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## DILEMMAS IN THE DEVELOPMENT OF A CURRICULUM FOR URBAN PLANNERS IN A GLOBALIZED WORLD

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*A number of dilemmas present themselves in the development of a new curriculum for urban planning and management for a changing target group from the global south. These dilemmas include the definition of a proper balance between general planning knowledge and skills versus specialized knowledge and skills; between theory and practice; between an academic versus a more professional orientation; and between examples and case studies from developing countries versus examples and case studies from European and North-American countries.*

*Based on actual experiences, this paper discusses the dilemmas in designing a curriculum for a changing target group as well as the challenge to develop a curriculum for the urban planner in a globalized world. It further discusses the potential of the international development agenda as a structuring element for the development of such a 'global' curriculum.*

*A number of good arguments exist to use the international development agenda in the development of such type of curricula. At the same time it underlines the importance of the development of a critical view towards the same agenda to ensure a proper link with the local practices of urban planning and management.*

*The paper invites for a further exchange of experiences and a debate on the dilemmas to develop a global curriculum for a global target group.*

### **1. The challenge of a global course in urban planning and management**

Planning education programmes and curricula, and urban planning and management courses in particular, vary around the world and present them in many different dimensions, including disciplinary orientation; academic level and orientation; curriculum contents; adopted planning models; level of contextualization; importance given to technical, analytical and communication skills among others.

Over the years urban planning and planning curricula world-wide have seen an evolution from a design, survey and architecture orientation towards a more comprehensive curriculum including social and economic scientific concepts and methods, as well as the integration of the use of modern technologies like GIS to various degrees (e.g., UN-Habitat, 2010; Frank, A. I. et al., 2014).

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At the Faculty of Geo-Information Science and Earth Observation (ITC) of the University of Twente, urban and regional planners world-wide have been educated with a strong emphasis on the acquisition, analysis and use of geo-information.

Educational programmes at ITC have been constantly adapted and modified to cater for the changing needs of the target groups from mainly developing countries and emerging economies. Given this background the recent review of the MSc course Geo-information and Earth Observation for Urban Planning and Management (UPM) is used as a case to illustrate and analyze the challenges in the development of a curriculum in the field of urban planning that wants to be attractive, up-to-date and relevant in an international global context. Major questions addressed in this paper:

- What are the challenges for a developing a curriculum on urban planning and management for a wide international audience, particularly for individuals coming from the south?
- What is the potential of the international development agenda to offer a frame and point of reference for the contents and setup for such a curriculum?

One of the obvious challenges facing the development of a curriculum that is relevant to a wide international audience is satisfying the needs of a group with major differences in economic, social and cultural background; legal planning framework; levels of technological development; and human and financial resources. In other words a curriculum for a wide international audience encounters the difficulty to embed the contextual knowledge, which *“.....is comparatively easy to relay in a one nation-focused classroom; but when students come from many countries, teaching of context becomes much more difficult ..(UN Habitat, 2010).*

This challenge is further enhanced when the students enrolled in such a programme have less of a professional background coupled with working experience. A recent change at ITC is the swift of the student population from a highly motivated mid-career professional to a fresh graduate with a strong academic ambition, i.e. students who recently have completed their BSC and immediately continue with their Master degree, often with the further motivation to pursue a PhD.

The so-called mid-career professional has the potential to bring his or her own working experience and challenges, which if appropriately utilized in the implementation of the course contributes to contextualize the learned knowledge and skills and increase the relevance of the learning process. Furthermore the mid-career professional stimulates the teaching staff to remain critical towards the taught curriculum as he or she demands knowledge, skills and competences relevant for their further professional and academic development.

A growing gap between theory and practice as identified by Kunzmann, and Koll-Schretzenmayr (2015b) is a further challenge in the development of a contextual relevant curriculum. This growing gap is attributed by the authors to the decline in appointments of planners with a professional experience in academia as well as to accreditation and internal university evaluation, which often favours theory rather than practice.

