

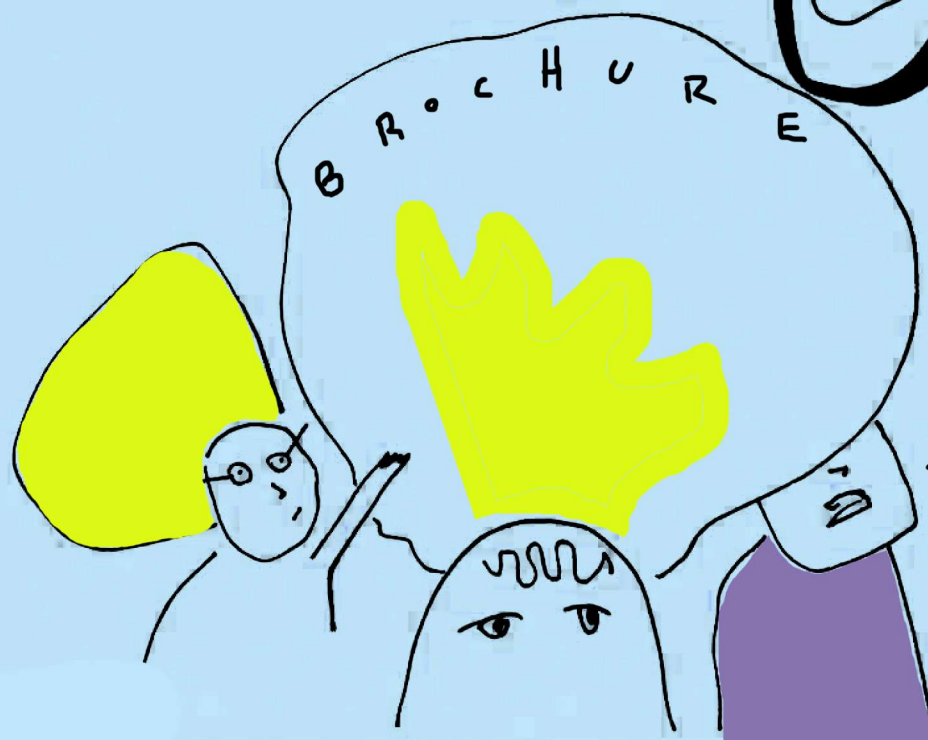
International  
Sustainability  
Transitions  
Conference

# IST 2020

[www.ist2020.at](http://www.ist2020.at)

perspective of Conference  
Ambassadors

B R O C H U R E



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Sustainability  
transitions  
Research

*As conference ambassadors at the International Sustainability Transitions Conference 2020, this brochure represents our personal impressions of sustainability transitions research as we experienced it during the four-day conference. Whenever opinion is expressed in this brochure, it is thus purely our own and does not present the standpoint of the sustainability transitions research network.*



# Introduction

## TO SUSTAINABILITY TRANSITIONS RESEARCH

You are interested in sustainability issues like climate change or biodiversity loss? You are studying a social or natural science for your Bachelor's, but are uncertain about what to do for your Master's? Or maybe you are simply wondering - with all the talk in the media and in politics about how our energy systems, transport sector or food industry need to become more sustainable - who is doing research on these topics? If your answer to any of the above questions is yes, you are in the right place! In this brochure we will introduce you to one of the, in our eyes, most exciting academic research communities out there:

Let's start!

### IST2020

### SUSTAINABILITY TRANSITIONS RESEARCH

The 11th International Sustainability Transition conference took place between 18-21 August 2020 as an Online Event. The conference was co-organized by [AIT Austrian Institute of Technology](#), [Center for Innovation Systems & Policy](#) and [Vienna University of Economics and Business](#) (WU Wien), [Institute for Law and Governance/Research Institute for Urban Management](#) and Governance in association with the [Sustainability Transition Research Network \(STRN\)](#).

