## The best climate activist is a good urban planner

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#### Urbanization is growing

- Today, 55% of the world's population lives in cities, a proportion that is expected to increase to 68% by 2050, adding another 2.5 billion people to urban areas.
- The built stock of our cities and towns is expected to double by 2050.

Lagos is expected accommodate 88 million people, by 2100.

#### ... close to 90% of this increase is taking place in Asia and Africa

and mostly in peri-urban areas

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#### Urbanisation as an opportunity...

To face global demographic growth, cities are in fact our best option to preserve natural land.

Density also provides opportunities for more sustainable lifestyles:

- residents access to adequate public transport and facilities
- Urban homes also have shared walls which mean fewer buildings emissions.





#### **BUT requires anticipation & planning**

- Plan enough affordable homes
- Ensure a decent living environment for all (services, amenities, infrastructure...)
- Avoid developing on at-risk land and exacerbating climate hazards that put people at risk





## A critical next step to Climate Action Planning

Critical next step to Climate Action Planning and a powerful tool for local governments to mainstream their climate priorities and to transpose them into legally binding policies.



#### Urban planning is **KEY** for climate actions

- Cities and local governments have significant authority over land uses policies and regulations
- Land Use Plans are usually **legally binding** policies & enforceable documents

Not a separate emissions sector, but a cross-cutting enabler of emissions reductions and increased resilience.



#### Urban planning is **KEY** for climate actions

- the density and form of the built environment
- the mix of uses, services and people and their connection with the urban infrastructures and especially the transport system
- the spaces dedicated to the public realm and the organization of the street network (30-40%)
- the spaces dedicated to green, blue and permeable surfaces

**Urban fabric is very slow to change once built.** Business-as-usual and unregulated urban expansion means cities are locked into high emissions, vulnerability & exclusion.



## Urban planning to reduce GHG emissions



## **20th-century urban model is no longer fit for today**



## Many of the challenges cities are facing today



Adopting this better urban planning model - that is **compact, mixed-use, Transit-oriented** - **could cut global emissions by around 25% by 2050** IPCC report INTERGOVERNMENTAL PANEL ON Climate change

## **Climate Change 2022** Impacts, Adaptation and Vulnerability



- **Reduce transport emissions** by reducing travel distance and enabling mode shift
- Reduce buildings emissions by promoting shared walls & smaller homes
- Curb sprawl, preserve natural land and associated carbon sequestration

Transport emissions in low-density cities like Atlanta are 10 times higher than in high-density cities like Barcelona.



- **Reduce transport emissions** by reducing travel distance and enabling mode shift
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#### Embodied emissions of a detached home are more than twice as high as those from a townhouse.

A multifamily home generates even fewer emissions.



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Between 1990 and 2022, total carbon sequestration in the land use, decreased by 11%, mostly due to urbanisation.



## But TODAY, we are not going in the right direction

**Expansion of urban areas** is growing up to **50% faster than the population.** 

If we don't change, urban areas could triple in size by 2050.





## Who are the worst when it comes to urban sprawl?



**UPU/m2 = Urban Permeation Units/m2** measures urban sprawl, indicating how urban areas extend and disperse into the surrounding landscape



## Single family housing in France

Single family represents 56 % of housing in France

+ increase after COVID





#### But also concerning emerging trends in the Global South

#### in GS, there is **little focus on urban regeneration. The primary approach to managing urban growth is through expansion.**

#### This results to:

- growing low-density, peri-urban growth, following the GN trend (eg. in Latin America, Africa)
- Trend of 'new cities' (eg. New Cairo, the Line...)





## Urban planning to reduce climate risks



#### The Climate Change Polycrisis - Flooding

• Over 2/3 of major cities are coastal deltas, vulnerable to rising sea levels, extreme flooding and storms

 Urban damages from coastal floods could reach \$19 billion annually by 2050 (4x current level)

 Damages from riverine flooding may exceed \$64 billion annually by 2050 (3x current level)



#### The Climate Change Polycrisis - Extreme Heat

• Cities exposed to extreme temperatures may triple by 2050 (\*cities with average summer temperature above 35°C).

