

# ORIGINAL TITLE: CONCEPTUALISING URBAN DEVELOPMENT ACTIONS TOWARDS AN ASSESSMENT OF (POTENTIAL) IMPACTS, TRADE-OFFS AND GLOBAL AGENDA TARGETS

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## **EXECUTIVE SUMMARY**

The study on "Conceptualising Urban Development Actions Towards an Assessment of (Potential) Impacts, Trade-offs and Global Agenda Targets" has been conducted by Prof. Dr. Philipp Misselwitz misselwitz@urbancatalyst.de and Christoph Walther walther@urbancatalyst.de on behalf of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. It served as a complement to the development of City WORKS, a web toolkit and working aid for the local implementation of global agendas.

In the study, 45 urban development actions were selected and analysed with regard to their potential impact and contribution to implement global agenda targets. The identified interlinkages have been described in the form of an IMPACT MATRIX, which is the main outcome of the study ⇒ see ANNEX I.

#### THE PURPOSE OF THIS ACCOMPANYING REPORT IS

- > to provide a short summary of City WORKS as a context for this study → chapter 1;
- > to describe the rationale that led to this outcome as well as methodological considerations → chapter 2;
- > to provide working definitions of the selected actions and impacts → chapter 3;
- > to provide a reading aid for the IMPACT MATRIX and the displayed interlinkages → chapter 4;
- > to provide recommendations on potential applications of the findings within City WORKS → chapter 5, and
- > to outline recommendations for further analysis and research → chapter 6.

## 1 - INTRODUCTION TO CITY WORKS<sup>1</sup>

Many mayors, city councillors and urban planners are overburdened by the challenge of aligning their local development with global agendas – including the 2030 Agenda, the Paris Agreement, the Sendai Framework for Disaster Risk Reduction, the New Urban Agenda and the Addis Ababa Action Agenda. City WORKS is conceived as a set of interlinked tools that help cities realise, analyse and tackle the implications of global agendas locally. It is based on the systemic thinking of GIZ's management model Capacity WORKS² but offers a targeted step-by-step process for the purpose of implementing global agendas at the local level. It thus aims at supporting cities and urban advisors in harnessing the potential of global agendas for the local context.

CITY WORKS AS A TOOLKIT:

- explains the relevance and impact of global agendas for cities,
- offers a methodology and sequence of tools to identify and prioritise goals, processes and cooperation potential for project implementation and policy design in cities,
- > provides a compass for finding solutions to identified challenges, ranging from over-arching governance issues to sector specific topics.

City WORKS aims to guide local actors in implementing global agendas in cities and communities and in overcoming urban challenges in an integrated manner by aligning local action with these agendas. It combines a methodological framework with references to urban sector specific approaches. The application process follows a standard sequencing of phases and underlying steps, which can be adapted according to the local context and needs. Each step provides a set of tools that can be applied in different settings, such as workshops.

The City WORKS prototype version, available in form of an interlinked set of Excel sheets, has been tested in different working contexts of GIZ. The user feedback informed the iterative development of City WORKS. Based on that, an open, user-friendly and web-based solution has been developed and can be accessed here: www.localising-global-agendas.org.

<sup>1</sup> Most of the following text is adopted from the City WORKS prototype. It is slightly adapted in order to introduce readers with no or little prior knowledge about City WORKS on its current state and intended purpose.

<sup>2</sup> See: https://gc21.giz.de/ibt/usr/wbt/gc21/public/wbt\_capacity\_works\_en/uk/index.htm

## 2 - APPROACH AND METHOD

The objective of this report is to support the development of City WORKS as a tool for a wide range of urban actors to assess links between general (normative) sustainability objectives (as provided by relevant global agendas such as SDGs, Paris Outcome, etc.) and specific fields of action and projects on the ground. The report therefore intends to address a specific needs area of local actors for additional support tools to

- > evaluate measures and projects according to their (anticipated) agenda benefit,
- encourage urban leaders and professions to move beyond their sectoral thinking by showing linkages to (multiple) agenda benefits and impacts, and
- provide inspiration for ways to improve impact through more integrated approaches.

2.1 CONCEPTUAL AND PRACTICAL CHALLENGES

The on-going global search for appropriate tools (such as City WORKS) to help translate global sustainability agendas into concrete actions recognises the need to mediate between universal agendas and locally specific sustainability challenges and implementation frameworks. For this study, this means to acknowledge that urban planning approaches and tools vary greatly across the globe. They change dynamically, are shaped by geographically bound planning cultures and are linked to specific local implementation contexts with diverse regulatory frameworks, governance arrangements and locally defined mandates.

We are therefore aware that City WORKS must remain an open and flexible tool that can respond to these local specificities. The resulting conceptual and practical challenges include that it is impossible to define a universal and exhaustive list of urban development actions (UDAs). We have therefore concentrated on measures that are likely to be relevant in a broad range of municipal contexts. Definitions of UDAs were deliberately formulated in a generic language, which is open to a variety of locally specific interpretations and flexible use.

The following sections mirror the structure of the IMPACT MATRIX (from left to right) to give background and explain methodological considerations.

#### 2.2 DEFINITION OF FIELDS OF ACTION

A review of literature on global and holistic urban development (e. g. WBGU 2016, UN Habitat 2016, 100 Resilient Cities 2019) was conducted, which informed the definition of fields of action to structure the selection of UDAs. These broadly respond to the range of sectoral tasks and themes generally to be addressed within cities (in decentralised governance contexts these would fall into the remit of municipal administrations). The following fields of action were defined:<sup>8</sup>



Mobility & Transportation



Building & Housing



Social Infrastructures



Urban Ecology



Water & Sanitation



Waste & Circular Economies



Energy



Economic Development



Strategic Urban Planning

<sup>3</sup> Several of the identified fields of action are belonging to Critical infrastructures, the lifelines of cities, which are organizations or facilities of special importance for the country and its people where failure or functional impairment would lead to severe supply bottlenecks, significant disturbance of public order or other dramatic consequences (government and public administration, finance and insurance industry, water, food, energy, information technology and telecommunications, transport and traffic, media and culture, health).

<sup>4</sup> The field of strategic urban planning is cross-sectoral and includes Urban Development Actions that we consider important and still comprehensive from sectoral perspectives (such as measures on disaster risk reduction, integrated planning and participation).