We are Mili, Javi, Inés and Merle. In the summer of 2020 we met while working at the International Sustainability Transitions conference 2020 (IST2020). The IST is the annual conference of the so-called [Sustainability Transitions Research Network \(STRN\)](#) which coordinates large parts of sustainability transitions research. Research institutions affiliated with the network take turns in organizing the conference and in 2020 it was jointly hosted by the Vienna University of Economics and Business and the Austrian Institute of Technology. At the time, we were all Master's students. Mili, Javi and Inés were part of the international "4 CITIES Masters in Urban Studies" at the University of Vienna. Merle was studying Socio-Ecological Economics and Policy at the Vienna University of Economics and Business. Sustainability transitions research played an important role in all our study programs. However, we soon realized while talking to each other that none of us had known this would be the case when we chose our Master's. In fact, hearing about sustainability transitions research (and how it relates to other related fields, such as degrowth, ecological economics, sustainable urbanism) earlier might have saved us some time in the orientation process.

We thank Michaela Neumann and Prof. Verena Madner for their invaluable feedback

In an effort to help you on your journey to learning about sustainability issues, we decided to make this little brochure. It represents our personal impressions of sustainability transitions research as we experienced it during the four-day conference. Whenever opinion is expressed in this brochure, it is thus purely our own and does not present the standpoint of the Sustainability Transitions Research Network. You should also note that sustainability transitions research is much broader than the glimpse we are providing.

### HOW TO READ THIS BROCHURE ???

In the following, we present three big themes that were discussed at the IST2020 conference and that are key research fields in Sustainability Transitions Research in general:

- URBAN SUSTAINABILITY TRANSITIONS
- ENERGY, GLOBAL FINANCIAL MARKETS AND THE GREEN NEW DEAL
- TRANSITIONS IN THE GLOBAL SOUTH

At the end of each of these chapters you find some questions to think about and some reading recommendations.

There is no need to read this brochure front to back. However, we would highly recommend reading the section "What is Sustainability Transitions Research?" first (**section 2, p. 5**). If you are interested in understanding transitions from a more conceptual level, also make sure to check out "Central Concepts in Sustainability Transitions Research" (**section 3, p. 8**).



Merle Schulken



Javier Delgado



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Milagros Hurtig  
@MiliHurtig

WE! WALK WITH US



# 2

## WHAT IS SUSTAINABILITY TRANSITIONS RESEARCH?

I WANT  
to  
KNOW MORE...  
and you?

innovation

sustainability

energy

challenges

change

what?





# What is

## SUSTAINABILITY TRANSITIONS RESEARCH

Sustainability transitions research starts from the assumption that many of today's environmental problems, such as climate change, biodiversity loss or the depletion of natural resources present us with grand societal challenges. These problems are the result of deeply ingrained production and consumption patterns related to how we address core societal demands like energy, food, housing or transport. In this sense, in contrast to some other academic fields, sustainability transitions research postulates that issues like climate change are not merely unfortunate byproducts of certain industries, to be dealt with in isolation by specialized policymakers. And although technological progress plays an important role in mitigating environmental degradation, they are also not likely to be solved by one single technological innovation. Instead, in order to make sure that humanity's needs can still be met in the future, the production, distribution and consumption practices through which we address these societal demands need to undergo long-term, radical transformation processes - so-called **sustainability transitions (1)**.

To give you a concrete example of a sustainability transition, consider the issue of climate change. One example of a human activity that causes climate change is the burning of fossil fuels to produce energy. Now, a first attempt to reduce greenhouse gas emissions from the energy sector would be to improve existing technologies for burning coal, oil or gas, such that they become less polluting. But the climate challenge is so large that such marginal improvements are not enough. Instead, sustainability transition scholars argue, the way energy is produced, distributed and used must **fundamentally change (2)**. On one hand, this requires switching from fossil to renewable energy sources. This technological transition encompasses significant public and private coordination, planning and investments to further develop renewable energy technologies and change the electricity grid to accommodate renewables. On the other hand, as a society we will need to adjust our everyday lifestyles to use less energy. Depending on the context, this may imply installing a smart meter, retrofitting the house or using less energy-intensive modes of transport. In the long run, it may also go as far as changing the way we prepare food, study or spend our free time. As you can see, a complete sustainability transition of the energy system requires substantial public and private coordination and, in the long run, far reaching societal changes. It thus not only affects the energy sector, but society at large.