 Up to 1.6 billion residents will face this extreme heat conditions.

## Heatwave last summer killed 61,000 people in Europe, research finds

Summer heat in 2022 killed 114 people in Europe for every million population

Heat-attributable deaths per million, summer 2022



Guardian graphic | Source: IS Global. Note: highest 10 European mortality rates shown

## India's June Heat Wave Deaths Are a Harbinger of Worse to Come

As heat waves breaching the human survivability threshold loom in the not-toodistant future, experts question whether the country is properly prepared.



#### The Climate Change Polycrisis - Water scarcity

 Drought-related water losses in major cities may increase by 26% by 2050

• Up to 650 million city residents may face water scarcity

• Agricultural drought could rise over 4 time





The current urban planning model is increasing climate vulnerability

- Urban growth in flood risk areas outpaces growth in low-risk areas.
- Even worse in the GS, with 90 % of the expansion occurring in or near extreme flood-prone areas.
- Green spaces in cities worldwide fell by 30% from 1990 to 2020, because cities continue to extensively develop on greenfield that are vital for protecting against climate risks

#### Example: Catastrophic flooding in Rio Grande do Sul, Brazil

Exacerbated by **poor urban planning**:

- Extensive development in areas at risk of flooding, including floodplains
- **Paving over permeable soils** for construction and roads
- Lax construction standards
- Low capacity for enforcement







#### Example: Record-breaking heat in Phoenix, USA





#### Exacerbated by poor urban planning:

- Huge expansion in concrete infrastructure (buildings, roads, carparks)
- Land use policies failing to protect and prioritise green infrastructure & shading
- Maladapted urban form and architecture/construction



## Let's talk about solutions



#### A turning point in urban planning?



**Urban sprawl** → Regenerative Approach & Compact Cities



Monocentric city & fragmented zoning → Polycentric city & mixed-use



**Car-oriented planning** → Connected Neighbourhoods (TOD)



Car-oriented public spaces  $\rightarrow$  People-centred public spaces



Climate-blind planning → Risk-informed Planning & Nature-based Solutions



Segregated cities → Inclusionary zoning mandating affordable housing

#### Or a U-turn? Historical model of European Cities









**Portland - Fight urban sprawl & housing crisis** 

#### portland's Residential Infill Project Re-legalizing "middle housing" citywide



- Oregon State drew a urban growth boundary to Portland metropolitan area.
- the City **reversed single-family zones** to facilitate densification & smaller housing units.

# + 20% of the city's annual housing production

- 12% of median rent



#### Infill Housing, #1 climate action?

A recent study in 700 communities in California by Berkeley University, found that **"infill housing" is the most impactful measure** that Californian cities could take to reduce their emissions.





#### National Law to limit urban sprawl



#### The French ZAN law

(Zero Land Artificialisation)

**50%** reduction of natural land consumption by 2030

Reaching Net Zero by 2050

The 400,000 housing units built each year in France account for more than 50% of land consumption. THE 25 CITIES WITH THE HIGHEST POPULATION DENSITY IN THE WORLD

Compact or not compact—that is **NOT** the question!

119,600

94,400

Around the world, compact cities have very different forms.

The real question is: what kind of compact city do we want to build?





#### GHG emissions of different urban fabrics

## High density / High Rise High density / Low rise

Low density / High Rise
Low density / Low rise

source : WEF







## Let's look at the Use rate & Vacancy rate?

#### In France,

- 8% of unoccupied housing (8.5% in Paris)
- 10 % of secondary housing





Vancouver

Vancouver has implemented an "Empty Home Tax," which has helped reduce vacant properties by 25% since 2017 and brought thousands of homes back onto the market.

