREGATION,
ALL LINKED
THE URBANISATION
PROCESS AND
DEVELOPMENT
URBAN AREAS OF
THE WORLD.

Executive summary

THE GLOBAL CHALLENGE

For the first time in history, more than half of the world's population lives in urban areas. The huge increase in urban population – particularly in poorer countries – is part of the *second wave* of demographic, economic and urban transition. It is much larger and is occurring much faster than the first wave, which began in Europe and North America in the early 18th century and continued until the early 1950s.

This second wave will in many ways challenge the future of global development in terms of the environment, welfare and social conditions. The environment issue will involve the urbanised world having a crucial impact on global climate and the global consumption of resources. The welfare issue will be expressed by such aspects as lower average life expectation for the urban population and lower quality of life in general due to traffic congestion, air pollution, noise and unsafe surroundings. And finally, the social issue will involve the tendency of large and persistent pockets of unemployment and immigrants to concentrate in big cities.

On the other hand, cities, specifically the larger ones, can be perceived as the engines of the global economy. They typically provide contrasting advantages of specialisation and diversity. Their size of labour market and range of industry permit competition and specialisation, which in turn raise efficiency. Specialisation takes place in high value-added firms

which have the advantage of both clustering and global access to knowledge and innovation capacity.

The spatial impact of this specialisation sees an ongoing polarisation process taking place in most European and all the Nordic countries, where increasing disparities can be observed between the capital region and other major metropolitan regions on the one hand, and the more peripheral small and medium-sized towns on the other. At the global level, a process of specialisation is also taking place, resulting in the emergence of a small number of mega-cities which are expected to play an ever more important role as decision and innovation centres, while national capitals lose their power as national decision centres. The driver in this process is the ongoing integration process of the global economy.

Future global challenges are in other words closely linked to the urbanisation process and to the development of the urban regions of the world. The best responses to these global challenges are mainly to be found in the management and planning of cities at regional and local levels.

THE ROLE OF NORDIC URBAN RESEARCH

In this respect, Nordic urban research plays an important role because the impact of globalisation will always be dependent on the specific

regional and local situation; the potential and capacity to respond to global challenges. Nordic urban research functions as an interpreter of the impact of globalisation processes according to different Nordic regional and local circumstances, and can thus help to pave the way for innovative and proactive *Nordic* strategies for the future.

Nordic urban research can, moreover, contribute to the positioning of the Nordic countries at the forefront of research by introducing Nordic studies and documented results into international scientific discourse. Compared to the size of the Nordic countries in global terms, Nordic urban research seen collectively enjoys an elevated position in international scientific journals and European research programmes. Furthermore, increased potential for the funding of co-operation between Nordic researchers and those from rapidly urbanising countries, such as China and India, will open up the possibility for exporting advanced and knowledge-based services to these countries. This could be services touching upon fields as diverse as governance, social services, planning, engineering and architecture.

THE NEED FOR A PAN-NORDIC APPROACH

The Nordic urban research infrastructure consists of three main elements which are more or less intertwined with each other: research institutions, research programmes, and the formal and informal networks between the first two at national, Nordic and international levels.

Urban research in the different Nordic countries presents many similarities, essentially due to the geography, history and welfare systems they share, but also many differences, linked with the specificity of each national context. These differences can be related both to the varying nature of each individual national research infrastructure and to the distinct national research policies utilised. In a European context, the Nordic countries are to some extent unique, as they have low population densities and large and sparsely populated areas. These unique Nordic preconditions provide certain challenges to the Nordic

social structure, but can also provide common ground for urban research collaboration.

The national urban research programmes, conducted in each of the Nordic countries between 2000–07, reflect the diversity of *Norden*. They tend to be national in character, not only in selection of themes, but also in composition of boards and projects. Nevertheless, extensive contact and cooperation exists between Nordic researchers on urban issues. However this cooperation remains to a large extent formalised in research projects, and predominantly exists only as a part of wider international networks.

Furthermore, national urban research programmes tend, to some extent at least, to encourage urban researchers and institutions to cooperate in a transversal research field, i.e. by bringing together stakeholders from multiple sectoral interests and from multiple professional disciplines. The fact that national urban research programmes have brought together a wide range of research and policy stakeholders also shows the strong link between urban issues from a research and policy perspective.

Research has become increasingly internationalised, and the success of the various institutions in attracting funding relies on their capacity to build research coalitions for different types of projects. Analysis of the European ESPON and Framework Programmes has shown that many Nordic institutions are already highly visible on the international stage due to their continuing involvement in international projects. But while *professional networking* at the Nordic level already seems to be well developed, there are no current potential forums for developing *institutional* and *practical networking*. The elaboration and implementation of a Nordic urban research programme would foster the development of these two types of networks, by gathering research institutions and policy stakeholders together in defining the most relevant joint urban development issues, by encouraging institutions to carry out research on specific Nordic issues, and encouraging the development of empirical and comparative studies of Nordic cities.

NORDIC 'STRONGHOLDS' IN URBAN RESEARCH

Urban research in the Nordic countries is undertaken by many institutions. In the scope of this study, it is simply not possible or realistic to attempt an exhaustive overview of all of them. However, the aim of highlighting these Nordic 'strongholds' of urban research focuses attention on the most prominent members of this 'club'. The competence of the institutes selected lies predominantly in their capacity to perform cross-sector and multi-disciplinary studies on urban issues, promoting urban research as a transversal rather than as a sectoral issue. Moreover, these often large research institutions seem to be those most likely to become the backbone of a future pan-Nordic urban research programme, acting as a natural link between the various national urban research systems and the Nordic one.

Existing research institutions in the Nordic countries cover most of the dimensions of urban research and a comparative study of published articles shows that Nordic research has already reached a high standard, remaining highly visible on the international stage. However, each of the Nordic countries produces only a small portion of the total volume of published urban research. This is perhaps to be expected given the small size, in relative terms, of the Nordic countries. In that regard, the development of a Nordic research programme on urban development issues would enable us to give greater coherence to the nationally fragmented Nordic urban research landscape. Additionally, it would enable us to integrate the various national research infrastructures and thus bring together a greater 'critical mass' for more targeted and better research.

Seen from an institutional point of view, four main research fields with an existing and acknowledged high level of Nordic competence can already be identified, namely: *the role of cities in national/regional development and global competition; the social dimension of urban development; the urban environment and the environmental impacts of cities; and urban governance and planning.*

The Nordic research institutes as a whole already cover these fields and have the potential to further develop their strong international profile within them.

FUTURE RESEARCH THEMES

Three overall research themes have been prioritised as the most important areas of future urban research in the Nordic countries. They address the four aforementioned fields of high-level Nordic competence and the overall global challenges in an integrated way, such that the Nordic competences and 'strongholds' can be used to best effect in relation to future urban problems as seen from a global and/or a Nordic perspective.

The prioritising process took place during the summer of 2007, based on interviews and dialogue with urban researchers and policy-makers in all five Nordic countries. The three themes can be labelled as follows:

1. The diversity of cities – creativity and segregation
2. The role and functions of cities in regional and (trans)national development
3. The post-carbon city – mitigation and adaptation to climate change

In addition to these overall 'future' research themes, four cross-cutting dimensions were also identified. These are related to the three main research themes in many different ways and at different levels, and should as such always be borne in mind when addressing the main themes. They can be defined as follows: *sustainable development; the Nordic Welfare Regime in transition; globalisation and its impacts for Nordic cities; and urban governance.*

The three future research themes will be expanded further in the following.

1. The diversity of cities – creativity and segregation

Diversity is perceived as a major attribute of modern cities in the knowledge economy, which are thus often labelled as "incubators of innovation" or as "cultural melting pots". A striking aspect of the contact-intensive knowledge economy is that the growth of economic

activity seems to be becoming both more spatially concentrated and increasingly city-based. Larger cities in particular have diversified production structures and strong clusters of knowledge-intensive and creative industries due to the existence there of a favourable “business and people climate”.

However, the knowledge economy strongly impacts on the internal structure of cities as it engenders disequilibrium, i.e. economic and social imbalance, which leads to polarised labour markets with high skill/high wage groups versus low skill/low wage groups, and housing markets segregated by social and ethnic gulfs. A major question for the future then, remains how to ensure that the Nordic cities develop in a harmonious way.

2. The role and function of cities in regional and (trans-) national development

One of the overriding questions in terms of national and international development policy, concerns which urban system might be the most rational for serving social welfare and economic growth? Given current concerns over accelerated globalisation, this question is more relevant than ever. Consequently, the debate has been increasingly diffused away from the national level and simultaneously downwards to regional- and upwards to trans-national level. Given this reality, it not only makes sense to compare the changes and challenges of the national urban systems in *Norden*, but also to question how far they have already been integrated into a kind of Nordic, European or even global urban system. Urban research needs to look at the critical driving forces of this ‘urban geography’ as well as the policy implications that this structural change entails.

3. The post-carbon city – mitigation and adaptation to climate change

Urban areas are important in relation to climate change. Urban areas are living space for a large number of people and targets for concentrated investment in jobs, infrastructure and building. This concentration of activities leads to a concentration in the emission of greenhouse gases. It also means that the

potential for mitigating the impact of climate change has to be based on the specificities of the cities themselves, taking on board their physical structure and their ability to function. Public administrations at national, regional and local levels need such knowledge when considering mitigation measures, and when confronted with the effects of climate change and the requirements for adaptation. A particular challenge here however, concerns the efficient use of abstract knowledge about climate change in local decision-making contexts.

CONCLUSIONS AND RECOMMENDATIONS

Future global challenges will be closely linked to the urbanisation process and thus to development of the urban regions of the world. Nordic urban research has a crucial role to play as an interpreter of these challenges and their impact in relation to specific Nordic regional and local circumstances.

Based on the analyses of the Nordic urban research infrastructure, we recommend that a common Nordic research programme and forums for further networking of Nordic research institutes, both in a Nordic and an international context ought to highlight that:

- The reliable research infrastructure in the Nordic countries on which a Nordic programme could be based already exists
- The research institutions in each country already have broad experience of a number of specialised fields of urban research which provides,
 - the potential for joint projects with a clear Nordic dimension, and
 - the ability to cover many fields and disciplines of urban research
- taken together this signals the existence of a solid basis for the development of a *Nordic urban research programme*
- Research institutions in the Nordic countries are heavily involved in different types of networking. However, these networks often cover either national- or international level only, as no current forums

exist for the development of networks with a specifically *Nordic* dimension
□ this suggests that there is significant potential added value in the development of specific *Nordic networking forums*

- The Nordic urban research programme can ensure that Nordic urban issues are elaborated more coherently on the international research agenda, and could serve as a link between international and national interests

Furthermore, we recommend that a Nordic urban research programme should target three specific research themes, which also address the fields of Nordic needs, competences and the overall global challenges in an integrated manner.

The related issues and questions for future urban research can be seen as fundamental steps towards a better understanding of the dynamics, interrelations and challenges that Nordic urban areas currently face. A pan-Nordic research strategy addressing those issues could also play a part in maintaining and developing further specific Nordic research competencies and traditions, and may enable policymakers to refer to an assured base of outstanding knowledge in this field.

Setting the scene – why is urban research important?

For the first time in history, more than half of the world's population – 3.3 billion people – lives in urban areas. By 2030, this number is expected to swell to almost 5 billion (UNFPA). The huge increase in urban population, especially in poorer countries, is part of the *second wave* of demographic, economic and urban transition. A transition which is much bigger and occurring much faster than the first wave which began in Europe and North America in the early 18th century and continued until early 1950s (Ness 2006).

Between 2000 and 2030, the urban populations of Africa and Asia will double. But it is important to emphasise here that it is no longer the *rapid rate* of urban growth, but the *absolute size of increment* which is new. In fact, the overall rate of urban growth has consistently declined in most world regions since the mid 1980s. In addition to the rapid growth of urban population in the developing-countries, mega-cities have, and retain, a dominant role in terms of media attention. Today's mega-cities (those with 10 million or more people) account for 4 per cent of the world's population and 9 per cent of all urban inhabitants. In general, they will probably not expand rapidly in the foreseeable future and definitely not as fast as was predicted only a few decades ago (UNFPA 2007). Even a modest growth rate in such a large city can however result in a huge *absolute* increase in population and, combined with a high rate of economic growth such as

seen in East Asia, urban growth will physically take place as a tremendous expansion of built-up areas and infrastructures.

Although smaller cities attract less media attention, 52 per cent of the world's population continues to live in urban areas of less than 500,000 people. Smaller cities tend to display greater flexibility in terms of territorial expansion, attracting investment and in terms of decision-making. Yet they generally suffer from more unaddressed problems and have fewer human, financial and technical resources at their disposal.

Seen from an environmental point of view, the urbanised world has a crucial impact on global climate and global consumption of resources. Urban areas are the *nexus* of many types of resource use: materials, water, and land, and consume about 75 per cent of global energy (The Leipzig Charter on Sustainable European Cities, 2007). The urbanisation process often takes place as suburbanisation and urban sprawl, which increase the commuter flow and the consumption of land and energy. Therefore, the ecological footprint of the world's cities is disproportionately large compared to their share of the population, and the way in which the urbanisation process itself takes place aggravates this. Another aspect of climate change is the fact that many of the world's most important cities are located either in coastal zones or in river valleys, resulting in vulnerability to flooding in many cases.

The environmental impact of the world's cities can also be perceived from an internal perspective, expressed e.g. by lower average life expectation for the urban population compared to the national average and a lower quality of life in general due to traffic congestion, air pollution, noise, unsafe surroundings etc.

Big cities also tend to concentrate large and persistent pockets of unemployment and immigrants. Many immigrants and their descendents have lower skills as compared to the average urban population. Even skilled immigrants however often find it difficult to integrate into economic networks. Even in the most dynamic big cities, increasing socioeconomic inequalities and spatial segregation is developing (OECD 2006). Exclusion and poverty have become an urban phenomenon. Seen from an economic point of view, cities are perceived as engines of growth (EU Commission 2007). Furthermore, cities are the foremost producers of knowledge and innovation, and thus function as 'hubs' in the globalising world economy.

In a European context, cities with more than 1 million inhabitants provide GDP figures 25 per cent higher than in the EU as a whole and 40 per cent higher than their national average (EU Commission 2007). According to the OECD, the rationale behind this is that agglomeration economies allow big cities to attract global or regional corporate headquarters, offer a wide range of choice in resources and concentrate more specialised business services and infrastructure.

Big cities typically provide contrasting advantages in terms of specialisation and diversity. Their size of labour market and their range of firms permit competition and specialisation, which in turn raises efficiency. Specialisation takes place in high 'value-added' firms which gain an advantage from both clustering and global access to knowledge. The more favourable pattern of the industrial mix is closely linked with the high capacity of R&D and innovation in big cities.

Big cities thus have access to a greater endowment of human capital and a higher level of economic performance compared to medium-sized and small cities and towns.

The spatial impact of this is an ongoing polarisation process in most European countries, where increasing disparities can be observed between the capital region and metropolitan regions on the one hand, and the more peripheral small and medium-sized centres on the other (ESPON 2006a). At the global level, it has been argued elsewhere that a few mega-cities will play a still more important role as decision and innovation centres, while national capitals will lose their power as national decision centres because of the ongoing integration process of the world economy (e.g. Sassen 1991, Taylor 2004).

Future challenges caused by global climate change, the global environment, economic integration of the world economy and the ongoing process of social and ethnic segregation, are all linked to the urbanisation process and development of urban areas of the world. The best responses to these global challenges are often to be found in the management and the planning of cities and urban areas at regional and local levels.

In this context, Nordic urban research is important because the impact of globalisation will always be dependent on specific regional and local situations; the potential and capacity to respond to global challenges. Nordic urban research will analyse and interpret the impact of globalisation processes related to the existence of different regional and local settings. It will also pave the way for innovative future planning and governance of the Nordic urban areas.

Seen from the outside, the Nordic countries are perceived as 'successful pioneers' and being innovative in terms of 'best practices' in respect of environmental, social and territorial development-oriented problems and questions. They also provide interesting case studies in territorial and urban governance and governance renewal (Damsgaard/Lähteenmäki-Smith 2007). The notion of governance renewal is an impact of the ongoing administrative reform process in the Nordic countries, which includes the promotion of new and more competitively-oriented approaches to urban governance and capacity building.

Nordic urban research can contribute to the development of the image of ‘successful pioneers’ by introducing Nordic case studies and documented results into international scientific discourse. Furthermore, expanding the potential for the funding of co-operation between Nordic researchers and those from the rapidly urbanising countries, such as China and India, will facilitate export of advanced and knowledge-based services within fields such as governance, social services, planning, engineering and architecture.

In the following report, the concept of ‘urban research’ is limited to scientific disciplines where a distinction is explicitly made between urban and non-urban phenomena. That means that areas of the social sciences such as human and economic geography, sociology, political science; technical sciences such as the study of the urban environment, urban transport, planning and architecture; or humanities subjects like anthropology or cultural studies are all included in this study. On the other hand, business studies and medicine which to a large extent take place in urban areas – but do not make a distinction between urban/non-urban – are not included.

Part A: Nordic urban research infrastructure

Institutions, programmes, networks and articles

The Nordic urban research infrastructure consists broadly of three intertwined main elements: research institutions, research programmes, and formal and informal networks between research institutions and researchers on the national, Nordic and international levels.

This chapter aims to provide a general picture of the status of this research infrastructure in the Nordic countries in recent years. Indeed, the focus here is not on providing an extensive, historical perspective of Nordic urban research, but rather on assessing the strengths and weaknesses of the current infrastructural endowment upon which a prospective common programme, for instance set up by *NordForsk*, could be built.

In order to do so, we focused on analysis of research programmes by highlighting content, structure and thematic focus of the most recent national programmes dedicated to urban research. In today's research environment, research programmes are of the utmost importance as they are the largest source of funding for research institutions themselves, often more substantial than the funding internally available for each institution. In this chapter, we have focused our analysis on the latest urban research programmes between 2000–07. (i.e. their structures, institutions involved and thematic focus of their financiers).

The importance of elaborating research programmes adapted to the expectations of both researchers and policymakers, in terms of allocated funding *and* topical focus has become essential. One way to do this, developed by the main national research financier, is to bring together different actors with a stake in urban research to synergize their perspectives in the context of appropriate research programmes. This report argues that networking between these stakeholders occurs on multiple levels: *institutional networking* essentially occurs when different national actors involved in urban research are brought together to shape the contours of urban research; *practical networking* occurs essentially on a project basis, meaning that institutions build temporary coalitions of interest for specific projects, highlighting synergies in terms of common thematic focus; *professional networking* consists mainly of long-term networks or associations of urban research professionals who share an interest in developing long-lasting Nordic research networks. This chapter will highlight the main features of these different types of networking in *Norden*.

If research programmes take place in the context of rather limited time-periods, research institutions can be deemed to represent the backbone of the Nordic urban research infrastructure. Many Nordic research institutions have developed strong competence in various fields of urban research. The largest institu-

tions have also been able to develop a multi-disciplinary approach to urban research, bringing together political sciences, social sciences, urban geography, urban/regional economics and other disciplines.

This chapter will highlight the main institutions in each of the Nordic countries. The aim here is by no means to perform a general overview of Nordic urban research institutions, but rather to focus on the potentially strongest actors in the field. The institutions were selected through the interviews of Nordic urban researchers, performed in the first part of the study work, and during which the interviewees were asked to highlight the most relevant research institutions in respect of urban development issues.