## 2.3 DEFINITION OF CRITERIA FOR SELECTION OF URBAN DEVELOPMENT ACTIONS

UDAs were assigned to the above-mentioned fields of action and iteratively reviewed, complemented and specified by testing their relevance to global agenda frameworks. The list for the report with specific definitions of the actions is presented in Chapter 3. The following specific criteria were defined to guide the selection process:

- > Focus on cities and local governments: All measures should be relevant to local municipalities/governments as the key target group of City WORKS.
- > Spatial relevance: All selected UDAs have direct spatial implications with regards to the physical/ constructive urban form and/or socio-cultural modes of urban life and co-habitation.
- > Sectoral mandates: As a whole, the list intends to cover key sectors relevant in municipal planning. Actions are structured according to sectors to invite stakeholders with a clear sectoral mandate as users of City WORKS.
- > Relevance for global agendas: All actions should have the potential to contributing to future-fit urban development and therefore provide (potential) linkages with global agenda targets within their scope.

## 2.4 DEFINITION OF DIRECT IMPACTS AND POTENTIAL IMPACTS OF URBAN DEVELOPMENT ACTIONS IN LOCAL CONTEXTS

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Given the systemic complexity and interdependence multiple UDAs can potentially yield the same impact: The reduction of carbon emissions, for instance, can be achieved with actions from the sectoral clusters of mobility & transportation, building & housing, waste & sanitation and energy. Thus, in order to effectively reduce carbon emissions, multiple UDAs must be taken and harmonised. The impacts are assigned to the social, economic and ecologic dimension of sustainable development. In total, 9 social, 5 economic, and 6 ecologic impacts were identified and established (for specific definitions see chapter 3).

The Study on the Co-benefits of the implementation of Mexico's Nationally Determined Contribution for the accomplishment of the Sustainable Development Goals co-funded by GIZ (GIZ 2018) informed the definition of the impacts to a large extent. The study conceptually explores relationships between the 2030 Agenda and NDC in line with the Paris Agreement. In addition to that, we could draw from a report on measures of sustainable urban development within the framework of international funding programmes we co-authored recently on behalf of the German Federal Ministry of the Interior, Building and Community (South Pole, adelphi & Urban Catalyst 2018).

To structure the impact of UDAs vis-à-vis global agenda targets the following categories were defined:

- direct impacts, to be expected if urban development action is carefully planned and implemented (marked in bright colour codes)
- potential impacts, can additionally be achieved if urban development action is carefully planned and implemented with special focus on the integration of related sectors (marked in pale colour codes)
- possible trade-offs: even if urban development
   action is carefully planned and implemented well,
   trade-offs with unaccomplished benefits are possible.
   Typical trade-offs are thus highlighted with exclamation marks to raise awareness
- **> no impacts**, unlikely to be achieved (empty box).

#### 2.5 IDENTIFICATION OF GLOBAL AGENDA TARGETS

In order to assess how UDAs (conceived as local action) contribute directly or potentially to global agenda frameworks, a list of targets was defined for each respective agenda framework. In addition, literature on localising global agendas was consulted in order to

better understand challenges, conflicts and potential benefits (UNDRR [2019a], UCLG [2015], Satterthwaite et al [2018], BBSR [2016], BBSR [2020]). For each framework, targets were defined as follows:

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> THE 2030 AGENDA



The 2030 Agenda (United Nations 2015a) is assessed by indicating direct contributions to its 169 targets and potential contributions to its 17 Goals.

→ https://sdgs.un.org/goals



#### > THE PARIS AGREEMENT

The Paris Agreement (United Nations 2015b) is assessed by indicating direct or potential contribution to climate change mitigation and/or adaptation.

→ https://unfccc.int/process-and-meetings/ the-paris-agreement/the-paris-agreement

#### > THE SENDAI FRAMEWORK FOR DISASTER RISK REDUCTION



The Sendai Framework for Disaster Risk Reduction (UNISDR 2015) is assessed by indicating direct or potential relevance to the "Ten Essentials For Making Cities Resilient".

→ https://www.undrr.org/implementing-sendaiframework/what-sendai-framework

#### > THE NEW URBAN AGENDA



The New Urban Agenda (Unites Nations 2016a) is assessed by indication direct or potential relevance to its eight "Key Commitments"

→ https://habitat3.org/the-new-urban-agenda/

#### > THE ADDIS ABABA ACTION AGENDA



the Addis Ababa Action Agenda (United Nations 2015c) was not assessed against individual urban development actions as viable channels of funding were considered to be too context-specific. However, criteria for a normative assessment based on the Agenda's seven designated cross-cutting areas<sup>®</sup> are outlined in the IMPACT MATRIX and further considerations are discussed in chapter 6.

→ https://www.un.org/esa/ffd/publications/ aaaa-outcome.html

The Ten Essentials for Making Cities Resilient were developed to support implementation of the Sendai Framework for Disaster Risk Management in collaboration with cities (UNISDR 2017). They are the basis for monitoring the progress cities make in reducing disaster risks (UNDRR 2019a, UNDRR 2019b). The logic in the "Ten Essentials For Making Cities Resilient" is a slightly different logic from the overarching SENDAI framework indicators (see also chapter 6). The Essentials (E) are linked to the SFDRR Priorities as follows: E1 > P2; E2 > P1; E3 > P3; E4 > P2, P3; E5 > P2, P3; E6 > P2; E7 > P2, P1, P4; E8 > P2, P3, P4; E9 > P4; E10 > P4.

<sup>7</sup> The Key Commitments represent an adequate summary of the NUA's essentials (United Nations 2016b), thus providing excellent value-based criteria to assess urban development actions.

<sup>8</sup> See: AAAA Articles 12-18.

# 3 – TABLEAU OF URBAN DEVELOPMENT ACTIONS AND SPECIFIC IMPACTS

#### 3.1 URBAN DEVELOPMENT ACTIONS



#### 3.1.1 FIELD OF ACTION: MOBILITY & TRANSPORT

<u>MT-1</u> **Developing sustainable public transport** can include diverse modes of transport such as: rail transport (train, metro/subway, tram), bus, ferry, cable-car, as well as sharing schemes for bikes and scooters. The provision and maintenance of the respective infrastructures necessary must be considered.

MT-2 **Expanding cycling infrastructures** entails the design and construction of bikeways that must increase safety for users, as well as facilities such as bike racks and special traffic signals. The expansion of cycling infrastructures is strongly associated with increased number of cyclists and better public health: if people shift from motorised private transport to bikes, air pollution is reduced, and physical activity increased.

<u>MT-3</u> **Improving walkability** can be achieved by ensuring easy and continuous pedestrian access to public spaces, facilities, and destinations in general. Human-centred urban design can contribute to creating lively public spaces that is attractive for pedestrians, for instance by reducing parking lots in inner-city areas or by ground floor activation and tactical urbanism.