Changing systems such as those that govern the production and consumption of energy is **quite difficult (3)**. These systems have developed over time out of specific historical circumstances and are tied to everyday activities. On top of that, a transition towards a new system, such as decentralized renewable energy production, comes at a cost to certain actors benefitting from the current system, such as large energy companies. So transitions often face resistance from actors in the current system. Nevertheless, system transitions do happen all the time. Just think of how people used to make food 100 years ago!

Sustainability transitions researchers are interested in why, when and how transitions like the sustainability transition of the energy **system happen (4)**. They ask questions like: **What were major transitions in history? What factors seem to drive such transitions? Do, actors from government, academia, civil society groups or business play a role in how transitions take place? Do their actions sometimes have unintended consequences?** Most researchers in transition studies have a normative approach in the sense that they are ultimately interested in understanding how today's societies can transition to become more, sustainable. Many of them engage with local and national governments and international institutions to **give advice about what policies** might support a transition in a certain sector, like the energy sector **(5)**.

3-

Loorbach, D., Frantzeskaki, N., & Avelino, F. (2017). Sustainability transitions research: transforming science and practice for societal change. Annual Review of Environment and Resources, 42.

4-

Loorbach, D., Frantzeskaki, N., & Avelino, F. (2017). Sustainability transitions research: transforming science and practice for societal change. Annual Review of Environment and Resources, 42.

5-

For example: Karoline Rogge  
<https://profiles.sussex.ac.uk/p330101-karoline-rogge>

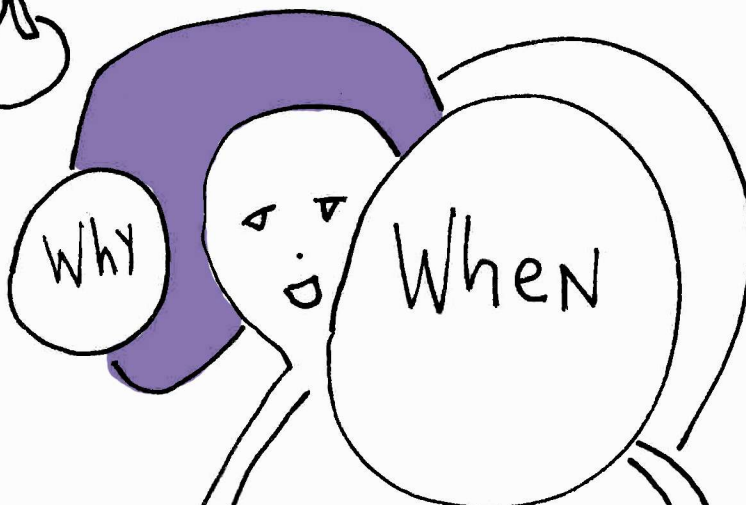
1-  
Köhler, J., Geels, F. W., Kern, F., Markard, J., Onsongo, E., Wieczorek, A., ... & Fünfschilling, L. (2019). An agenda for sustainability transitions research: State of the art and future directions. Environmental Innovation and Societal Transitions, 31, 1-32.

2-  
Kern, F., & Smith, A. (2008). Restructuring energy systems for sustainability? Energy transition policy in the Netherlands. Energy policy, 36(11), 4093-4103.