## **2. Urban planning at ITC**

Urban and regional planners world-wide have been educated since decades in the acquisition, analysis and use of geo-information at the Faculty of Geo-Information Science and Earth Observation (ITC) of the University of Twente.

Educational programmes at ITC have been constantly modified to cater for the changing needs of the target groups from mainly developing countries and emerging economies.

Urban planning at ITC is not a stand-alone planning course but an orientation and specialization of a MSc degree programme on Geo-information and Earth Observation. The MSc programme offers a 118 EC programme in a modular setup in 18-months (most MSc programmes of a similar study load in Europe are offered in 2 years). The programme consists of 23 modules: the first three modules are dealing with the core of the MSc degree programme, i.e. geo-information and earth observation; followed by a block of 7 modules properly dedicated to the specialization, e.g. urban planning and management (5 other specializations are being offered, see: <http://www.itc.nl/Pub/study/Programmes/Master-of-Science-degree>). The subsequent 5 modules deal with academic research skills and advanced MSc subjects (elective). The last half year of the programme is dedicated to individual research through executing research (often with fieldwork and/or information collection in the home country or country in the south where on-going projects with staff involved provide the frame for the MSc research).

Predecessors of the ITC MSc degree programme on Geo-information and Earth Observation for Urban Planning and Management in previous decades were very much focused towards surveying, mapping and data collection on human settlements. Throughout the years this focus has evolved towards more spatial analysis and decision support in the context of urban planning and management. Where core elements of the programme always remained is the use of spatial data and its specific aim at students from countries that are “economically and/or technologically less developed”.

The latest curriculum departed very much from a twin set of objectives of urban planning and management: i.e. the understanding of the nature and dynamics of the urban area and the development of interventions, which were taken as part of the main objectives for the new course. At the same time these two elements (analysis and developing interventions) were also an important structuring element in domain block of the course. Although for the lecturers and staff these twin objectives provided a logic structure, students did not recognize very clearly this structure and did not consider it very supportive in their learning process. Moreover, also staff over the years did not adhere very strictly anymore to the main structuring logic of the programme and elements of analysis and planning were interwoven in a number of thematic subjects.

Since 2006 the latest curriculum of the MSc degree programme on Geo-information and Earth Observation for Urban Planning and Management (UPM) has been implemented relatively successfully (positive evaluations from students; joint education with universities abroad, particularly Indonesia; and a positive assessment as part of the renewal of the former accreditation of the MSc degree programme). However, since 2006 structural changes have not been introduced and particularly staff of the programme considered it opportune to have a closer look at the present curriculum to maintain and to maintain and where possible increase its relevance, attractiveness and quality.

### **3. Development of a new curriculum – description of process**

To achieve the objectives of the development of a new curriculum a working group was formed consisting of 4 staff members, who together developed the following activities:

- Review of the present curriculum. The strong and weak points of the present curriculum were analyzed, among others based on previous course and module evaluations and curriculum development workshops as well as on the suggestions and feedback from the accreditation process 2014-2015
- Review of the research agenda in the field of urban planning and management in order to identify themes and research developments, that could be considered in a new UPM curriculum
- Review of the International Development Agenda. Review of the International Development Agenda should identify the main relevant issues and trends in the field of UPM which could to be addressed in the revised curriculum. Particular attention is given to those themes and sectors that have a clear opportunity for funding and sponsorships.
- Review of comparable curricula. Objective of this review was to identify interesting innovative contents and alternative educational approaches that possibly are interesting to be adopted within the modules 4-10 of UPM. Similar courses in Anglo-Saxon countries, the Netherlands, Germany; elsewhere in Europe; and in Latin American context were evaluated. This review also include the identification of relevant GI topics to be considered in the UPM course
- Alumni consultation. In December 2014 a set of questions was made available on-line to a selected group of alumni who all had taken part in the UPM course during last 8 years.
- Curriculum development workshop with staff and students in May 2015

In the following a number of results from these activities are being discussed; after which the latest proposed structure of the course will be presented.

