3RD INTERNATIONAL CAPACITY DEVELOPMENT WORKSHOP

FRANKFURT AM MAIN, GERMANY

MAY 06TH – 10TH, 2019

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REPORT OF THE 3RD INTERNATIONAL CAPACITY DEVELOPMENT WORKSHOP
Instruments, procedures and activities for knowledge sharing and capacity development for urban infrastructure planning within the Rapid Planning Project
FRANKFURT AM MAIN, GERMANY
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LAYOUT
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INTRODUCTION TO THE WORKSHOP

The program for the 3rd International Capacity Development Workshop was developed by the Global Urbanisation research team at the Frankfurt University of Applied Sciences together with the partners from the Frankfurt City Planning Department, the Environment Department and the Frankfurt Municipal Energy Agency, as well as the research partners in the Rapid Planning Project AT-Verband and IZES.

The workshop presented capacity development instruments, procedures and activities for sharing information and knowledge produced by the Rapid Planning Project. The purpose of the workshop was to foster knowledge exchange among the representatives of the case cities of Da Nang, Kigali and Frankfurt, and promote constructive discussions about the capacity development processes suitable for efficient trans-sectoral urban infrastructure planning. Integrated into the workshop, on Thursday May 9th, the Rapid Planning Application Conference presented the Rapid Planning Project to a wider public.

PARTICIPANTS

International Guests

City Representatives of Da Nang, Vietnam

Mr. Thanh Tien Nguyen	People´s Committee Da Nang, Vietnam
Mrs. Thi Quynh Tram Bui	DISED Da Nang, Vietnam
Mr. Hao Tran	UPI Da Nang, Vietnam

City Representatives of Kigali, Rwanda

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Mr. Abias Philippe Mumuhir	One-stop-centre, City of Kigali
Ms. Alice Umuhorakeye	Environmental Protection Officer, City of Kigali
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City Representatives of Belmopan City, Belize

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Mr. Peter Kreisl	Head of Overall City Issues Division, City Planning Department, City of Frankfurt am Main
Mr. Paul Fay	Vice Head of the Municipal Energy Agency, City of Frankfurt am Main

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Dr. Susana Restrepo Rico	FRA-UAS Research Assistant
Ms. Natalia Calixto	FRA-UAS Student Research Assistant

EXPECTATIONS FOR THE THIRD INTERNATIONAL CAPACITY DEVELOPMENT WORKSHOP

The international participants of the 3rd Capacity Development Workshop included partners of the Rapid Planning Project, guests from the case cities of Da Nang and Kigali as well as from the reference city of Frankfurt, colleagues from the UN-Habitat and representatives from the city of Belmopan. They expressed their interests and expectations regarding the course of presentations, visits and excursions planned for the workshop as in the following points:

- To stand on the latest development state of the three cities of Da Nang, Kigali and Frankfurt, especially with regard to the challenges presented in the previous workshops as well as to the conclusions of Frankfurt's Integrated City Development Concept and its learned lessons.

- To have an update regarding the latest stand of the Rapid Planning Project and to review its overall progress as well as its available results.

- To examine the appraoch towards the topic of capacity development and discuss, closely, the developed measures of capacity development and knowledge exchange for a smoother implementation of the Rapid Planning Methodology.

- To review the recent efforts and progress of the Rapid Planning Project in Belmopan as an example of knowledge exchange and tranferability of the methods of the Rapid Planning Project.

- To further strengthen cooperation and experience sharing between the participants as well as between the represented cities of Da Nang, Kigali, Frankfurt and Belmopan.

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Guests from Kigali

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Guests from Belmopan and Kigali

INTRODUCTION TO CAPACITY DEVELOPMENT AND THE RATIONALE FOR RAPID PLANNING

Presentation by Yaman Hebbo and Dr. Susana Restrepo Rico (FRA-UAS Rapid Planning Team)

The concept of Capacity Development has become essential for technical cooperation and international development programs. The term is relatively new, although it has evolved from the concept of Institution Building, which focused on establishing institutions from scratch by creating new abilities and skills, overlooking existing capacities and social structures and institutions. In contrast, Capacity Development acknowledges existing assets, enhances them and strives to empower local partners to own the development measures and lead twards securing the required capacities. In other words, the main objective of Capacity Development is to strengthen existing local institutions and work with what is available in order to acheive the better.

Capacity Development relies on the following principles:

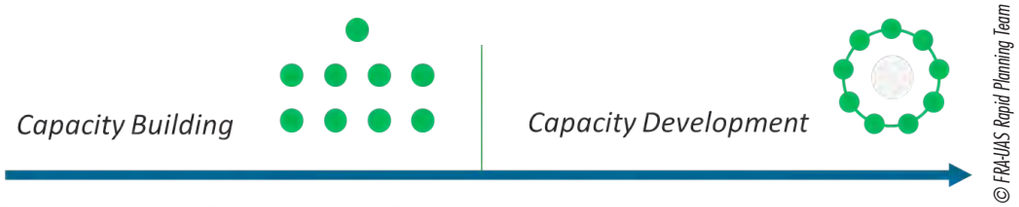
- Local knowledge. Global knowledge must be adapted to local experience.
- Local Development. Prevalence of local plans over imported or external models.
- Good governance. Participation, transparency, accountability, and meritocracy.
- Communication. The process must establish clear actors, interests, and responsibilities.
- Long-term. Realistic and measurable learning processes.

The main objectives of Capacity Development are:

- Knowledge sharing. Documentation, learning, skill training, education.
- Leadership development. Motivation, self-organization, informed decision-making.
- Change management. Institutional changes, re-organization, inclusiveness.

For Capacity Development, three levels of intervention could be recognized:

- Individuals, by developing their experience, knowledge, and technical skills.
- Organizations, in order to develop internal policies, arrangements, procedures and frameworks.
- Enabling environment, this refers to the fact that a broader system of policies, legislation, power relations and social norms must facilitate the processes of Capacity Development.



Transition from Capacity Building to Capacity Development

A Rationale for Rapid Planning

The Rapid Planning project acknowledges the challenges found in urban contexts with high rates of population growth, namely:

- Lack of accurate data
- Time consuming data collection
- Fragmented understanding of the city
- Conflicting development proposals
- Obsolete development models
- Isolated planning
- Institutional deficiencies
- Rigid legal frameworks and planning

Having recognized these challenges, the Rapid Planning project aims to address them by establishing the following premises:

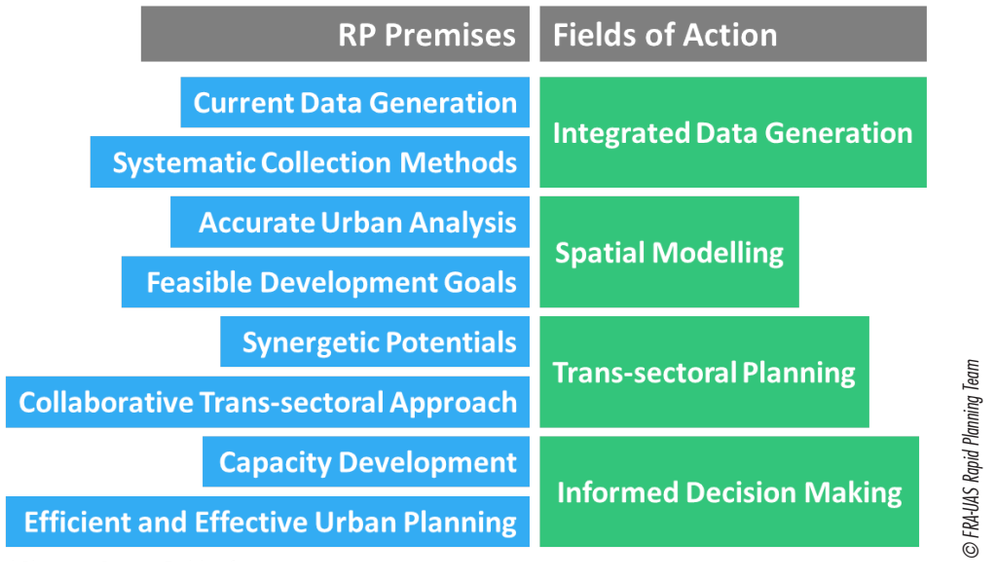
- Current data generation
- Systematic collection methods
- Accurate urban analysis
- Feasible development goals
- Synergetic potentials
- Collaborative trans-sectoral approach
- Capacity development
- Efficient and effective urban planning

These premises are therefore integrated into 4 main fields of action of the Rapid Planning project: integrated data generation, spatial modelling, trans-sectoral planning, and informed decision making. The fields of action respond to the Sustainable Development Goals of the New Urban Agenda 2030, specifically the SDGs 2) Zero hunger, 6) Clean water and sanitation, 7) Affordable and clean energy, 9) Industry innovation and infrastructure, and 11) Sustainable cities and communities.

Capacity Development as a Component of the Rapid Planning Project

Capacity Development is an important element of the Rapid Planning Project as it:

- Incorporates trans-sectoral thinking that takes into account the synergies between different sectors of urban development.
- Supports institutional change management towards resource efficiency.
- Provides the necessary knowledge as



Rapid Planning Project Fields of Action

well as the instruments to understand and facilitate the implementation of the Rapid Planning Methodology.

The Target Groups of Capacity Development

The objective is to develop Capacity Development materials for administrations, academia, schools and the public in order to support learning processes with respect to RP methodologies and tools. Experiences show that training materials alone cannot provide a comprehensive know-how transfer. Therefore, training units/working sessions will provide the possibility to communicate the training materials directly to the respective user groups. Situation related examples will contribute to transfer the information from the training materials and use the feedback to improve the materials when required.