MT-4 Ensuring accessibility facilitates physical and affordable access to urban services and public life for all, including marginalised people. In particular, the design of interfaces, e.g. in local public transport, access to buildings or road crossings, should be usable for all people. In case of emergencies, accessibility is crucial for e.g. firefighters or if evacuations are necessary.

<u>MT-5</u> **Improving traffic safety** concerns all actions undertaken for transport & mobility in cities that improve and satisfy the coexistence of different users, such as motor vehicles, cyclists and pedestrians. Special attention to vulnerable users, such as kids, the elderly and women must by payed. In addition to providing the necessary infrastructure, such as traffic lights and signs, the enforcement of laws and regulations plays an important role.

<u>MT-6</u> Improving existing transport infrastructure plays an important role in better connecting neighbourhoods, cities, regions and people, both by securing and upgrading existing roads and railways for different users, but also by securing existing infrastructures against natural forces such as floods, heavy rain or avalanches.

MT-7 Advancing mobility safety for women in (public) transport and at stops is particularly important. The deployment of sensitised security personnel, better illumination, video surveillance and the accessibility and readiness of security authorities can all contribute greatly.

<u>MT-8</u> **Ensuring integration of mobility systems** will be achieved through an integrated transport design, cross-cutting and supra-regional tariff systems, journey planning and efficient design of interfaces between different transport systems (mobility hubs), such as the seamless transition from public transport to last mile sharing services.

MT-9 Reducing air-polluting vehicles makes an important contribution to air pollution control and can be achieved by introducing restrictive laws and regulations on polluting vehicles, the introduction of parking tariffs or the general reduction of parking and traffic space. In turn, the necessary infrastructure for alternative technologies such as electric vehicles should be promoted.



#### 3.1.2 FIELD OF ACTION: BUILDING & HOUSING®

<u>BH-1</u> **Providing affordable housing** for urban dwellers in need requires public subsidies for building adequate and safe housing. The absorption and reinvestment of land value increases can, for example, cross-finance social housing development. Ideally, public housing companies expand and manage the stock of social housing and are held accountable by the authorities.

<u>BH-2</u> **Upgrading informal housing** aims at providing adequate living conditions for communities in precarious and vulnerable situations. This includes consolidating the premises, draining rainwater, improving public spaces, ensuring access to general urban services and legalising land and buildings.

<u>BH-3</u> **Promoting energy-efficient retrofitting of buildings** aims to improve the energy balance

of existing buildings. Thermal energy efficiency may be increased by focussing on better insulation, better cooling, or both, depending on local climatic conditions. Electric energy efficiency may be increased by promoting efficient appliances (e.g. exchanging light bulbs). The energy and climate costs for heating, cooling and electrification are thus reduced.

BH-4 Promoting the construction of eco-efficient buildings is characterised by following ecological building principles including the use of renewable (local) raw materials (wood, clay, bamboo, etc.) in construction and finishing. The aim is to recycle the materials used; the greening of the roof and façade can contribute to better climatic conditions inside the building and its surroundings.



#### 3.1.3 FIELD OF ACTION: SOCIAL INFRASTRUCTURES

- <u>SI-1</u> **Building and maintaining public schools** for primary, secondary and tertiary education is essential, especially in cities with a growing population. They are a prerequisite for literacy, social integration and professionalisation of citizens.
- <u>SI-2</u> Creating access to health care requires both extensive and publicly available basic and emergency medical services as well as the provision of health-related information offerings and educational programmes with a special focus on sexual health, vaccinations and local health risks, among others.
- <u>SI-3</u> Ensuring safe access to lively public spaces is a prerequisite for peaceful coexistence, urban safety and equal living in public spaces. The design and maintenance of lively, open and multi-purpose public spaces contributes significantly to this.
- <u>SI-4</u> **Improving public safety** in cities requires the implementation of a fair and inclusive approach to law

- enforcement and justice. To ensure long-term success, corruption in security authorities must be combated, possible approaches include a fair wage and good working conditions, proper equipment and raising awareness. Special priority is given to protecting the rights of social minorities.
- SI-5 Promoting community centres can be done through financial and political support to local initiatives that operate spaces for youth, neighbourhood or cultural work, but also for migrants and ethnic/cultural minorities. Especially long-term project support is necessary for the development of substantial community work.

<sup>9</sup> All four actions need building codes, construction techniques and appropriate building materials in order to promote resilience against multiple disaster and climate hazards, and to "build back better" in recovery, rehabilitation and reconstruction.



#### 3.1.4 FIELD OF ACTION: URBAN ECOLOGY

<u>UE-1</u> Creating and maintaining green urban spaces includes the development and maintenance of parks, gardens and ecologically valuable biotopes. For city dwellers, these spaces are important for physical activity, recreation and spirituality as well as reducing impacts of natural hazards and climate change such as heat waves and extreme rain events, protecting essential ecosystem functions.

<u>UE-2</u> Interlinking and protecting urban ecosystems makes an important contribution to biodiversity and as well as ecosystem functions for the city, i.e. fresh air supply, water infiltration, temperature regulation, etc. at an urban level. Networked blue-green corridors are developed on the basis of topographical and natural conditions, as the urban fabric integrates into the

ecosystem. By that, plant and animal communities can spread and stabilise.

<u>UE-3</u> **Revitalizing urban river spaces** includes renaturation and landscaping to achieve better flood management by increasing water retention while creating green recreation areas with improved public access and habitats for flora and fauna.

<u>UE-4</u> Implementing climate and disaster risk management supports data-based and more efficient design of urban adaptation strategies on different scales of urban planning and design. Modelled climatic information (e. g. on weather extremes or development processes) must be considered in planning processes.



#### 3.1.5 FIELD OF ACTION: WATER & SANITATION

WS-1 Building wastewater treatment infrastructures that clean and treat household and small business runoff and return it to the natural water cycle is an important component of basic public service provision. In addition, the runoff can yield energy (biogas) and recycled nutrients. The treatment infrastructure is to be provided with locally functional technologies (in terms of scale, climatic, geographic and urban conditions).

<u>WS-2</u> **Providing access to safely managed** sanitation services includes the access to clean toilets with hand washing facilities (e.g. in public facilities), laundry facilities as well as protected infrastructure for personal hygiene (e.g. showers).

WS-3 Conserving freshwater resources aims to keep water clean and envisages the protection of aquatic ecosystems. The economical use of water in households and businesses supports this, as does the recovery of grey water for irrigation, or for flushing toilets.

<u>WS-4</u> **Providing drinking water** that is safely managed and always available continues to be a global challenge. Climate change and increasing water scarcity as well as population growth and urbanisation pose additional challenges that require integrated water management.