In order to assess the main features of the Nordic urban research infrastructure, deeper understanding of its current level of 'performance' needs to be developed. In the academic and research domain, a measure of 'performance' could be related to the participation rate in international urban debates and processes. As a matter of consequence, the publication of articles in internationally recognised urban development journals is a relevant way of assessing the 'performance' level of a research system. The final section of this chapter will focus on the assessment of Nordic publications in an international context.

1. NORDIC URBAN RESEARCH PROGRAMMES

Urban research across the various Nordic countries presents many similarities, essentially due to their shared geography, history and welfare systems, but also many differences, essentially linked with the specificity of each national context. The differences are in most cases related to the national research infrastructure and different national research policies. Furthermore, socioeconomic and cultural aspects remain underlying factors to consider in this context. In a European context, the Nordic countries are in many ways unique, as they have low population densities and large, sparsely populated areas. These spe-

cial Nordic preconditions do however present certain challenges to the Nordic societal structure, yet provide a common base for urban research collaboration.

The national urban research programmes, conducted in all the Nordic countries between 2000–07 and which are the subject of this chapter, reflect the diversity of *Norden*. The programmes are basically national in character, not only in the selection of themes, but also in the composition of boards and projects. Nevertheless, there remains extensive contact and cooperation between Nordic researchers on urban issues, even though this cooperation is to a large extent formalised in the context of research projects.

Denmark

In Denmark, three major 5-year research programmes relating to urban development began in the 2003–04 period, established by *Realdania*, a private strategic foundation created with the objective of initiating and supporting projects designed to improve the urbanised environment. The programmes are organised as three centres in cooperation between research institutions. The centres are as follows:

- The Centre for Housing and Welfare, chaired by the University of Copenhagen, Department of sociology. The centre is tasked with developing research-based knowledge of connections between housing and welfare.
- The Centre for Urban Space, chaired by The Royal Academy of Fine Arts, School of Architecture. The aim here is to develop knowledge about lively, attractive and safe urban environments.
- The Centre for Strategic Urban Research, chaired by Forest and Landscape Denmark, The University of Copenhagen and the Department of Urban and Landscape Studies. The goal here is to develop knowledge of "the city without limits".

The centres have a certain 'Nordic connection' as researchers from other Nordic research

institutions are represented on their boards.

During the late 1990s and the early 2000s, the Welfare Research Programme (funded by the Danish Research Council) funded a number of urban research projects organised in network on themes such as urban governance, urban ecology and the welfare city.

The overall focus in Danish urban research is on the themes of urban governance, urban design, urban planning and urban sociology. The most eye-catching difference in the Danish case as compared to the other Nordic countries is the larger focus on the *social* aspects of urban research. The general picture of the Danish demand side (funding organisations) of urban research is that it resembles the supply side (research institutions). In the Danish case this might be due to the existence of a more structured funding system where the research programmes are of greater importance than in Sweden for example.

Finland

In recent years, one major urban research programme has been conducted – the Research Programme for Urban Studies, 1998–2001. The objective of the programme was to yield information on ongoing urban changes: internationalisation, urban policy and administration, the urban economy, urban life, regional development, the environment and to forecast future urban trends. The main topics/themes covered by the programme were as follows:

- Internationalisation of the city and urban system
- The “rationality” of towns and interaction with the environment
- New use of urban space
- Urban life: its threats and opportunities
- The cities as innovative environments
- The new urban economy and change management

The Academy of Finland was the main contributor to the programme through its 61% funding share. The programme was carried out in 15 research projects by over 50 researchers in more than 20 research units. The programme was coor-

minated by the University of Turku, Department of Geography.

In Finland, urban research has in recent years focused on urban governance in relation to planning and democracy. Furthermore, economic geography and research on innovation, technology and competitiveness have all been at the top of the urban research agenda. Looking forward, urban social research is emerging as a new and important theme in the Finnish urban research context.

Iceland

An Urban Studies Institute was established in 2001 in cooperation between Reykjavik municipality and the University of Iceland. The institute introduced the concept of urban policy into the Icelandic society debate and performed studies across a broad spectrum of themes including the role of cities, urban housing models, urban governance and urban planning. The Urban studies Institute was closed in 2005, and at present there are no research programmes in Iceland with urban research as a specific activity. The Agricultural University of Iceland, the Bifröst University Research Institute, and the University of Akureyri Research Centre have all however conducted research within the field of regional and urban development in recent years.

Norway

The Research Council of Norway (NFR) funded a specific urban research programme: “Urban development – driving forces and planning challenges” during the 2000 – 05 period. The background to the urban development programme was the need for new knowledge on the driving forces behind the development of Norwegian cities, the role of cities in modern societal development and the management challenges that follow. The overall goal was to increase the research based knowledge of urban areas, focusing in particular on the relationships between technological change, demography and industrial development, social and cultural change processes and physical, spatial change processes. The board of the programme was chaired by the rector of the Oslo School of Architecture and had representatives from policy makers and research institutions, including one Danish researcher. 23 different projects were funded. The programme summarises their suggestions for future urban research as follows:

- Urban and regional research has to be seen in unison
- Norwegian towns have to be seen from a European perspective
- There is a need for more knowledge on action alternatives and governance
- Urban theory has to be further developed

The results of the programme are presented in four books which follow the main research themes. To a certain extent, the urban development programme is continued in the “Democracy, governance and regionalism” programme, especially in respect of the governance theme, which began in 2005. This programme has a much broader perspective than that of urban research alone and as such does not have a distinct urban profile.

Sweden

In Sweden, FORMAS, the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning, is overwhelmingly the largest funding organisation for urban research across a broad spectrum of themes. FORMAS is a governmental research-funding agency related to several ministries, the Ministry of Sustainable Development, the Ministry of Agriculture, Food and Consumer Affairs, and the Ministry of Education, Research and Culture. FORMAS has established expert panels for different programme areas which assess grant applications and provide recommendations for funding. The expert panels have members from various Nordic and other European countries and seem to contribute to a broader perspective than in the other Nordic countries. In recent years, FORMAS has funded projects in a number of strategic programmes related to urban development, e.g. the living environment in the city, infra-systems for sustainable cities, the sustainable city, urban environment and sustainable urban development – urban public spaces, and land and water in the urban environment.

Networking in Nordic urban research

As with most service and intellectual activities

today, national urban research in the various Nordic countries is highly internationalised. In that regard, networking has become an essential part of the work of those Nordic research institutions with a focus on urban issues. Networking on the international stage ensures that the different national perspectives on the urban phenomenon remain visible.

The research undertaken by Nordic research institutions is increasingly dependent on external sources of funding, internal funding dedicated to the research work having been much reduced. The main consequence of this trend is that research work is now, predominantly, project-based. This implies that ‘coalitions of interest’ need to be built between research institutions on the basis of specific projects.

The panel of experts set up by each research financier to define the scope of urban research can be deemed to embody the cross-sectoral and multidisciplinary dimensions of urban research. This *institutional networking* is the key to ensuring that a good match is made between the financial means invested and the expectation of researchers and policymakers. From the research and policymaking point of view, the breadth of the panel ensures that appropriate national urban issues are put on the research agenda, thus enhancing its potential role of ‘enlightener’ in the policymaking process. In that context, it comes as no surprise that the main areas of urban research in each Nordic country stick closely to national issues of political and policy interest such as segregation, the urban/regional economy or the labour market. Cross-sectoral, multidisciplinary and policy-oriented approaches can thus be viewed as distinctive ‘Nordic strongholds’.

Another decisive process involving networking of research institutions, relates to their participation in joint projects, which could be deemed *practical networking*. Indeed, networking essentially takes place nowadays on the basis of project-cooperation. Projects are the very place where possible synergies and the exchange of experiences in respect of the content of research can actually occur between research institutions. Such project-based collaboration enables them to develop a coherent

understanding of urban issues at the national, Nordic or international levels, depending on the geographical extent of the project partnership. However, it seems that practical 'Nordic networking' often currently takes place only within wider international networks. This is due to the strong internationalisation of research processes in urban issues and to the absence of a specific Nordic forum on urban research, enabling the development of more specific Nordic co-operation networks.

Finally, a number of networks connected primarily to the researcher level (although with some institutional involvement) can also be seen to exist. This *professional networking* process is primarily related to arrangement of, and participation in, different kinds of research conferences, presentations and the discussion of research papers. Examples of such networks (which do not necessarily consider only urban issues) include: *Nordic Environmental Social Science Network*, which is an informal research network arranging research conferences every second year, *Nordic Cooperation for Housing and Urban research*, which is a closed cooperation network between Nordic institutions in housing and urban research that arranges a conference every year, the *Nordic Network of Planners*, which arranges conferences every second year and cooperates in applications and projects, and the *Nordic Network of Urban Morphology* (NNUM), which was recently formalised and exists within the framework of the *International Seminar on Urban Form* (ISUF). The NNUM seeks to promote typological and morphological studies of the Nordic urban environment by organising Nordic and International conferences and PhD courses.

2. NORDIC URBAN RESEARCH INSTITUTIONS

Urban research in the Nordic countries is undertaken by a number of institutions. In the scope of this study, it is simply not possible to undertake an exhaustive overview of them, but since the partial aim of this chapter is to highlight the Nordic 'strongholds' of urban research, it was decided to focus on the most prominent mem-

bers of this urban research 'club'. Consequently, the institutions highlighted in the following sections have been selected through expert interviews conducted in the early stages of the study. The study does not argue that these institutions have a stronger competence on urban development issues than others not mentioned (see the appendix), but simply that their competence lies mainly in their capacity to undertake cross-sectoral and multidisciplinary approaches to urban issues. Moreover, these often large research institutions seem to be those most likely to be able to serve as the backbone for a future pan-Nordic urban research programme, acting as a natural link between the various national urban research systems and the Nordic one.

In order to make this overview more comprehensible, research institutions in the Nordic countries have tentatively been grouped into four main categories representing specific fields of research. Our interest in these four categories is predominantly analytical in nature, rather than designed to precisely map the profiles of research institutions across Norden. The identification of these four fields of research is based on categories predetermined by the research team before undertaking the expert interviews. The categories have been further developed through both a quantitative and qualitative process: quantitative because the analysis of the projects funded by the various national research financiers shows that these fields of research receive the most significant support; qualitative because the experts themselves, during the interviews, confirmed that these fields are, and will remain, the most relevant in Nordic urban research.

The main difference between the fields is not the research object in itself (this is always the city), but more the specific angle or perspective taken by the researchers across the fields. Indeed, the city can be seen as the place for functional and economic interactions (*The role of cities in national/regional economic development and global competition*), a place for social relations (*The social dimension of urban development*), a living space and environment (*The urban environment and the environmental impact of cities*) or as a place for institutional and power relations (*Urban governance and planning*).

What follows is a short description of what each field of research entails. A short description of the main features of the research institutions identified, by country, is provided in annex.

The role of cities in national/regional economic development and global competition

This theme addresses research on cities in systems, polycentric urban development, innovative *milieus* and creativity. Furthermore, the preconditions for cities in systems such as infrastructure endowment, are related to this theme. This particular research theme, which has grown in importance in recent years across the Nordic countries, is still considered quite novel, particularly when compared to the other fields outlined below, as the theme follows in the footsteps of globalisation while charting the process of accelerating urbanisation.

The social aspects of urban development

The urban social geography theme covers the social aspects of urban research such as housing, segregation, demographic change and urban welfare. The social dimension of urban research is one of the most prominent urban research themes in the Nordic countries. There is a long tradition of research within this field and this is the theme that several urban research experts in the Nordic countries mention as being a particular 'stronghold'. More specifically, Nordic research on segregation in relation to urban areas has been at the forefront of the discipline for many years.

The urban environment and the environmental impact of cities

The urban environment relates to the city as a place to live. Moreover, the environmental aspects of the city, and its impact, and their links to climate change processes, have risen to the top of the general research agenda. On the topic of environmental research (environmental protection, environmental impact assessment, urban ecology, local *Agenda 21* etc.) the Nordic countries have been at the forefront of research for some time. Moreover, in respect of research on climate change, the research effort is intensifying and, as such, continues to rise in importance in respect of

research agendas. As the effect of climate change becomes increasingly visible, its current and future effects are discussed on the basis of adaptation where various strategies are under development. The presumed effects of climate change will have significant impact on urban development and planning, and as this becomes ever more apparent, the amount of allocated research funding grows. Within this field of research, the Nordic countries share the societal prerequisites in that we will face the same effects and enjoy the same potential advantages.

Urban governance and planning

In the research field of urban planning and governance, viewed in a broad sense, the Nordic countries conduct a significant amount of research. Looking at the amount of research funding allocated to these themes, urban planning and urban governance are both towards the very top of the research agenda. However, there is no clear leading institute in the Nordic urban research context but, as mentioned previously, Finland has probably placed the most focus on urban governance in the last ten-year period. This view is reinforced when studying the urban research institutions in Finland, as they are heavily involved in conducting research on the urban governance theme.





STUDENT'S
PERFORMANCE
OF THE
INTERNATIONAL
STANDARD
RATHER
ADDRESSING
THE QUALITY AND
RELEVANCE OF
NORDIC URBAN
RESEARCH



THE ROLE OF CITIES IN ECONOMIC DEVELOPMENT	THE SOCIAL DIMENSIONS OF URBAN DEVELOPMENT	URBAN ENVIRONMENT AND THE ENVIRONMENTAL IMPACT OF CITIES	URBAN GOVERNANCE AND PLANNING
Helsinki University of Technology (Centre for Urban and Regional Studies (YTK))	Norwegian Institute for Urban and Regional Research (NIBR)	Aalborg University (Department of Development and Planning)	Aalborg University (Department of Development and Planning)
Lund University (Architecture and Built Environment and Department of Social and Economic Geography)	SBi (the National Research Institute of Housing and Building)	Chalmers (Department of Civil and Environmental Engineering and department of Architecture)	Aalborg University (Department of Development and Planning)
Nordic Centre for Spatial Development (Nordregio)	University of Oslo (Department of Sociology and Human Geography)	Norwegian Institute for Urban and Regional Research (NIBR)	Aarhus School of Architecture (Several departments)
Norwegian Institute for Urban and Regional Research (NIBR)	The Oslo School of Architecture and Design (AHO)	Royal Institute of Technology (School of Architecture and the Built Environment)	Helsinki University of Technology (Centre for Urban and Regional Studies (YTK))
University of Oslo (Department of Sociology and Human Geography)	University of Copenhagen (Department of geography, Department of sociology)	University of Roskilde (Department of Environmental, Social and Spatial Change and other departments)	The Oslo School of Architecture and Design (AHO)
Royal Institute of Technology (School of Architecture and the Built Environment)	University of Helsinki (Department of Geography and Department of Social Policy)	Swedish University of Agricultural Sciences (Faculty of Landscape Planning, Horticulture and Agricultural Science)	Royal Institute of Technology (School of Architecture and the Built Environment)
Stockholm University (Department of Human Geography)	University of Roskilde (Department of Environmental, Social and Spatial Change)	University of Copenhagen (the Danish Centre for Forest, Landscape and Planning)	Lund University (Architecture and Built Environment and Department of Social and Economic Geography)
University of Copenhagen (the Danish Centre for Forest, Landscape and Planning)	Uppsala University (Institute for Housing and Urban Research)	University of Tampere (Department of Regional Studies and Environmental Policy)	Norwegian Institute for Urban and Regional Research (NIBR)
Bifröst University Research Institute, Iceland	The Research Centre of The University of Akureyri, Iceland	Helsinki University of Technology (Centre for Urban and Regional Studies (YTK))	Chalmers (Department of Civil and Environmental Engineering and department of Architecture)
Institute for Research in Economics and Business Administration (SNF)			The Royal Academy of Fine Arts School of Architecture (several departments)
			Norwegian University of Science and Technology (Department of Urban Design and Planning)
			University of Bergen (Rokkan Centre)
			University of Copenhagen (the Danish Centre for Forest, Landscape and Planning)
			University of Roskilde (Department of Environmental, Social and Spatial Change and other departments)
			University of Tampere (Department of Regional Studies and Environmental Policy)
			University of Turku (Department of Geography)
			Agricultural University of Iceland (Department of Landscape planning)
			Bifröst University Research Institute, Iceland
			The Norwegian University of Life Sciences (UMB) (Department of Landscape Architecture and Spatial Planning)

FIGURE 1: MAIN NORDIC INSTITUTIONS PARTICIPATING IN URBAN RESEARCH

The division into themes is based on the review of the participation of these institutions in their respective urban research programme. The four themes selected are meant to represent an exhaustive coverage of urban research.

The list of institutions provided above does not claim to be exhaustive, i.e. gathering together all research institutions dealing with those themes. However, it is important for the reader to bear in mind that the choice of these institutions was based on the results of the interviews performed during the first part of the study. Finally, the differences in terms of number of institutions listed can also stem from the different research infrastructure in different Nordic countries, as, for instance, Denmark has few but large research institutions, while Sweden and Norway have more and smaller institutions dedicated to urban research.

3. NORDIC URBAN RESEARCH IN EUROPE: ESPON AND THE FRAMEWORK PROGRAMME

Essentially, two European programmes have been dealing with urban development issues, at least in part. These programmes have become pertinent forums for European researchers to work on urban issues in an international context. The resulting projects are often large and have long timeframes. While they enable researchers to exchange their viewpoints on similar or joint issues, they also enable them to perform empirical and comparative research, highlighting the diversity of European cities and towns.

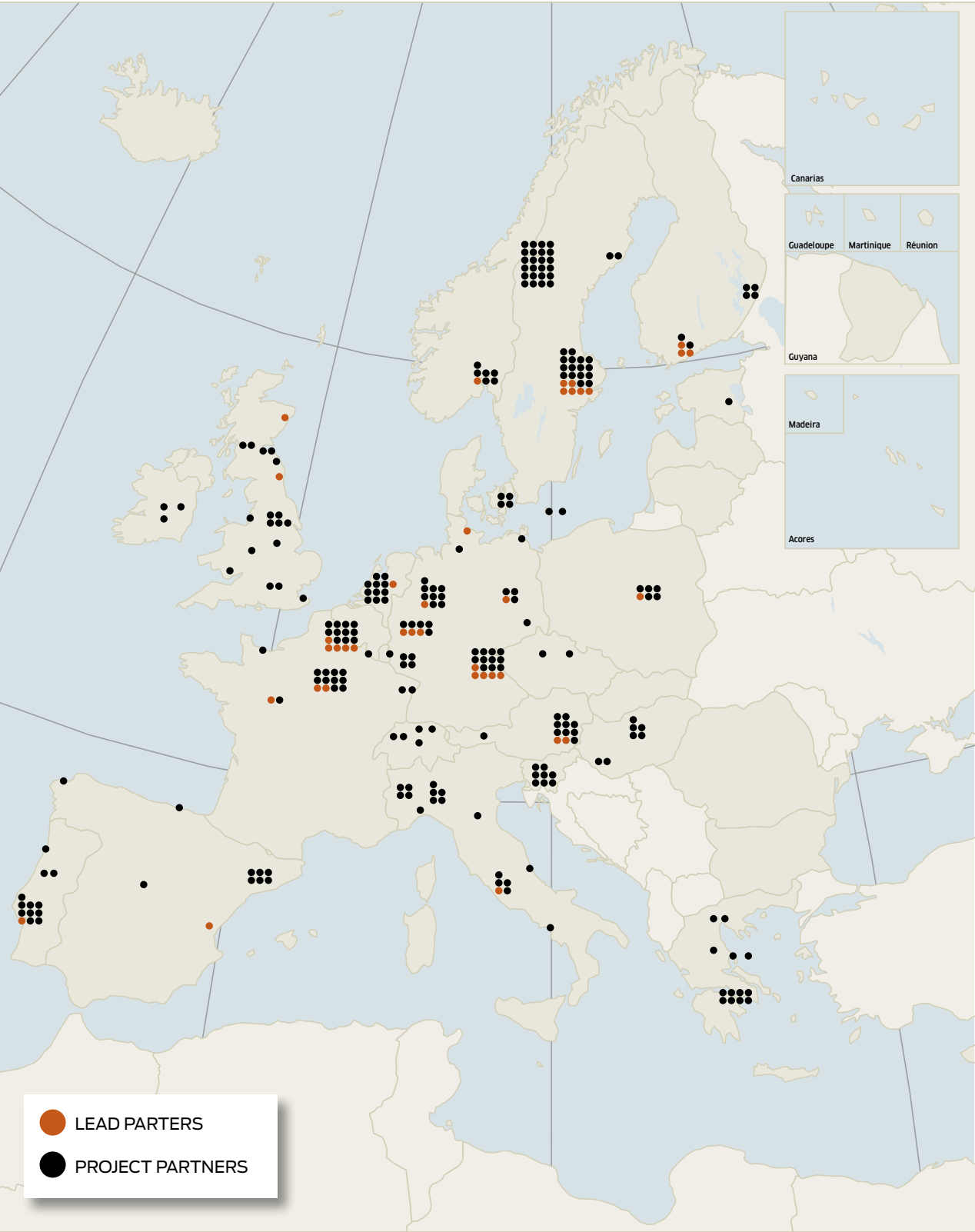
The overview of the participation of Nordic research institutions in ESPON and FP5 projects shows that Nordic researchers have used these programmes in a very proactive manner, thus putting Nordic urban research issues and policy concerns at the forefront in the European context.

