(ACHIEVING SUSTAINABLE URBAN REGENERATION)

S.U.R

- Definitions
- Frameworks
- Challenges /Issues
- Case Studies
- Approaches
- KPI / Measures /Parameters

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SUR/ Resilience Cities

التعريف

SUR

Capability or the capacity to achieve a particular result = **(Sustainable Built environment Capacity)**

التعريف

Resilience

الصمود

Resilience is 'the persistence of relationships within a system and the ability of this system to absorb changes, and still persist' (Holling, 1973).

التهيئة المستدامة تتطلب المرونة وتحقيق اعلى معايير كفاءة الأداء الممكنة

1. *'Direct building & context adaptations*
2. *Enhancing natural systems resilience'*
3. *Enhancing artificial systems resilience*

How Theoretical & Applied Studies Address Resilience?

Urban Regeneration

- مفهوم للتنمية الشاملة لبناء رؤية متكاملة لحل المشاكل والتحديات القائمة في البيئة العمرانية والتي تسعى بدورها لاقتراح الاليات والسياسات وتطبيق بعض الأطر التنفيذية لتحقيق اهداف التنمية الاقتصادية الاجتماعية البيئية وغيرها

Climate change Effects

Covid 19 Pandemic

- التجديد الحضري المستدام هو وسيلة لإعادة تنظيم وتحديث الأصول غير المستغلة وإعادة توزيع الفرص من خلال احسين جودة الحياه **Quality of Life** الحضرية والظروف البيئية.

فبفضل التجديد الحضري المستدام، من الممكن زيادة كفاءة استخدام الطاقة، وبناء حلول قائمة على الطبيعة

Nature based Solutions

SUR

Performance Evaluation

Key Performance Indicators

K.P.I

Climate change E.E	Flood Risks	Quality of life	Air pollution	Brown fields	M. Urban Growth	Sustainable Transportatio M.	Smart City ICT infrastructure

KPI used to assess the Impact

الفرق بين المؤشر او المقياس

و

الالية او أسلوب الحل

و

التأثير

Accessibility: distribution, distance, spatial configuration to NBS and green spaces. Diversity of NBS (land use and functionality). *KPI 9	This KPI is focused on evaluating the benefits obtained from the implementation of different types of NBS in cities, for example: new green cycle lanes and re-naturing existing bike lanes, green resting areas, cycle-pedestrian green paths, vertical green interventions and horizontal green interventions, urban farming promotion (through urban orchards), ll-scale urban e educational initiatives are
4. Cycle and pedestrian green routes	Cycle and walking greenway provide an **alternative for mobility** and **recreational**, public health and well-being opportunities. **Reducing the use of vehicles** means fewer emissions of greenhouse gases mitigating climate change, as well as reduced air of cycle ncourages
Savings in energy use due to improved GI. *KPI 110*	is the largest single source of global GHG emissions and responsible for over a quarter of all EU GHG emissions. Green infrastructures can play a key role in reducing the negative impacts of this sector by reducing consumption, providing bioenergy and facilitating carbon uptake and storage. This KPI aims at quantifying both the energy savings and the bioenergy generated by all the NBS implemented.

Blue/Green Infra

Measure The Impact

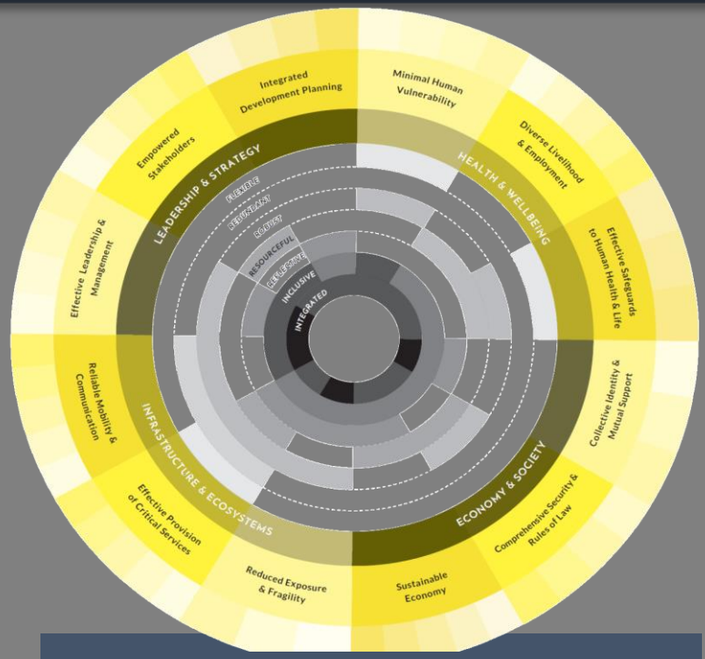
1

OECD

منظمة ألتعاون و ألتنمية المعنية بألتقييم ألإنمائي

Framework (Guidelines)