WS-5 Managing rainwater is about creating infiltration and evaporation possibilities for rainwater, for instance by greening roofs, unsealing surfaces or storing rainwater temporarily (sponge city approach). Heavy rainfall events are thus softened and flooding reduced. Water reservoirs are replenished, risks for landslides and mosquito-based diseases reduced, and dry periods can be endured longer by the vegetation.



#### 3.1.6 FIELD OF ACTION: WASTE & CIRCULAR ECONOMIES

## <u>WC-1</u> **Implementing solid waste management** involves the comprehensive collection and disposal of

involves the comprehensive collection and disposal of household waste. Ideally, these should be sorted and recycled; informal waste collectors can make important contributions here and should be supported in their activities.

#### WC-2 Strengthening urban-regional food systems

focuses on the regional production, marketing and processing of agricultural products as well as food waste management, e.g. for biomass energy production. This reinforces local economic cycles and enables low-carbon supply chains. City and region thus collaborate closely, opening up opportunities for food security in cities and new development potential for rural areas.

## <u>WC-3</u> **Promoting a circular economy** can be

decisively supported by municipal actors, for example in the strategic orientation of municipal water and waste recycling companies. Circular economy relies on business models that recycle and reuse materials whilst taking an integrated view of production, distribution and consumption processes.

<u>WC-4</u> Growing food in the city can play an important part in food security and functions for social cohesion, public education and public health. Be it on facades, roofs, derelict land or as part of a park land-scape, urban spaces provide innumerable opportunities that can be used 'productively' whilst similarly offering urban residents new economic perspectives.



#### 3.1.7 FIELD OF ACTION: ECONOMIC DEVELOPMENT

#### ED-1 Establishing sustainable public procurement

is an opportunity for municipalities to gear public contracting to criteria of social and environmental sustainability. The public sector can thus strengthen sustainable economic practices while purchasing ethically correct products.

#### ED-2 Promoting inclusive urban economies can

be achieved by creating jobs for unskilled people, microfinance for start-ups or the integration of informal economies. Local authorities can structure their own operations accordingly and introduce inclusive legislation, including training, further education, counselling and qualification offers. Good cooperation with the private sector, however, remains crucial.

ED-3 Strengthening municipal finance is essential to financing sustainable development locally. It involves the generation of revenue (local tax collection, charges, intergovernmental transfers), the access to finance and loans, as well as solid financial management in order to make long-term investments in resilient infrastructures

and climate action and to build capacities locally.

<u>ED-4</u> Establishing infrastructures for information and communication technologies (ICT) involves first of all the basic availability of the Internet and mobile communications. The provision of urban services in potentially all sectors can become more efficient by applying digital ICT-based solutions, yet the technological sovereignty of municipalities and e-literacy of citizens must be ensured.



#### 3.1.8 FIELD OF ACTION: ENERGY

<u>EN-1</u> **Promoting green technologies** in the energy, transport, water/sanitation and construction sectors by supporting climate-friendly urban development and ideally building on locally available resources. Municipally owned corporations and municipal energy utilities can set examples in this field.

<u>EN-2</u> Enhancing decentralised renewable energy generation through combined heat and power plants, photovoltaics, wind energy and small hydro power plants reduces electricity reticulation costs but requires adequate grid and demand side management as well as storage solutions. It also decreases dependence on centralised (fossil) power plants.

<u>EN-3</u> **Providing safe access to electricity** for all and in line with people's needs reduces accidents while in-

creasing the stability and reliability of electricity supply. To gain acceptance for formalised electricity supply, affordability must be ensured, if necessary, through (cross-)subsidization of the poorer customer groups. In order to support stability of the grid at the decentralised level, adequate certification and registration procedures of the renewable energy installations should be put in place.

EN-4 Promoting sustainable cooking fuels reduces dependence on charcoal or kerosene. Alternative sustainable energy sources can be LPG (liquified petroleum gas) as well as electricity / heat from renewable sources in the long run, which in turn requires infrastructure development and capacity building.



#### 3.1.9 FIELD OF ACTION: STRATEGIC URBAN PLANNING

SP-1 Creating a culture of citizen participation requires good collaboration at eye level between public administration, urban society and regional/national actors. It creates a higher level of acceptance for urban development measures at different scales and requires clear and transparent rules. Also important is to ensure effective citizen consultation and grievance mechanisms as well as effective communication campaigns between authorities and civil society.

<u>SP-2</u> Developing an integrated urban development plan is an important foundation for strategic planning towards sustainable urban development, which requires consideration and balancing between different development options and needs. The integrated development across sectors (ecology, transportation, housing, municipal finance, water and energy, etc.) and cross cutting topics like disaster risk management and climate change must be ensured. Likewise, the integration of different actors, i.e. public institutions, civil society and academia, etc., as well as urban, peri-urban and rural areas is key for shaping the urban development in coherence with competing interests.

<u>SP-3</u> **Developing a guiding future vision** can, alongside global agenda frameworks, negotiate and define local development goals by involving a variety of relevant urban actors. Decisions on future development options can build on the values agreed upon.

<u>SP-4</u> **Installing disaster response plans** requires city-wide provision of emergency services, continuous improvement and monitoring of early warning systems, as well as a clear distribution of responsibilities in the event of a crisis.

<u>SP-5</u> Creating post-event recovery plans shall include all phases and aspects of recovery. From an urban development point of view, the plans should also consider opportunities to build back better and more resilient urban structures.

<u>SP-6</u> **Applying land-use management** can be a useful tool, particularly in growing cities with competing land use demands and multiples hazards. The aim is to determine the most appropriate, socially equitable and ecologically sound and efficient use of the available urban land and thus contributing to integrated and sustainable urban development.