Capacity Development Instruments

In order to implement Capacity Development within the Rapid Planning project, several instruments are to be used accordingly to each target group and objectives to be pursued. The different Capacity Development instruments to be used were selected with regards of the following features:

- Instructive. Simple, with focus and stimulation of Capacity Development.
- Accessible. User-friendly tools that are based on previous experience.
- Inclusive. Addressing and engaging the relevant stakeholders.
- Localized. Adaptation to current local planning structures and resources.

„The main objective of Capacity Development is to strengthen already existing local institutions."

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Capacity Development Target Groups

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Presenters

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International Guests from Da Nang

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International Guests from Belmopan and Kigali

CAPACITY DEVELOPMENT FOR INTEGRATED DATA GENERATION

Presentation by Yaman Hebbo and Dr. Susana Restrepo Rico (FRA-UAS Rapid Planning Team)

Data generation in the Rapid Planning project refers to a methodological process for efficient collection and processing of data regarding population trends, urban condition, and consumption and disposal patterns of the city.

The Rapid Planning project offers methods and tools to facilitate the data collection, generation, harmonisation and computation, along with easier update of existing data sets. The result is a database that includes the necessary information about the city. The creation of this database includes three stages: preparation (at a city wide scale) collection (at a building scale), and aggregation (at a block scale).

Preparation: Understanding Urban Dynamics

This stage aims at giving an overview of the city by breaking down the complexity of the city into simpler modules, such as built environment, land uses, open spaces, urban nodes, mobility, public facilities, and infrastructure. In order to do so, the RP project has established building blocks as spatial units or main unit for data collection. The definition of spatial units allows the generalisation of data collected at the building level and to identify observable homogeneous building structure, functions, land uses or land-cover.

Data Collection

This stage aims at retrieving information from different sources and closing gaps in existing databases. The data to be collected are:

- Building types. This is a classification structure of existing buildings by typologies in accordance with the observable spatial features: use, height, style, etc. The hypothesis behind Rapid Planning Method is the existence of relation between building type and specific consumption and waste production values. Therefore the knowledge on the numbers of buildings of each building type is essential for the planning approach as well as the knowledge on the spatial distribution of the respective building types over the city.

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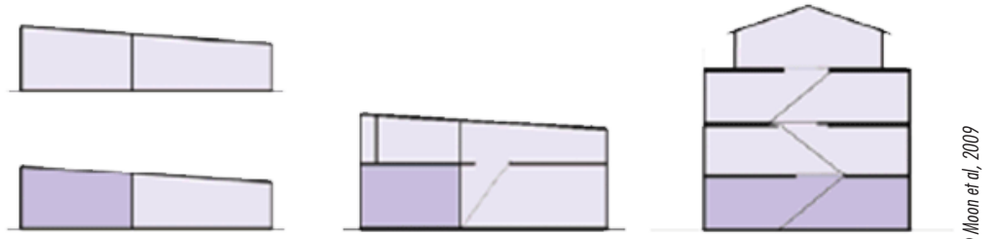
Example of Spatial Units



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Example of Diverse Building Types

- Reference data. Comes from a field survey that collects the data regarding the diverse building types.

- Sample areas. Sample areas are defined in accordance with the incidence of building types and help to shape the framework for the socio-economic and specific data surveys.

- Socio-economic survey. The socio-economic survey is based on quantitative data performed through structured questionnaires and electronic equipment. They are meant to characterise the socio-economic condition of the selected sample areas by collecting data regarding the social composition of households, expenditures, food consumption, income, education and jobs.

- Sector specific data. The specific sectors are households, commercial and public, and industry. The data about these sectors is collected through questionnaires, measurements, and sorting analyses and aims at identifying the patterns of consumption of natural resources, along with generation and collection of residues.

Data Aggregation

This stage refers to the combination of the obtained data through diverse methods in order to have a deeper understanding of the city.

CAPACITY DEVELOPMENT FOR SPATIAL ANALYSIS

Presentation by Yaman Hebbo and Dr. Susana Restrepo Rico (FRA-UAS Rapid Planning Team)

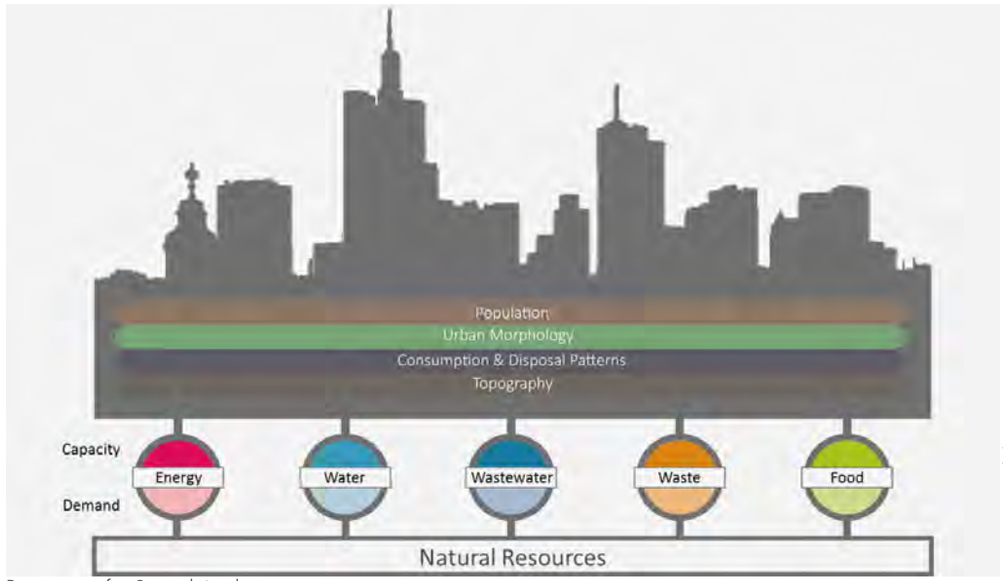
The Rapid Planning project has identified the following activities needed to understand the infrastructure development in a city:

- Spatial distribution of infrastructure demand and disposal needs
- Visualisation of the infrastructure development in the city
- Analyse the processes of urban metabolism in terms of the infrastructure sectors
- Assessment of the current condition of urban infrastructure
- Analysis of the impact of existing development plans on urban infrastructure
- Identification of infrastructure challenges

Parameters for Spatial Analysis

The following parameters have been set in order to gather the necessary information for the urban analysis:

- Urban development parameters:
  - Population, to calculate the per-capita consumption.
  - Density, to locate the demand.
  - Urban morphology, to anticipate consumption patterns on all scales.
- Sectoral parameters:
  - Specific planning values, such as demands of services and infrastructure.
  - Sectoral technical values, such as supply of services and infrastructure.
  - Networks, to observe the spatial connections to infrastructure services.
  - Operational costs, to see the financial requirements.
- Natural resources:
  - Available resources, to know the options for meeting the demand.
  - Location, to know the accessibility of the resources.



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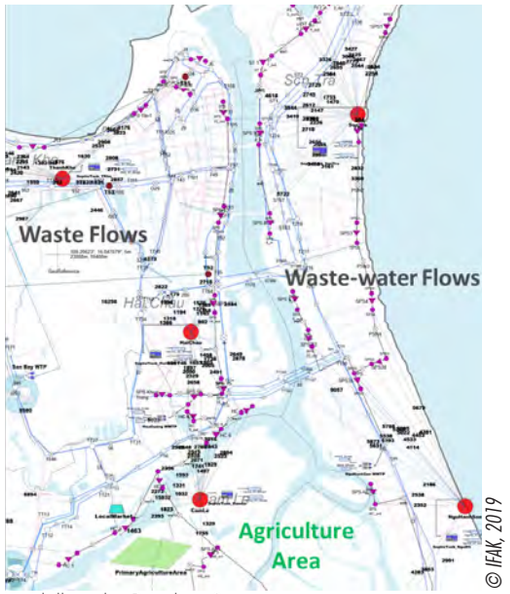
Parameters for Spatial Analysis



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Modelling the Baseline Scenario

- Capacity, to set sustainability.
- Quality, to know the resources utility.

Modelling Tool for Spatial Analysis

The above mentioned parameters are the main input for the modelling tool developed by the Rapid Planning team for spatial analysis. The objectives of this modelling process are:

- Rapid and integrated analysis of infrastructure networks
- Calculation of resource fluxes (different spatial/temporal scales)
- Calculation of sectoral interactions and synergies
- Supporting preliminary planning processes
- Generation of additional data and information
- Evaluation of technical and non-technical measures

The intended users of this modelling tool are planning authorities, municipal departments, water and energy supply companies, wastewater and solid waste collection companies, and the research community. The tool has the following features:

- Fast modelling of large scale infrastructure
- Customised calculation of resource fluxes
- Modelling and analysis of resource demand and disposal patterns
- Visualisation of infrastructure development
- Analysis of Scenarios
  - Simulation of short/long time periods
  - Consideration of variable boundary conditions
  - Easy integration/evaluation of measures
  - Possible future development of system states and resource fluxes
- Interface with Excel
- Sankey diagrams

Modelling the Status Quo

Modelling the baseline scenario refers to the visualisation of the current state of service provision and urban infrastructure in the city based on population distribution, demand for infrastructure, consumption of resources, and supply of infrastructure services. The modelling of the status quo allows a holistic understanding of the current conditions and needs for infrastructure in the city and helps to identify the challenges of infrastructure development to meet the demand.