A recent article analysing the patterns of partnership-building for the FP5 and FP6 programmes show that Nordic capitals, especially Stockholm, Helsinki and Oslo, and a few other cities, such as Lund and Gothenburg, are strong nodes in these research networks. The measurement of the degree of centrality, i.e. the importance of each city as a node in FP research networks, highlights the relative position of each city in the European context. If Stockholm and Lund have strengthened their position between the FP5 and FP6 programmes, other Nordic cities seem to have lost their place, especially Gothenburg and Helsinki (Rota 2007).

The ESPON programme focused on projects dealing with spatial planning, focusing in particular on the territorial structure of Europe. Many projects dealt with urban areas, as this is the most common territorial situation found in Europe. Moreover, the fact that the ESPON results are directly used by European policymakers, mainly the EU Commission and the Member States, makes it possible to bridge the gap between urban research and urban policy issues at the European level.

The figure below plots the location of all ESPON project partners. It is obvious that Nordic research institutions have been significantly involved in these programmes, not only as partners, but also as lead partners. Indeed, research institutions based in Stockholm have been the most active in the ESPON programme, making Stockholm the city which has the largest concentration of ESPON lead partners and partners in the whole of Europe. Other Nordic capitals, namely Oslo, Helsinki and Copenhagen have been much less intensely involved in ESPON projects, but still rank highly compared to other European cities. However, despite the participation of research institutions from Umeå and Joensuu in ESPON projects, the pattern of partnerships in the Nordic countries is very much concentrated on the capital regions.

FIGURE 2: LEAD PARTNERS AND PROJECT PARTNERS OF THE ESPON 2006 PROGRAMME



Source: ESPON (2006: 99)

4. RESEARCH OUTPUT: ARTICLES PUBLISHED IN INTERNATIONAL JOURNALS

The previous sections dealing with the Nordic research infrastructure have enabled us to draw a pertinent picture of the thematic scope of Nordic urban research, regarding both urban research institutions and urban research financiers. This description aimed at highlighting the main features of Nordic urban research. An interesting question that has not been posed thus far however is the potential 'efficiency' of this infrastructure.

A relevant way in which to assess the performance of Nordic urban research is to examine its scientific outcome, traditionally measured by the publication of articles in national and international journals, books, research reports and conference papers. Project reports represent a tangible outcome of research. It is however international articles that set the standards in terms of research quality. Articles in internationally ranked, peer reviewed and continuously published journals achieve higher recognition and are often of higher academic and scientific quality.

In that sense, a state-of-play census regarding the Nordic countries was performed by screening articles with a Nordic slant in urban research, published in a selected sample of highly-ranked international journals during the period 2000–07. For the sake of the analysis, the research outcome has been divided into two broad dimensions, one focusing on research performed by researchers belonging to Nordic institutions (here-after called Nordic researcher) and another on research undertaken on Nordic urban issues.

Sample of screened journals

The sample is reduced to internationally high-ranked journals. The "ISI Journal Citation Report" enabled a ranking of the pre-selected journals according to their individual importance identified by their impact factors (based on the Social Science Citation Index²). The impact factor for 2006 is based on the average number of articles published in the past two years in the journal and that have been cited in 2006. The impact factor is calculated for different subject categories relevant to our studies: urban studies, transportation, planning and development, geography, environmental studies, economics and demography.

The final sample (Fig. 3), which includes 14 journals, covers all themes of urban research. Some lower-ranked journals were upgraded in order to cover the wide range of urban development topics.

FIGURE 3: SELECTED HIGH-RANKED JOURNALS IN URBAN DEVELOPMENT

NAME	SCOPE								BASE	RANKED BY ISI
	The Role of Cities	Welfare, social and cultural empowerment and cohesion	Urban Housing Models	Urban Environment	Hazards, Risk Management	Urban Transport, Energy Supply	Urban Governance	Urban Planning and Urban Design		
Landscape and Urban Planning				●					USA	2.029
Environment and Planning A	●	●	●	●	●	●	●	●	UK	1.610
Environment and Planning D: Society and Space		●					●		UK	1.495
European Urban and Regional Studies	●								UK	1.189
Regional Studies	●	●		●					UK	1.162
International Journal of Urban and Regional Research	●	●	●		●		●		UK	1.161
Environment and Planning B: Planning and Design								●	UK	1.043
Urban Studies	●	●					●	●	UK	0.992
Cities		●	●			●	●	●	USA	0.732
Housing Studies		●	●						UK	0.702
Environment and Planning C: Government and Policy							●		UK	0.652
European Planning Studies	●	●	●	●		●	●	●	UK	0.513
Built Environment	●			●	●	●		●	UK	Not ranked
Journal of Transport Geography						●			UK	Not ranked

Classification of articles in Nordic urban research

As a second step, the articles identified as being part of Nordic urban research were classified into 4 distinct categories, using the two dimensions explained earlier in the text, one focusing on research performed by Nordic researchers and another on research undertaken on Nordic urban issues.

- **AN) Nordic case:** articles written by Nordic researcher on a specific Nordic theme/context
- **BN) Non-Nordic case:** articles written by Nordic researcher on a specific Non-Nordic theme/context
- **CN) Theoretical case:** articles written by Nordic researcher on a non-specific theme/context
- **DN) Nordic-focused case:** articles written by Non-Nordic researcher in a specific Nordic theme/context

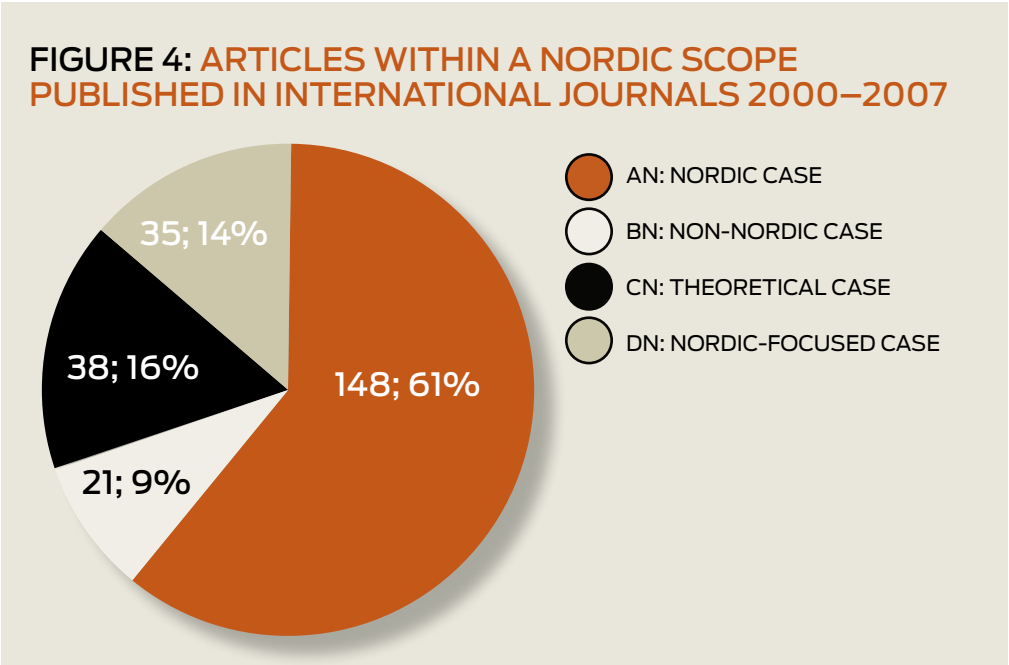
In the timespan 2000–07, a total number of 242 articles within a Nordic scope emerged. The chart below shows the distribution of these articles concerning categories AN, BN, CN and DN, with which they were identified.

Figure 4 is interesting because it highlights the variety of articles identified as belonging to the Nordic urban research outcome. Indeed, although the lion’s share of articles were written by Nordic researchers on Nordic urban development issues (case AN), the other three cases are not insignificant, totalling nearly 40% of the identified articles. This shows that Nordic researchers are not only active in undertaking research on empirical, Nordic topics, but also capable of feeding international research on more theoretical, abstract topics (cases BN and CN). Finally, the fact that 14% of the identified articles were written by non-Nordic authors on *Norden*, highlights the importance of *Norden* as a pertinent subject of research in international urban development issues.

Norden research on Norden: a closer look at category AN)

Category AN) is a special category as it groups articles that have been internationally published by Nordic researchers on Nordic issues. As the chart above has shown, the category’s importance is the highest compared to the other three identified. In this category 148 articles were registered, accounting for 61% of the total amount of articles. It can be concluded that Nordic researchers are more inclined to develop research projects about their local environment, i.e. on their respective country.

In a further step, we took a closer look at the thematic distribution of articles (Fig. 5). The articles in the ‘Nordic’ category have been differentiated with respect to the themes identified in co-operation with the interviewed experts and further according to the researcher’s nationalities (national base of research institution).



The totals³ show that Swedish researchers have published more than any other Nordic nationality. Danish researchers are also heavily involved, especially when compared to those in Finland and Norway, who enjoy an approximately similar population size. A very interesting point here is the almost total absence of Icelandic researchers belonging to this category, with only one article.

Concentrating on the thematic distribution of articles⁴, it appears that the theme ‘Role of Cities’ is that most represented with more than 60 references (64). The theme relating to ‘Welfare and demography’ and that dealing with ‘Urban Planning and Design’ are the second and third most common with respectively 39 and 34 references. ‘Hazards and Risk Management’ has not been a prioritised theme in ‘Nordic’ research (Category AN), as only one article has approached this theme.

An active Nordic urban research environment

The overview of the articles published by the various Nordic researchers highlights strong similarities, but also some marked differences in urban research focus between the various Nordic countries. It is obvious from the table above that the theme dealing with the *role of cities* in development processes is of interest across *Norden*, i.e. as a subject for a joint research programme. Moreover, the social dimension of urban development issues, mainly expressed in the *welfare and demography* theme is also of significant interest in most Nordic countries, as are the themes of *urban governance* and *urban planning*.

At the other end of the scale, themes like *risk management and hazards*, essentially grasping issues such as environmental impact and climate change, and *urban housing models* are almost equally weak in each country, and thus could be subject to a joint Nordic effort, in order to counterbalance this.

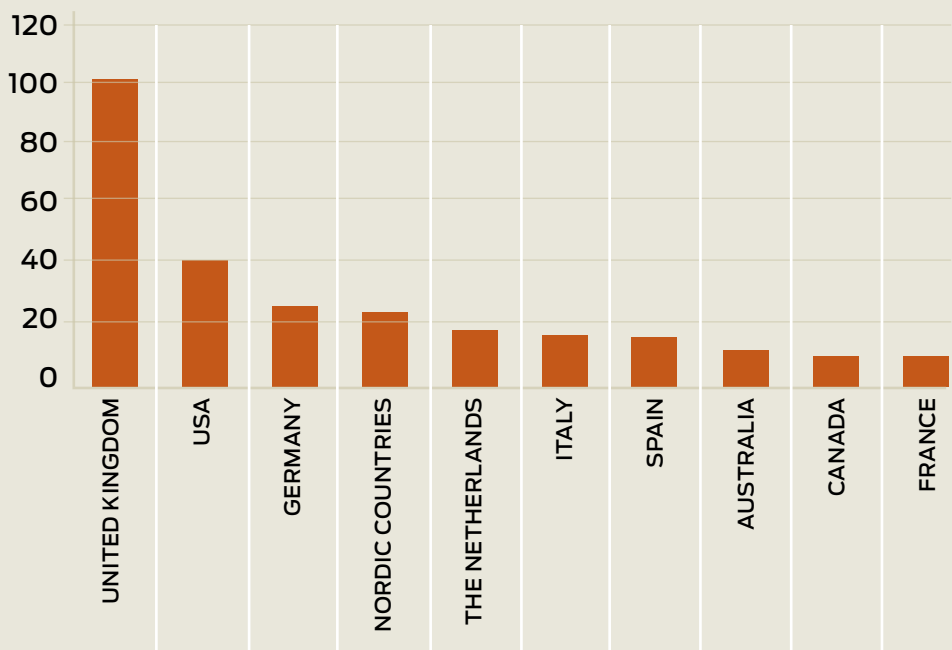
The analysis developed above stresses the different possible nature of the outcome of Nordic urban research, counted as both articles by Nordic authors and/or on Nordic issues. However, this analytical dimension does not enable us to position the performance of Nordic urban research *Norden* in a more international perspective. In other words, it is useful to highlight the performance of Nordic research as compared to other national research.

In order to implement this international benchmarking of Nordic research, 3 of the 14

FIGURE 5: THEMATIC DISTRIBUTION OF ‘NORDIC’ ARTICLES

	DK	FIN	IS	N	SE	TOTAL
Role of Cities in Economic Development	18	11	0	10	25	64
Welfare and Demography	8	2	0	2	27	39
Urban Housing Models	5	0	0	3	12	20
Urban Environment	6	6	0	4	16	32
Hazards, Risk Management	0	0	0	0	1	1
Urban Transport, Energy Supply	9	3	0	9	8	29
Urban Governance	9	4	0	11	8	32
Urban Planning, Urban Design	7	6	1	7	13	34
Total	62	32	1	46	110	

FIGURE 6: PUBLISHED ARTICLES IN THE SELECTED JOURNALS BY LOCATION OF RESEARCHER



journals have been further selected. To maintain practicability during the benchmarking process we have focused on three journals that have 1) a rather broad thematic scope and 2) a different territorial focus (European, regional or intra-urban). The selected journals are the following: ‘European Planning Studies’, ‘Regional Studies’, and ‘Urban Studies’.

The Nordic countries produced the fourth highest amount of articles within the three chosen international journals in 2006 (Fig. 6). Out of their 22 articles, a total of 14 address urban issues. The distribution of individual research output among the Nordic countries however, shows a rather uneven picture: Sweden published 50% of the articles (11); the other 50% were published by Finland (6), Denmark (3) and Norway (2) respectively. Icelandic-based researchers did not publish any articles in the three journals in 2006.

In conclusion, from this analysis of the articles produced in or on *Norden*, one can highlight the following interesting features:

- the majority of articles published by Nordic researchers specifically deal, in whole or part, with Nordic urban issues;
- Sweden is the largest contributor within *Norden*;
- The thematic focus of the articles are different across Nordic countries, highlighting the importance of the national context for urban research;
- *Norden*’s performance on the international stage is rather good, stressing the quality and relevance of Nordic urban research.

5. CONCLUSION: HIGHLIGHTING THE NORDIC DIMENSION

The review of national urban research programmes has shown that urban research is essentially undertaken as a transversal research field, i.e. bringing together stakeholders from multiple sectoral interests (transport, housing, environment etc.) and from multiple disciplines (political sciences, social sciences, human geography, regional economics). Moreover, the fact that the elaboration of the national urban research programmes brings together a wide range of research and policy stakeholders illustrates the strong link between urban issues from a research and policy perspective. As a matter of consequence, the transversality of urban issues in the research sphere could be translated in a more territorial, integrated way in the making of urban policies in the Nordic countries, instead of merely providing a collection of sectoral measures.

European research programmes (FP5, FP6, ESPON etc.) and national research programmes (*Realdania*, *Formas* etc.) enable the development of cooperation between research institutions focused on common thematic interests to take place. These programmes also provide the opportunity to address urban issues of significance at both European and national levels. Although research projects implemented at either level might highlight some aspects of the specific Nordic context, the establishment of a dedicated Nordic programme for urban research would ensure that joint urban issues are put firmly on the research agenda. A Nordic urban research programme would also enhance the coordination of efforts between research institutions and provide some impetus and incentive to develop research projects addressing joint Nordic urban issues.

This chapter has emphasised the importance of collaboration, co-operation and networking in urban research. Research has become increasingly internationalised, and the success of the various institutions in attracting funding relies strongly on their capacity to build research coalitions for different types of projects. The analysis of the European ESPON

and Framework Programmes has shown that many Nordic institutions are already highly visible on the international stage due to their strong involvement in international projects. However, if *professional networking* at the Nordic level seems to be well developed, there are currently no specific forums for developing *institutional* and *practical networking*. The elaboration and implementation of a Nordic urban research programme would foster the development of these two types of networks, by bringing together research institutions and policy stakeholders in defining the most relevant joint urban development issues, and encouraging institutions to carry out research on specific Nordic issues, and specifically by developing empirical and comparative studies of Nordic cities. The combination of research at different territorial levels (national, Nordic and European, and perhaps even global!) would ensure a more comprehensive understanding of urban development processes in the Nordic countries, highlighting the similarities and differences that exist.

Research institutions in the Nordic countries currently cover most of the dimensions of urban research. Comparative study of published articles shows that Nordic research has already achieved a good standard and remains highly visible on the international stage. However, when looking independently at each of the Nordic countries in turn it is clear that they each represent only a small part of the total of published urban research, which is perhaps understandable given the relative small size of the Nordic countries. Development of a Nordic research programme on urban development issues would therefore enable us to rationalise the nationally fragmented Nordic urban research landscape, and to integrate national research infrastructures, producing a greater 'critical mass' for more targeted and better research.



THE INTEGRATION OF NORDIC CITIES INTO THE GLOBALISING
ECONOMY AND, IN PARTICULAR, THE NEED TO ENSURE
THEIR ACCESS TO GLOBAL ECONOMIC FUNCTIONS IS
ANOTHER MAJOR CHALLENGE FOR NORDIC URBAN POLICY.

Part B: Prospects for urban research in a Nordic perspective

6. GENERAL PERSPECTIVES FOR FUTURE URBAN RESEARCH

Selecting future Nordic research themes

Three overall themes have been prioritised as the most important areas of future urban research in the Nordic countries. The prioritising process took place during the summer of 2007. An initial step in the selection process was carried out in the context of a dialogue between the project team and *NordForsk*. Sixty five themes were identified and organised under nine headings of potential future interest for future Nordic urban research (see appendix: Initial list of possible research themes). The themes were initially grouped into 9 distinct research fields, out of which four were subsequently highlighted as being the most relevant for analysing the Nordic urban research infrastructure (See chapter 2, part A).