#### 3.2 IMPACTS

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#### 3.2.1 SOCIAL IMPACTS

- 1 Strengthened social cohesion in urban milieus refers to inclusive and peaceful coexistence, intact neighbourhoods and an urban society based on solidarity it counteracts social segregation and exclusion. Measures that do not have an inclusive effect per se can potentially lead to trade-offs.
- 2 Improved infrastructures for better quality of life refers to the physical and structural functionality of the city and is achieved through measures that create better infrastructural conditions on a city-wide level.
- 3 Improved public health refers to urban development measures that contribute to better protection of the population against extreme weather conditions, diseases and endangering environmental conditions, such as air or water pollution, as well as measures that improve and promote physical activity in public spaces, and that improve better access to health care.
- 4 Reduced vulnerability refers here to increased adaptive capacity against climate-related and geophysical hazards. Reduced exposure and sensitivity of the urban population are effects of urban development measures that have an impact here.
- 5 Improved building conditions for better quality of life are set in order to leverage climate mitigation and adaptation as well as disaster risk prevention and reduction measures in the building sector and to make architecture and related infrastructural conditions more sustainable and resilient.
- **6** Increased resilience refers to the ability of urban systems to respond to external (future) shocks quickly and effectively so that the provision of basic services is ensured. A high degree of diversity in social, ecologic and economic urban systems contributes to higher resilience.
- 7 Contributions to food security should ensure that people always have access to affordable and high-quality food that meets their nutritional needs, especially in growing cities, where food systems often tend to be under stress.
- **8** Strengthened governance refers to measures that contribute positively to good cooperation between politics, the public administration, the general public and, if necessary, the private sector.
- **9** Improved public management refers to measures that contribute positively to a good functioning of public administration, including municipally owned corporations, in order to advance sustainable urban development effectively.

#### 3.2.2 ECONOMIC IMPACTS

- 10 Increased resource efficiency is a central sustainability strategy that aims at measurable increases in efficiency, that is, achieving the same performance with less use of resources.
- 11 Advancing technological change implies the adoption of measures that promote the use and implementation and use of new digital and/or environmental technologies.
- 12 Creation of local businesses and jobs is supported by measures that improve conditions for trade, production, services and start-ups (also in the informal sector).
- 13 Sustainable supply chains ensure that negative effects on the environment and society are avoided at all stages of production processes based on the division of labour urban spatial conditions can support this goal, in most cases indirectly.
- 14 Contributions to energy security are provided by measures that make urban energy supply resilient to geological, geopolitical and economic risks, they aim at diversification, decentralisation and increased energy efficiency.

#### 3.2.3 ECOLOGICAL IMPACTS

- 15 Reduced carbon emissions make an important contribution to mitigating climate change through measures that replace carbon-dependent urban services and functions with post-fossil alternatives.
- 16 Improved air quality is achieved through measures that reduce exhaust gases in transport, industry and private households as well as anaerobic digester gases and/or promote fresh air exchange in the city.
- 17 Reduced noise emissions are achieved by measures that make noise-intensive infrastructures redundant or replace them with quieter infrastructures.
- 18 Conservation and regeneration of ecosystem services is achieved through measures that realign anthropogenic patterns with existing ecosystems that are thus protected and restored. Special attention must be payed to improved management of biodiversity.
- 19 Improved condition of water resources requires measures that address different aspects of the urban water cycle through infrastructural, ecosystem-based or consumption-changing action
- 20 Improved condition of soil in cities can be supported by surface unsealing, the promotion of permeable surfaces and efficient land use as well as measures against organic and inorganic soil contamination.

# 4 - LINKING URBAN ACTION WITH GLOBAL AGENDA GOALS AND TARGETS

While chapter 2 introduced the criteria for selecting UDAs, discussed (potential) impacts and trade-offs, and described relevant global agenda targets, chapter 3 provided working definitions of actions and impacts. The purpose of this chapter is to explain the rationale behind the IMPACT MATRIX document (see ANNEX I). The Excel document links actions, impacts, co-benefits and trade-offs to global agenda targets following the rationale of a log-frame. Here, we attempt to provide guidance on how the document should be read and used, and also state clearly the limitations of this methodology. The chapter also points towards suggestions for how to use the MATRIX for the development of specific City WORKS tools which are further elaborated in chapter 5.

#### 4.1 HOW TO READ THE IMPACT MATRIX?

The main objective of the IMPACT MATRIX is to help assessing the impact of these actions (lines 7–51). The columns of the IMPACT MATRIX (reading from left to right) offer a structure that can guide the assessment process.

- > Direct impacts are highlighted in bright colour;
- Potential (indirect) impacts are highlighted in lighter shade;

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- Potential trade-offs are highlighted with exclamation marks;
- > If no impact is expected the table is left blank<sup>10</sup>

**Columns A–C** list the nine fields of actions (cf. chapter 3.1), each of which is assigned to a varying number of (coded) UDAs.

**Columns D–W** assess likely direct impacts, potential (indirect) impacts as well as trade-offs. Nine social (D–L, pink colour code), five economic (M–Q, blue colour code), and six ecological (R–W, green colour code) *impact categories* were established.

Columns X-AN assess the link to the Sustainable
Development Goals of Agenda 2030 and specific targets.
They show to what extent the SDGs are likely to be directly or indirectly addressed by specific UDAs:

- Direct interlinkages to specific SDG targets are highlighted in bright colours according to the (official) SDG colour code;
- > Potential interlinkages are highlighted in lighter shades with SDG targets tentatively assigned to the social (pink), economic (blue) or ecological (green) dimensions of sustainable development<sup>14</sup>,
- In case no interlinkages are likely to be expected the table is left blank.

**Columns AP and AQ** show direct and potential impact of UDAs with regards to climate change mitigation and adaption in line with the *2015 Paris Agreement*:

- > Direct impact is highlighted in light green,
- Potential indirect impact is highlighted in pale light green,
- > If no impact is expected the table is left bank.

Columns AR-BA show direct and indirect relevance of UDAs with regards to the "Ten Essentials for Making Cities Resilient" that operationalise the <u>Sendai Framework for Disaster Risk Reduction</u> for the local level:

- > Direct relevance is highlighted in purple,
- > Indirect relevance is highlighted in pale purple,
- > If no impact is expected the table is left bank.

**Columns BB–BI** assess direct and potential relevance of UDAs with regards to the "eight commitments" of the *New Urban Agenda*:

- > Direct relevance is highlighted in orange,
- > Indirect relevance is highlighted in pale orange,
- > If no impact is expected the table is left bank.

<sup>10</sup> For definition of impact categories see chapter 2

<sup>11</sup> See also: WBGU 2019

<sup>12</sup> See also footnote 6 on page 8 of this report.

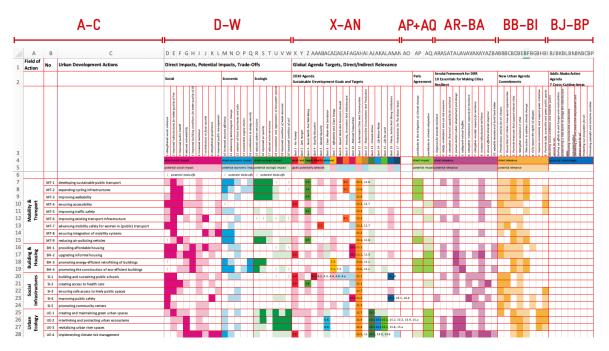


FIGURE 1: Different columns of the impact matrix

Columns BJ-BP can be used to assess direct and potential relevance of UDAs with regards to the *Addis Ababa Action Agenda*. As mentioned in Chapter 2.5, the Addis Ababa Action Agenda was not assessed in detail. However, criteria for a normative assessment based on the Agenda's seven designated cross-cutting areas are outlined in the columns BJ-BP and further considerations are discussed in chapter 6.3. If used for further analysis, direct and potential impacts can be marked as follows:

> Direct relevance is highlighted in blue,

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- > Indirect relevance is highlighted in pale blue,
- > If no impact is expected the table is left bank.