Modelling the Future Development

Modelling the reference scenario refers to the visualisation of the future state of service provision and urban infrastructure in the city based on the current state and expectations, but considering future development visions and strategic sectoral plans. This visualization includes:

- Population and urbanisation growth
- Future demand for infrastructure
- Anticipated consumption of resources
- -Planned supply of infrastructure services

Therefore, modelling the reference scenario facilitates the assessment of existing development plans and their impact on urban infrastructure and helps testing the proposed infrastructure development measures and their feasibility to overcome the challenges and meet the needs of the future urbanisation.

CAPACITY DEVELOPMENT FOR TRANS-SECTORAL PLANNING

Presentation by Yaman Hebbo and Dr. Susana Restrepo Rico (FRA-UAS Rapid Planning Team)

Trans-sectoral planning in the context of the Rapid Planning Project is understood as the optimisation of infrastructure planning processes through the deliberate combination of synergies between urban infrastructure sectors. Trans-sectoral planning includes the following activities:

- Identification of the synergies between sectors that could close the urban metabolism cycle by utilising one sector's outputs as inputs for another could result in and more effective and efficient use of natural resources
- Definition of the appropriate technologies and the feasible interlinkages between infrastructure development options that can capitalise the trans-sectoral synergies
- Exploration of trans-sectoral infrastructure development options

Synergies and Technologies

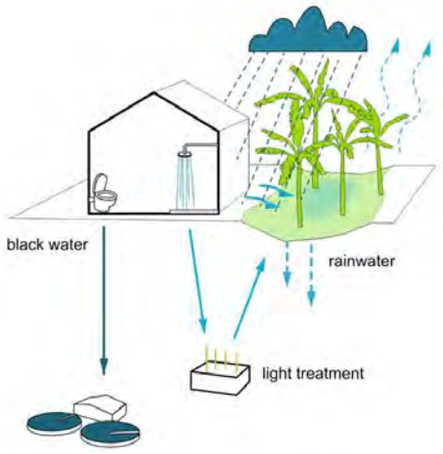
The concept of synergies is based on the utilisation of otherwise dismissible outputs of one sector as input to another. Synergetic approaches could produce environmental and economic benefits such as the reduction in consumption of natural resources. Saving primary resources by using the outputs of urban metabolism results in an optimisation of infrastructure and lower environmental impact.

Process Chains for Trans-sectoral Planning

A process chain refers to a sequence of infrastructure transactions across sectors utilising their interlinkages and synergies, defined by the local context and the technological options chosen.

The Rapid Planning Trans-sectoral Scenario

A RP trans-sectoral scenario refers to the modelling of an alternative future development scenario based on the integration of the selected process chains into the reference scenario. In order to do so, it is fundamental to examine the impact of the trans-sectoral options on the condition of infrastructure development for the future and to compare the proposed trans-sectoral infrastructure development with the existing development plans.



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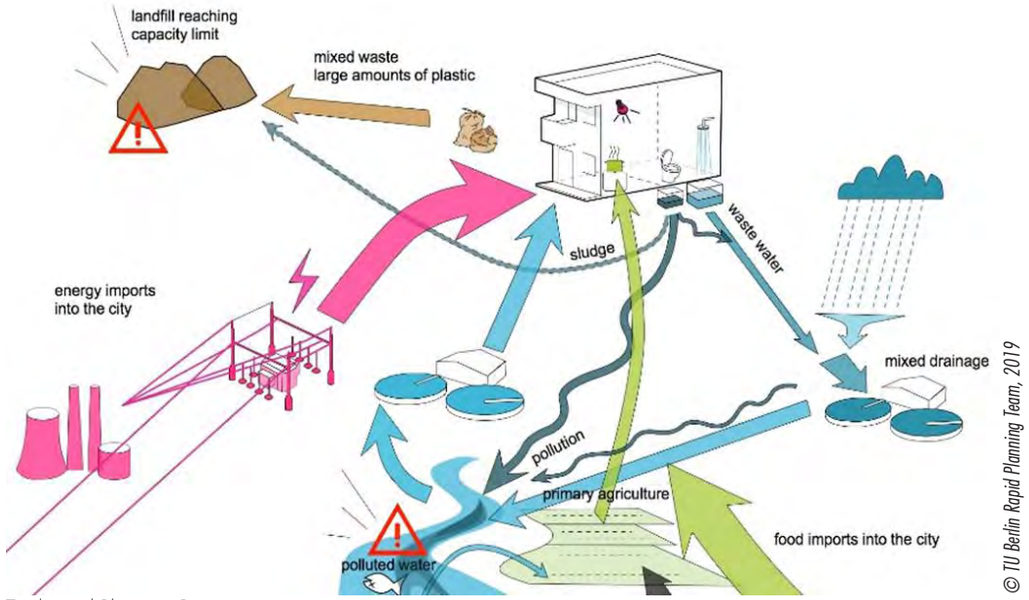
Synergies and Technologies

Evaluation of Trans-sectoral Scenarios

This evaluation refers to the appraisal of the impact produced by the process chains integrated into the Rapid Planning trans-sectoral scenario, analysing its effectiveness, sustainability and costs. The evaluation is the basis for selecting a feasible trans-sectoral scenario as vision for the infrastructure development of the city. The criteria for scenario evaluation will be both qualitative and quantitative.



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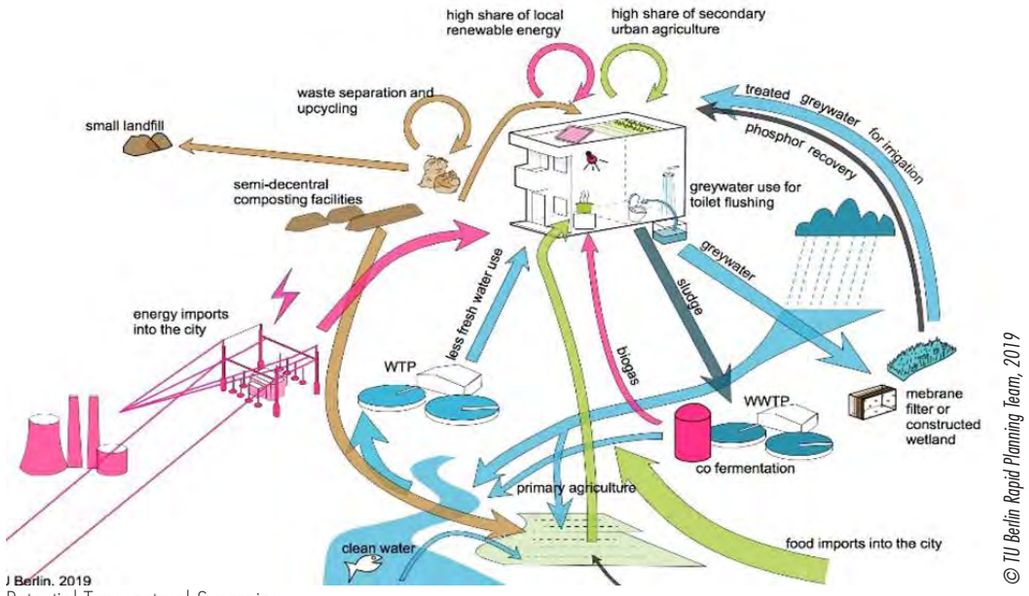
Traditional Planning Practice



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Potential Tans-sectoral Synergies

PLANNING AND PARTICIPATION IN FRANKFURT

Presentation by Prof. Peter Kreisl (City Planning Department Frankfurt am Main)

The workshop aimed at presenting the participation methodology used for the development of the Integrated Urban Development Concept and the strategic planning process for sustainable development in Frankfurt.

Urban Growth

The first part of the workshop focused on a theoretical background concerning growing cities and the challenges they face. Cities aim to be attractive places to live and work by integrating several cultural amenities, good environmental conditions, leisure activities, and appealing business locations. Nevertheless, urban growth also entails high demand on urban land and intensified usage due to existing shortage of urban land with city limits. This situation leads to several challenges, such as change of settlements structures, pressure on green areas, intensified use of public space, high traffic load, and regional inequalities and linkages, among many others. Urban planning deals with these challenges and opportunities by working on the development and design of land use and the built environment.

Frankfurt´s Spatial Planning System

In the case of Frankfurt, the Urban Planning Department is embedded in a spatial planning system that involves a multilevel governance structure. This system follows several policies from the European Union, the German Federation, the State of Hesse, and the City of Frankfurt. At the city level, the department has to couple with several sectoral policies such as the Master Plan for Industry, the Green Belt, the mobility strategy, the Master Plan 100% Climate Protection, etc. Added to the above mentioned regulations, the city still lacks an own planning process to coordinate land use issues, as this is by law done on the regional level. The key point to close this gap lies in the integration of sectoral policies, which entails the establishment of a shared agreement for the aspired urban development.

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Workshop at the City Planning Department Frankfurt am Main

Integrated Urban Development Concept 2030

For this matter, the city of Frankfurt developed the Integrated Urban Development Concept 2030. The aim was to define strategies for the desired functional and spatial development of the city as well as to define lead projects and spatial action priorities. The plan developed different scenarios the city could follow taking into account the future land use patterns, density and building typologies and densification.

For the development of the plan, an analysis of the status quo of the city was first required. This analysis included 11 sectoral layers and 5 cross-cutting topics, so the critical aspects of the city could be clearly pointed out from a multi-sectoral view. In addition, a participatory process was also formulated, which included several participatory strategies and formats, from general public information and dialogues to dialogues with experts and diverse municipal departments.