Interviews were then conducted with a number of Nordic urban researchers from different disciplines and policy-makers from various political levels in all five Nordic countries – about 60 persons in total were interviewed. The interviewees were asked to consider the initial list of research themes and then invited to add or delete themes to the list. They were also invited to propose other and/or better ways of organising the themes and sub-themes under different headings.

Afterwards, the interviewees were asked to propose which themes and sub-themes they

regarded as the most important for future research in the field of urban development, planning and management. Parallel to the interviews, a number of Nordic and European papers concerning urban policy were analysed in accordance with future urban challenges and the main problems outlined previously.

Based on interviews in all five Nordic countries, review of the most important policy papers, and analysis of research fields outlined in part A, an initial shortlist of future research themes, or rather complexes of themes and sub-themes, was developed:

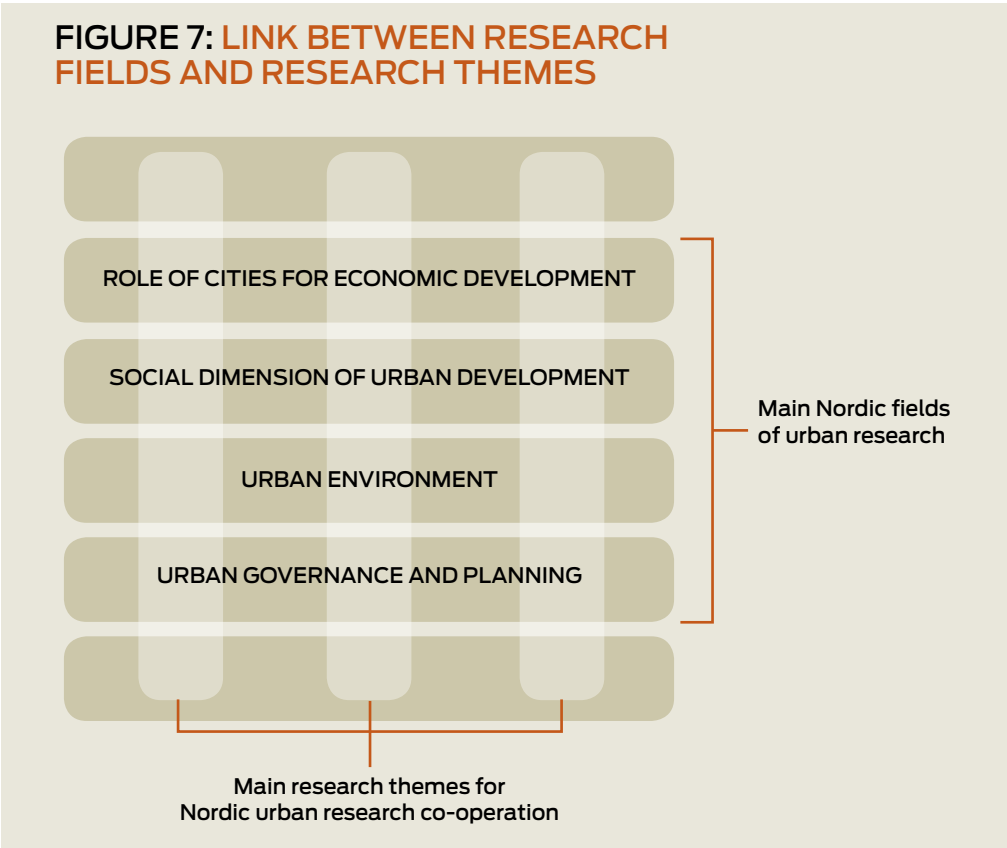
- The post carbon city – consequences of, and necessary actions in relation to, energy and climate uncertainties
- Urban governance – participation and democracy, public-private partnerships, the planning and management of urban growth/sustainability and structural change
- Urban segregation, cities as distinct places for social, ethnic and cultural processes
- Cities as creative and innovative *milieus* and drivers of regional economic development
- Polycentric urban development in a Nordic perspective, the role and function of various city-regions and urban systems in regional and national development

The relationship between research fields on the one hand (see Part A, chapter 2) and research themes on the other, is clear: a research theme highlights a particular issue that necessitates a transversal perspective on urban development matters, i.e. taking into account different disciplines (or fields) and their specific perspectives on the ‘urban’ theme. For example, polycentric urban development relates to functional relations, but also considers governance aspects. In that sense, *research fields* highlight the main disciplinary and institutional components within the research infrastructure, while *research themes* illuminate the specific future research questions and urban issues or problems that should be addressed.

Once the shortlist of future research themes had been developed, about 20 Nordic experts, researchers, civil servants and others experts, were invited to a one day workshop in Copenhagen on August 30, 2007. A reference group was also invited, which consisted of 5 researchers, each with a proven track record covering together the most important fields of urban research.

The overall objective of the workshop was to identify the most important themes for Nordic urban research in the coming years: what specific expertise and knowledge is needed in the future? How should we seek to enhance existing knowledge and competences in accordance with current urban research in the Nordic countries? What main themes are most relevant for Nordic research? And what kind of competitive strength in comparison to other non-Nordic countries could be developed?

After the workshop, the project team and reference group developed a final shortlist of the following three ‘thematic complexes’ or main themes:



- The diversity of cities – creativity and segregation
- Challenging the uneven Nordic urban Geography – what kind of knowledge is needed for different urban areas and strategies?
- The post-carbon city – mitigation and adaptation to climate change

The main themes will be defined and developed further in chapter 7.

Cross-cutting dimensions and general principles

In addition to the three main themes, four ‘cross-cutting’ dimensions were also identified during the workshop. These can each be related to the three main themes in many different ways and at different levels. These cross-cutting dimensions should always be borne in mind when addressing the main themes, as they do have a strong impact on urban development issues. The cross-cutting dimensions can be labelled as followed:

- Sustainable development
- The Nordic Welfare Regime in transition
- Globalisation and its impact on Nordic cities
- Territorial governance

According to the principle of sustainable development, urban problems should be addressed with holistic strategies such that economic, social and environmental objectives are targeted in coordinated actions. Therefore, future urban research in a Nordic context should always have a cross-sectoral and interdisciplinary approach.

The Nordic welfare regime has been in constant transition over the last two decades, due to ongoing structural changes in which industrial economies have been transformed into new post-industrial economies based on services and knowledge. This transformation demands, among other things, new approaches to organisation and new roles for both public and private spheres. In addition to

this economic structural perspective, a gender perspective and a demographic perspective are also important aspects of the welfare state and its future development.

The demographic perspective will imply decreasing birth rates, increasing longevity, migratory movements and an expected ageing process. These demographic changes will generate significant challenges for the Nordic societies – at all levels and in most aspects of our lives from infrastructure and housing issues to labour supply and pension schemes. Seen from a regional and urban perspective, the economically most successful cities and towns do not necessarily have the most favourable future conditions in this respect and *vice versa* (ESPON 2005). The challenges for provision of urban services and urban infrastructures remain however obvious.

Seen from a gender perspective, the Nordic countries in specific terms continue to suffer from a growing imbalance between women and men with a tertiary education. More young women in each generation receive a higher education while the share of men opting for a higher education is declining. Seen from a geographical point of view, the impact of these trends will mean a growing overrepresentation of well-educated women in the big cities while in the rural areas and peripherally-situated small cities and towns a growing overrepresentation of low-skilled men persists (NORDREGIO 2007). This development will in the long run compromise the social cohesion of the Nordic societies.

Globalisation is inescapable. The colossal and continuing economic integration of the world has repercussions on all aspects of urban life. It is a force to be reckoned with in the decades to come. Often globalisation is perceived at one and the same time as both a threat and a challenge. Globalisation has caused radical changes to take place in the economy of cities on the one hand and forcing them to become more visible in respect of new markets and political arenas on the other (Groth 2002).

A distinctive feature of urban policy is that it is created and implemented in co-operation and interaction between many different public

and private stakeholders. Therefore new ways of organisation and management compared to traditional hierarchical and bureaucratic approaches to public management are now demanded. New modes of territorial governance are based on the direct participation of many different actors, politicians, citizens, civil servants, organisations, businesses, etc., organised in both formal and informal networks and through different kinds of partnerships. A specific challenge here is the tension between urban governance and the demand for transparent democratic decision-making (Sehested 2003). Another challenge is the implementation of strategic coordinated actions and strategic urban projects where hierarchical public decision processes are replaced by new ways of decision-making and new ways of ensuring the implementation of overall objectives.

In addition to these thematic considerations, a recurring theme of the workshop was that in terms of policy, comparative studies are given a very high level of priority. Two dimensions of comparative studies could be mentioned: the Nordic countries as they compare to each other and the Nordic countries as compared to Europe and the rest of the world.

Furthermore, it was also underlined that future Nordic urban research should pay more attention to the fact that the Nordic urban systems differ from e.g. central European urban systems, such that the possibility of simply transferring policy objectives and 'best practices' from other European countries remains limited.

The specific Nordic perspective

The Nordic urban system is rather unique in European terms. Sparse populations, long distances and a scattered urban pattern imply that development conditions in the Nordic countries, or at least in their most northerly parts, differ considerably from those encountered in continental Europe, (Nordregio 2006).

The Nordic capital cities can be labelled as small to medium-sized European *metropoles* all – except Copenhagen – far from the leading European metropolitan centres. Furthermore – in a European context – the number

of medium-sized cities in the Nordic countries is limited while the number of small and medium-sized towns is considerable.

The evolution of urban settlements in the Nordic countries over the past 100 years reflects structural changes in the economy, with relative stability prevailing until the 1960s, followed by an accelerated rate of change since the 1970s and ultimately by the turning point of the recession in the late 1980s and early 1990s.

Since 2000, an ongoing process of polarisation can be observed. Taken as a group, Nordic capitals have seen the highest rates of population growth in recent years. Similar developments have also been experienced for a number of the relatively few medium-sized Nordic cities, especially the second-tier cities. For the other mainly small and medium-sized towns, the situation in general can be described as one that is coping with slightly declining population levels. In general, the more peripheral and rural a town is the more severe the decline has been.

Seen in a future perspective, it will be a challenge for the Nordic countries to sustain a network of small and medium-sized towns, especially in those parts of each country with a low population density. The integration of Nordic cities into the globalising economy and, in particular, the need to ensure their access to global economic functions is another major challenge for Nordic urban policy.

7. FUTURE MAJOR THEMES FOR NORDIC URBAN RESEARCH

As elucidated in chapter 6, the three major themes for Nordic urban research have been carefully selected in collaboration with a wide range of experts and through comprehensive analysis. The headlines of the themes, which will be introduced in the following (cf. chapter 7.1 to 7.3) indicate that they have been defined in a rather broad sense. During the selection procedure it was agreed that these themes should cover a large range of future research issues/questions and should not necessarily

make any proposals for any kind of further priorities. The specific perspective regarding each major theme is somewhat different. Within the first theme ('the diversity of cities – creativity and segregation') cities are conceptualised in an intra-urban, micro perspective, i.e. they are considered as complex settings of diverse socio-economic, cultural- and ethnic processes occurring within the boundaries of the urban region. Whereas in the second theme, ('the role and functions of cities in regional and (trans-) national development'), cities are considered in a macro perspective, i.e. as components of a larger geographical setting with a specific focus on relations between cities. With regard to the third theme ('the post-carbon city – mitigation and adaptation to climate change') a rather sectoral, but very crucial perspective has been chosen. Here cities are seen in the post-carbon age such that the challenges in urban research are discussed in terms of how to mitigate and/or adapt to climate change.

In the following, the three themes will be discussed in greater detail. We have chosen here a more or less coherent structure for each by starting with a short introduction in which we depict and define the context for the theme at hand and argue for its importance in respect of further research and the potential implications for policy-making in a Nordic context. We then sketch the current status of knowledge in *Norden* and finally list the most central future research issues/questions.

7.1 THE DIVERSITY OF CITIES – CREATIVITY AND SEGREGATION

Diversity – concept and dimensions

Diversity is a major attribute of modern cities in the knowledge economy. They can be increasingly characterised by a variety of economic activities and by social and ethnic heterogeneity (Putnam 2007). Cities have been thus labelled as “incubators of innovation” or “cultural melting pots” (e.g. Soja 2000). A striking aspect of the knowledge economy is that economic activity and growth seem to become more spatially concentrated and increasingly

city-based. Larger cities in particular have a diversified production structure and strong clusters of knowledge-intensive and creative industries due to a favourable “business and people climate” (Florida 2002).

Cities are often seen as the main environments where the knowledge economy, strongly contact-intensive, can fully develop, as it exploits the potential for narrow and frequent relations between the urban agents. However, according to Cook (2002), the knowledge economy suffers from disequilibrium, i.e. economic and social imbalances both between and within cities, which leads to polarised labour markets with high skill/high wage groups versus low skill/low wage groups, and housing markets segregated by social and ethnic cleavages. The “Nordic Model” is characterised by a policy aimed at balancing economic growth against social welfare, and is thus focused on a kind of distribution of welfare policies among territories, groups and individuals. Policy measures for neutralizing social inequality and reducing regional imbalances have, to various extents, remained high on the agenda of the Nordic countries for several decades.

This chapter begins with a discussion of the economic aspects of cities, and continues with a look at the characteristics of – and challenges for – cities as creative and innovative growth centres. It concludes by examining social and ethnic segregation particularly as related to labour and housing markets in cities, focusing on their main features and problems.

CITIES AS CREATIVE PLACES AND INNOVATIVE GROWTH CENTRES

Defining and limiting the theme

Cities seem to play an increasingly important role in economic and social development in most countries. They are claimed to be “engines” of regional and national growth. Cities are branded as creative growth centres and city-based economic activities have an impact far beyond their own boundaries. In that regard, what occurs within the city has an impact far beyond its boundaries. According

to Scott (2006), the origins of urban development and growth in a modern society reside above all in the dynamics of economic production and work. Cities are more than economic agglomerations; they are also social, cultural, and political arenas in which the economy is embedded (Granovetter 1985). It is the reflexive interplay between different social actors and spheres which to a large extent explains the creativity and innovative advantages of cities.

Cities are assumed to play a central role in enhancing innovation and competitiveness in modern knowledge-based economies in particular. Such knowledge-based and creative industries are typically clustered in cities. Larger cities in particular seem to have specific competitive assets due to their ability to exploit their localisation and urbanisation advantages (Frenken *et al* 2007). Cities are looked upon as information entities with high knowledge spill-over intensity in which interactive learning processes are facilitated by proximity and face-to-face contacts. Economic and social diversity are assumed to promote the production of new and innovative ideas and products (Storper/Venables 2004).

Another dimension of the larger cities' competitive assets can be described by the concepts of *Culture Cities* and *City Culture* (Reeh 2002). The first concept refers to the city's content of cultural institutions, cultural events, architectural highlights, buildings, urban spaces, etc. The second concept refers to the urban lifestyles and the urban spaces which give room for them.

Here we can link up to another recently emerging debate in urban research. Until now the economic dimension of cities was predominantly restricted to merely economic and social aspects, such as the clustering of firms or networks of people. In such perspectives, cities are seen as environments that provide social capital. Helbrecht (2004), for instance, examined possible reasons for the attraction of certain knowledge cultures to specific cities and sites and places within them. She concludes that firms in the creative service sector (i.e. design, advertising) choose their locations very heavily on the basis of the 'look and feel' of the building, the 'look and feel' of the neigh-

bourhood, and the 'look and feel' of the city – i.e. bare physical shape of the environment – in order to foster the creative capacities of their employees. Therefore, urban landscapes can take on the role, importance and meaning of what she calls the 'geographical capital' in order to cultivate the creation of knowledge in the perception and evaluation of entrepreneurs and employees.

To sum up: Cities are creative growth centres which may enhance innovation performance and regional competitiveness due to the fact that they stand out as the birthplace of development, and the growth of knowledge-intensive industries, as centres for R&D, technological and organisational innovation, as breeding-places for new products and cultural expressions and finally as attractive places for businesses and people.

An extensive amount of research has taken place on cities as innovative sites and creative places over the past two decades, with particular focus on city competitiveness (OECD 2006). Unsurprisingly, this field of research has its counterpart in political debate, as in many contemporary strategic documents the cities' role as engines or growth centres have been formulated. Such a line of argumentation is not only to be found in many recent OECD papers, but also in many countries across Europe and, of course, at EU-level (cf. the Leipzig-Charter 2007).

The status of knowledge

Nordic research is in line with general international trends when it comes to innovation studies. Although the importance of the context is stressed in all studies, the factors focused upon are more or less similar across the countries concerned. Secondly, the chapter highlights the need for new Nordic knowledge in this field, with reference to the global and national/regional context. Furthermore, it seeks to highlight the new main urban research topics and questions.

According to the OECD, several factors explain the innovative advantages of cities in generating higher economic performance (measured by GDP *per capita*) (OECD 2006):

- Agglomeration economies: benefits firms and industries by lowering transaction costs, provide access to knowledge infrastructure, and skilled labour, business services etc., this enables cities to attract global or regional corporate headquarters;
- Advantages of specialisation and diversity: larger cities in particular profit from the spill-over effects following from the clustering of firms in the same industries (localisation economies). They also profit from having many firms in different industries which induces innovation and creates a robust production system (urbanisation economy);
- R&D and innovation capability: the industrial mix in cities is closely related to their capacity to concentrate a diverse knowledge base and develop innovation systems;
- Greater endowment of human capital: the skill level is normally higher in cities than the national average, and particularly so in larger cities and metro-regions. Such regions also have a more favourable demographic structure, higher skills, higher wages, and lower dependency rates;
- Larger stocks of physical capital: equipment levels, building stocks and infrastructure facilities are larger in cities. This can allow R&D activities within firms and innovation arising at the production site. Universities and research centres are important examples of this. Accessibility is also improved due to better endowments of transport and telecommunications infrastructure.

Not all cities and urban regions are creative and innovative success stories, some are lagging behind and suffer from threats and challenges. Some are performing far below expectations due to the emergence of various dis-economies of agglomeration and fragmentation in innovation systems. Some have large pockets of unemployment, or are suffering from exclusion and poverty, increasing socio-economic inequalities, lack of ethnic integration, spatial polarisation, conges-

tion costs and poor-quality infrastructure.

All the factors mentioned above have been examined in several studies in order to explain city competitiveness. The main focus, however, has been on agglomeration advantages. Some of the main research topics and questions related to this theme have been:

- The city as driver for economic/regional development
- The city as an asset of regional/national innovation capacity
- The role of urban regions in the development of industrial clusters
- The knowledge city – the role of knowledge-intensive, culture and creative industries
- Cities as centres for creativity, learning and knowledge transfer
- Cities as financial centres and drivers for entrepreneurship and innovation

Different approaches to research on competitive cities

There are several traditions within research focusing on competitive cities. The three main (recent) approaches are sketched below. These have also been addressed by Nordic researchers using partly Nordic case studies.

Regional innovation systems and competitive cities

Innovation systems and regional innovation systems (RIS) in particular have been one of the main strands within the innovation research field since the early 1990s (Asheim *et al.* 2003). Concepts arise from evolutionary theories of economic and technological change (innovation as an evolutionary and social process) (Edquist 2004), and focus on explaining the socio-institutional environment where innovation emerges, i.e. on innovation as a localised and locally embedded process (Storper, 1997). The innovation capacities of cities and regions are to a large extent determined both by their economic, institutional and social endowment along with how local and regional actors choose to use these endowments to create new innovation activity.