#### 4.2 LIMITATIONS

The investigation of 45 UDAs with regard to the 57 assessment criteria described above (all added, columns D–BP) has resulted in the identification of a total of 2565 interlinkages, which are mapped in the IMPACT MATRIX. The interlinkages were defined based on the specific definitions of the UDAs, impacts and global agenda targets (as defined and adapted in this report). They were then displayed in the table according to the above-mentioned criteria and finally consolidated through an internal review process.

Within the scope of this study, it would prove impossible to provide an extensive rationale for all 2.565 potential interlinkages. Interlinkages as shown in the IMPACT MATRIX should be understood as guiding *correlation hypotheses* which cannot take specific local conditions into account. Ultimately, the relevance or irrelevance of interlinkages must be defined and validated through a local lens. Moreover, in order to recognise *potential impacts* of UDAs, both local knowledge and practical know-how of the implementing actors is crucial. The assessment of potential impacts made here should explicitly not exclude further possibilities. Sectoral experts will certainly identify additional potential impacts that will enrich the IMPACT MATRIX and the discussions around it.

## 5 - POTENTIAL APPLICATIONS

## 5.1 EXERCISE 01: QUALIFYING URBAN DEVELOPMENT ACTIONS

A first set of exercises could focus on the translation of UDAs to specific local contexts. Sector-employed municipal staff and decision makers will be able to identify "their sector" as first easy entry point into the MATRIX. On this basis, discussions on the local formulation of specific actions or bundles of measures can begin. Sensitising and raising awareness for co-benefits can thus serve as a starting point for collaboration across departments and disciplines in order to address complex urban challenges in the most effective and efficient way possible.

The IMPACT MATRIX also includes an Urban Development Action Assessment Tool (see here on City WORKS website). It serves as a template for a step-bystep evaluation of a given urban development project/ measure/action and can potentially be used and adapted in City WORKS processes/workshops to assess specific and locally relevant projects on the basis that was developed and applied in this study. The tool features the colour code applied in the IMPACT MATRIX and thus facilitates the comparison of the self-conducted assessment with the UDAs outlined and assessed in this study. For this purpose, the content of the IMPACT MATRIX can be accessed and copied from the UDA Template (see ANNEX I for instructions). Ideally, the tool will serve as a basis for discussions among local stakeholders. Here, the aim should be to sharpen a common understanding of the direction, impact and possible co-benefits of locally specific projects.

## 5.2 EXERCISE 02: FROM POLICY GAPS TO CO-BENEFITS

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Another set of exercises could build on the self-assessment of urban-relevant SDG targets, as outlined in the City WORKS toolkit. The referenced City WORKS tool/workshop aims at supporting local understanding of the relevance of targets beyond SDG 11 and helps to position local stakeholders and their city in relation to SDGs (goals and selected urban-relevant targets). The result of this exercise is an overview of the SDGs/targets in which a city is well positioned while also identifying SDGs/targets towards which a city has gaps to address (see Figure 2, p. 18). Based on that, policy gaps can be prioritized and translated into urban development actions as outlined in the IMPACT MATRIX.

Here are two fictional examples for linking the selfassessment tool with step 3 of City WORKS, which is concerned with the identification of measures.

#### 5.2.1 DERIVING URBAN DEVELOPMENT ACTIONS FROM SINGULAR POLICY GAPS (SDG TARGET LEVEL)

For example, a city decides to solely prioritise on SDG target 6.1 "By 2030, achieve universal and equitable access to safe and affordable drinking water for all". The IMPACT MATRIX would then suggest consideration of the following actions:

#### Urban development actions for SDG target 6.1

- > WS-2 providing access to safely managed sanitation services
- > WS-3 conserving freshwater resources
- > WS-4 providing drinking water

As the IMPACT MATRIX along the present report qualifies the urban development actions, the city/ actors would be provided with further insights on other (potential) impacts the Actions could result in.

ANNEX I, Excel sheet 4, displays an exemplary Impact Assessment for Urban Development Actions Targeting Goal 6.1: The specific impacts of each action are displayed (column D, E, F). The assessment shows full embracement of Goal 6.1 results in a multitude of interlinked impacts (co-benefits) related to other SDGs and global agenda goals, if all suggested UDAs are implemented (in reasonable quality). The findings can be used as argumentative support for UDAs on the one hand. On the other, they can help to identify potential (local) synergies with related sectors, actors and places.

This approach could be applied to all singular targets (e. g. in a computerised model of linking SDG targets with UDAs). If this exercise is based on the self-assessment mentioned above, it is important to note that there is a need for further harmonising the urban-relevant SDG targets employed there with the SDG targets that were identified during assessment of UDAs in the IMPACT MATRIX. For further discussion see chapter 6 (characterising and understanding urban-relevant SDG targets).

FIGURE 2: Identifying policy gaps by assessing local SDG performance

#### 5.2.2 DERIVING URBAN DEVELOPMENT ACTIONS FROM MULTIPLE POLICY GAPS (SDG TARGET LEVEL)

The above introduced self-assessment tool could also result in a variety of SDG targets that a city seeks to translate into urban development actions. Based on the IMPACT MATRIX, a bundle of UDAs could be derived: If, for example, a city decides to prioritise on the following three SDG targets:

- > 1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance,
- > 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination, and
- > 7.1 By 2030, ensure universal access to affordable, reliable and modern energy services.

Based on the IMPACT MATRIX, the city would not only receive proposals for UDAs to deal with individual SDG targets. It would also be possible to highlight particular UDAs that serve as a means for addressing two or three SDG targets simultaneously. These actions would then be particularly suitable for integrated solutions and approaches. The following table shows the UDAs that would address more than one of the above mentioned and fictitiously prioritized SDG targets:

## Urban development actions for integrating SDG targets 1.4, 3.9, 7.1

- > *EN-3* promoting sustainable cooking fuels (addressing SDG targets: 1.4, 3.9, 7.1)
- > *EN-4* providing safe access to electricity (addressing SDG targets: 1.4, 7.1)

On the basis of the application examples, further consideration can be given to how urban development actions can be related to locally identified policy-gaps. Not only can SDG targets be a starting point, but also other global agendas examined in this study offer possible linkages. All sorts of combinations are possible in principle and would require further investigation and practical application.