### **1. Alumni survey – most salient features – some figures**

In the review of the curriculum a survey was conducted among a selective group of alumni. A total of 92 UPM alumni (graduated in period 2008-2014) was purposively selected and approached by those staff members who still had some contact with these alumni. This approach certainly introduce some bias in the survey; but also made it possible to receive serious responses and noticeably very elaborated answers on the open questions. 52 UPM alumni responded, i.e. a response rate of 57%. The age of the respondents was mainly in the category 30-40 years (71%) and gender distribution was 50:50.

The respondents came predominantly from research, teaching and academic organizations (60%) and a considerable smaller group from public agencies (25%). This might be due to bias in the respondent selection, i.e. staff particularly maintains contacts with alumni through joint research projects or PhD research rather than with alumni from the professional field.

Further, the field of employment is predominantly urban planning (75%) followed by infrastructure and transport (41%). Architecture (25%) and land administration (19%) are reasonably represented. Functions vary from planner to academia. Almost 20% of the respondents were in leading positions.

These fields of employment are in line with the background of the students of the last 3 academic years. Students of the last 3 academic years have either an background in urban and regional planning (28%) or in architecture and planning 23%, followed by civil engineering.

Surprisingly, academic skills were mentioned most frequently (40% of the respondents) as one of the most useful elements of the course, followed by GIS and spatial analysis. Planning, policy and management was mentioned by about 20% respondents as the most useful. Remote sensing came clearly out as the element that was mostly mentioned as the least useful element of the course.

The above outcome in relation to the usefulness of GIS and RS respectively was largely in line with the response on the use of GIS and RS in the current of the respondents: 71% use GIS regularly or most of the time (RS: only 31%), while RS is used sporadically or not at all by 70% of the respondents.

Interesting enough among the missed subjects “planning-planning systems-planning theory” was most mentioned, followed by “land use (change) modelling” and “policy studies and urban policies”. Particularly the call for more attention to subjects as “planning-planning systems-planning theory” and “policy studies and urban policies” was surprising as the respondents and the common target group applies for education at ITC because of the use and application of geographical information (in the context of for the urban planning).

The survey endorsed a number of assumptions and points of departure of the most recent curriculum review. The main motivation and aim of the UPM course was clearly reconfirmed through the survey, i.e. the main focus is on the application of geographical information in urban planning and management. That is students apply to study urban planning and management at ITC not to study urban planning as such, nor the geographical information technology as such. The use and application of geographical information is the clear niche of the UPM course offered at ITC, where the alumni very much appreciate the balance between theory and practice. Students expect to learn the advanced use and new development and application areas of GIS and RS technologies.

Furthermore the real world orientation coupled with the learning of practical skills is seen as an asset of the curriculum. It was repeatedly suggested to maintain and where possible enhance the use of real-world experiences through case studies, field research on location, study trips; guest speakers; and internships. Learning academic skills and critical thinking were explicitly mentioned a number of time as assets of the course.

Finally, it became very clear that the applicability of the course for developing countries and the international learning environment were very much appreciated by the alumni and they reiterated various times that these elements should be maintained and where possible further enhanced.

## **2. International Development agenda – sources; how and what to incorporate into the curriculum**

As was outlined in the introduction one of the obvious challenges facing the development of a curriculum that is relevant to a wide international audience is the embedding of the contextual knowledge. As Habitat (2010) states: “the ‘one-world’ approach to planning education seeks to bypass these challenges by fundamentally altering planning school curricula to provide internationally relevant training regardless of the anticipated future location of the student’s practice” In the redevelopment of the UPM curriculum

it was decided to explore the international development agenda as a structuring element and content area to make the curriculum relevant for a wide audience.

Why is it interesting to look at the international development agendas in relation to the redevelopment of the UPM course?

These agendas kind of represent the thermometer of what, according to the international donor community, are the key problems and challenges in contemporary urban development in the south. They are the result of a continuous debate among donors and recipients on where to put budget priority for development in general and the urban sector in particular. They therefore offer an interesting perspective of what the most stressing issues to be addressed are. By design, these are (or at least should be) those issues that cities in the south are trying to come to grips with. UPM, being a programme that aspires to educate people to be able to analyse and solve problems in the urban sector, particularly in developing countries, has a clear problem orientation, which is why it is interesting to take note of this perspective.