Consumption patterns

Society

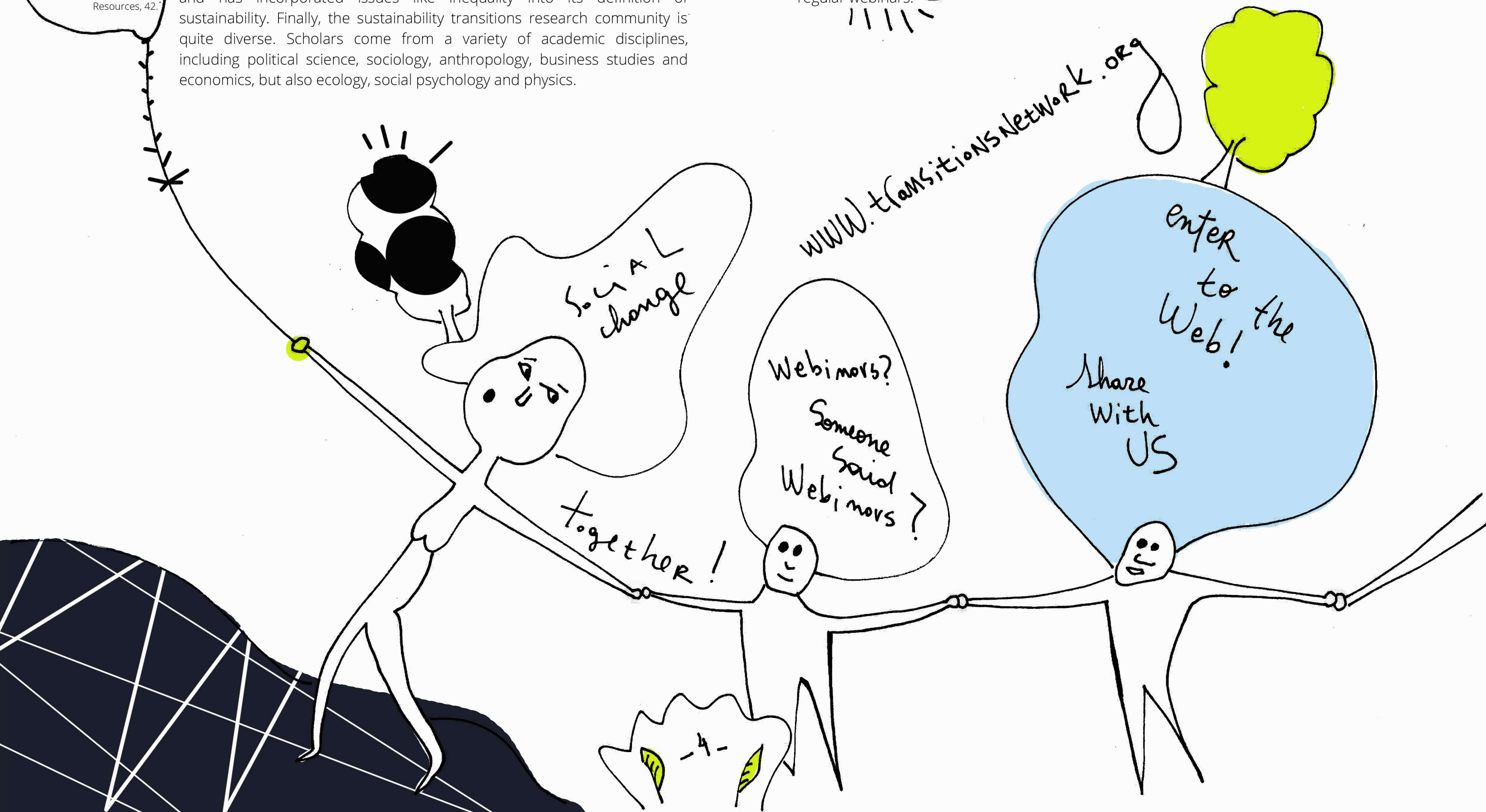




6-  
 Loorbach, D., Frantzeskaki,  
 N., & Avelino, F. (2017).  
 Sustainability transitions  
 research: transforming  
 science and practice for  
 societal change. Annual  
 Review of Environment and  
 Resources, 42.

Sustainability transitions research originated in Western Europe in the 1990s. At first, it focused mostly on environmental sustainability and on questions tied closely to **technological innovation (6)**. However, in recent years the field has also been doing more research on transitions in the Global South. It has also become more attentive to the social dimension and has incorporated issues like inequality into its definition of sustainability. Finally, the sustainability transitions research community is quite diverse. Scholars come from a variety of academic disciplines, including political science, sociology, anthropology, business studies and economics, but also ecology, social psychology and physics.