The 61 million Canadian dollars in revenue generated by the tax have been used to support the city's social housing policies.

To strengthen its impact, the Mayor of Vancouver tripled the tax in 2021, increasing it from 1% to 3%, and planned to raise it to 5% in 2023.

Since the modernist movement, many voices stood up to promote a better urban model grounded in **compacity, proximity & people-centred public spaces.** 

Now, at last, we're beginning to see this vision take hold



#### **Making Compact Desirable**











#### Polycentric growth & flexible zoning system in Seoul

Seoul's 2040 Master Plan :

- Balance growth across 3 "urban centres", 7 "metropolitan centres" and 12 "local centres"
- A bottom-up approach through 100+ neighbourhood plans that promote walkability and proximity to amenities and infrastructure
- **flexible zoning system** which encourages multi-functional, mixed-use areas everywhere



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#### Compact, polycentric growth for Johannesburg



#### Johannesburg is expected to **expand** from 4.3 to 7 millions inhabitants

SDF 2040 is proposing a growth model for that is compact and polycentric, with **an inner core surrounded by transit-oriented, mixed-use nodes.** 





#### Polycentric City, an opportunity to accelerate participatory planning

#### Top-down planning

(land use policies & master plan)

Plan for new housing

Inclusionary zoning

**Risk-informed planning** 

Integrating transport system and urban planning



#### **Bottom-up planning**

(neighbourhood-scale, participatory)

Plan infrastructures, local amenities & services

Public spaces design and reallocation

Local nature-based solutions



#### Milan's neighbourhood-scale planning for City of Proximity

To complement the revision of its Masterplan, based on the "City of Proximity" model, Milan implements **participatory neighbourhood planning:** 

- Neighbourhood Atlas: Based on a comprehensive analysis of social and environmental needs across <u>88</u> <u>neighbourhoods</u>, the Atlas prioritizes projects.
- **Open Square**: A tactical urbanism program transforming streets near schools, with over <u>70 projects completed.</u>







## **Curitiba's Transit Oriented Development (TOD)**

The master plan adopted a TOD approach to guide the city's development

The plan restricted urban growth along Bus Rapid Transit (BRT) corridors where high-density, mixed-use developments are permitted.

→ 80% of travelers use BRT, reducing the city's need for fuel by 35%.



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### Make the Greater Paris, a polycentric Metropolis

A new circular metro connects the suburban areas with 68 new stations. 95% of the 7 millions residents at less than 10 min walk or bike from a metro station.

**20 millions m<sup>2</sup> already built** (and 12 millions m<sup>2</sup> more to come) through **densification and reinforcement of existing urban cores**.

→ Projects that correct monofunctional areas a to promote complete / mixed-use neighbourhoods.

→ Projects with a high percentage of social housing (an average of 30-40%) to ensure that middle- and low-income residents are the primary beneficiaries, in line with an equitable TOD approach.





Cape Town's Coastal Management Line (CML) introduced to **prohibit/restrict development seaward of the line** 

Based on current and future projected impacts





# São Paulo requires development to provide a percentage of permeable surfaces

#### São Paulo adopted a innovative Environmental Quota that requires building permits on plots over 500m<sup>2</sup> to meet minimum vegetation and drainage standards.

**Fiscal incentives** are also in place to encourage developers to **exceed** these requirements. Those that exceed the minimum required can build to a higher density.







Medellín transform the verges of key roads and waterways into green corridors, resulting in an average drop of over 3 degrees celsius.



Urban areas are 3 - 8°C warmer than rural ones, due to Urban Heat Island effect





#### **Require or incentivise building Green or Cool Roofs**

#### Los Angeles passed a 'cool roof

**ordinance'** to require new residences or existing residences undergoing roof renovations to install reflective roof products. **Toronto** adopted a Green Roof Bylaw that sets out **green roof requirement for new development or additions,** greater than 2,000 m<sup>2</sup> in gross floor area.





