It is also interesting to look at international development agendas in a broader sense. If we base ourselves on the principle that our work in research, education and projects needs to be aligned thematically, it makes sense to look at which themes are “hot” and where therefore funding opportunities may exist. A thematic development of UPM that aligns with some of the big themes in the international development agenda can help direct our thematic development and can help mobilize projects and resources, for research and capacity building, but potentially also for student fellowships.

In reviewing these international agendas we are looking for themes that are emerging, that are of interest and that are related to the expertise of the faculty involved. The overall agendas and specifically urban agendas of the following organisations have been reviewed: The Netherlands Ministry of Foreign Affairs, The World Bank, UN Habitat and the UN overall Sustainable Development Goals.

The word clouds below gives a graphical representation of themes extracted from these overall development agendas (left) and the urban development agendas (right) (words that appear more often in these agendas are in a larger font).



Fig. 1 Key words of overall development agendas and of urban development agendas [proper sources to be added]

Looking at these word clouds, it is interesting to note a couple of things:

In the general development agendas the traditional theme of poverty is still very prominent, however, there is equal attention to the theme of equality, which can be interpreted to have a similar meaning, but may also be interpreted a bit more broadly to be connected to all kinds of sectoral issues such as living environment, access to basic services of water and sanitation, health, transport etc. This has been an area of focus for the UPM course since its inception and is still of interest.

Moving to the urban agendas, we can basically observe a lower, varied level of words and a higher level with a limited number of words that feature prominently. At the lower level we can distinguish between words that represent more qualitative notions such as liveable, inclusive, green, safe, and words that represent more sectoral areas where challenges need to be overcome such as the economy, land, transport, infrastructure, buildings etc. These represent the more traditional sectoral areas that still draw a lot of attention in the development agendas.

The prominent themes are a mix of key challenges that cities need to overcome or refer to a desired future urban state. Here we see more traditional ones such as slums, housing, services, planning and governance, but also with contemporary ones that feature very prominently, most notably risk and resilience, reflecting the increased challenges of cities to respond to climate change and other hazards. In order for UPM students to be able to better plan cities and making them more resilient to hazards, and thus reduce urban risk, these themes warrant inclusion in the new course.

### **3. Research agenda**

Various authors have analyzed recently emerging research agendas in spatial planning, including both novel areas of research and important shifts in the direction of a research area (Banco et al. 2009a, Blanco et al. 2009b). They claim that the challenge for planning schools is to reflect critically on these changes and develop long-term research agendas that can better position the domain of spatial planning field in society and academia, and providing a basis for state of the art educational programmes. The following new and emerging research topics are to be included in a the new ITC urban planning programme.

The first and probably most relevant issue is the increasing number of occurrence and severity of natural disasters including climate change. Worldwide the number of disasters has almost quadrupled during the past 30 years and there is a widespread consensus that urban disasters are increasing exponentially. Moreover, the role of cities has changed from places of refuge and buffers against environmental changes to hotspots of disasters and risk (Wamsler, 2014).

Secondly and strongly related to the former in several aspects, the world is becoming urban. Since 2008 more than half the world's population is living in cities and urbanized areas and this trend is continuing. It is expected that 60 percent of the world's population will live in cities by the year 2030 and 70 % by 2050. Moreover, also the number of large cities and the size of the world's largest cities are increasing. The number of cities in the world with populations greater than 1 million increased from 75 in 1950 to 447 in 2011. Consequently, an state of the art educational programme needs to put a strong focus particularly on

the relationship and interplay between these two emerging issues, which are in turn also strongly affecting other important sectors of urban planning, such as health, poverty, and spatial equity and justice issues.