2



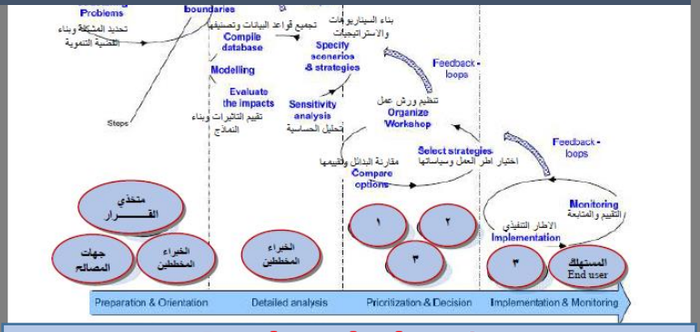
CITYRESILIENCE INDEX

4 DIMENSIONS-12 goals-52 indicators

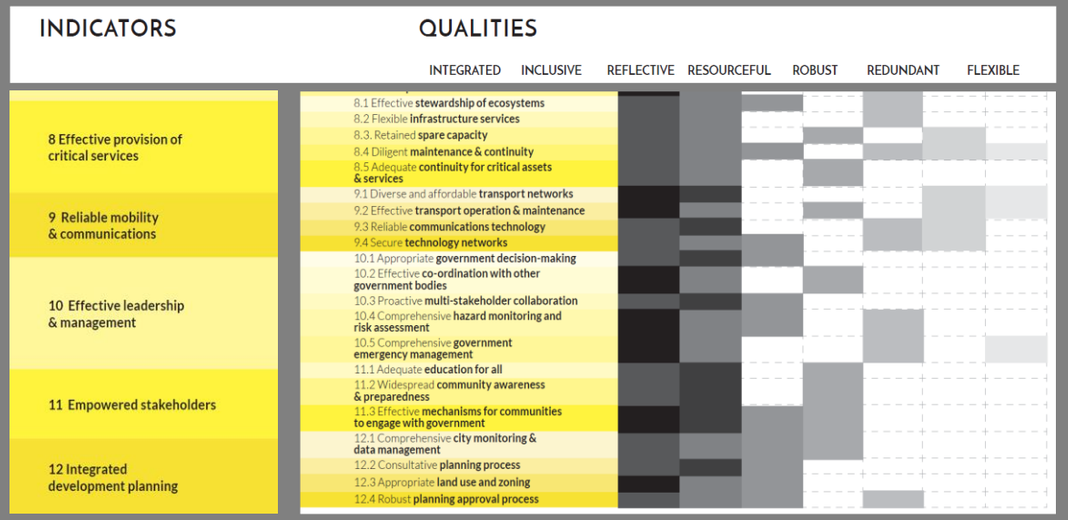
Index of indicators

3

Regional Integrated Energy planning (RIEP)



Methodologies



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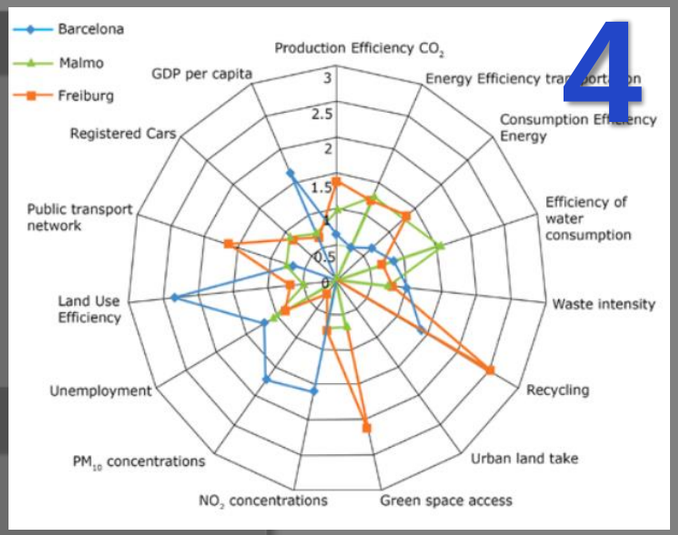