To learn more about the sustainability transitions research network, you can visit their website at [www.transitionsnetwork.org](http://www.transitionsnetwork.org). Under "resources" you will find their current research agenda. Particularly interesting for students and young researchers is the "Network for early career researchers" (in short NEST). Both networks have a blog and organize regular webinars: -

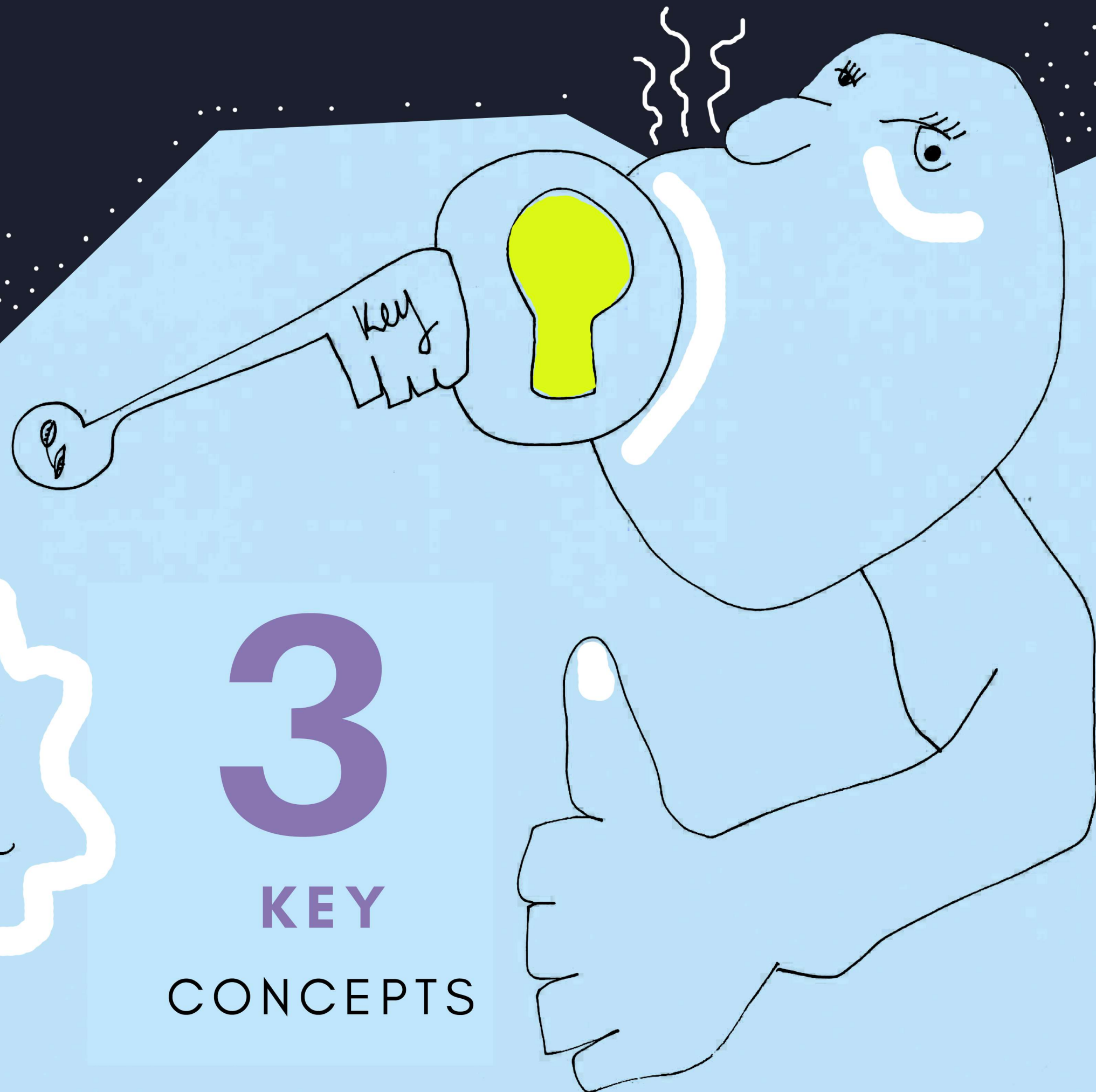




for  
Sustainability  
Transitions  
Research

3

KEY  
CONCEPTS





# Key Concepts

## SUSTAINABILITY TRANSITIONS RESEARCH



The sustainability transitions research network includes people studying a wide range of topics, disciplines and methods. Nevertheless, there are a few central concepts that all scholars understand and use when talking to each other. The following two pages explain the most important terms you should know if you want to dive deeper into the world of sustainability transitions. To get more detailed explanations, check out the research agenda of the sustainability transitions research network, at [www.transitionsnetwork.org](http://www.transitionsnetwork.org) → Web!