Both issues mentioned above are particularly relevant in the rapidly growing cities of the global south. Much of the disasters are taking place there resp. having more severe impacts, and particularly climate change adaptation is a burning issue in global south countries and cities. On the other hand, we have to acknowledge, that the “urban planning ideals and the corresponding organisational and planning models of e.g. African cities are inherited from the Western countries that colonised them”. With respect to this Watson (2009) points out that national to local planning systems of the global south “have changed very slowly and some hardly at all, with many approaches and systems reflecting planning ideas from the global North simplistically transferred to Southern contexts through complex processes of colonialism and globalisation”. Contemporary debates on a new planning agenda for the global south and instruments such as south-south collaboration for mutual learning and knowledge transfer are to be considered in a new curriculum.

Another upcoming new research relevant in the global north as well as in the global south is labelled with the slogan ‘health in all policies’ (Ottawa Charter for Health Promotion 1986). Traditionally urban planning has had a strong focus on health issues (Rodenstein 2012). One goal of planning was to provide more or less healthy living conditions for the rapidly growing cities during industrialization since the 19th century. Nowadays we see this primal vision of planning having a strong renaissance. Several studies and publications related to health issues stress the importance of place and space in health related research and the need for a better integration of public health and spatial planning (Barton and Grant 2013, Abernethy 2014).

#### **4. Other comparable curricula**

As a first part of the curriculum redevelopment, other MSc programmes in the field of urban planning were reviewed. Starting in the Netherlands, the review covered several Msc programmes that offer MSc courses with an urban focus to Dutch and international students in English language. The main key figures and setups of the Dutch Urban MSc courses are (March, 2015):

- IHS Rotterdam: MSc in Urban Management and Development  
Duration 12 months (72 ECTS)  
The programme is divided in three periods, i.e. a core period, the specialization period and the thesis period.
- UVA Amsterdam: MSc Urban and Regional Planning  
Duration 12 months (60 ECTS)  
The program is split in several planning topics, e.g. planning methodologies, innovative international planning practices, and ends with a thesis project
- UVA Amsterdam: MSc in Urban Studies (Research Master)  
Duration 24 months  
Prepares students for PhD, the setup is multidisciplinary, the programme is a mix between core topics, electives and contains an exchange semester abroad, it ends with a thesis or a research article.
- Delft University: MSc of Science Architecture, Urbanism and Building Sciences  
Duration: 24 months (120 EC)



Students can choose between five tracks, the programme contains elements of scale in planning (neighborhood to region) and topics based on upcoming trends (e.g. congestion, climate change).

- University of Groningen: MSc in Environmental and Infrastructure Planning  
Duration: 12/24 months (120 ECTS)  
It is also offered as double degree course for Indonesian students (24 months). These students spent the first twelve months in Indonesia and the second twelve months in the Netherlands. Planning topics are treated at different levels from local to central planning.
- University Utrecht: MSc Human Geography and Planning  
Duration: 2 years (120 ECTS)  
The course is split into theory and planning methods, with also a study abroad element, Master's thesis research project. The course ends with a scientific paper.

The course durations range from 12 months to 24 months. In particular research oriented MSc courses that aim to prepare students for a future academic career have durations of 24 months. Innovative or at least interesting aspects in the reviewed courses are the inclusion of academic exchange (semester abroad) and to end the course with an academic paper. The extent to which these courses deal with urban planning in the Global South vary, only IHS has a very specific focus on the Global South but the course focuses on planning theory and practices and does not cover much the use of geo-information for planners. The set-up of the courses has often elements of core mixed with elective topics. However, the structure of the courses differ, some have a sequence of topics, other follow a planning cycle or a addressing planning topics at different scales.

To get a better overview the review was extended to examples beyond the Dutch MSc. But focusing on MSc taught in English language. Also in the UK courses have often the setup to include core and elective topics, e.g. at UCL the course is having 75% core components and 25 % electives where students can choose from a large set of topics. Also many programmes in the UK offer MSc programs within 1 year, but they also offer the option of a flexible duration. It is possible to study full time (e.g. 1 year) and part-time (2-5 years). A very similar programme with a strong focus on the Global South is offered by SPRING Dortmund University as a 2 years master. The setup is a 1st year in Dortmund, 2nd year at a partner universities (Chile, Ghana, The Philippines, Tanzania). The programme structure follows very much the planning cycle from analysis, planning to implementation. The Urban Management Program of the Berlin Institute of Technology (TU Berlin) has a similar focus. Within a period of 1.5 years to course focuses on development situations in the South and transition countries. The Mundus Urbano programme, advanced Master of Science programme specialising in International Cooperation in Urban Development, is jointly offered by four European Institutions and promotes internships.