Given the interactive nature of innovation, low performance regarding innovative activities can arise from shortages either in respect of knowledge production or knowledge exploitation, i.e. either caused by a lack of research activity or because of the urban sectoral structure. The main flows in the ideal innovation system are intra-regional between knowledge producers and exploiters, and those by which knowledge is exploited and commercialised in wider production networks. Innovation can be hindered by internal fragmentation, i.e. barriers between the effective interaction of innovation activities within a city or region. It can be hindered by external dislocation, i.e. when the city or region is cut off from wider knowledge and production networks through a poor position within the functional division of labour or through a lack of global knowledge nodes. Larger cities and metropolitan areas are most exposed to internal fragmentation while smaller and medium-sized cities run a more likely risk of external dislocation.

The creative urban economy

Scott (2006) refers to the dynamics of economic production and the logic of agglomeration when focusing on why cities are creative and innovative. He raises the question of why and how clusters of capital and labour come into being in cities, and how cities come to specialise in particular economic activities. The main economic underpinnings of creative cities, i.e. their productive core, are made up of networks of producers, often characterised by flexible specialisation, and fluid, but often polarised labour markets. Altogether, this constitutes the basis for a “creative field” for learning and innovation, which is made up of shifting production networks, flexible labour markets and by the opportunities taken by firms and workers to organise communication processes through which they generate new ideas. Such creative fields shall thereby enhance learning and innovation processes. Creative cities, however, need to develop and sustain a diverse local production system, in order to attract and train relevant labour forces (Scott 2006).

The creative class and the growth of cities

Knowledge and creativity have become increasingly important for economic development, with larger cities in particular playing a key role in this development. According to Florida (2002, 2005), it is the “creative class” that constitutes the basis for the wealth and prosperity of cities in a global knowledge economy. According to his definition, the creative class makes up about 30% of the labour market in Western countries and consists of people with talents and skills that are particularly important for innovation and growth.

One of the main points for Florida here is that the “people climate” is more important for innovation and growth in a knowledge economy than the “business climate”. Social diversity precedes economic diversity. Innovation and the development of knowledge-intensive businesses are first and foremost dependent on access to highly-skilled and creative labour. Cities characterised by openness, tolerance and social diversity are attractive cities, and attractive cities are competitive cities because high-tech and knowledge-intensive industries want to locate where the creative class is settled.

As a consequence of such a line of argumentation in urban planning and politics, and consequently also in urban research, the issue of making cities more attractive and of how to communicate their competitive assets to potential “clients” (labour forces, tourists and firms) has been increasingly debated in recent years (e.g. Nyseth/Granås 2007).

City branding, urban regeneration and competitiveness

Many cities, particularly old industrial cities, have in recent years attempted to achieve economic regeneration by promoting themselves as attractive locations for investment and people (Torisu 2006). The notion of ‘city branding’ designed to increase the attractiveness of cities through physical renovation, the promotion of spectacular architecture and the sponsorship of numerous cultural events, has been prevalent in the Nordic countries and indeed, worldwide. The use of architecture has played a central role in physical renovation, for instance in development of waterfront projects and cultural institutions, particularly museums (*Guggenheim* in Bilbao).

Such flagship developments are normally large scale, multi-use urban services and cultural developments (residential, office, commercial, entertainment, and leisure), normally they are based on public-private partnership arrangements. Cultural events, such as the *Olympic Games* and *World Expo*, festivals etc., may also play an important role in city centre renovation, thus enhancing city images (event cities) and attractiveness and boosting urban tourism.

The focus on cities as creative and attractive places implies a stronger focus on the role “soft” location factors play in making cities more successful and competitive. Some of the main attributes are (Musterd *et al* 2007):

- *Distinctiveness and authenticity*: these are seen to emerge from a city’s own history, cultures, experiences etc., and will be apparent in the physical fabric/urban design, cultural amenities, commercial offerings (from bars to shops etc);
- *Small scale/fine grain development*: the importance of small shops, independent operators as opposed to the big box/mega mall format; these characteristics are essential to interesting, sustainable urban districts;
- *Vibrant and distinctive neighbourhoods*: specific areas within cities that embody many of the qualities highlighted above; places that mobile, young people in particular will want to live in and visit; whether these are very central or more suburban they have character and a ‘real’ atmosphere;
- *Appeal to younger people and their interests/lifestyles*: the interests of mobile young ‘talented people’ are more prominent, but the urban qualities sought by them are also of appeal to older people even if they do not use the facilities as much – it creates an attractive, lively environment in which to work and live.
- *Diversity of population and lifestyles*: this refers to ethnicity, cultural preferences etc; people will be drawn to places that exhibit diversity and create tolerant conditions for newcomers/outside to fit in (ranging from visible minority migrants to artists to gay communities etc.) People like Florida also consider it

important that such diversity and tolerance is highly visible, particularly manifested in distinctive neighbourhoods and urban places of the sort mentioned above.

New strategies for urban regeneration and competitiveness bring with them new challenges for city planners. This requires a pro-active approach, new policy tools and close partnership between public and private partners. Strategy planning processes must also be inclusive in order to reflect and coordinate various, often conflicting, interests in the city/community. The multiple identities of different stakeholders must be combined into a common ‘brand’ that appeals to the type of businesses and people the city wants to attract. Branding strategies must also live up to global standards, whilst taking care to address and promote the *local distinctiveness* which constitutes the specific brand for each city.

Central issues/questions for future research

Research on cities as creative places and innovative growth centres has primarily focused on agglomeration advantages (localisation and urbanisation economies), and on barriers in cities’ innovation systems which can explain why some prosper or lag behind. There is a large stock of knowledge on this topic both internationally and in the Nordic research community. There is, however, still a need for new knowledge from a theoretical, an empirical and a political point of view. Research on cities’ roles and functions with regard to creativity and innovation must grasp the complexity of modern cities, and the relationships which take place inside them. This requires a stronger focus on conceptual clarification and more comprehensive empirical analyses. This is specially important if the research is to underpin knowledge-based policy measures. Such analyses must be contextually embedded and pay attention to globalisation, i.e. focus on both local assets and global links (glocalism).

Conceptual clarification

Research on innovation and city competitiveness is still troubled by the persistence of “fuzzy concepts” (Markusen 1999) and a strong need for conceptual clarification. Key

concepts like ‘learning regions’, ‘cluster’, ‘knowledge economy’ etc., remain vague and ambiguous, and poorly defined for analytical studies. The learning region approach, for instance, tends to overstate the role of cooperation and does not understand the role of larger urban systems. Clusters are not a well-defined concept either, although much used in innovation research and strategies. The cluster approach focuses more on competition, but the research itself is rather macro-oriented and does not always pinpoint the essence of how co-operation actually works in practice.

Comprehensive empirical analyses

Empirical research on city competitiveness must deal with the complexity of modern cities and the multifaceted human interactions in historically and geographically specific forms of creativity and economic change. Although there is much empirical research on creative and competitive cities, knowledge gaps remain in several areas.

The following topics are important; they reflect important challenges for urban and industrial development, and should be examined more deeply, specifically in a Nordic empirical context:

- Research on urban governance and, in particular, on governance of urban innovation systems;
- How specialised city regions can cope with the outsourcing of economic activities, what ‘critical mass’ must stay in the region, and the challenges for the existing regional innovation system with regard to building competitive advantages;
- How to maintain a sectoral innovation system in sectors based on time limited projects where most knowledge is gained by short term immigrant workers;
- National territorial policy focusing on the division of labour and innovation specificities in different cities/city-regions;
- Cities as spatial formations, i.e. cities as places of work, consumption, circulation, creativity, and places of flows and relations

- Focus on urban economies should comprise:
 - Cities as sites of economic circulation, distribution centres
 - Cities as sites of institutional density, business *milieu* and site practices
 - Cities as sites of local and global links

SEGREGATION – CITIES AS DISTINCT PLACES FOR SOCIAL, CULTURAL AND ETHNIC PROCESSES

Defining and delimiting the theme

Different forms of segregation have been a major part of urban development and urban research for many years while segregation remains a major challenge. Segregation is mainly connected to housing and to the uneven distribution and separation of different groups and their settlements. As such it relates to a kind of social geography of cities. Different urban areas have different statuses and qualities which make them more or less attractive (Andersen 2004:117). Segregation is a product both of social differences and of spatial differences and is expressed through both voluntary and involuntary processes. We usually differentiate between three kinds of separation: Socioeconomic separation, which is the spatial separation between individuals with different resources or who belong to different social groups; demographic segregation, which is the spatial separation between different household types, mainly connected to age groups, and ethnic segregation, which is separation between individuals who belong to different cultures, e.g. the concentration of immigrants in certain residential areas.

The political debate about segregation is mainly focused on residential areas with social problems, where social life is characterised by poor quality. Thereby not only housing policy, but also other political areas such as the labour market, social policy and spatial planning in general contribute to the unfolding segregation processes. Though residential segregation is a consequence of a series of social processes, residential policy plays a decisive role. Residential policy may prevent resource-deprived population groups from being obliged to dwell in poor

living *milieus* and contribute to reducing the negative effects of segregation, making these residential areas more suitable for living.

For many reasons, the level of segregation in the Nordic countries is lower than in other countries. We have lower levels of economic inequality and well-developed welfare systems. Compared with many other countries we also have a greater geographical diffusion of disadvantaged groups due to the existence of a major social housing sector. There is also a combination of different housing forms. On the other hand, residential policy and urban planning have contributed to segregation, e.g. conducted to a certain extent through the process of physical planning, by supporting differences in economic terms between rental housing and owner-occupied apartments. Furthermore, segregation related to ethnic minorities in particular is increasing across the Nordic countries as it is in the rest of Europe.

Status of knowledge

In the case of Sweden and Denmark, socio-economic and ethnic segregation is formulated as a problem, especially in relation to the public utility of non-profit housing from the 1960s and 1970s. In Norway, more specifically Oslo, attention is directed towards rented public housing, but also in a broader perspective, independent of the existence of such housing. However, this sector, chiefly administrated by the municipality, is too small to cover total demand and such housing is inappropriately distributed geographically. The city centre has historically seen a very high concentration of ethnic minorities, but this segregation is now decreasing. Ethnic minorities are becoming more integrated into the housing system and are increasingly moving to the suburbs ("satellite towns"). Both Finland and Iceland have a defined social sector intended for the less prosperous groups where distribution takes place against a background of economic and social needs-based criteria. In Finland the focus is placed on the development of the municipal rental apartment buildings, dating from the 1960s and the 1970s, which house a large number of unemployed people and an increasing number of ethnic minorities. In

Iceland the issue of residential segregation, especially as it is connected to immigration, has not yet gained the same attention as in the other Nordic countries, though in the last five years, immigration has increased considerably. Tendencies toward segregation are gradually manifesting themselves in both the social rental sector and social condominium apartments (Nordisk Ministerråd 1997:17–18).

In all of the Nordic countries, we find studies that describe the socio-geographical patterns of segregation. There are however fewer studies on the driving forces of segregation, and even less on the consequences of segregation. Sweden seems to be the exception here – both with several studies into the dynamics of segregation (Bråmås 2005) and neighbourhood effects (Andersson 2003, Musterd and Andersson 2006). Finland and Denmark also have a growing body of research in this direction, whilst in Norway this field remains in its infancy.

The potential for both socio-economic and ethnic segregation has increased considerably in recent years, though the actual effects are covered by a more flexible urban development which also contributes to fragment the settlement pattern. The question however remains whether the apparent balance can be maintained. Economic inequality is increasing in many cities, which through time could also affect the settlement pattern. These processes are to a large extent connected to the emergence of the new knowledge-based industries, but remain rather sparsely documented in most Nordic countries (Wessel 2005).

One of the most significant Swedish area-based programmes is "*Storstadssatsningen*" which ran from 1998 – 2005 and involved local intervention in chosen neighbourhoods in the three major city regions. The programme has been evaluated by among others Andersson (2006) and Törnquist (2005). In Norway there was, "*Handlingsprogrammet for Oslo indre øst*" 1997–2007, focusing on the eastern inner city areas in Oslo, and the recently started "*Grovdalssatsningen*" 2007–17 focusing on the suburbs to the northeast. The former was evaluated by Barstad *et al* (2006). Denmark has had a variety of urban programmes, and a broad



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evaluation of the Danish case in a European context was undertaken by Andersen (2002). There remains however a need for explicit comparative research on the Nordic countries in this field. Similarly there remains a need for projects which try to summarise the experiences of those urban programmes already put in place.

These research projects have mainly considered socio-economic segregation. When ethnic segregation is taken into account, it is the different patterns of geographical distribution that have been studied. The neighbourhood effects of ethnic segregation have only been analysed to a very small extent. Studies of area-based programmes have been conducted only a short time after the programmes concluded, or even while the programmes were still actually ongoing. Area-based programmes started at about the same time in the Nordic countries. Now that some years have past since they concluded, it would seem a better time to examine how the programmes actually worked.

Understanding and explaining ethnic segregation may be fairly easy when residential patterns show distinct ethnic clusters. However, the Nordic countries experience such clusters only to a very small extent, and the relative spatial concentration of different immigrant categories could have complex demographic, socio-economic and/or ethnically-based explanations. Nevertheless “the ethnic component” does play a significant role and an ethnic/racial hierarchy exists both on the labour market and in housing (Andersson 2007:69).

One of the most valid arguments for area-based intervention and anti-segregation policies is the presumed existence of the negative effects of the spatial concentration of certain population categories. Relatively few empirical studies however exist in the Nordic context which try to illuminate such neighbourhood effects on education, political participation, health, labour market careers and income development (Andersson 2007: 76–83).

It is a paradox that even if the Nordic countries have ambitions in respect of being multicultural, the integration of ethnic minority residents and citizens into the labour market

remains problematic. Immigrants’ political participation has also dropped, and the occurrence of “immigrant-dense” neighbourhoods has increased. There are differences, both between cities and between countries, but the multicultural model ideal seems more out of reach now than ever before. Research has not yet provided anything like satisfactory answers to these new problems (Andersson 2007:83–84).

Central issues/questions for future research

In spite of the fact that ethnic segregation is professed to be an important research theme in the Nordic countries, few studies in this field covering the entire Nordic area have actually been conducted. The ethnic minority population is increasing in the region, and it is important to observe how the meeting between the minority population, the housing market and the neighbourhood are developing. When the ethnic minority population is increasing, there will also be increasing variation in this part of the population related to immigrants, descendants, origins; their reasons for immigration, and variations in time and arguments for staying (legal/illegal, irregular/undocumented etc). This will influence their adaptation to the housing market and how housing policy and the housing market adapt to changing population conditions. Knowledge of the driving forces which contribute to the inclusion/exclusion of the minority population in important arenas is then of crucial importance to developing a robust and fair policy in respect of housing and integration (Søholt 2007).

A major challenge here then concerns the rise in ethnic minority numbers in the suburbs in recent years. Incredibly rapid changes are occurring here which will undoubtedly influence schooling and the education system on all levels more generally in the years to come.

Ethnically-based residential segregation is a result of decisions taken by the majority, who tend to cluster in native-dense neighbourhoods and avoid immigrant-dense housing estates. Perhaps we have paid too much attention to the immigrants themselves both in policy-making and research. Policies aiming to reduce the extent of residential segregation need to

be wide-ranging and encompass the revision of many institutional practices (Andersson 2007:85).

The production of a Nordic perspective focusing on an analysis of connections between ethnic minorities, housing and settlement patterns is interesting and important for various reasons. As such, current theories should be further developed to understand and explain the processes of integration and separation in residential areas, and over time could also be used to analyse and explain similarities and differences across the Nordic countries. This will contribute to the development of new theories, or the strengthening/revision of established ones. The possibility of studying the relationship between personal- and housing data is currently under review in the Nordic countries. Testing these possibilities on how a Nordic level would contribute both to the development of new knowledge on an empirical theme, and on the possibilities for Nordic comparative research based on accessible register data. The Nordic countries already have, in a comparative sense, much statistical data. A testing of comparative research in this field could also prove useful for other countries (Søholt 2007). There are three major topics that should be of interest here:

- Neighbourhood effects. There is a need to develop theoretical and empirical comparative studies of the neighbourhood effects in respect of integration into labour markets, education and other dimensions of integration. The different area-based interventions against segregation that have been conducted in the Nordic countries are to a certain extent already evaluated, especially in Sweden, but the various strategies and their effects should be studied and evaluated in a broader comparative perspective.
- Multi-ethnic residential areas. An interesting comparative perspective here concerns the need to study what characterises the multiethnic residential areas in the Nordic countries. How are such areas developing, and what contributes to positive or negative reputations, stigmatisation or creativity?

- Physical environment. How have the various Nordic countries assessed the physical environment in urban planning and building in relation to potential segregation problems?

7.2 THE ROLE AND FUNCTIONS OF CITIES IN REGIONAL AND (TRANS)NATIONAL DEVELOPMENT

What kind of urban system is the most efficient and the best at providing for social welfare policies and economic growth? This fundamental question has been dealt with in the political realm and the scientific one for decades. An urban system is composed of a number of cities and towns of different sizes within a region, a country or a set of countries. The urban system is linked together by the 'relations and flows' between the various cities and towns.

Defining and delimiting the theme

In this era of enhanced globalisation, the basic question concerning the best functioning type of urban system remains valid. In that regard, the traditional debate looking at urban systems only *within* the nations has been shifted, in both the political and academic spheres, both downwards, i.e. to the regional level addressing the issue of 'urban-regions, and upwards, i.e. looking at relations between cities in a transnational (not least the European one) context. For this reason, it not only makes sense to compare the changes and challenges to the national urban systems in *Norden*, but also to address the integration of the various Nordic cities as part of a Nordic, European and even global urban system. To approach this specific area of urban research one needs to look first at the critical driving forces of urban geography, after which, some of the critical issues for policy-making will be highlighted.

The driving forces

Globalisation has entailed a simultaneous territorial reorganisation of the urban development processes on the global, national and regional scales.

Firstly, new forms of hierarchical development and functional differentiation between cities can be perceived (see for example Friedmann 1986, Sassen 1991, and Taylor 2004). In particular, high ranking cities such as London and Paris, but also most of the Nordic and European capitals, are seen as competing with each other on first-class technological, institutional and social infrastructures.

A **second** dimension is the re-composition of the physical urban form, which can also be observed in small and medium-sized towns. The monocentric-like model in which central city locations are considered as the sole functional focal point for all types of social and economic activity is no longer seen as the norm in the new context of evolving spatial patterns across urban Europe, North America and now increasingly in Asia. Central city locations are increasingly becoming components of a wider spatial functional entity that comprises headquarter complexes, back offices, airport cities, logistics management, different kinds of housing areas and entertainment facilities (Parr 2004). Cities thus form together with their surrounding hinterland an increasingly multi-centred, functional unit. The enlargement of 'urban area' from city to regional dimension is not only witnessed in the context of large cities interacting with their hinterland, but also in the case of a handful of distinct cities acting as a single functional unit, the so-called polycentric urban region (PUR). The robustness of these PUR does not stem from morphological overlaps, but relates more to the economic complementarities between the cities (Klostermann/Musterd 2001, Hall/Pain 2006).

Thirdly, all cities, notwithstanding their size, are increasingly globalised, as they are all taking part to different extents in transnational flows of capital, commodities, knowledge and labour-force (Castells, 2000). This fact completely changes our perception of cities, from sub-national, closed communities to nodes inserted into global networks (Taylor 2004) and finally to 'regional motors of the global economy' (Scott 1996).