Urban Metabolism framework

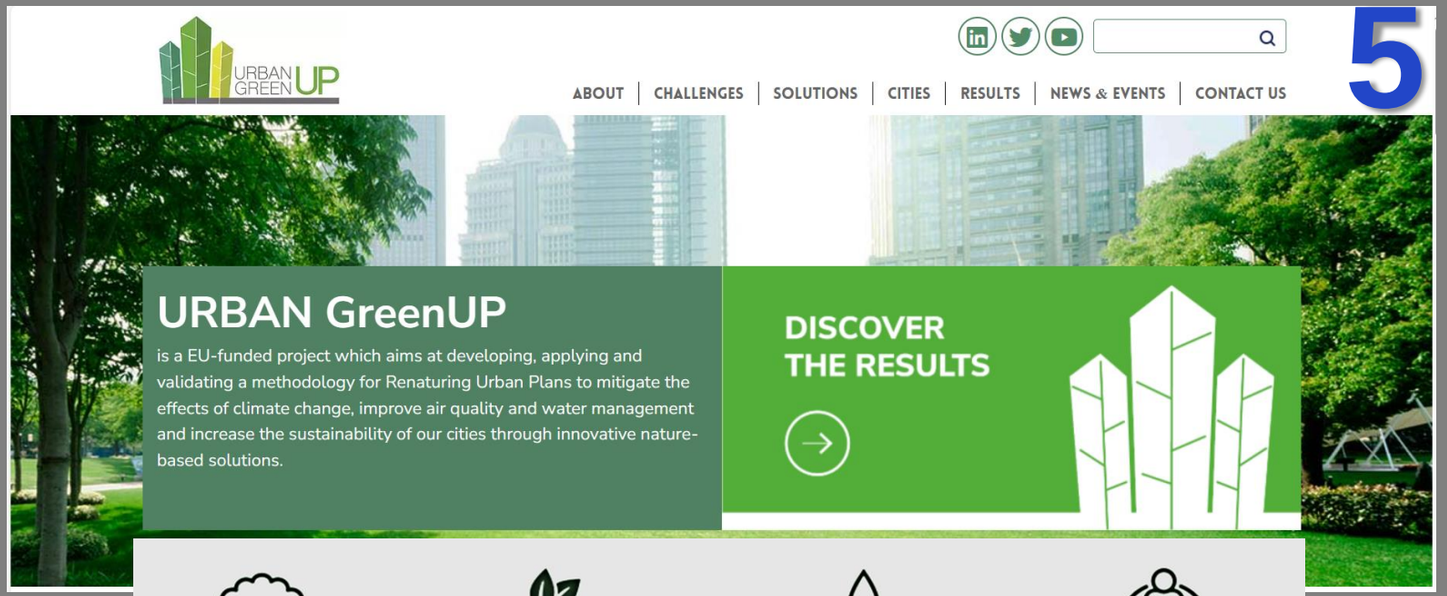
Report: (Minx et al,2010)

Urban Metabolism In European Cities Tested on Barcelona,Malmo,Freiburg

Index of indicators

Framework (Guidelines)

5



Index of indicators

Framework (Guidelines)