Based on a review of some further European MSc courses in the field of urban planning and management, a further list of important and upcoming topics for planners in the Global South was identified:

- Gender and development with a geographical perspective
- The politics of housing and informality and low cost housing
- Spatial economic analysis
- Crime and control
- Urban design for development

- Disaster risk reduction in cities and post disaster recovery planning
- Critical issues in mega infrastructure investments
- Adapting cities to climate change in the Global South
- Transport policy and finance
- Territorial governance and policy analysis
- Smart Cities

Besides a review of planning courses also GIS course were included into the review to derive a list of GIS topics that have gained importance in the last year. The following topics have been extracted to have potential to be relevant of urban planner and young planning academics:

- Geodesign and Geovisualisation
- 3D GIS
- Web & Mobile GIS
- Open Source GIS
- Big Data
- Artificial intelligence
- Machine learning and decision trees for image analysis
- Web Based GIS

Based on the review of other MSc programmes, interesting and relevant ideas for structuring an urban programme were synthesized:

- Structure based on planning cycle/process
- Structure based on major planning topics (e.g. mix between theories and methodologies)
- Structure based on scales in planning (national, regional, local, neighborhood)
- Structure based on future city models – to deal with global challenges
- Semester versus module structure or mix (e.g. Berlin)
- Core versus optional/elective modules (e.g. UCL)
- Mix between theory and studios
- Integration of study abroad and/or internships

Thus in conclusion the structure of programmes vary, some following a topic structure or according to scales while others structure according to the planning cycle. Some programmes are more professional oriented while others have a very strong research focus and aim preparing students for research and a PhD. Most programmes mix core and elective topics and mix theory and methods. Many programmes have study abroad, exchange or internship components, which brings an added value for students and increases future employment opportunities of graduates.

## **5. Inputs from present students**

Students recognize and reiterate that their main objective for studies at ITC is to learn GI in the context of urban planning and do this in a truly international environment. The niche is learning geo-information science in a context of urban planning and management

## **6. A new set up of curriculum Master of Science degree in Geo-information Science and Earth Observation in Urban Planning and Management (UPM)**

Based on the analysis of the various reviews a curriculum is being proposed which is relying to a large extent on themes of the international development agenda. This curriculum is further endorsed by the research agenda in the field of urban planning and management, from which we can learn the importance of addressing the link between growing cities and the interrelationship with disasters and climate change; but also the need to build in mechanisms of mutual learning and knowledge exchange to contribute to a relevant planning agenda. From other curricula a further list of important and upcoming topics for planners in the Global South as well emerging GIS topics that have gained importance in the last year and are of relevance for urban planners.

The proposed structure consists of the following modules:

M4: Introductory module discussing the urban planning and policy process, the roles of different actors in this process and the use of spatial methods and techniques. Introduction to the themes and contents of modules 5-10.

M 5-10: 5 thematic modules and a project module. Methods and techniques are interwoven in such a way that a whole palette will have been offered at the end of M10.

Module 5. The sustainable city

Module 6. The inclusive city

Module 7. The competitive city

Module 8. The compact city

Module 9. The resilient city

Module 10. Final project module

As UPM is meant to be a planning programme, we want to start off module 4 with a focus on planning. It is important that students get a sufficient and shared understanding of historical and contemporary thinking on planning and how it is practiced in different contexts and how spatial information is contributing. We also want to develop process thinking with our students. Not only do they need to be aware of abstractions of the planning process and what is commonly done in different parts of this process, they should also recognize the role of various actors and appreciate GI based methods and techniques that can be used. The experience in module 4 is also meant to help the students to better understand the policy directed thematic discussions in the consecutive modules and the linkages between them.