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Frankfurt 2030 Participatory Procedure

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Frankfurt 2030 Participatory Procedure

Europaviertel © *Vollmann, 2019*

GUIDED VISIT TO FRANKFURT EUROPAVIERTEL

Guided by Prof. Dr. Michael Peterek
(FRA-UAS Rapid Planning Team)

Europaviertel is the city's last major urban development and one of the largest inner-city conversion projects in Germany. It is located west to Frankfurt's downtown between the districts of Bockenheim and Gallus.

The area used to be the main freight station of the German railroads company -Deutsche Bahn- and its switching yard. The Deutsche Bahn operations in the area were discontinued in 1998 which gave the city a great opportunity to redevelop around 100 ha of valuable inner-city land and create a new urban mixed-use quarter. Moreover, the redevelopment would result in the integration of west and north-western districts into the urban fabric with the clearance of the railway lines. The development of this inner-city brownfield site is in line with the goals of sustainable urban planning in the city, as the redevelopment of inner-city districts is prioritised over the use of peripheral agricultural areas (Stadtplanungsamt Frankfurt am Main, 2019).

Planning for Frankfurt's Europaviertel district started 21 years ago and since then three development plans have been sanctioned. These development plans are governed by a localised legal zoning plan -Bebauungsplan-, which has been continually upgraded since its first publication in 2000. In total, the legal zoning plan comprises 145 ha, from which 100 ha were previously used by the Deutsche Bahn. The redevelopment concept is based on the provision of 25% of the total area to residential purposes, 25% to greenery, 25% to the expansion of the trade fair complex -Messe Frankfurt- and 25 % to mixed uses and core area. The initial legal zoning plan and its

Europaviertel © *Vollmann, 2019*

several modifications have been presented to the public as part of a citizens' participation process (Stadtplanungsamt Frankfurt am Main, 2019).

The backbone of the planning is the 60-meter-wide, tree-lined Europaallee. The boulevard-like street is aligned in an east-west direction and is bordered by a continuous seven-story perimeter block development. Design-wise, Europaallee is to be uniform in character from its beginning on Güterplatz to its end at the intersection with Am Römerhof. In the middle of the western area, the Europaallee descends into a tunnel over a distance of 400 meters. Above the tunnel, a park with an area of six hectares has been created. The Europa Gardens provides recreational facilities for the residents of the adjacent districts and improves connections

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within the urban fabric (Stadtplanungsamt Frankfurt am Main, 2019). In addition, another 7.4 hectares were reserved to create a new habitat for species that are under protection and endangered in Hesse and that already lived in the former access roads of the railway. The north part of the development aims to connect and integrate the expansion of the trade fair complex to the urban space. In the middle location, mixed-use quarters with offices, apartments, restaurants and social facilities are created. Also, four new subway stations will run parallel to Europaallee, connecting the new district to the public transportation network (Umweltamt Frankfurt am Main, 2019a).

The planned high-rise residential tower "Grand Tower" will be 172 meters high, making it Germany's highest residential building; 401 apartments are planned in the 47 storeys. Buildings of this type are also being built on Boulevard West and on the Emser Bridge, albeit at a lesser height. Furthermore, a certain share of the apartments in the districts will be social housing, being subsidised by the local housing authority (Umweltamt Frankfurt am Main, 2019a). The district is expected to create 30,000 jobs and around 3,500 apartments located close to the city centre and the main train station. In 2012, the Europaviertel was awarded the Platinum Sustainability Certificate; by such, the German Sustainable Building Council (DGNB) recognized the ecological, economic, socio-cultural, functional and technical quality of the urban quarter (Umweltamt Frankfurt am Main, 2019a).


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CONSIDERATIONS FOR REGIONAL INTEGRATION

Presentation by Dr. Ulrike Schinkel (IZES GmbH Rapid Planning Team)

The Regional Impact Assessment (RIA) is a methodology developed by the Rapid Planning team, made to visualise the economic, social and ecological impact of trans-sectoral planning and synergies. The focus area of this methodology is the city region, and is an indicator-based value chain assessment with a mix of qualitative and quantitative indicators.

The RIA is based on the concept of the Regional Added Value (RAV), which measures the regional value creation with an economic approach. The Regional Added Value looks for the difference between the revenues of production in a specific region and the total outside purchases. Therefore, an increase in the RVA entails the minimisation of imports of high value products and export of primary (low value) products. Within the value chain, as many stages as possible should be performed within the boundaries of the defined region. Therefore, RAV takes into consideration:

- The direct value added on the region: the value added along the value chain.
- The indirect value added: services e.g. maintenance and repair of construction technologies, use of by-products, etc.
- The induced value added: the increase of local purchasing power

The RVA may serve as a measurement for regional sustainable development; however, it is only an economic figure. In contrast, the Regional Impact Assessment integrates social and ecological values, which makes it a more holistic measurement of the sustainability performance of a regional value chain or a trans-sectoral synergy. RVA becomes, thus, one indicator for economic performance within the RIA.

Regional value chains also contribute to the achievement of Sustainable Development Goals, as more value added within the region leads to:

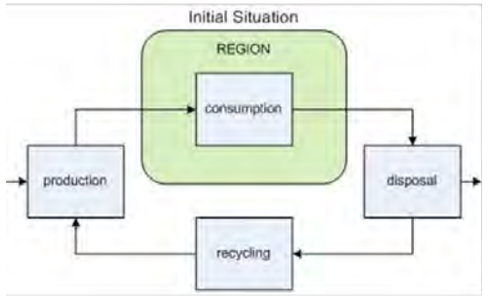
- Increase of income of regional companies
- Other economic benefits e.g. tax revenues, employment
- Social Benefits e.g. job creation, know-how, regional identity
- Ecological benefits e.g. climate protection, resource conservation, pollution control

The main focus of the RIA:

- Comprehensive methodology for measuring economic, social, and ecological impacts of a certain value chain or value network.
- Regional value creation by utilising trans-sectoral synergies.
- Based on economic, social, and ecological parameters.
- Integration of direct/indirect/induced effects by considering all relevant interconnections and dependencies in regional value networks that are created by the utilisation of trans-sectoral synergies.

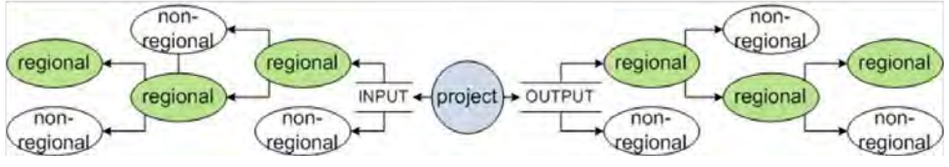
The RIA includes the following indicators:

- Economic indicators. Investment/ profitability/value added, stability of market, local economy/trade balance, resources.
- Social indicators. Quality of life, knowledge/education, employment, fair access/self-supply, gender equality.
- Ecological indicators. Atmosphere, hydrosphere, pedosphere, biosphere, material and energy balance.



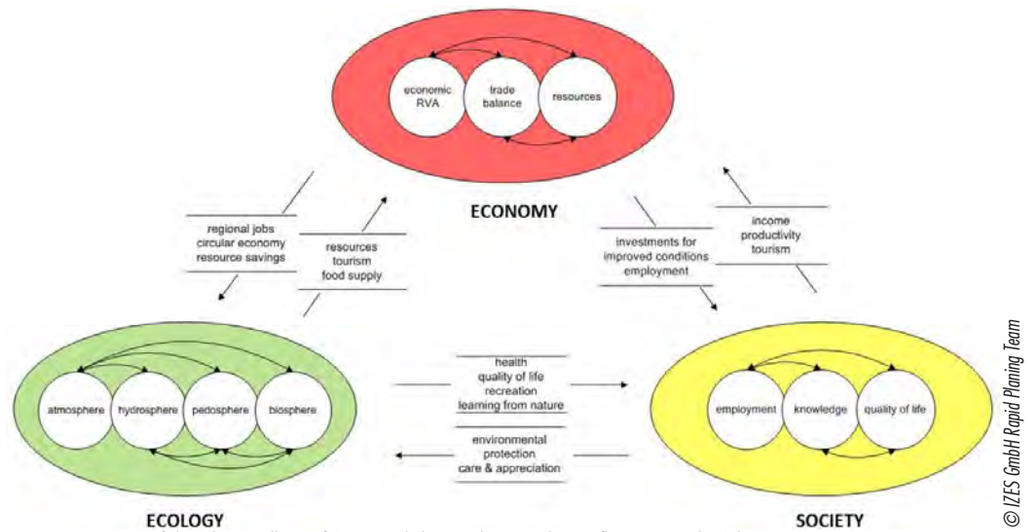
One stage of the value chain in the city/ region

Ideal: All stages of the value chain in the city/ region



Regional Added Value

Thus, the Regional Impact Assessment becomes a helpful tool for planning and decision-making. It can be used in different stages of the planning process and by all stakeholders involved, as it can be modified and downscaled. It can also be used to communicate political or planning decisions.