6

REMOURBAN

Urban Regeneration Model from the Smart Cities and Communities project REMOURBAN

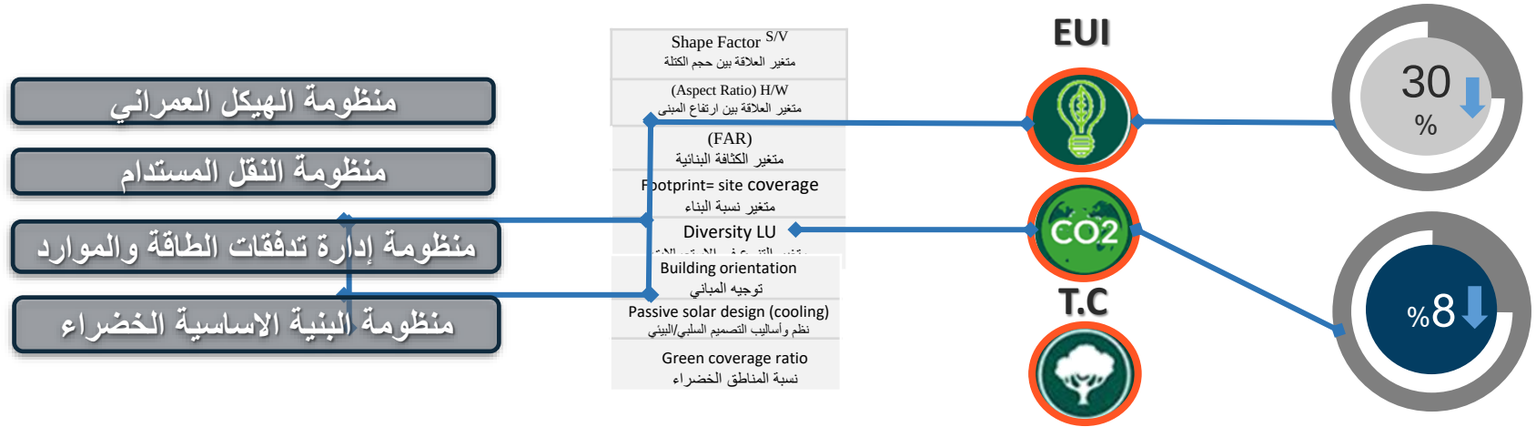
REgeneration MOdel for accelerating the smart URBAN transformation

Methodologies

Index of indicators

بحث

اختيار احد المداخل السابقة وتطبيقها على تجربة لاحد المدن لمعالجة قضية/ مشكلة/قطاع (نقل-بنية تحتية خضراء-الاسكان..... (مؤشرات تقيم كفاءة الاداء – مراحل المنهجية التخطيطية المستخدمة- الاليات المقترحة للحل- الأدوات التحليلية المستخدمة "ان وجدت")



التحدي او القضية

Urban Regeneration

SUB-CHALLENGES identification & description	**Managing urban growth:** integrated urban built areas with planning strategies such as green growth (i.e. Blue and Green Corridors within the City).
	Redevelopment areas: Conversion of brownfield and degraded areas (i.e. abandoned industrial sites with toxic soils) to green areas [4].
	Urban Retrofitting: Improve Robustness, Sustainability and Energy Performance of Grey Structures (buildings, roads, water channels and other infrastructures), progress towards green buildings by NBSs and green rating systems (i.e. LEED, BREEAM)

المؤشرات اللي بتقيس مظاهر القصية دة متصنفه
عمرانية بيئية اجتماعية مؤشرات كفاءة الأداء

KPI

دة الحل اللي بياثر في حل اكتر من قضية

4. Cycle and pedestrian green routes	Cycle and walking greenway provide an **alternative for mobility** and **recreational**, public health and well-being opportunities. **Reducing the use of vehicles** means fewer emissions of greenhouse gases mitigating climate change, as well as reduced air pollution. Creating a well-connected net of cycle paths and providing green shady routes encourages its use also for mobility purposes.

HOW MUCH	
KPIs used to assess NBS impacts in this challenge	General KPI description
Accessibility: distribution, distance, spatial configuration to NBS and green spaces. Diversity of NBS (land use and functionality). ***KPI 95***	This KPI is focused on evaluating the benefits obtained from the implementation of different types of NBS in cities, for example: new green cycle lanes and re-naturing existing bike lanes, green resting areas, cycle-pedestrian green paths, vertical green interventions and horizontal green interventions, urban farming promotion (through urban orchards), community composting and small-scale urban livestock. Educational activities, like educational paths, and urban farming educational initiatives are also evaluated with this KPI.

التاثير الناتج عن تطبيق الإلية او المؤشر او أسلوب الحل دة

Savings in energy use due to improved GI. ***KPI 110***	Energy sector is the largest single source of global GHG emissions and responsible for over a quarter of all EU GHG emissions. Green infrastructures can play a key role in reducing the negative impacts of this sector by reducing consumption, providing bioenergy and facilitating carbon uptake and storage. This KPI aims at quantifying both the energy savings and the bioenergy generated by the NBS implemented.