Policy making perspectives

As indicated in chapter 3.1 and in accordance with a significant body of literature, it can be argued that urban areas offer economic agents a suit-

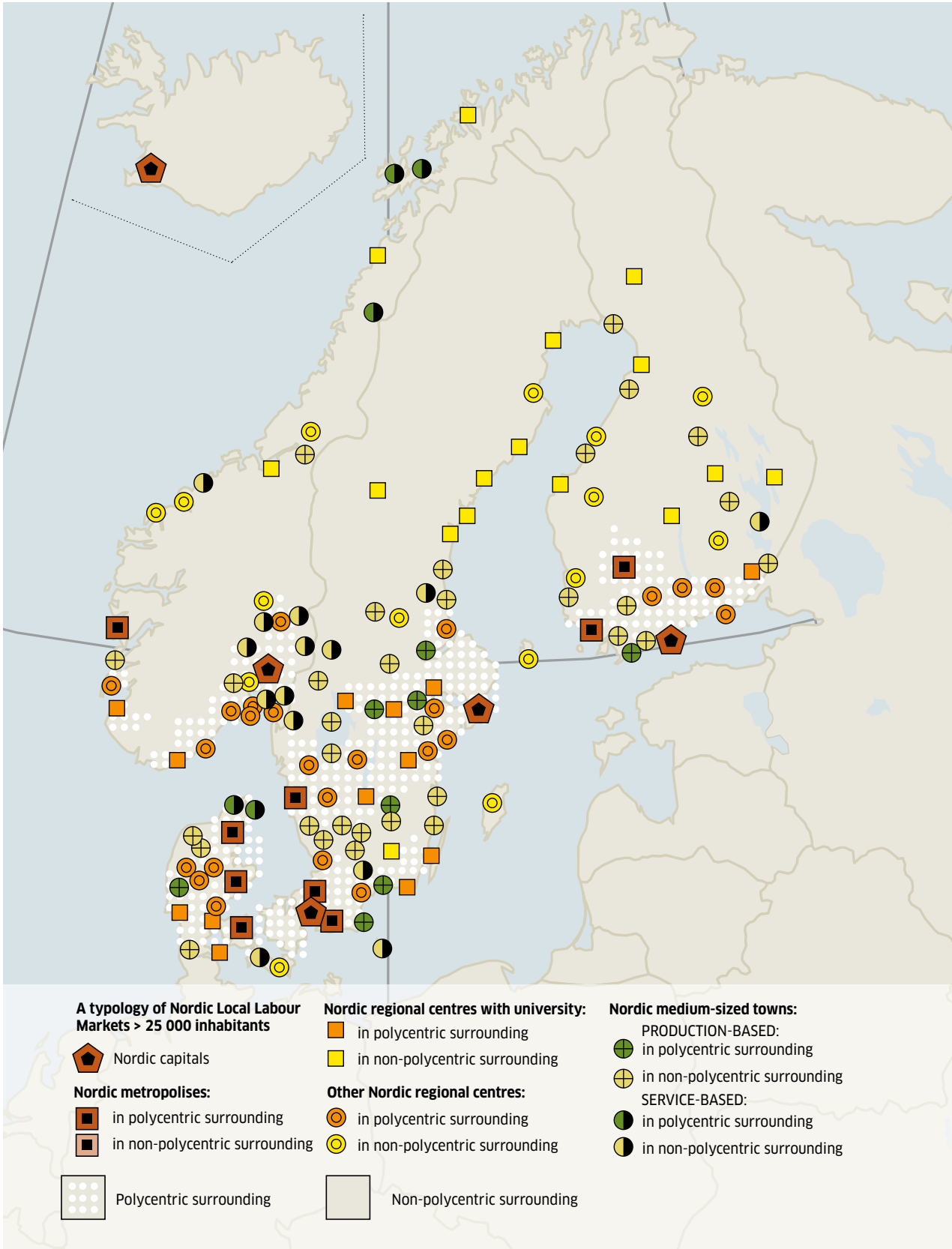
able environment in which to develop economic activities based on local comparative advantage, such as the availability of a qualified labour force, research and development facilities, and access to knowledge and provision-specific services. Moreover, they do this better than rural areas. According to such theoretical conceptions it can be argued that cities or urban agglomerations should be placed centre stage in economic development strategies from a policy-making perspective. Furthermore, the redistributive approach of regional policy places the city firmly at the centre of the debate, as cities are seen as necessary for ensuring the welfare of all other territories. Evidently, such a rationale is increasingly now used at the political rhetoric level across Europe. Particularly in the light of the EU Lisbon-process it is claimed that corresponding policy strategies should put much more weight on the actual centres for growth and innovation (i.e. particularly on urban agglomerations).

Nonetheless, policymakers are still confronted by increasing regional disparities *within* most of the EU member states due to ongoing polarisation trends which strengthen the position of the relatively better performing metropolitan areas (Nordregio/UMS RIATE/RRG/Eurofutures Finland & LIG 2007). In that regard, the structure and functioning of the urban system plays a key role in defining strategies aiming to minimise regional disparities and improve living conditions for the population as a whole.

This aspect is vital in a Nordic context (cf. Fig. 8), where the national urban systems are characterised by the relative dominance of a few metropolitan regions over other cities and towns. Small and medium-sized towns are, however, embedded in very different geographical settings. On the one hand, SMESTOs surrounding large metropolitan areas (e.g. Stockholm and Helsinki) play a central role in balancing the regional structure by acting as functional satellites. On the other hand, SMESTOs in rather densely urbanised regions, such as large parts of Denmark or southern Sweden) do show potential to develop functional urban networks, while towns in remote regions (northern regions of northern Norway, Sweden and Finland) suffer from long distances and weak inter-urban links.

In recent years, the influence of Europe's

FIGURE 8: A TYPOLOGY OF THE NORDIC URBAN SYSTEM



urban system on its economic competitiveness and potential to ensure a balanced development for the European territory, has been extensively debated in both research and political realms. Key documents here include the European Spatial Development Perspective (ESDP), a strategic transnational policy document adopted by the Ministers of Spatial Planning of the Member States in 1999, and the European Territorial Agenda, adopted in May 2007. The idea of a balanced urban system and a strengthened partnership between urban and rural areas was introduced as a guiding principle of the ESDP, this has since been interpreted as a concept seeking to foster a more balanced and polycentric development of Europe. Since then, the notion of polycentric development has been extensively used as a discursive and normative spatial concept used in planning and strategic documents from the regional up to the transnational level (cf. Richardson/Jensen 2000, Meijers/Romein 2003, Shaw/Sykes 2004, Waterhout *et. al.* 2005). Current understandings of polycentric urban development have been extended to include notions such as territorial co-operation, urban networking and territorial cohesion. Apparently, polycentric urban development is seen as a bridging concept used to overcome tensions between potentially contradictory EU policy objectives, namely competitiveness and cohesion (Schön 2005).

Status of knowledge

According to Davoudi (2003), polycentric urban development is one of the most difficult concepts promoted by the ESDP, claiming that 'polycentric development means different things to different people'. This is hardly surprising as it seems to suffer from many contradictions in its application (Peters 2003). The transnational nature of the ESDP document, and the necessarily multicultural approach undertaken during its elaboration, renders it inevitable that it will be interpreted in different ways and disputed controversially by spatial planners, policy-makers and academics alike. A literal understanding of polycentric urban development seeks to describe an urban system with multiple, non-hierarchical settlements/cities or functional areas within a defined area. Defining the spatial scale of reference (regional, national, European) therefore

becomes crucial when interpreting polycentric urban development, as one can relate to different challenges at each of these scales (congestion, economic concentration, power relations). At the national level, numerous studies exist on the respective urban system and its spatial distribution across the country. In recent years, the focus of such studies has however shifted analysis from the regional polycentric urban structure (e.g. URBANET, POLYNET) to the transnational or European (e.g. ESPON³).

As the notion of polycentric development originated from the regional urban discourse, the traditional point of departure for many studies is the settlement pattern, with the intention here being to grasp the regional urbanisation processes. In recent years, analysis has become much more focused on the functional or relational dimension of the urban system, i.e. how cities relate to each other. However, the current state of research on such functional interrelations is still embryonic due to the lack of available empirical data for producing comparative and comprehensive analyses. The only data which is generally (and readily) available concerns commuting patterns between different centres. The analysis of commuting patterns enables us to better understand labour-force flow, and thus to identify coherent labour-market areas. However, it still fails to highlight the economic complementarities, synergies and functional labour divisions between different centres or cities respectively. The ESPON 1.1.1. Project on 'the role, specific situation and potentials of urban areas as nodes in a polycentric development' impressively demonstrates the current possibilities, but also the possible dead-end faced by a continued analysis of polycentric urban development solely based on a morphological and relational perspective throughout Europe in respect of existing official statistical data.

Screening the relevant international scientific arenas, it is striking that since the turn of the century, the transformation of urban geographies in general and the somewhat normative discussion on polycentric urban development in particular remains high on the agenda in both the academic and the political world across Europe. The latter is true for the Nordic countries. Clearly, a handful of Nordic researchers, and thus also institutions, are firmly embedded in the international

academic discourse (cf. Figure 1 and 5 regarding the theme 'Role of Cities in economic development'). Nordic research institutions in particular have been deeply involved in the aforementioned ESPON research programme, which offers a good basis for not only fruitful academic discussions but also for the development of policy relevant knowledge in relation to future societal challenges (cf. Gløersen 2007, Nordregio 2004 and Figure 2). Other interesting studies have been undertaken in the framework of INTERREG⁶ (e.g. Groth N.B. 2005, Groth/Smidt-Jensen 2007, Van Well/Cortes Balerino/Johansson 2006 etc.). Some interesting papers have also been produced in recent years (e.g. Hermelin 2004, 2007; Dale/Sjøholt 2007; Nielsen/Hovgesen 2005) with regard to national urban systems and the transformation of the urban landscape in a regional perspective.

Nordic research on this specific theme is not however rooted in long tradition, as is the case for instance in the Netherlands and Germany. As such, the lack of a recognised level of international competence for Nordic polycentric urban development research stems from the lack of intensive and long-lasting research efforts on the matter, and this despite the fact that the unique urban pattern and urbanisation processes in *Norden* clearly call for targeted, tailor-made research initiatives. As noted in a number of interviews with researchers in the Nordic countries, one reason for this may be the lack of clear institutional capacity at the Nordic level. It was also claimed that only by intense networking can the scattering of critical research facilities and researchers be overcome. A better pooling of resources on the issue of polycentric urban development thus seems indispensable in order to render Nordic experiences of this theme more visible and relevant for the international scientific community.

Moreover, it should also be borne in mind that research themes do not develop independently from political agendas. For many years, the urban system as such has not been in the focus of territorial policies at the national level. Only in recent years, apparently motivated by the discourse on polycentric urban development as a follow-up to the application process of the ESDP (1999) has political awareness on the multiple facets and scales of urban networking risen (e.g. Antikainen

2005 on Finland, the NUTEK-report on Sweden in 2005 or studies and reports initiated by the Nordic Council of Ministries; cf. Nordregio 2006a, 2006b).

Central issues/questions for future research

The integration of *Norden* into global networks is mainly secured through the maintenance and development of critical urban functions (such as gateway, decision, control, service and innovative functions) all of which are to be found particularly in metropolitan areas such as Helsinki, Stockholm and Copenhagen. However, other Nordic urban regions, or to be more precise, the businesses which are located in small and medium-sized towns, also continue to operate successfully in global markets. These regions have often developed a strong capacity for adaptation to external economic changes, and have thus managed to overcome the shortcomings faced and challenges posed by non-metropolitan area status (lack of a large range of functions, lack of critical mass etc.). At the macro-regional level, the recent good economic performance of *Norden* shows that geographical peripherality does not imply economic laggardness, despite the binary (Pentagon-periphery) vision of the European territory. Considering the specific Nordic urban context, which is far from being fully explored and understood, the following issues call for more attention in the context of future Nordic urban research. They might, moreover, not necessarily only imply 'added-value' in respect of intra-Nordic comparisons but also, by pinpointing some critical aspects which might be of interest for other countries and regions with similar challenges and basic conditions, be useful more generally.

■ Better understanding of urban structural changes

In principal, a better understanding of the uneven Nordic urban geography is required. Initially, there is a need to construct better databases, which should specifically include relational data to measure the connectivity and links within urban systems at different spatial scales (global, European, Nordic, national and regional) in order to create a

better base of knowledge about the ongoing structural changes in the Nordic urban landscape. Secondly, more knowledge should be generated on the processes behind such structural changes, which calls for a deeper understanding of the scope, relations and impact of the regulative systems (i.e. governance and planning).

■ **Exploring the potential for the functional networking of Nordic cities**

From a functional networking perspective, Nordic urban research should focus on how to foster the global integration of the Nordic urban systems and on how to improve their competitive position. As such, it is crucial to identify specific functional *niches* and to develop them as competitive assets for European/global markets. Strategic urban networks might act as a key concept here, to complement different urban profiles in a more synergistic manner and thus contribute more effectively to balanced spatial development within the Nordic Countries. The potential for such a functional understanding of the concept of polycentric urban development has to be explored further.

■ **Critical urban functions and the connectivity of cities**

Our current level of knowledge on cities and their specific functional profiles is poor. Specifically regarding those critical urban functions that are crucial to international competitiveness, our picture remains blurred as the official databases are insufficient for our needs. Empirical studies can hardly ever be found in this field, particularly in a Nordic context. We do not know much about the connectivity of knowledge-based economies for instance. We do not have a clear picture of how Stockholm is actually connected by those firms through their business activities with other Swedish, Nordic or European cities and beyond. Therefore, in order to develop policy-relevant knowledge, we believe it is crucial to get to know more about these networks and relations of (knowledge-based) firms in a Nordic context. This will enable knowledge development on the connectivity, position and

function of Nordic cities at the national, Nordic, European and even global levels. How are Nordic cities interconnected through firms and global corporations to other cities in *Norden*, Europe and beyond? What role does the transport infrastructure play in this respect? What kinds of potential can be found within Nordic metropolitan regions to establish strategic networks in order to form the 'critical mass' necessary to become an international competitor of global importance? How can these potentials be mobilised?

■ **The potential role of small and medium-sized cities and towns**

In view of sustaining socio-economic cohesion and optimising the provision of amenities across the Nordic countries, the role of SMESTOs is obviously crucial in minimising uneven territorial development. Therefore a much more thorough understanding on their structural differences, their specific individual development paths and thus their challenges and vulnerabilities is needed in order to inform Nordic policy-makers of the strategic assets and potentials to be activated. Again, due to the existence of many obvious similarities when comparing the national urban systems of the Nordic countries in general and the geographical setting of SMESTOs in particular, fruitful conclusions can be derived from comparative analysis.

■ **Enhancing institutional capacity**

With regard to the potential of developing Nordic urban networks, the question of how these cities can relate to each other in a (more) synergistic manner has to be analysed. Synergies are generated through the development of organising capacities and the related cooperative spirit and through the striving for complementarities, i.e. by the activation of distinct economic profiles of cities, urban facilities or business *milieus* through strategic co-operation (Meijers 2005). Therefore, institutional capacities have to be explored in order to formulate recommendations for tailor-made modes of governance and institutional designs, that will help to make better use of such synergies so that urban networks

become more than the sum of their parts (i.e. the single cities). As such, a better understanding is required of what kind of policies and public interventions might favour a more synergistic polycentric urban development. What kind of concepts for the enhancement of such urban networks are framing/dominating the different discourses at different spatial scales in other countries? What lessons can be learned from them?

7.3 THE POST-CARBON CITY – MITIGATION AND ADAPTATION TO CLIMATE CHANGE

Defining and limiting the theme

Climate change has emerged as one of the most multi-faceted manifestations of global change in our time. According to the third IPCC-report, it is virtually certain that the Earth's climate is changing, with most of the warming over the last 50 years likely to be attributable to the increase in atmospheric greenhouse gas concentrations (GHG). These conclusions have been reinforced by the Fourth Assessment Report. There is a very high level of confidence that further emissions of greenhouse gases and aerosols due to human activities will continue to change the atmospheric composition of our planet throughout the twenty-first century. There is, however, less confidence about exactly *how* the climate will change in future and even less confidence in predicting the adjustments it will induce to natural or human systems (Dessai, O'Brian, Hulme 2007). However, some hazards are already observable, such as increased tendencies for the occurrence of landslides, flooding, storms with loss of life, economic loss and increased vulnerability for vital infrastructure facilities such as power lines and major road connections. Most Nordic cities are located along the coastline, and future sea level rise is thus an issue of some concern.

Urban areas are important to study in relation to climate change. Urban areas provide living areas for a large number of people and concentrating investment in workplaces, infrastructures and buildings. On the one hand, this concentration of activities leads to a concentration of GHG emissions, while on the other such a concentration also means that the potential

adverse impact of climate change may be particularly extensive. Public administrations at the national, regional and local levels need access to such knowledge when considering mitigation measures, and when confronted with the effects of climate change. A particular challenge here is to use abstract knowledge about climate change in local contexts of decision-making. Since both the hazards themselves and the capacity to cope with the problems may show many similarities and dissimilarities in the Nordic countries, comparisons between Nordic cities will be fruitful for practitioners, rendering the results of the research projects undertaken more robust.

Status of knowledge

Since the publication of the Brundtland Report, one of the main research themes here has been to investigate the ways in which urban development can contribute to more sustainable development with regard to both the global and the local environment. Two research traditions under the loose heading of 'sustainable cities' can be observed in the Nordic countries. One tradition has been concerned with urban structures and the effect on energy use and emissions of CO₂ particularly in the transport sector. Research efforts here have particularly focused on the ways in which urban systems have for some years now impacted on global climate change, with a particular emphasis here on transport and energy systems. Issues that have been studied include:

- The relationship between urban form and the amount of transport (Næss 1995, 2006 Owens 1986)
- The role of density in shaping conditions for non-motorised and public transport (Høyer 1999, Næss 2006)
- The spatial structure of urban areas; the location, density and accessibility of dwelling areas and workplaces and the effect on energy consumption (Næss 1995, 2006, Hartoft Nielsen 2001a, b,)
- Housing consumption and energy use in different housing types (Holden 2001)
- Urban lifestyles and energy consumption (Næss 2006)

One of the most recent studies from Copenhagen shows that important factors here include: the location of the residence relative to the urban core, the distance of the residence closest to the second order urban centre (sub-centre with a concentration of regionally-oriented retail stores), the distance to the closest urban railway station, the density of the inhabitants and workplaces within the local area surrounding the dwelling (Næss 2006) being in line with earlier studies both in Oslo (Næss 1997, Røe 1999) and in medium-sized towns such as Fredrikshavn (Næss og Jensen 2000) and Århus (Hartoft-Nielsen 2001). The study in Copenhagen shows that for inner city residents, the trips taken at the weekends do not counteract the reduction in travel due to central residence.

A second research tradition has concerned itself with urban ecology including issues such as the multifunctional role of the green structure within the city, and its relationship to natural resources outside the urban area. Green structure has been studied as a biological resource, as areas for outdoor recreation and transport corridors for non-motorised transport. Its role in connection with urban hydrology is now being extensively investigated.

Adaptation to climate change

Little has however been done thus far to study the impact of global change on urban areas. This holds true both for research internationally (IHDP 2005) and in the Nordic context. No previous urban research programme has placed any significant level of focus on this theme. The emphasis is consequently on describing the need for new knowledge rather than on identifying specific knowledge gaps.

The term *post-carbon cities* has emerged as a possible vision for future challenges facing urban areas. This includes the need to reduce emissions of CO₂, but also future scenarios with the end of oil particularly affecting transport. Low density suburban living has been highlighted as an urban pattern that has been developed on the basis of cheap oil supply. This settlement pattern could potentially however be vulnerable to a sharp decline in car use (Heiman 2007).