Interconnections of the Three Pillars of Sustainability and How They Influence Each Other

CONSIDERATIONS FOR PLANNING PROCESSES

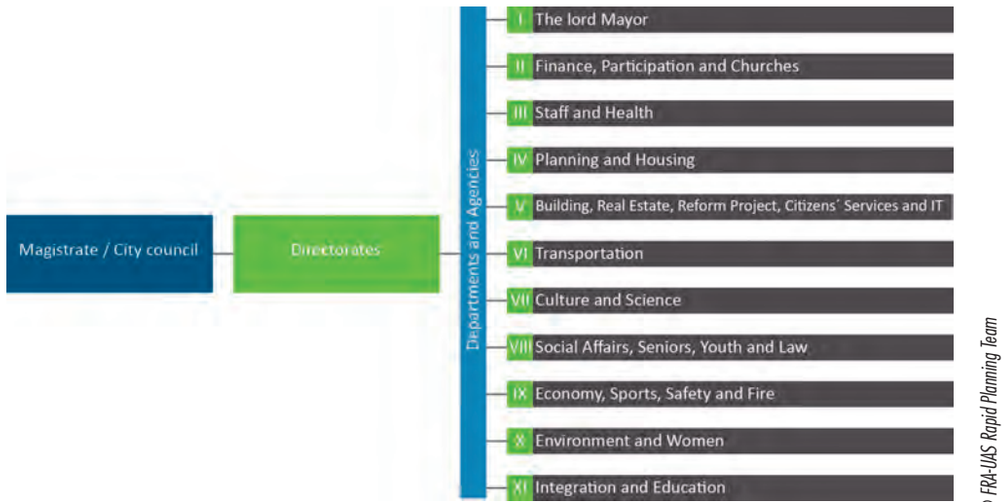
Presentation by Yaman Hebbo
(FRA-UAS Rapid Planning Team)

Frankfurt was established as a reference city for the Rapid Planning project. In this context, a thorough review was conducted in order to understand the city´s administrative structure and planning regulations, as well as the recent planning and development procedures in both fields of urban development and service provision. The conducted review is summarized in a set of considerations that seem to have an influence on the quality of the municipal progresses in Frankfurt. These considerations could be taken as a general set of recommendations that may benefit the case cities of the RP project, taking into account they must be put with respect to their local contexts. For a clearer understanding, the above mentioned considerations are organized according to their area of focus under three categories: Administrative Structures, Planning Systems, and Implementation Mechanisms. These categories represent the major components of the organization and functioning of public and municipal institutions. They can also serve later as a platform of points of discussion for comparative studies and knowledge exchange between the respective cities.

Administrative Structures

Under this category, three main features have been identified:

- Local Governance. Thanks to the tradition of decentralized administration in Germany, municipalities are defined as "corporate local self-governing bodies", which allows them to be responsible for the development and implementation of their own plans, strategies and measures. Therefore, in each municipality decisions are made by an institutionalized autonomous local authority, composed of different departments. The municipal departments have the capacity to propose and implement their own initiatives. For that, a clear definition and distribution of functions and responsibilities for each municipal department is clearly needed. In addition, each administration has the opportunity to evaluate and reorganize its administrative structure to better incorporate its development interests.



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Frankfurt´s Municipal Departments

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Documentation of Institutional Experiences

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Documentation of Institutional Experiences

- Competent Municipal Departments. Competent and transparent municipal institutions have been possible thanks to three main factors: a qualified staff, a supportive working environment, and continuous documentation of institutional experiences.

- Strong Inter-Departmental Collaboration. Proper engagement of several municipal departments in different projects of urban development has lead to meaningful cooperation, often been based on common problems to be solved or common objectives to be reached. Cooperation is regulated by legal frameworks, although non-formal collaboration is also authorized and encouraged.

Planning Systems

The planning system of a city includes its regulatory approach to urban planning, the characteristics of the decision-making process, the features of the planning and building laws as well as of the planning instruments and the stakeholders of urban development. In Frankfurt, the following features have made its planning system a successful one:

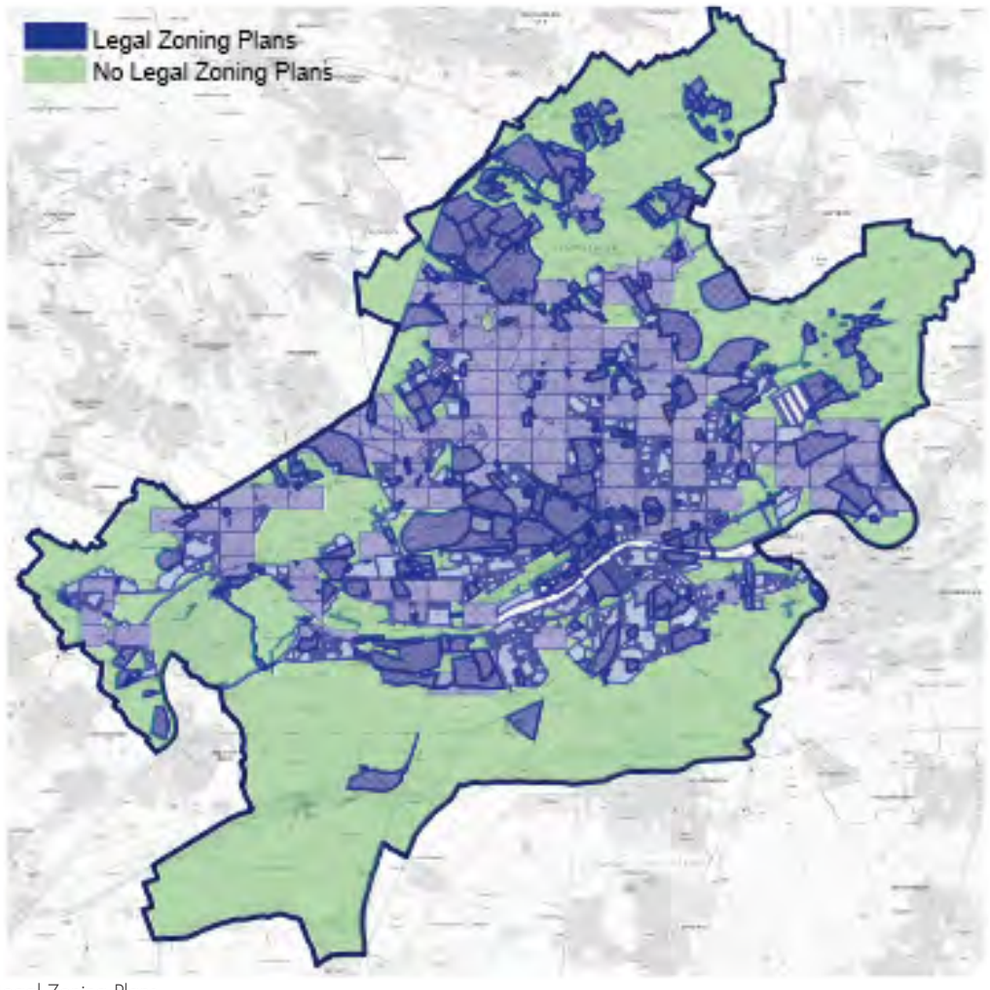
- Strategic Integrated Approach. The city has integrated two planning concepts in a coherent manner. Along with the implementation of strategic planning, as an action-oriented approach that manages expectations and participation of relevant actors within a specific time frame, the city has combined it with an integrated approach by creating a framework in which all the city´s main policies and programs can be supported, including all fields of development. In order to do so, the use of consensus building has been fundamental, as it enables municipal departments and relevant stakeholders to reach a common goal. In this process, clear and realizable visions are defined in specific strategies and action plans, prioritizing as well the projects that are more likely to accomplish the established development goals.

- Discretional Decision-Making. This point refers to the capacity of German municipalities to make decisions regarding their own course of actions with no need for authorization from central planning institutions. In this sense, Frankfurt has decided to address the city´s needs by area, instead of creating a general master plan. This has been done with different types of planning instruments and implementation mechanisms, as well as by choosing the city´s own times of initiation of urban planning process.

- Collaborative Planning System. When dealing with different issues of urban

development and service provision, it becomes necessary to include relevant public and private stakeholders to secure a successful urban development. The planning system of Frankfurt addresses this point through its legal framework, which establishes the inclusion of relevant stakeholders into planning processes. For a more fruitful collaboration, the time of involvement of certain stakeholders is determined at specific stages of development in order to obtain necessary feedbacks and contributions.

- Practical Planning Instruments. Frankfurt has a set of planning instruments which has enabled the city to cope with the evolving requirements of its urban settings and to handle the variety of development circumstances and challenges that can occur in different contexts. The planning instruments of the city can bee classified under three main categories: land-use plans, urban development measures, and urban development by-laws. After analyzing them, some conclusions may be highlighted: 1) each of these instruments can be utilized in a range of scales depending on the development circumstance, 2) they can be combined together, and 3) Frankfurt's planning instruments tend to incorporate a wider margin of flexibility if they cover larger areas.



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Legal Zoning Plans

- Entrepreneurial Engagement. Municipal policies show to an extent municipal entrepreneurship, reflected in municipal institutions´ new ideas and innovative solutions, ambitious development goals, and self-initiative.

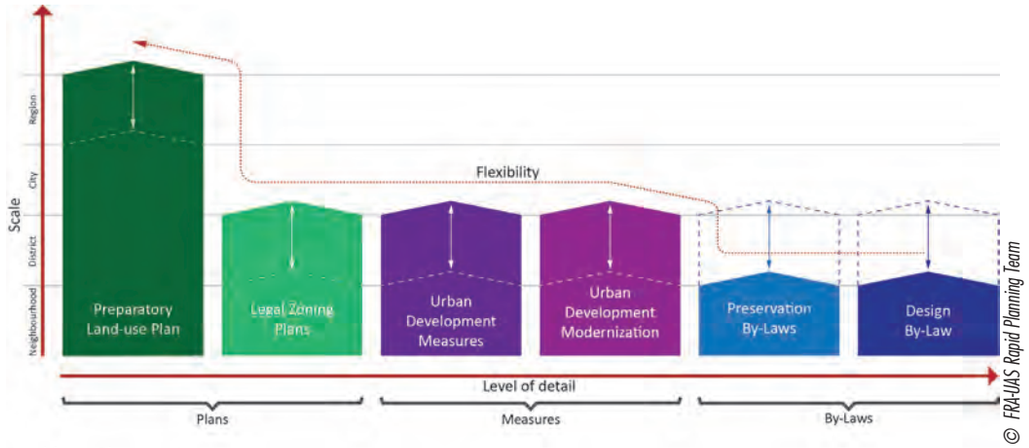
Implementation Mechanisms

This category refers to the established processes of the city to bring its enacted plans and development policies into realization. Under this category, the following features of Frankfurt implementation mechanisms may be highlighted:

- Public-Private Partnerships in Service Provision. The city addresses the high degree of complexity in technology and organization involved in the provision of basic urban services by creating partnerships with the private sector. These partnerships must adhere to the principles of public management, independent management, and business-oriented management.