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# 6 - RECOMMENDATIONS FOR FURTHER RESEARCH AND ANALYSIS

## 6.1 CHARACTERISING URBAN-RELEVANT SDG TARGETS

Within the tools developed in City WORKS, urban-relevant SDG targets are listed, as they are the foundation for some central workshops/exercises (See chapter 5). After completing the assessment of UDAs developed in the present study with regards to SDG targets, we noticed that most selected urban-relevant SDG targets in City WORKS are in fact met (except for a small number). With regards to the extended list with all urban-relevant SDG targets, there is a moderate number of SDG targets that is not met by the UDAs proposed and assessed in this study. On the other hand, some of the SDG targets we found to be relevant for

cities are not (yet) recognised as urban-relevant in City WORKS. The table in Figure 3 gives an overview of how the extended list of all urban-relevant SDG targets (City WORKS) matches with the SDG targets that are met by the assessed UDAs.

Besides the list of target matches (second column), there is a list of SDG targets that have potential urban relevance but are not achieved by the actions that were developed in this study (third column). This may be due to the above described criteria for the formulation of UDAs and a diverging approach to extracting the list of urban-relevant SDG targets employed by City WORKS. Another possibility is that indications for additional UDAs can be derived, which could supplement

GOAL	Target matches: Listed in City WORKS and met by urban develop- ment action (UDA)	Targets listed but not met by UDA	Targets met by UDA but not listed
1 - No Poverty	1.4, 1.5	1.1, 1.2, 1.3	
<b>2</b> – Zero Hunger	2.4	2.1, 2.2, 2.3	2.c
<b>3</b> - Good Health	3.3, 3.6, 3.8, 3.9, 3.d	3.1, 3.2, 3.7	3.8, 3.d
4 - Quality Education	4.1, 4.2, 4.3, 4.4, 4.6, 4.a	4.5, 4.7	4.6
<b>5</b> – Gender Equality	5.2, 5.5	5.1, 5.3, 5.4, 5.a., 5.c	
6 - Clean Water	6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.b		6.a
<b>7</b> - Clean Energy	7.1, 7.2, 7.3		7.b
8 - Decent Work	8.3, 8.5, 8.6, 8.8.	8.7, 8.9	8.10
9 - Industry	9.1, 9.3, 9.4, 9.c		
10 - Reduced Inequalities	10.2, 10.3, 10.4	10.1, 10.7	
11 - Sustainable Cities	11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.7, 11.a, 11.b, 11.c		
12 - Responsible Consumption	12.2, 12.4, 12.7	12.3, 12.5, 12.6, 12.8, 12.b	
13 - Climate Action	13.1, 13.3, 13.b		
<b>14</b> - Life Below Water	14.1	14.2, 14.5, 14.b	
<b>15</b> – Life On Land	15.1, 15.2, 15.5, 15.9,	15.b	15.8, 15.a
<b>16</b> - Peace	16.5, 16.6, 16.7, 16.10		16.1
<b>17</b> – Partnerships	17.1, 17.14, 17.17	17.16, 17.18, 17.19	
TOTAL NUMBER:	65	32	10

FIGURE 3: Extended list of urban-relevant SDG targets after UDA assessment

the catalogue of UDAs in the future. In addition to that, the list of SDG targets that are met by the UDAs but not listed in City WORKS (fourth column) suggest that City WORKS might consider listing further SDG targets as relevant to cities.

If City WORKS will have strong emphasis on the urban-relevant SDG targets, we suggest that further analysis could aim at characterising the actual relevance of the different SDG targets – the findings of this study would then contribute with an (open) list of SDG targets that are linked to specific UDAs.

## 6.2 URBAN DEVELOPMENT ACTIONS AND DISASTER RISK REDUCTION

The logic of the "Ten Essentials For Making Cities Resilient" that were applied here is slightly different from the overarching Sendai Framework indicators. They intend to "accelerate implementation of the Sendai Framework for Disaster Risk Reduction (2015–2030) at the local level (...) [and] map directly against the Sendai priorities of action and its monitoring indicators." (UNDRR 2019b: 5). The Ten Essentials could also be considered as standalone actions of urban development.

Here, the intention is to better understand how (general and sectoral) UDAs can (potentially) contribute to DRR in general terms – to what extent the measures prove useful in the greatly varying local contexts in which DRR deals with diverse challenges will need local testing and discussion. In fact, most of the interlinkages in the IMPACT MATRIX indicate potential relevance of the UDAs for certain aspects of DRR. If a working component of City WORKS aims at sensitizing local communities for DRR, the IMPACT MATRIX could highlight points of reference.

#### 6.3 IMPLEMENTATION AND FINANCE

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Implementation of the outlined UDAs is closely linked to the question of sustainability finance. Here, the Addis Ababa Action Agenda (AAAA) has put forward a comprehensive set of measures for national policy makers to implement. Since the AAAA was developed to implement the 2030 Agenda, it can be assumed that all urban development measures that potentially contribute to the implementation of the 2030 Agenda will also be supported by the principles and measures of the AAAA. In fact, Article 34 of the AAAA calls for strong local governments, as member states commit to "support cities and local authorities of developing countries, (...) in implementing resilient and environmentally sound infrastructure, including energy, transport, water and sanitation, and susta-

inable and resilient buildings using local materials." (United Nations 2015c, Article 34).

The AAAA can thus be regarded as a central framework that national governments can draw from in order to create an enabling environment for local authorities to implement UDAs that help achieve the above-mentioned and assessed global agendas. Although local governments can gain conceptual insights from AAAA in how to mobilise revenue (internal and external), it "lacks clarity and coherence on concrete pathways for financing the 2030 Agenda at the local level" (Cities Alliance 2018) and fails in elaborating "on how to channel finance to local authorities to support them in implementing the SDGs"(Ibid.).

The catalogue of UDAs outlined in this report could therefore help national governments to better understand how local authorities can act on the basis of strengthened local finance. Understood as a conceptual and illustrative set of measures that require local mandates (see also chapter 2), the catalogue could therefore inform discussions on national urban development policy that seeks to enable cities as actors for sustainable development. It would thus further specify what AAAA intends to point at in Article 34 and could possibly add value to discussion and workshop formats on AAAA put forward in the framework of City WORKS.