Governing mitigation and adaptation

Knowledge about the relationship between urban form and transport has been translated into

national policy measures in the Nordic countries, favouring a compact city model, strengthening public transport and facilitating transport by foot or bicycle. However, previous research has shown that an implementation gap remains. Institutional fragmentation and financial policy including various incentives are important factors in explaining this (LOKTRA).

Central issues/questions for future research

The following description of the need for new knowledge is structured under three main themes i) increasing our understanding of the way complex urban systems make an impact on global climate change, ii) knowledge on adaptation to climate change, and iii) governance questions related to mitigation and adaptation. Following on from the IPCC reports, it is now clear that we have to think about both mitigation and adaptation at the same time.

Research projects into mitigation and adaptation in respect of climate change need to take into account the diverse and complex interactions between human made urban systems and their biophysical surroundings. There is a particular need for:

- parallel and comparative cross-study analyses among Nordic cities
- multidimensional and integrated approaches
- overcoming the limitation of focusing on environmental problems isolated from their social, political, economic and cultural dimensions
- cross-temporal and cross-spatial scale approaches
- integrated assessment of measures for mitigation and adaptation

Impact on global climate change

- How do lifestyle and consumption patterns within urban areas contribute to global climate change?
 - Accessibility, mobility and everyday life: A high percentage of short trips are made by car. More research on the factors that encourage and those that provide disincentives

tives to the choice of non-motorised transport are still needed. One fruitful perspective here could be to understand transport behaviour from an everyday perspective. Another approach is a detailed analysis of the spatial conditions encouraging or limiting choice in respect of non-motorised transport.

- Daily transport and leisure trips- new forms of settlement patterns and use of second homes: What is the impact on energy use and emissions of GHG from these consumption patterns?
- How do urban form and functions affect global climate change?
 - Decentralised concentration in urban regions in a high vs. low mobility level. A recurring theme for discussion here has been whether concentration necessarily means a centralised settlement pattern (Høyer 2005). More knowledge about the effect of the development pattern on transport at a regional scale is needed. What are the effects on transport from decentralised concentration? This is closely linked to the themes of monocentrism and polycentric urban development. Transport in small and medium-sized towns is another theme that needs addressed since our knowledge about these is more limited.
 - Energy and urban form: We can see new large scale node development taking place resulting from transformation in urban areas. This large-scale development offers new possibilities for reductions in energy consumption and energy supply. What are the lessons to be learned here? A change to carbon-neutral energy supply will also have consequences for the energy infrastructure in urban areas. What are the limits to and barriers against the implementation of such policy measures?
 - Land use and transport in suburban and peri-urban areas is crucial since the transport behaviour in these areas is primarily based on car use. What are the conditions for less energy use and emissions of GHG in these areas?

Increasing our knowledge for adaptive responses

- The effect of global environmental change on human behaviour and activities within urban systems:
 - Some of these effects are studied within vulnerability analyses, but little is known about adaptive responses in social and cultural life. Examples could consider the effects of a potential increase in the number of days with ice on pavements (due to thawing and freezing) on old people's mobility and the need for assistance, or the consequences of potentially longer trips by urban populations to areas with snow for skiing in terms of winter sports participation. The changes that we need to adapt to may also be positive, as higher temperatures may increase the possibilities to use the outdoors, urban spaces for social interactions etc. The effects of climate change may also lead to social inequalities. Are particular social groups more vulnerable than others? How, and to what extent, can the Nordic welfare model cope with the possible unequal burdens of adapting to climate change?
 - Some urban areas may be dependent on certain economic activities linked to particular climatic conditions (e.g., snow or ice festivals). In the northern countries this is typically winter activities. Are some urban areas particularly vulnerable in an economic sense? Other places can emerge as winners. What are the conditions for taking advantage of new economic opportunities resulting from climate change?
- Interactions and responses within the urban system – Vulnerabilities of urban systems
 - The hazards that urban areas may have to face are sea-level rise, fluvial flooding, urban drainage flooding, building and infrastructure subsidence and land sliding, wind storms, drought and the implications for water resources both in terms of quality and availability for human consumption, industry and neighbouring agricultural areas, heat and health (Dawson et al 2007).

- A system’s vulnerability is a result of the natural hazard it is exposed to, but also the way in which the system is able to cope with or adapt to the threats, together with a system’s sensitivity to a particular natural event. This vulnerability is often measured in terms of loss of life, economic loss, and the destruction of ecosystems. Assessments of a system’s vulnerability therefore require an interdisciplinary approach, with natural and social science and humanities contributions. Studies of the vulnerabilities of urban areas are now undertaken in the Nordic countries. Knowledge of best practices and experiences thus far will be valuable, including the ways these solutions are implemented in decision-making systems.
 - The capacity to adapt to change is influenced by public policies, regulations, and social priorities. This capacity is therefore dynamic over time, and it is important to study how adaptive capacity changes over time, and how this influences vulnerability to climate change.
- Incorporating ecological services into urban planning, technical solutions and best practices. There are a number of themes under this heading, as innovative solutions are currently being tested. The research themes include:
- Contradictions and perverse practices in planning solutions. There are a number of options for mitigation and adaptation at the city level. If these are poorly managed or not considered at a broad scale and long term consequences assessed, the adaptation measures may lead to energy-intensive adaptation such as air-conditioning or pumped drainage. It may also be such that measures intended to reduce the emission of GHG may in fact be contradictory to adaptation measures. One example here is the emphasis on compact city solutions as an important way in which to ensure less use of cars for urban transportation. This urban development may however lead to increased sealed surfaces, increasing vulnerability to urban drainage flooding. In addition former industrial and harbour areas are taken for urban regeneration, areas that may also be vulnerable to flooding. Consequently there is a need for integrated approaches considering both mitigation and adaptation at the same time. An important research task here then would be to identify existing perverse practices which increase the adverse effects of climate change.
 - High density development – the role of the blue-green structure: The post-carbon city also needs to be a good city to live in for its inhabitants. Access to green areas and the role of the blue/green structure plays multiple roles in the urban structure, dealing with water, transport, biodiversity, recreation and aesthetics. What new innovative solutions are to be found here? What can the Nordic cities learn from each other?
 - The compact city policy – what can be learned from the Nordic experiences thus far? The compact city has been forwarded as a solution to an urban form that facilitates short distances to trip destinations and non-motorised and public transport for the past 10-15 years. This has been a policy more or less explicitly for urban areas in the Nordic countries. Densification has been a means to achieve a compact urban form. What are the lessons to be learned from the attempts to implement a more sustainable urban development thus far? A particular element of interest here is the new heavy development taking place in urban nodes, incorporating diverse urban functions. How well can we expect these new “mini-cities” to perform in a long term post-carbon future?
 - Planning for heat waves. While increased temperatures will be welcomed by many in the Nordic countries, high temperatures in urban areas may become a problem when considering the heat island effect. This may be a problem particularly for elderly people. There is little tradition in the Nordic countries of design for high temperature, rather there has historically

been a need to avoid the cold. Nordic cities could potentially be particularly vulnerable then in this respect. What are the solutions for this and what are the barriers to implementation?

Governing adaptation and mitigation

■ Implementation studies. In spite of the collation of much knowledge about the relationship between land use and transport on the impact of energy use and emissions of GHG, an implementation gap clearly remains (LOKTRA). Research thus far points to the systemic power of economic actors and subsequent rationalisation in planning (Flyvbjerg 1992) and to the fragmented institutional decision-making system reducing the possibility for integrated efforts. Nordic comparative studies could increase and deepen our understanding of this theme.

■ Network governance, institutional capacities and New Public Management (NPM). In urban planning and governance there has been a clear change towards more room for market actors in the Nordic countries. Urban governance takes place in complex network negotiations between public and private actors. The actors' economic incentive structures are important factors in explaining the outcome. Differences in time horizons among the various private and public actors as well insurance policies and distributions of economic responsibilities shape the actors' interests and behaviour. In what way do climate change concerns enter the negotiation processes? Which actors defend or promote climate change concerns? Do governance failures occur and is there a need for stronger hierarchical government? For adaptation to take place, abstract knowledge must be translated into concrete actions in a specific context. Climate change concerns must be integrated into the daily work of the relevant city administrations (Smith/Wandel 2006). Are the institutional settings in respect of Nordic urban governance barriers or facilitators to integrating climate change concerns? What are the limits of and barriers to such mainstreaming of professional knowledge and concerns?

■ Lock-in effects and path dependencies. Built-up urban structures are slow to change. The amount of new construction is relatively small as compared to the existing built structure endowment. Infrastructure systems have particularly strong lock-in effects and path dependencies. Technical choices such as the dimensions of pipes in urban drainage systems or the capacity of vital links in the public transport system are examples of such path dependencies (Ramjerdi 2007). Increased knowledge of such effects is important when investigating both mitigation and adaptation measures. Another perspective here is the fact that the post-carbon city is probably already built. There is a need for more knowledge about how existing cities can cope with the challenges of climate change and the effect on the 'liveability' of the city. What are the possible consequences for mobility in the city? What are the possible social implications of reduced mobility? How will people's lives be affected? What kinds of settlement patterns are suitable in a post-carbon future? Scenarios or foresight techniques may be fruitful approaches here.

To make decisions with regard to mitigation and adaptation to climate change, means to decide on actions or non-actions under conditions of uncertainty, particularly in the long term perspective. Parallel to research on mitigation and adaptation strategies, there is significant ongoing research activity into how to handle uncertainties when making today's decisions to act within the context of long-term effects (Groves/Lempert 2007). There is, moreover, a need to strengthen international research on this within the Nordic tradition of corporatism, or involving groups in public decision-making. This research theme is connected to that of risk management.

8. CONCLUSION: TOWARDS A NORDIC URBAN RESEARCH AGENDA?

The insights into and prospects for urban research described above have shown that a solid body of research in the Nordic countries already exists, which can serve as a point of departure towards the further development of specific Nordic ‘strongholds’ and competencies. This will enable us to better respond to the global challenges facing us. Although the Nordic countries can be seen as less urbanised than the central parts of Europe (the Netherlands, western Germany, southern England etc), in the wake of further globalisation it has been argued above why even in *Norden* the need for economically and socially well-functioning and environmentally-friendly cities will continue to grow. This report sheds light on three specific research themes, which have been carefully selected through the consultation of experts (researchers and policy-makers), and the screening of relevant scientific and policy documents.

- The diversity of cities – creativity and segregation
- The role and functions of cities in regional and (trans)national development
- The post-carbon city – mitigation and adaptation to climate change

The issues and questions suggested for future urban research (cf. chapter 7.1-7.3) can be seen as illuminating the fundamental steps that need to be taken towards the development of a better understanding of the dynamics, interrelations and challenges Nordic urban areas face and those they will be confronted with in the near future. A pan-Nordic research strategy that takes on board those issues might not only be very useful in developing further specific Nordic research competencies and traditions, but may also be capable of providing sound, pertinent and high-quality scientific evidence that can be usefully injected into the policymaking process.

The analysis of the Nordic urban research infrastructure has revealed that, in principal, a

reliable structure is already in place from which a Nordic programme could build. In each country, institutions have developed strong competencies in specialised fields of urban research. Nevertheless, one has to point out that no Nordic country, essentially due to their relatively small size, is able to cover the full array of disciplines and fields of urban research on its own. Moreover, the different profiles can only complement each other through intense co-operation in a Nordic (and not necessarily national) context. Thus the current Nordic institutional landscape demonstrates promising potential for joint projects with a clear Nordic dimension.

However, research institutions in the Nordic countries are already deeply involved in different types of networking. These networks often take place at either national or international level, but rarely at the Nordic one, as no forums currently exist at that specific level. Based on numerous interviews with Nordic urban researchers and with policy-makers, there is now a clear desire to develop such Nordic networks in the framework of a potential Nordic urban research programme.

Such a Nordic urban research programme would also ensure that joint, pan-Nordic urban issues and challenges, as depicted in chapter 7.1-7.3, are actually placed high up on the research agenda. The integration of the various national urban issues of the Nordic countries will also end up making Nordic urban research much more visible beyond *Norden*, which would help to embed Nordic research institutions in the broader international scientific debates and communities.

As this paper argues, mainstream academic debates suggest that urban agglomerations are believed to be the vital bases for national economic growth and social welfare. The Nordic countries stand out insofar as they have few cities that can be characterised as urban agglomerations. Obviously, the specificity of Nordic urban systems, as compared to those of Central Europe, with only a few true metropolitan regions combined with a geographically loose network of cities, can apparently offer a good basis upon which to both keep pace with international competitiveness and maintain their cities as good living environments. As such, it seems necessary to explore

more systematically the nature and conditions of the economic, social and ecological state of the Nordic urban landscape in a comparative context, in order to assess the reasons why Nordic cities appear to function so well. The latter would also enable us to understand better how the Nordic nations themselves function. In such a perspective, not only should a specific “Nordic” competence in respect of urban research be developed, it would also be much more visible in the critical international academic and policy-making arenas. Only in such a way could Nordic urban research develop a kind of unique selling point, which may also be of interest to countries facing similar territorial situations and challenges (e.g. Canada, the Baltic States or parts of the Russian Federation).

Regarding the three major themes selected for future research, the points for departure are somewhat different for each. Concerning the first two (‘the diversity of cities – creativity and segregation’ and ‘the role and functions of cities in regional and (trans)national development’) the Nordic research infrastructure and the current output (measured by articles in peer-reviewed journals) seems to offer promising preconditions to tackle the issues outlined in chapters 7.1 and 7.2. By considering the socio-economic functioning of Nordic urban areas in a twofold manner, i.e. from a micro- and from a macro perspective, we see strong potential to form a kind of Nordic urban research laboratory in this respect. In that regard, Nordic networking ought to be perceived as an inclusive, i.e. opening up beyond Nordic boundaries, rather than exclusive process, i.e. solely looking at what happens inside *Norden*.

With regard to the other theme (the post-carbon city – mitigation and adaptation to climate change) it should be emphasised that Nordic urban research has not as yet demonstrated the existence of a specific ‘stronghold’ capability. One must note however that this is something of a new theme, which has recently been elevated towards the top of the political and research agenda. Nevertheless, one can say that Nordic competences in related fields such as urban environment, urban ecology and urban design reveal a promising starting-point from which to develop this theme into another Nordic field of excellence. Nevertheless, due both to its novelty and dynamics, the

Nordic urban research infrastructure has to be strengthened in this respect in order to keep pace with international competition. Nordic strengths in the aforementioned ‘cross-cutting themes’, e.g. urban planning and governance, might also offer a good basis from which to begin as perhaps does the consensus-based Nordic political tradition, the open, participatory urban and regional planning systems and the strong level of environmental awareness across the Nordic countries. These cross-cutting issues need to be further reflected upon and thus researched in this context as they provide the fundamental building-blocs on which to sustain the international competitiveness that is the basis for all applied research.





A PAN-NORDIC
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TO THE
POLICYMAKING
PROCESS.

Annex

PARTICIPANTS AT THE COPENHAGEN WORKSHOP (30 AUGUST 2007)

Olli Voutilainen – Ministry of the Interior, Department of regional development
Olli Maijala – Ministry of the Environment
Sverker Lindblad – Ministry of Enterprise, Energy and Communications
Mats Olsson – Urban development strategies, City of Malmö
Thorkild Ærø – SBI (Danish Building Research Institute)
Asger Munch – The Ministry of Refugee, Immigration and Integration Affairs
Trine Agervig Carstensen – Danish Centre for Forest, Landscape and Planning, University of Copenhagen
Unn Ellefsen – Ministry of the Environment
Pål-Erik Holte – Ministry of Local Government and Regional Development
Ivar Alnæs – Ministry of Local Government and Regional Development
Jón Rúnar Sveinsson – Bifröst University

EXPERTS INTERVIEWED

FINLAND:

Researcher

Heikki Loikkanen – Department of Geography, University of Helsinki / Helsinki School of Economics
Harri Andersson – Department of Geography, University of Turku
Hille Koskela – Planning/Social geography, Academy of Finland
Jouni Häkli – Human geography, Univ. of Tampere
Jussi Jauhiainen – Department of Geography, University of Oulu
Kimmo Lapintie – Urban planning and design, Technical University of Helsinki
Mari Vaattovaara – Department of Geography, University of Helsinki
Markku Sotarauta – Research Unit for Urban and Regional Development Studies (Sente), University of Tampere
Rauno Sairinen – Centre for Urban and Regional Studies / Technical University of Helsinki
Yrjö Haila – Environmental politics, Univ. of Tampere

Policy-maker/practitioner

Janne Antikainen – Finnish Ministry of the Interior

Matti Vatiö – Ministry of the Environment

Timo Vuolanto – Ministry of the Environment

SWEDEN:**Researcher**

Bertil Vilhelmsson – Professor, the School of Business, Economics and Law at Göteborg University, Department of Human Geography

Brita Hermelin – Associate professor, Stockholm University, Department of Human Geography

Eric Clark – Head of Department of Geography, University of Lund

Göran Cars – Professor, School of Architecture and the Built Environment KTH

Irene Molina – Department of Social and Economic Geography, University of Uppsala

Lena Magnusson Turner – The Institute for Housing and Urban Research (IBF), Uppsala University

Mats Franzén – The Institute for Housing and Urban Research (IBF), Uppsala University

Mats Johansson – Department of Urban Planning and Environment, KTH

Yvonne Rogbeck – Head of division and Bo Lind - Associate Professor, Swedish Geotechnical Institute

Policy-maker/practitioner

Tore Englén – The Swedish Agency for Economic and Regional Growth

Sverker Lindblad – Ministry of Enterprise, Energy and Communications

Charlotte Lindström – Head of Division Regional Development and Planning Strategies, Region of Skåne

Ann-Mari Jonsson – The National Board of Housing, Building and Planning

DENMARK**Researcher**

Gertrud Jørgensen – Department of Urban and Landscape Studies, Forest and Landscape, University of Copenhagen

Gitte Marling – Department of Architecture and Design, Aalborg University

Petter Næss – Department of Development and Planning, Aalborg University

Thorkild Ærø – Danish Building Research Institute, Aalborg University

NORWAY

Researcher

Heidi Wiig Aslesen – NIFU-STEP – Studies in innovation, research, and education.

Rolf Barlindhaug – Norwegian Institute for Urban and Regional Research (NIBR)

Alena Bartonova – Norwegian Institute for Air Research (NILU)

Egil Bendiksen – Norwegian Institute for Nature Research (NINA)

Evelyn Dyb – Norwegian Institute for Urban and Regional Research (NIBR)

Karl Georg Høyer – Oslo University College

Petter Næss – Norwegian Centre for Transport Research

Kjell Harald Olsen – Department of Industrial Economics, Risk Management and Planning, University of Stavanger

Arne Isaksen – Institute for Innovation and Work, University of Agder

Per Kristen Mydske – Department of Political Science, University of Oslo

Knut Onsager – Norwegian Institute for Urban and Regional Research (NIBR)

Grete Rusten – Institute for Geography, University of Bergen

Per Gunnar Røe – Department of Sociology and Human Geography, University of Oslo

Arvid Strand – Norwegian Centre for Transport Research

Oddrun Sæter – Oslo University College

Susanne Søholt – Norwegian Institute for Urban and Regional Research (NIBR)

Anne-Karine Halvorsen Thoren – Department of Landscape Architecture and Spatial Planning, Norwegian University of Life Sciences

Eirik Vatne – Department of Economics, Norwegian School of economics and business administration

Terje Wessel – Department of Sociology and Human Geography, University of Oslo

Carlo Aal – Vestlandsforskning

Policy-maker/practitioner

Knut Halvorsen – Oslo Teknopol

ICELAND

Researcher

Jon Runar Sveinsson – Bifröst University

Description of the main research institutions per country

NORDEN

■ Nordic Centre for Spatial Development (Nordregio)

Nordregio was established by the Nordic Council of Ministers (NCM) on 1 July 1997. Its role is to develop and communicate relevant knowledge to authorities within regional development and planning in the Nordic countries. The institute conducts thematic research, providing a relevant knowledge base for decision-making to politicians and other public authorities. Regarding urban research in the Nordic countries, Nordregio is the only institute with a clear 'Nordic' view on urban research. Among the research themes covered by Nordregio, its focus on economic geography is particularly strong. More specific research topics within the field of urban research are innovative and creative urban areas, polycentric urban development and urban and regional economic development.