Measure The Impact

اساليب الحلول دة
واية المصدر اللي جبتوها منه
وتطبيقها ازاي على case
study

الخطة القطاعية الأولى: منظومة النقل المستدام صديق البيئة:

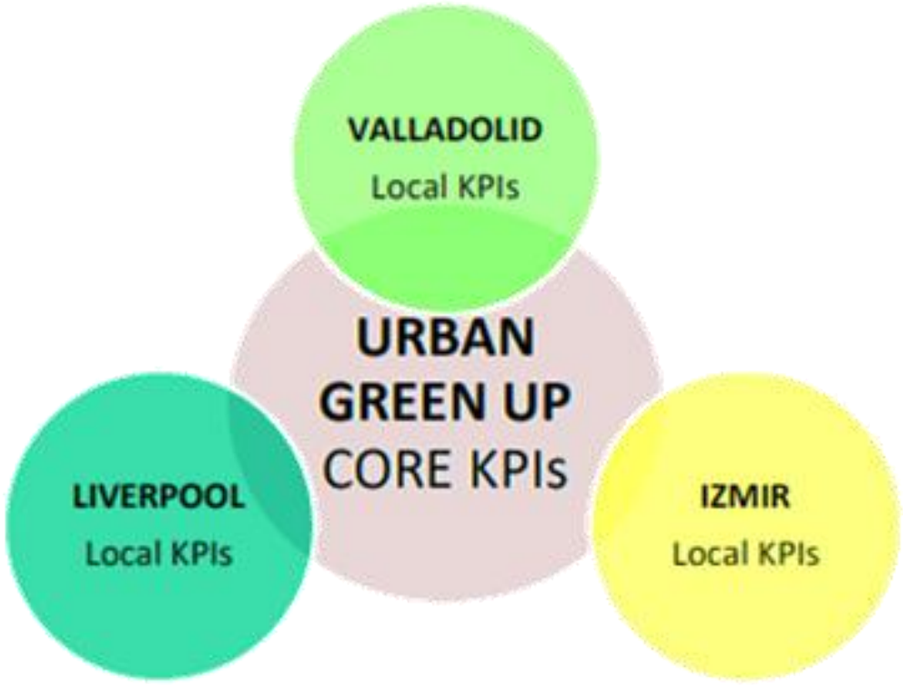
- Flood peak reduction. Increase in time to peak (%).
- Intercepted rainfall (m_3 $year^{-1}$).
- Share of green areas in zones in danger of floods (%).
- Population exposed to flood risk (% per unit area).
- Distribution of public green space per capita.
- Perceptions of connectivity and mobility.

3

- Measures of human comfort PET =Personal Equivalent Temperature
- Energy, water and carbon reduction via urban farming
(Climate-smart Greenhouse).
- Distribution of public green space per capita.

2

- calculate projected maximum surface temperature reduction.
- Increase in density and its effect on CO2 emissions .
- Performance of Eco system services & diversity.
- Number of deaths from air, pollution
- Savings in energy use due interventions & RE.
- Perceptions of citizens on urban nature- green spaces quality.



URBAN Green UP project a methodology to evaluate 10 challenges:

1. Climate mitigation and adaptation;
2. Water management;
3. Coastal resilience;
4. Green space management (including enhancing / conserving urban biodiv.);
5. Air quality;
6. Urban regeneration

CHALLENGE 1: Climate mitigation & adaptation

Type	KPI Definition
Carbon savings; storage and sequestration	CO_2eq emissions avoided considering a life cycle approach and modelling the environmental impacts regard to indirect savings.
Temperature reduction (environm-ental, physical)	Green cycle lane Tree related actions, SUDs, latural Wastewater Treatment lant, Rain gardens, Green filter area, Floodable park
Other	surface temperature reduction (°C)

Figure 2.2: Aerial view of Sub-Demo B "City Centre"

The Nature Based Solutions (NBS) of Sub-Demo B are:

- Plantation of shade and cooling trees in City Centre, over smart soils as substrate.
- Vertical green infrastructures such as Vertical Mobile Garden and a Green Façade.
- Horizontal green infrastructures such as a Green Roof and Green Covering shelters.
- Electro wetland surface which can provide electricity.
- Green-shady structures in streets from the City Centre.
- Green noise barriers in different places with high levels of noise.
- Compacted pollinator's modules installed in mobile window boxes

التغير المناخي وارتفاع منسوب البحر

1

2

3

إعصار ساندي **2012** (وصل منسوب المياه **4 متر**)

اليات وإجراءات الموائمة العمرانية والتهيئة البيئية المستدامة