## 6.4 DEVELOP VISUAL/HAPTIC WORKSHOP MATERIALS

Inviting urban actors and stakeholders from various (sectoral) backgrounds to the discussions that the conceptual framework of this study seeks to support could benefit from additional visual/haptic workshop materials. They could be applied interdependently or in line with the planned digital tools and interfaces. It would require a translation of the conceptual content of the study into more accessible and concrete formats, such as:

- > Illustration of UDA profiles on factsheets with drawings, reference projects, etc.,
- Graphically enhanced templates for the assessment of existing UDA's and their application for use in stakeholder workshops,
- Presentations (online and print) that illustrate the (potential) impact of UDA's,
- UDA set cards based on the factsheets for a very compact overview of the UDA, etc.

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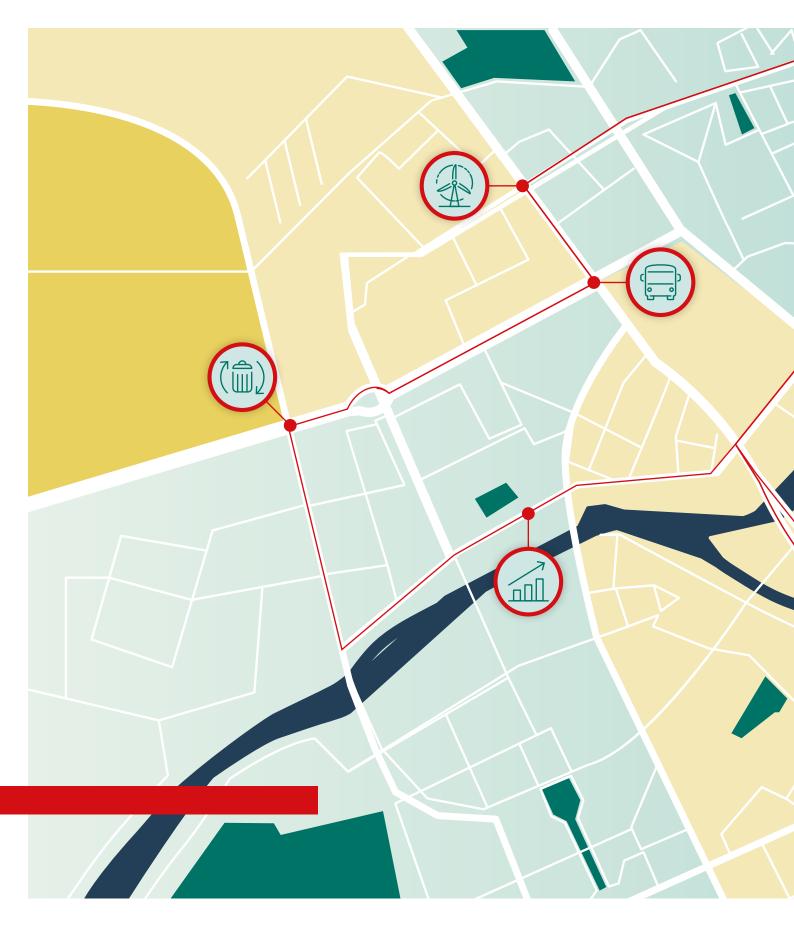
## ANNEX I: IMPACT MATRIX

#### **INCLUDES:**

- > IMPACT MATRIX
- → Click here to get to the original IMPACT MATRIX, including an Urban Development Actions (UDA)
  Assessment Tool, an Urban Development Action Template and an exemplary Impact Assessement.

ield of Action	No	Urban Development Actions	Direct Impacts, Potential Impacts, Trade-Offs  Social Economic Ecologic																			
								_		Econ	omi	С			Ecologic							
			1 strengthene d social cohesion	2 improved infrastruđures for better quality of live	3 improved public health	4 reduced vulnerability	5 improved building conditions for better quality of life	6 increased resilience	7 contributions to food security	strengtnenedgovernance	9 improved public management	10 Increased resouræ efficiency	11 adv ancing technological change	12 dreation of local busine sees and jobs	13 sustainable supply chains	14 contributions to energy security	15 reduced carbon emissions	16 improved air quality	17 reduced noise emissions	18 conservation and regeneration of ecosystem services	19 improved condition of water resources	20 improved condition of soil
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Water & Sanitation	WS-2	providing access to safely managed sanitation services									-											
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- is	WS-4	providing drinking water	F								4			_								
	WS-5	managing rainwater									4											
Circular	WC-1	implementing solid waste management									4											
Circular	WC-2	strengthening urban-regional food systems	F								-											
: :	WC-3	promoting a circular economy																			,	
	WC-4	growing food in the city																			!	
Developme nt	ED-1	establishing sustainable public procurement									4								-			
elop nt	ED-2	promoting inclusive urban economies																	!			_
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	ED-4	establishing infrastructures for ICT	+								4											_
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Energy	EN-2	enhancing decentralised renewable energy production	+																	!	!	_
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Goal 2 - Zero Hunger Goal 3 - Good Health And Well-Being	Goal 4 - Ouality Education	Goal 5 - Gender Equality	Goal 6 - Ckan Water And Sanitation	Goal 7 - Affordable And Clean Energy	Goal 8 - Decent Work And Economic Growth	Goal 9 - Industry, Innovation And Infrastructure	Goal 10 - Reduced Inequalities	Goal 11 - Sustainable Cities And Communities	Goal 12 - Responsible Consumption And Production	Goal 13 - Climate Action	Goal 14 - Life Below Water	Goal 15 - Life On Land	Goal 16 - Peace, Justiæ And Strong Institutions	Goal 17 - Partnerships For The Global Goals		contributes to the mitigation of dimate change	antributes to almate adaptation	1. Organise for disaster resilience	2. idetify, understand and use risk scenarios	3. strengthen financial capability for resilience	4. pursue resilient urban development and design	5. safeguard natural buffers	6. strengthen institutional capacity for resilience	7. strengthen societal capaciy for resilience	8. increase infrastructure resilience	9. ensure effective disaster response	10. expedite recovery and build back better	1. Provide basicserviæs for all citize ns	2. Ensure that all citizens hav e equal opportunities	3. Promote measures that support de aner cities	4. Strengthen resilience in cities	5. Take action to address dim ate change	6. Fully respect the rights of refugees	7. Improve connectivity and support green initiatives	8. Promote safe, accessible and green publicspaces	Delivering social protection and essential public services for all	Scaling up efforts to end hunger and malnutrition.	Estabishing a new Jorum to bridge the infrastructure dap.	Promoting indusive and sustainable industrialization.	Generating full and productive employ ment and detern work for all	Protecting our ecosystems for all. Promoting peaceful and inclusive societies.
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