DENMARK

■ University of Copenhagen (the Danish Centre for Forest, Landscape and Planning)

The Danish Centre for Forest, Landscape and Planning is hosted by the University of Copenhagen. The Centre was established in 2004 through a merger of the Danish Forest and Landscape Research Institute, the Danish Forestry College, the Danida Forest Seed Centre and parts of the Department of Economics and Natural Resources of the former KVL. Follow-

ing the different traditions within the institutions that formed the centre, environmental issues and sustainable development provide an integral part of the centre's work. The view on spatial planning is that it is a tool to ensure the sustainable development of towns and landscapes, where economic development, social welfare and environmental considerations are given equal weight. Research is focused on urban planning, urban development and the quality of the urban environment, along with research on countryside- and landscape planning with the addition of Geographical information systems.

■ SBI (the National Research Institute of Housing and Building)

The Danish Building Research Institute (SBI), hosted by Aalborg University is the Danish national building research institute and develops research-based knowledge to improve buildings and the built environment. The institute comprises five research departments, ranging from building design and technology to health and comfort. Research is conducted with different perspectives on housing issues. In relation to urban research, the institute focuses in particular on the urban social aspects of segregation, housing policy and housing markets. Furthermore, SBI is one of the main research partners in the *Realдания* research programme on housing and welfare. The programme focuses on the core research

areas at SBI, such as housing policy, housing markets and dwelling structures.

■ **University of Copenhagen (Department of Geography)**

At the University of Copenhagen there are two major institutions/centres conducting urban research, the Department of Geography and the Danish Centre for Forest, Landscape and Planning. The Department of Geography has a wide scope on geography ranging from geology to urban and social geography. One of their core research areas is Cities and the open landscape – dynamics, development and integrated planning. The department has a particularly strong focus on and conduct of research on urban social issues such as urban space. Furthermore, urban cultural aspects in general and urban restructuring in the new globalised economy in particular and the effects on urban social geography remain at the top of its research agenda.

■ **University of Roskilde (Department of Environmental, Social and Spatial Change)**

At the University of Roskilde, the Department of Environmental, Social and Spatial Change conducts urban research on a wide range of topics related to interaction between humans and their environmental, social and spatial conditions. Research in the Department is organised around focus areas that include population and ecosystem ecology, environmental planning and governance, mobility, tourism and transport, regional planning and development, urban studies, the workplace environment, landscape science, environmental history, cultural identity, sustainable foods and renewable energy. Furthermore the department is both encouraging and focusing on public private collaborations.

■ **Aalborg University (Department of Development and Planning)**

The university hosts four major urban research institutions. Three of these, the Department of Architecture, the Department of Civil Engineering and the Department of Development and Planning are based and situated at the University. The fourth, the Danish Building

Research Institute (SBI) is actually a separate faculty at the University. At the department of Architecture research areas include architecture and design, urban planning and urban design, culture analysis, sociological analysis, technical and ecological aspects. The Department of Civil Engineering is currently conducting urban research, but is heavily focused on structures and buildings, partly focusing on environmental issues. At the Department of Development and Planning, urban research themes range from geology to urban transport planning. Specific strengths in urban research at Aalborg University include environmental and physical planning and land management in connection with the built environment. Furthermore, sustainable development in general, and sustainable transportation in particular is an important focal area for urban research.

■ **Aarhus School of Architecture (Several departments)**

The Aarhus School of Architecture comprises five departments, the Department of Architecture and Aesthetics, the Department of Landscape and Urbanism, the Department of Architectural Heritage, the Department of Design and the Department of Architectural Design. At the Department of Architecture and Aesthetics, research is focused on architectural quality, architectural space, architecture as communication and the concept of authenticity. At the Department of Landscape and Urbanism, research focuses on planning politics and spatiality for the development of cities, urban areas, public spaces, landscapes and infrastructural installations in relation to societal processes of change. The Department has six main research themes. Urbanisation, Transformation, Urban Expansion, Urban Landscapes, Rural Landscapes and Transverse/Inter-Disciplinary Focus Areas. The main focal areas at the Department of Architectural Heritage are mainly on the cultural aspects of urban design and architecture. In connection with this the Department is also conducting research on the governance aspects of urban transformation and renewal.

■ **The Royal Academy of Fine Arts School of Architecture (several departments)**

At the Royal Academy of Fine Arts School of Architecture, there are four institutes conducting urban research, the Institute of Building Culture, the Institute of Technology, the Institute of Planning and the Institute of Design and Communication. In addition to the four Departments, the University also hosts two research centres, The Centre of Sports and Architecture (CIA) and The Centre for Public Space Research. The Centre of Sports and Architecture (CIA) is a newly established centre that focuses on the relationship between architecture, spatial planning and sports. The other centre at the Royal Academy of Fine Arts School of Architecture is the Centre for Public Space Research. The centre forms the framework for several research- and educational activities, focusing on studies of the relationship between public spaces and urban life. The Centre conducts research on cities' urban qualities, city life and public spaces.

FINLAND

■ **Helsinki University of Technology (Centre for Urban and Regional Studies (YTK))**

The Centre for Urban and Regional Studies is a multi-disciplinary unit, specialising in urban and regional planning research. The Centre has established a large national and international network that includes co-operation with Nordregio in Stockholm and with IFHP (International Federation of Housing and Planning) and membership in AESOP (Association of European Schools of Planning). YTK's main functions include the development of planning practices to improve the quality of the built environment, to provide an information service and to act as an expert and advisor on urban and regional planning issues. The research carried out at the centre covers a wide range of thematic areas such as communicative planning, public participation in environmental planning, housing and community development, urban spatial structure and housing segregation, city culture and environmental impact assessment.

■ **University of Helsinki (Department of Geography and Department of Social Policy)**

The Department of Geography at the University of Helsinki is the oldest and largest Geography department in Finland. The research conducted at the University includes focus on Urban Geography and Political Geography. The Department is the home of *Terra*, the quarterly journal of the Geographical Society of Finland. *Terra* is Finland's leading geographical journal, published in Finnish and Swedish. The department's curriculum concentrates on five sub-fields of geography, Geoinformatics, Human Geography, Planning Geography, Physical Geography and Geographical Education. Human geography and urban research at the Department of Geography are focused on urban social and cultural issues. More specifically, research is conducted on identity, space and place of urban areas. Furthermore the department has included gender perspectives in the urban research and has proven track record in the research field.

■ **University of Tampere (Department of Regional Studies and Environmental Policy)**

The department of Regional Studies and Environmental Policy conducts research on three core themes, regional studies, local governance and community development and environmental policy. Research on local governance mainly addresses participation and democracy, urban environmental governance and regional development. Research projects in Environmental Policy focus on fundamental issues relating to the interaction between society and nature, practical issues of environmental policy and management. Furthermore, issues of governance in connection to environmental issues are of particular interest for the department.

■ **University of Turku (Department of Geography)**

The Department of Geography at the University of Turku is the second oldest geography department in Finland. The University of Turku was founded in 1920 and geography was established as a university discipline in

the autumn of 1924. At the department, four research areas are in focus, regional environmental research, research into regional development, urban studies and applied geoinformatics. Urban geography, involving both urban systems and the internal structures of cities, is an integral and traditional aspect of the department's research interests. Typical themes have included changes in urban structure, urban renewal, actors and conflicts lying behind urban transformations, the perception of urban environments, nature in urban areas and the relations of such matters to urban politics and planning.

ICELAND

■ Agricultural University of Iceland (Department of Landscape planning)

Urban research at the Department of Landscape planning covers many thematic areas within urban research, in particular urban morphology and urban planning. In this field of research, the institution is mainly focused on analysing the decision-making process governing changes in land-use within the city.

■ RHB – The Bifröst University Research Centre

The Bifröst University Research Centre was established in 2004. The research projects are mainly in the field of local government and politics, regional policy and development, socio-economic impact assessment and public administration in general.

■ RHA – The Research Centre of the University of Akureyri

RHA is a cross-disciplinary institute which mainly procures income from research projects and consultations for firms, organisations, ministries and from domestic and foreign research grants. A considerable share of RHA's projects focus on regional development and the scope of such research is fairly broad.

NORWAY

■ Norwegian Institute for Urban and Regional Research (NIBR)

NIBR is an independent social research centre in urban and regional research. NIBR has four research departments: the Department for International Studies in Development, Transition and Migration, the Department for Socioeconomic and Territorial Studies, the Department for Housing and Environmental Planning Research, and the Department for Welfare, Democracy and Governance Research. From 2006 NIBR has been located in the Oslo Centre for Interdisciplinary Environmental and Social Research (CIENS) at the Oslo Innovation Centre. This provides excellent opportunities to conduct urban research in a multidisciplinary manner.

■ University of Oslo (Department of Sociology and Human Geography)

The Department of Sociology and Human Geography was established in 1950. In 1996 the Departments of Sociology and Human Geography were merged. Today, the Department has 66 academic staff and the urban research activity is mainly conducted by human geographers. Urban Geography is a prioritised subject and one strategic area of focus is transformations in the Oslo region.

■ The Oslo School of Architecture and Design (AHO)

AHO is an autonomous institution within the Norwegian university system and one of the leading schools and research institutions in the field of architecture, urbanism and industrial design in the Nordic countries. In 2005, landscape architecture was added as a discipline at the Institute of Urbanism. Major research topics are urban planning history and urban transformations.

■ Norwegian University of Science and Technology (Department of Urban Design and Planning)

NTNU, in Trondheim, represents academic eminence in technology and the natural sciences, and in other academic disciplines ranging from the social sciences, the arts, medi-

cine, and architecture. The Department of Urban Design and Planning at the Faculty of Architecture and Fine Art teaches both architecture and engineering students. Core urban research topics include, participatory planning, urban morphology and restructuring of urban areas. The Department is a member of AESOP.

■ **University of Bergen (Rokkan Centre)**

The Rokkan Centre at UiB is a multidisciplinary centre for social studies. UiB is the main owner. Research is conducted in close cooperation with the University and is concentrated on different themes concerning democracy, welfare and management, such as e.g. governance.

■ **Institute for Research in Economics and Business Administration (SNF)**

SNF is a market-based research organisation established in 1991 as a research foundation with academic ties to the Norwegian School of Economics and Business Administration (NHH) in Bergen. SNF is part of the NHH environment and is responsible for initiating, organising, performing and disseminating contract research and research-based studies in economics and business administration disciplines in general, but also to a considerable extent related to urban development.

■ **The Norwegian University of Life Sciences (UMB) (Department of Landscape Architecture and Spatial Planning)**

UMB is a leading international centre of knowledge, focused on higher education and research within environmental- and biosciences. UMB focuses specifically on biology, food, environment, land use and natural resource management. The department of Landscape Architecture and Spatial Planning was established in 1993, but has its roots all the way back to land surveying studies in 1897. The department teaches in landscape architecture, land use planning, land law and land consolidation.

SWEDEN

■ **Lund University (Architecture and Built Environment and Department of Social and Economic Geography)**

Urban research at Lund University is rather extensive and covers many thematic areas within urban research. In that sense Lund University is in many ways similar to the two other major Universities in Sweden, Chalmers and the Royal Institute of Technology (KTH), as each shares the same wide scope on urban research, ranging from civil engineering and construction to the social aspects of urban research such as segregation, while Lund is particularly recognised for its extensive research record on economic geography. At the Human Geography Department strong research areas include clusters, creative *milieus* and innovative urban areas. Besides the research on economic geography, Lund University has a well established research position on urban social issues. In this field of research the institution is mainly focused on urban social issues such as housing, public spaces and segregation.

■ **Royal Institute of Technology (School of Architecture and the Built Environment)**

KTH is the largest research funding receiver among the Swedish urban research institutions. The urban research is conducted on a large scale and KTH covers more or less all of the urban research themes. Among the prominent institutions within the University, the School of Architecture and the Built Environment (ABE) is comprised of departments ranging from architecture, civil engineering, transport, urban planning and environment and real estate construction and management. Urban planning and governance issues could be highlighted as one of KTH's most pertinent urban research field. Moreover, urban environment issues are among the most prominent urban research areas at KTH.

■ **Stockholm University (Department of Human Geography)**

The Department of Human Geography at Stockholm University conducts research in human geography, urban and regional planning and geography. The Department was established in 1960, when the Institute of Geography was divided up into two departments – a scientific part, Physical Geography, and a socio-scientific part, Human Geography. The department of human geography has a rather small focus on urban research in general but in the field of economic geography the institution is one of the most prominent in the Nordic countries. Within the field of economic geography the institution specialises in global and local economic and urban processes.

■ **Uppsala University (Institute for Housing and Urban Research in Gävle)**

The Institute for Housing Research is a multi-disciplinary research department established in 1994 under the Faculty of Social Sciences at Uppsala University and is located in Gävle. Research at the Institute is focused on housing and the built environment and the various issues connected to these themes. The Institute attracts a large amount of internal funding, but supplementary funding is also actively sought from various research financiers, mainly in Sweden but also from the EU. On the international scene the Institute is well known. Among other commitments, the Institute chairs and administers the European Network for Housing Research (ENHR) and edits and manages the international journal *Housing, Theory and Society* and manages the new journal; *European Journal for Housing Policy*. The particular strengths of the institution and its high international profile, are within the themes of urban segregation and urban housing.

■ **Chalmers (Department of Civil and Environmental Engineering and Department of Architecture)**

The underlying aim of the research conducted at Chalmers is to contribute to greater sustainable development. Chalmers takes a more environmental focus on urban issues. At Chalmers two departments, the Department of Architecture and the Department of Civil and Environmental Engineering, undertake urban research. Both institutions maintain a significant focus on urban environmental issues. Sustainable development is an integral part of and influences all urban research. Following these focal areas, issues like urban design and planning, structural engineering, the development of the built environment – cities, housing, workplaces – together with the form and technology of architecture are the main areas of research. Chalmers is also one of the most prominent institutions in the Nordic countries in respect of research on sustainable urban transport and infrastructure.

■ **Swedish University of Agricultural Sciences (Faculty of Landscape Planning, Horticulture and Agricultural Science)**

Research at SLU is based on the meeting place between the human life-world and ecological and technical systems within the context of sustainability. The research covers processes and methods for planning, and the implementation and assessment of future changes in land use. In order to do this, the ability to plan, communicate and govern processes is vital for the creation of attractive landscapes, urban environments and rural areas of high quality. Research is carried out in the fields of, Landscape Architecture, Environmental Communication, Rural Development and Agro-ecology. Finally, SLU is one of the largest funding receivers from FORMAS in the field of environmental planning research.

INITIAL LIST OF POSSIBLE RESEARCH THEMES

The role of cities in national/regional development and the global competition

The city as driver for economic/regional development
The city as an asset of the regional/national innovation capacity
The role of urban regions according to development of industrial clusters
The knowledge city
Cities as centre for creativity, learning and knowledge transfer
Cities as financial centres and drivers for entrepreneurship and innovation
Cities as institutional settings and sites of economic circulation/distribution centres
Urban competitiveness – conceptual clarification and empirical evidence
The role of culture and creative industries
Place marketing and city branding
Polycentric urban development and urban networking – cities in systems
Nordic cities in the national and global economy
Global Cities and The Nordic Counties
The role of SMESTOs (Small and Medium Sized Cities and Towns)
Urban – rural relationship
The division of labour between small/medium sized and large cities in national and regional development
Technological innovation and new industries: consequences for centres and periphery in metropolitan areas

Welfare, social and cultural empowerment and cohesion

Demographic patterns in Nordic Urban areas
Migration and housing preferences among elderly residents
Challenges related to an aging population (economic, healthcare, services, accessibility etc)
The gender bias of an aging population - trends and effects
Effects of long term urban migration on lifestyles and life expectations among the urban

Social inequality in Nordic cities – status and expected development
Segregation in Nordic cities: scale and characteristics - expected development
Social cohesion in Nordic urban areas, empowerment strategies
The dynamics of immigration and migration processes in Nordic urban areas: threats and opportunities
Cultural and religious diversity: threats and opportunities
Crime and crime prevention: impact on social control, surveillance and repression politics
Urban competitiveness: driving out social cohesion or underpinning cohesion
Urban spaces and urban sociology
New information technology and increased communicative skills/abilities -consequences for mobilisation and participation

Urban housing models

Ownership vs. tenure
Models of housing subsidy and allowances
Taxation and indirect subsidies
Models of maintenance of houses and housing areas

Urban environment

Urban environmental infrastructures

Urban climate

Urban ecology and urban metabolism

Urban environmental planning and government, environmental impact assessment

Urban green structure, outdoor recreation and public health

Hazards, risk management and adaptation

Climate change and challenges for urban land use: impact for planning and land-use decision-making

Management impact (crisis management) of climate change

Critical urban infrastructures

Terrorism and the vulnerability of urban areas

Pandemics and the vulnerability of urban areas

Early warning and risk management

Urban transport and energy supply

Sustainable mobility

Energy supply models

Energy needs

Accessibility

Accessibility at macro level (distances, transport systems)

Accessibility at micro level (universal design of homes, public buildings, open spaces, public transport)

Urban governance

Sustainability governance

Participation and democracy

Public, private partnerships - the role of private sector in urban development

Strategic impact assessment

Urban policy and strategic planning

Planning and management of urban growth and economic change

Urban planning and urban design

Nordic planning regimes and cultures of planning

Nordic state-market decision-making models

Models of urban land transformation

Comprehensive planning and cross sectoral coordination

Managing urban sprawl

Urban design and public spaces

Urban renewal and urban restructuring

Normative urban planning ideals and discourses

Notes

- 1 ISI Journal citation report: <http://isiwebofknowledge.com/>
- 2 The Social Science Citation Index identifies the articles that have been cited most frequently, and who has cited them.
- 3 The total amount of articles is enlarged as result of double-counting in cases of co-authorship, i.e. an article published by a Swede and a Dane is counted twice.
- 4 Note that the total numbers present, in respect of how many articles the theme has, has been addressed. These numbers are not coherent with the total numbers of articles that have been published, since the articles have been double-counted in cases of inter-disciplinarity (an articles addresses more than one theme).
- 5 ESPON (European Spatial Planning Observatory Network) was set up in 2001 to support policy development and to build a European scientific community in the field of territorial development. The main aim is to increase the general body of knowledge about territorial structures, trends and policy impact in an enlarged European Union (www.espon.eu).
- 6 Interreg is a Community initiative which aims to stimulate cooperation at the cross-border, trans-national and inter-regional level.

Future global challenges are closely linked to the urbanisation process and to the development of the urban regions of the world.

Nordic urban research plays an important role because the impacts of globalisation will always be dependent on the specific regional and local situation; the potentials and the capacity to respond to global challenges. Nordic urban research functions as an interpreter of the impacts of the globalisation processes according to different Nordic regional and local settings, and can thus help to open the way for innovative and proactive Nordic strategies for the future.

This study gives an overview of the current state of play of Nordic urban research and sets out relevant themes for future Nordic research cooperation in the field.

ISSN 1504-8640