Although the sustainability concept has been around for some time, it is still a useful concept for students. It helps them to appreciate the multi-faceted nature of development and to understand that development has different connotations. The SD idea is still very much central in the new development agenda of the

UN and in that sense of particular importance to students from the developing world. Students need to be made critically aware that there are many ways to measure sustainability and that the concept is therefore rather difficult to make concrete, but that it has its value in the urban policy arena.

A key scientific and policy issue is the creation of inclusive cities. A lot of work is ongoing in the PGM department in terms of how we can analyse, evaluate and improve the position of disadvantaged groups in society in terms of their overall well-being and perspectives and their access to basic services. In this work a variety of spatial and statistical techniques are of use that students need to be made aware of and that have value for other parts of the curriculum.

In a globalizing economy, cities are increasingly challenged to be competitive and offer a high quality living environment, affordable housing, attractive conditions for businesses and a varied set of accessible services. A key condition to achieve this is a proper functioning of the land market. Questions of access to land, land taxation, flexible land arrangements, tenure security and the functioning of the housing and rental market are all underlying the promise of success for urban development strategies. On top of this, strategies of infrastructure and residential, commercial and industrial development will be the key determinants of achieving economic growth. Understanding the anticipated effects of these proposed interventions through a variety of economic and environmental appraisal techniques is essential learning for our students.

A central discussion in urban planning relates to how we shape our cities. Where do we plan the different functions to achieve our strategic objectives? Students will learn that various spatial configurations of cities have great impact on the spread of activities and the demands placed on the transport system but also that it works the other way around: how the transport system is developed has a great influence on how cities are shaped and functions located. This understanding, in a dynamic urban growth context, will be addressed in the compact city module. Students will get acquainted with relevant theory and practical application of land use and transport models that will help them to analyse and quantify the current situation and future development scenarios.

Urban dwellers are increasingly under threat from natural and man-made hazards. Cities need to develop strategic choices to avoid high levels of hazard and target development in such a way that risks are contained and are manageable. It is important therefore that urban planners are able to understand and analyse urban risk and are able to direct spatial planning at making cities more resilient.

In a final project module, the students will work in a real case setting on an urban development/planning problem in which a number of important concepts/methods and techniques that have been addressed in the curriculum can be brought into practice. In this work, the students need to demonstrate that they are able to describe, analyse and discuss a planning problem and come up with well-motivated plans. The emphasis will be on students' ability to critically discuss and explain the choices made and to critically reflect on their proposed course of action.

## 7. Remaining dilemmas and challenges in curriculum development and implementation

In this paper we identified a number of challenges in the development of the a curriculum on urban planning and management for a wide international audience, particularly for individuals coming from the south. The challenges were illustrated with the experience of the development of a 18-month MSc curriculum on MSc course Geo-information and Earth Observation for Urban Planning and Management at the Faculty of ITC, University of Twente, Netherlands.

- Applicability and contextualization of the knowledge and skills
- A changing audience from less professional towards more academic
- Growing competitive global environment
- Tightening demands from accreditation frameworks
- Weakening links with the planning practice, i.e. a growing gap between practice and theory
- Higher priority given in academia to research excellence rather than to education
- Accreditation and quality control schemes
- The tension between rational comprehensive planning approaches and the planning practice with prevailing uncertainties, power relationships, conflicts and complexities.

The paper shows the potential of the international development agenda as a frame and point of reference for the contents and setup for such a global oriented curriculum. International development processes and debates set an agenda for a number of academic and policy developments that provide the frame in which the graduates have to operate. Funding schemes on which graduates and their organizations depend to a large extent are guided by the themes and priorities set in the international development agenda.

Departing from the international agenda to identify the main relevant topic areas in the curriculum poses the risk of implanting the agenda of the elite in international development policies. As said above, many alumni are confronted with the international development agenda. This requires students being conversant with these themes in a critical manner. A global oriented curriculum should therefore offer ample room for developing a critical attitude so that students could relate these themes to their own local needs as well as linking their local planning needs to the international development debate.

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