- Potential Investments in Synergies across the Sectors. Synergies that can be found between the different sectors of urban services represent an opportunity for further investment that can increase the feasibility and efficiency of the overall operations of service provision. In Frankfurt, synergies have been possible thanks to the commitment of the city, available technologies and knowledge, and beneficial collaborations.

- Citizens Engagement. Several public participation strategies are currently ongoing in the city of Frankfurt, from formal to informal procedures. These strategies include important characteristics needed for a participation process to be successful, such as representativeness, independence, early involvement, influence, transparency, and resource accessibility.



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Frankfurt´s Planning Instruments

CONSIDERATIONS FOR CHANGE MANAGEMENT

Presentation by Dr. Ulrike Schinkel (IZES GmbH Rapid Planning Team)

The aim of the implementation of Change Management in the Rapid Planning project is to support the case cities in efficient and/or trans-sectoral planning and management.

Barriers

A questionnaire was conducted among members of the administrations of Kigali and Da Nang, in order for them to identify the barriers for trans-sectoral infrastructure planning and management. Although with differences in the hierarchy between the case cities, the participants recognized the following barriers:

- Awareness raising
- Technologies and procedures
- Capacity development
- Administration
- Communication, cooperation and coordination
- Regulation and enforcement
- Planning and management
- Finances

Rapid Planning Change Management: Areas of Change

Therefore, the above mentioned barriers become the focus for Change Management within the Rapid Planning project. Change measures are proposed to enable or facilitate trans-sectoral planning, thinking and acting:

- Awareness raising and education. Communication of advantages of trans-sectoral infrastructure planning and management with regard to the ecological, social and economic benefits for the region among various target groups. This change measure also entails strengthening the motivation to work with others and the acceptance of new technologies.

- Technologies and procedures. Utilisation of innovative IT solutions and procedures e.g. data gathering & computation, modelling, scenario development, and GIS-based mapping. Moreover, the application of innovative methodologies, such as the Regional Impact Assessment and the Obstacle-based Planning, and the utilisation of innovative technologies to activate trans-sectoral synergies.

- Capacity Development. Integration of learning and Capacity Development into the work routines of administrations and enterprises. This measure entails the inclusion of external knowledge through the cooperation with think tanks, universities, research institutions, and awarding of research contracts; and the enhancement of internal knowledge, by pooling the existing knowledge of the organization and feeding it into the system e.g. documentation, an online platform, fora and other exchange formats.

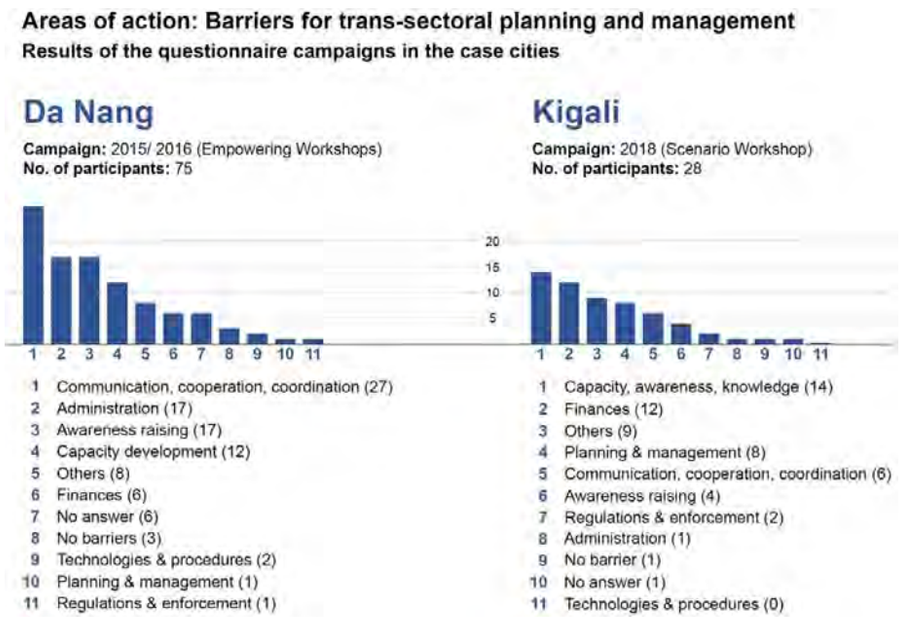
- Administration. Establishment of a strong leadership structure at both, the political and management levels and the optimization of several processes: simplification of administrative processes (planning and approval), integration of all relevant units and levels, avoidance of redundant administrative or process loops, and the development of uncomplicated administrative mechanisms e.g. for private sector involvement. Also, a more sustainable organizational development is needed (investment in staff).

- Communication, cooperation and coordination. This point entails change measures at different levels. First, trans-sectoral cooperation, communication and coordination must be enabled across different societal actors (public, private and civil society) by data exchange, sharing of information, and transparent decision-making processes. Second, the acquisition and use of innovative IT. Third, the balancing or negotiation of different interest, so that they can be considered in planning and management and integrated in formal binding plans. Fourth, the establishment of exchange formats through more informal processes.

- Regulation and enforcement. In order to enable and enforce trans-sectoral infrastructure planning and management, modifications of planning laws must be done. This entails the development and enforcement of internal regulations that foster trans-sectoral planning, thinking and acting and the development of technical standards e.g. for service delivery.

- Planning and management. Improvement of horizontal and vertical coordination by balancing and negotiation of interests. This measure aims at establishing an integrated thinking instead of silo thinking and to enhance participation of stakeholders by integrating private sector initiatives as well as all relevant stakeholders in planning processes.

- Finances. Allocation of budgets for change towards trans-sectoral infrastructure and management, along with the development of incentives for the private sector and individuals to develop and operate new technologies. The integration of new stakeholders is an option to find new funding sources. In this point, the Regional Integrated Assessment could help to increase the regional benefit, especially by assessing the costs and revenues related to material flows. In this sense, it would be preferable to support the use of local input materials to avoid regional imports and the development of local products and local markets.



Results of the questionnaire campaigns in the case cities

CAPACITY DEVELOPMENT FOR SCHOOLS AND THE GENERAL PUBLIC

Presentation by Dr. Susana Restrepo Rico
(FRA-UAS Rapid Planning Team)

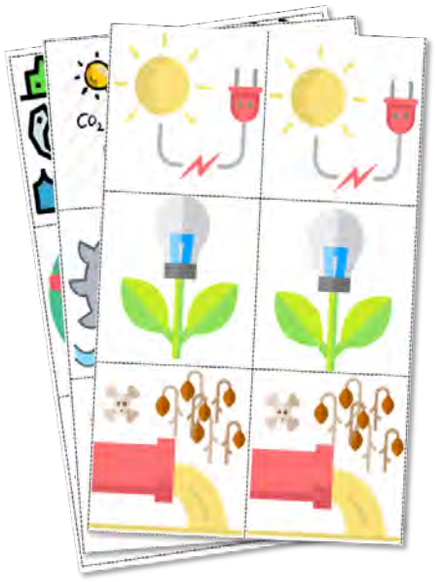
Capacity Development within the Rapid Planning project aims to develop different materials for four target groups: administrations, academia, schools and the general public. The approaches for schools and the general public were briefly presented, explaining the units/sessions structure and materials used to support learning processes with respect to RP methodologies and tools for each target group.

Capacity Development for Schools

The approach is to develop in-school projects and activities to raise awareness about resources consumption. Therefore, the objectives for implementing Capacity Development in schools are to generate a basic understanding of public infrastructure, to foster teamwork and stoke curiosity, and to raise awareness among children, who can later act as multiplicators of knowledge.

The Capacity Development structure for schools is divided into theory and practice. At the theory level, information is to be delivered about public services at home, impact of household consumption on urban infrastructure, and consumption reduction. At a practical level, children will be asked to collect data from their homes and to engage in collaborative teamwork. The activities will revolve around recycling concepts and trans-sectoral applications.

Two types of materials are to be delivered to schools in order to achieve the proposed objectives. One is teaching booklets, which will contain the mentioned theory and worksheets, practical projects for the classroom, questionnaires, and group games. The other one is short clips illustrating trans-sectoral in-school projects, showing the connection to the general context. There is the possibility to link these clips to other clips for academia and general public.



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Capacity Development Teaching Module

Capacity Development for General Public

The approach is to improve the collective knowledge and support learning and change among the general public. Therefore, the objectives are to raise awareness about urban issues and citizen´s responsibility and to inform the general public.

The structure of this approach will include the following themes, which will be delivered in the form of clips:

- The challenges of our cities
- NUA and the options for the future
- Entry projects and local engagement
- Capacity Development as a component of Rapid Planning
- City-to-city exchange of Rapid Planning

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Capacity Development In-school Projects

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RAPID PLANNING APPLICATION CONFERENCE

The Rapid Planning Application Conference took place on May 9th at the Planning Department of the City of Frankfurt. Around 80 participants took part in this conference from the project partners, the Federal Ministry of Education and Research, UN-Habitat, stakeholders from Kigali and Rwanda, and the general public.

The event started with special greetings from Martin Hunscher, head of the Franfurt City Planning Department; Peter Dommermuth, head of Frankfurt Environment Department; Andreas Baumgärtner, from the Federal Ministry of Education and Research; and Dieter Steinbach, coordinator of the Rapid Planning Project.

Peter Kreisl then spoke about the Integrated Urban Development Concept of the City of Frankfurt, and how it integrated collaborative and trans-sectoral processes.

Dieter Steinbach and Andrea Schultheis gave an introduction to the Rapid Planning approach, explaining its methodologies and tools.

Later, project partners and stakeholders from Kigali explained the development and application of the Rapid Planning methods and tools in Kigali, giving an insight into the following topics:

- Satellite image process used to identify housing types
- Determination of socio-economic data
- Scenario development process
- Vision illustration by means of Entry Projects

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Project partners and stakeholders from Da Nang talked about the development and application of the Rapid Planning methods and tools in Da Nang, which includes:

- Determination of specific planning values
- Empowering workshops for stakeholders
- Scenario simulation process
- Vision illustration by means of Entry Projects

The importance of the involvement of different stakeholders within the Rapid Planning project was outlined in the talks about Change Management and Capacity Development.

The Rapid Planning transfer and future cooperation for application was discussed in the topics of Cooperation with the UN-Habitat UrbanLab and the transfer and application to Belmopan, Belize.

The Rapid Planning Application Conference helped to clearly visualize the current status of the project, the research and different processes that have been accomplished so far, and the further activities to be developed.

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ENVIRONMENT PROTECTION AND OPEN SPACE DEVELOPMENT IN FRANKFURT

Presentation by Dr. Thomas Hartmanshenn
(Environment Department Frankfurt am Main)

Frankfurt am Main in Figures

Frankfurt has a population of 740,000 inhabitants (end of 2018), with 380,000 commuters coming every day to the city. It has an area of 248 square kilometers, from which 109 square kilometers are protected landscape area (44% of the city´s total area) and 43 square kilometers have an agricultural land use (17% of total area).

Frankfurt, a Green City

The main action areas of environment protection planning in Frankfurt am Main are:

- Urban climate and adaptation to climate change
- Open space management
- Climate protection and energy supply
- Waste management and recycling
- Activities against air pollution
- Reducing noise pollution
- Management of aircraft noise
- Waste water management
- Surface water management
- Nature conservation
- Landscape planning

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Frankfurt Green Spaces

In the Focus of Open Space Management: Frankfurt´s Green Belt

In 1991, the City Assembly took the decision of developing the Green Belt around the city area, with an initial surface of 8,000 hectares. In 1994, it became part of a bigger landscape protection area of about 10,850 ha. Since 1998, the Green Belt is the heart of the Rhein-Main Regional Park with many connections to its surrounding areas. Its value and outputs to the city include:

- Biotic (species and biotopes)
- Abiotic (climate, soil, water, air)
- Recreation and health
- Economic (agriculture, forestry, catering industry)
- Environmental education

The main parts of landscape within the Green Belt are:

- Small River Nidda. It is a central recreational area which also involves nature protection elements, such as restoration projects, settlement for storks and beavers, and serves as a transportation line for fresh air.
- Berger Rücken. This part which has open apple tree areas serves as a recreational and natural protection area, as well as it provides fresh air to the city.
- City forest. Located to the south of the city, this is Frankfurt´s most important green lung.

The Green Belt also includes a large amount of tracks and trails:

- 63 kms of main cycle tracks
- 68 kms of main trails
- About 10 "theme tours"

Several development programs and projects have a negative impact on the Green Belt e.g.

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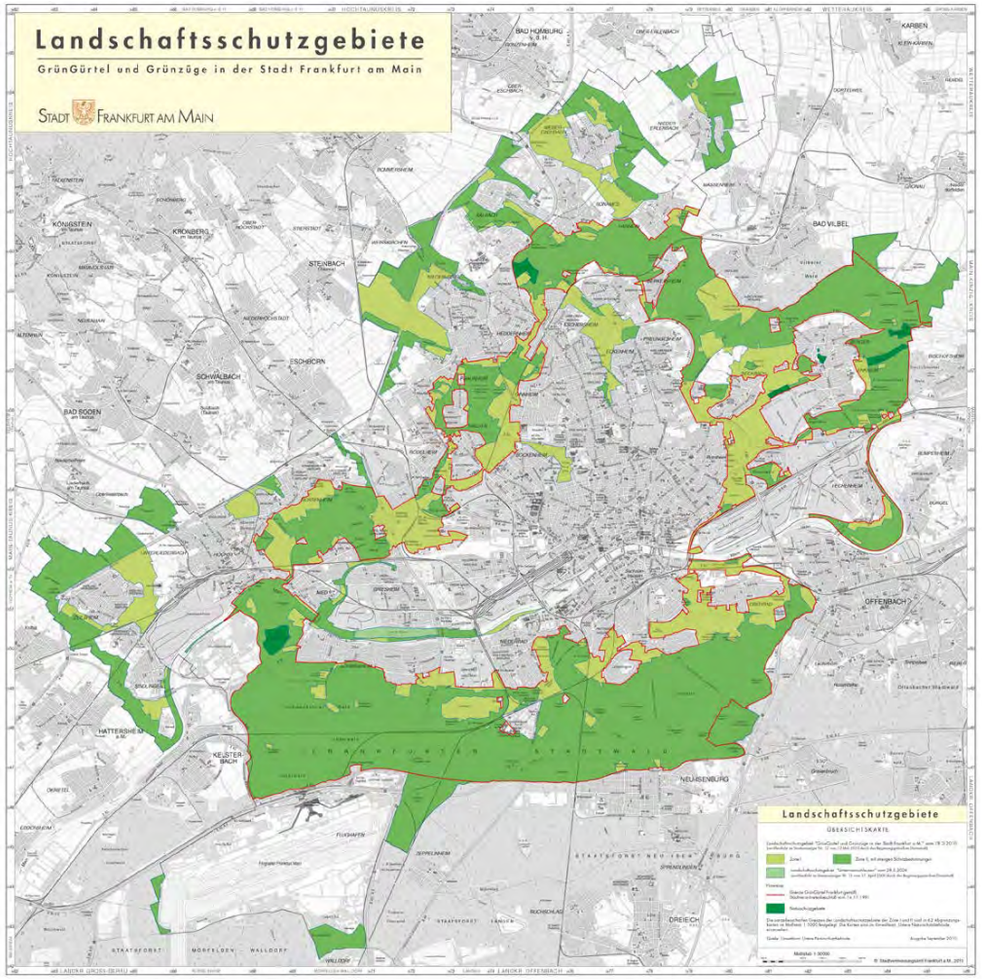
Frankfurt Green Spaces



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Frankfurt Landscape Conservation Areas

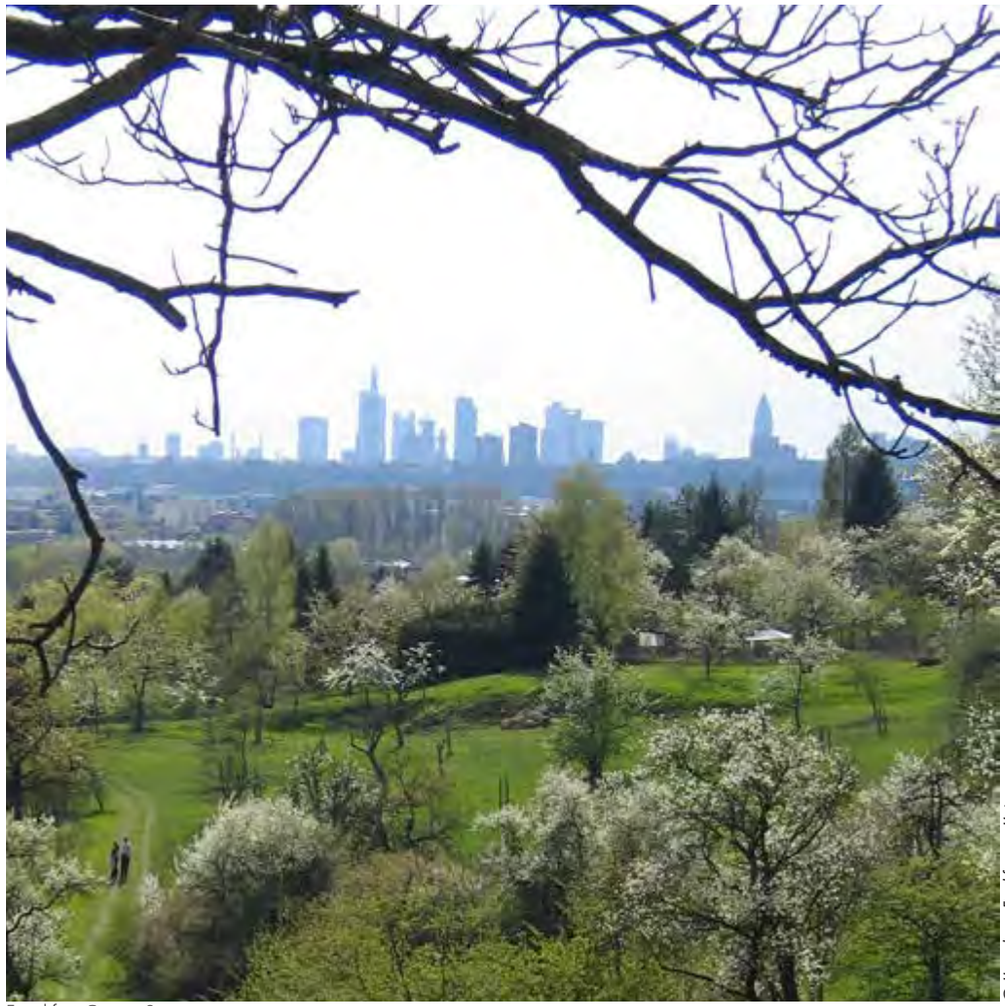
new constructions for living space or the expansion and construction of new traffic lines (roads and railways).

Counteracting this situation, proactive initiatives have been developed in order to sensitize and implement projects that would have a positive impact on the Green Belt:

- Green connections between the Green Belt and the city
- An Urban Climatic Map, which integrates urban climatic factors and town planning considerations. This map aims to act as a platform to planners to make more informed environmental planning decisions.
- Strategy for adaptation to climate change
- Concept for the development of open spaces
- Concept for the protection of species and biotopes

Some environmental-related programs and projects that are being developed in the context of open space management are:

- Fechenheimer Main Loop, which involves landscape planning and water management
- The Harbour Park



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Frankfurt Green Spaces

- Closing the landscape gap in the Green Belt
- Former airfield Bonames / Kalbach
- The implementation of the national project "Cities dare wilderness"

GUIDED VISIT TO FECHENHEIMER MAINBOGEN

Fechenheimer Mainbogen © *Vollmann, 2019*

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Fechenheimer Mainbogen © *Vollmann, 2019*

Guided by Dr. Thomas Hartmanshenn (Environment Department Frankfurt am Main)

The Fechenheimer Mainbogen project consists in the ecological redesign of 90 ha of the Fechenheim Main river arch, located in the east of Frankfurt. The project aims at creating an anti-flood water retention area for the Main River as an adaptation to climate change, building extensive water-related biotopes and developing areas for recreation. The project is part of the Frankfurt Green City process. It implements the European Water Framework Directive 2000 and represents the largest restoration measure along the banks of the Main river in the state of Hesse (Umweltamt Frankfurt am Main, 2019b). 72% of the costs of the renaturation of 4.2 million euros are provided by the state of Hesse, the rest is paid by the city of Frankfurt (Frankfurter Rundschau, 2019).

The project relies in 16 main aspects (Umweltamt Frankfurt am Main, 2019b):

- Landscape: In the next years, a natural landscape with a wild character is to be created here. The project comprises mainly large fields, grassland, woody and small and recreational gardens, which will include endangered and protected Hessian flora.
- Planning: This long running project will be implemented continuously, being started in 2012 and having a conceived midterm in 2025.
- Braided channels: Two artificial branches will be created, which will still be connected to the river and fed by it. They are aimed to provide a habitat for numerous fish, amphibians and birds.
- Backwaters: In contrast to the braided channels, backwaters are spatially separated from the river and are filled with groundwater. Backwaters are ideal spawning and nursery sites for some fish species and for amphibians. During the expected floods, a water exchange with the river Main will take place. This will allow fish such as crucian carp, rudd and tench to immigrate and have more space to grow up.
- Fish: The low flow rate and rich underwater vegetation that will take place in braided channels and backwaters will provide space for spawning and growing for a variety of fish species such as carp, crucian carp, nose, bleak, tench, rudd and pike.
- Amphibians: Diverse amphibians such as

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Fechenheimer Mainbogen © *Vollmann, 2019*

Fechenheimer Mainbogen © *Vollmann, 2019*

green frogs, pond newts and grass frogs are also expected to live in these new ecosystems.

- Dragonflies and crabs: Two special arthropods will find a habitat here, the dragonflies, which are among the largest domestic insects and the gill crabs, which are among the oldest living species.
- Birds: The Mainbogen can accommodate 59 different bird species and breeding birds such as oriole, moorhen, black kite, cormorant and grebe.
- Alluvial forest: Intact meadow landscapes are considered in Central Europe as the ecosystem with the highest species and habitat diversity. By restoring the natural water dynamics of the floodplain, typical alluvial vegetation can emerge again.
- Water plants: Rich underwater vegetation such as pondweed or algae can form in alluvial forests. In exchange, they contribute to the oxygen supply and to the self-purification of the water.
- Meadows: The meadows will have an important buffering function between the water surfaces and the remaining arable land.
- Banks: In order to stop the loss of species of flora and fauna, several banks of the Main River will be renatured. This measure will also be applied to the Fechenheim Mainbogen.
- Recreation: The planned landscape will create a natural environment with high recreational value for the population.
- Paths and bridges: The new network of paths with bridges, footbridges and viewpoints are expected to invite people to take a walk and experience this green oasis directly.
- Agriculture: The already existing agricultural use of the Mainbogen is to be maintained. Fields and meadows for this purpose will be relocated to the higher areas, where they will be better protected from flooding.
- Flood: Due to its lower level, the Mainbogen is a natural retention area. Therefore it makes an important contribution to flood protection for Frankfurt's city center and should be secured in the long term.


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SUMMARIZING THE RESULTS ON URBAN CHALLENGES, TRANS-SECTORAL PLANNING AND CAPACITY DEVELOPMENT

The 3rd International Capacity Development Workshop took place in Frankfurt am Main from May 6th to 10th, 2019. Representatives from the Rapid Planning case cities were invited, as well as several members form the Rapid Planning partner teams and international guests from Belize and UN Habitat. Constructive discussions about Capacity Development processes suitable for efficient trans-sectoral urban infrastructure planning developed during the workshop, exchanging knowledge and leaving important learnings among participants.

The aim of the first day of the workshop was to introduce the concept of Capacity Development and how it is incorporated within the Rapid Planning Project. In this way, Capacity Development supports the project by providing the necessary knowledge and instruments in order to understand and facilitate the implementation of the Rapid Planning Methodology. Regarding this purpose, a quick review of the Rapid Planning fields of action was presented in order to provide a general overview of the project to the participants of the workshop. Therefore, the stages of Data Generation, Spatial Analysis and Trans-sectoral planning were presented in a general way. As a component of the Rapid Planning Project, Capacity Development also supports institutional change management focused on resource efficiency and helps to incorporate trans-sectoral thinking between different sectors of urban development. In order to do so, Capacity Development works with different target groups (i.e., administrations, academia, schools and the general public) developing tailored materials, instruments and tools for each on of them.

"Constructive discussions about Capacity Development processes suitable for efficient trans-sectoral urban infrastructure planning are an element for exchanging knowledge and leaving important learnings among participants."

The second day of the workshop focused on the urban planning of the reference city, Frankfurt am Main. The workshop held at the City Planning Department gave an insight into the several challenges urban growth brings to the city and specifically to urban planning institutions. An overview of the spatial planning system of the city was provided, in order to present the several policies the city is ought to follow and the restrictions and challenges the City Planning Department currently faces. Also, the Frankfurt Integrated Urban Development Concept 2030 was presentend, a plan which aims to define strategies for the desired functional and spatial development of the city as well as lead projects and spatial action priorities. The plan includes an analysis of the status quo of the city, the development of different scenarios for the city, and a participatory process.

View of Frankfurt

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Later that day, the participants took part in a guided tour to the Europe´s District (Europaviertel). This district is one of the most recent major urban development project of Frankfurt, which converted a freight station into an urban mixed-use quarter. This development includes residential areas, green spaces, an expansion for the trade fair complex, and mixed-use quarters with offices, restaurants and social facilities.

On the third day, several considerations that have been included into the Rapid Planning Project were explained. The first presentation of the day introduced the mothodology of the Regional Impact Assessment, which was made by the Rapid Planning team to visualise the economic, social and ecological impact of trans-sectoral planning and synergies. The second presentation focused on the lessons learned from Frankfurt as a reference city regarding its administrative structure, planning regulations and development procedures. These considerations could be taken as a general set of recommendations that may benefit the case cities of the RP project, taking into account they must be put with respect to their local contexts. The third presentation introduced Change Management as a component of the Rapid Planning Project, which seeks to support the case cities in efficient and trans-sectoral planning and management. Finally, the Capacity Development approaches for schools and the general public were presented, along with the instruments and materials developed for each of the target groups.

"Examining the concepts of Capacity Development and trans-sectoral planning has proven to be a door to exploring many other major topics related to urban development as well as to urban management"

Integrated to the workshop was the Rapid Planning Application Conference. Its purpose was to present the Rapid Planning Project to a wider audience. The conference helped to clearly visualize the current status of the project, the research and different processes that have been accomplished so far, and the further activities that are to be developed until the end of the project.

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Rapid Planning Application Conference

Finally, the last day gave an insight into the management of environment and open spaces of Frankfurt. The presentation focused on the main action areas of environment protection in Frankfurt, as well as on Frankfurt's main open space, the Green Belt. Several development programs and projects that have a negative impact over the Green Belt were also part of the presentation, and how the Environment Department is dealing with them. This activity was complemented with the excursion to the Fechenheimer Mainbogen, a project that consists in the ecological redesign of 90 ha of the Fechenheim Main river arch, located in the east of Frankfurt.

"In principle, a series of three Interanational Capacity Development Workshops within the timeframe of the Rapid Planning Project have been perceived as a necessitiy to provide a platorm for the participating cities to exchange experiences, discuss development approaches and share the results of the project.

Interaction between the cities on the individual level of their representatives together with the involved researchers can also pave the way towards further cooperation for future progresses."

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Discussions during the workshop

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International Guests from Kigali

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Excursion to Fechenheimer Mainbogen

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Excursion to Fechenheimer Mainbogen

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