### MULTI-LEVEL PERSPECTIVE

There are different approaches that help scholars researching sustainability transitions make sense of how sustainability transitions work in real life. One of the most important ones is the **Multi-Level Perspective (7)**. According to this approach, transitions take place at three conceptual levels: the niche, the socio-technical regime and the exogenous socio-technical landscape. Within protected niches (like government-funded test programs or urban living labs) radical sustainability innovations (like green energy technologies or alternative business models) can emerge, develop and gather momentum. Yet, to go mainstream, they must challenge or change the incumbent socio-technical regime. The socio-technical regime describes the system of formal, normative and cognitive rules involved in organizing the current socio-technical system (see next page). Such rules may range from technical standards, property rights, to interaction patterns between industry and government and all the way to symbolic meanings of certain goods. Sometimes niche innovations are successful in this endeavor on their own and sometimes there are also instances of cooperation between niche and regime actors (organizations in the existing regime) towards sustainability. However, usually, it takes a shift at the socio-technical landscape level to destabilize the existing socio-technical regime and create a window of opportunity for niche innovation to become mainstream. The socio-technical landscape encompasses all kinds of larger trends that are hard to influence for individual niche or regime actors. Examples of such trends at the landscape level include climate change, globalization, demographic changes, ideological shifts, wars or economic crises. An example could be the Fridays for Future protests, as a youth ideological shift.

7-  
Geels, F. W. (2004). From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. Research policy, 33(6-7), 897-920.

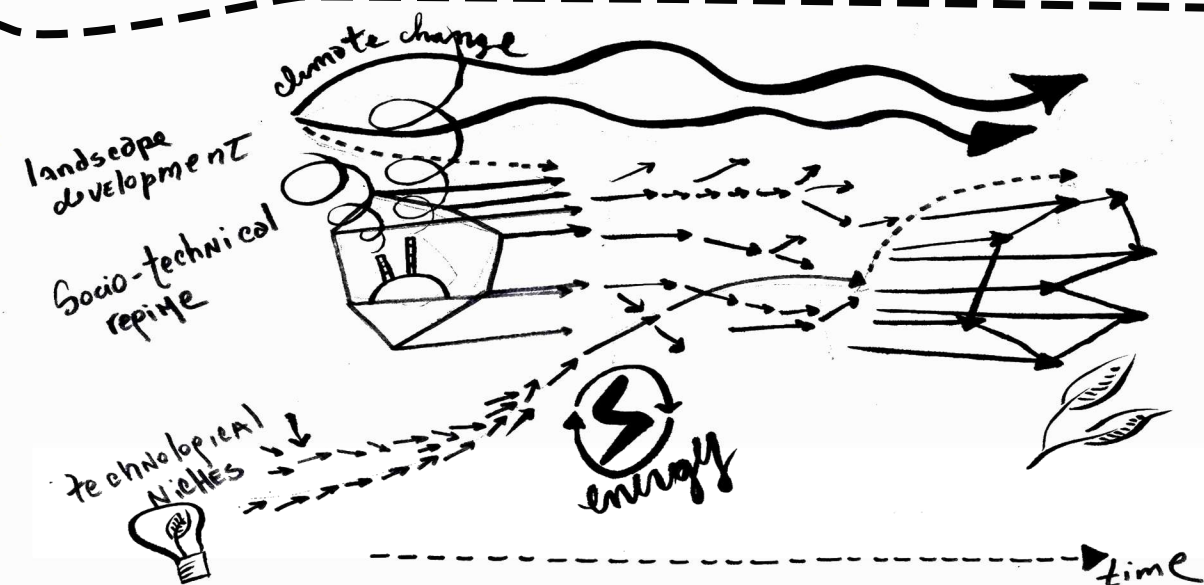
Multi level perspective

### SUSTAINABILITY TRANSITION

In order to deal with challenges like biodiversity loss, climate change and resource scarcities, our societies need to change the socio-technical systems that govern how we service societal demands e.g. for energy, transport or housing. The process of shifting from one unsustainable socio-technical system to another, more sustainable one is called a sustainability transition. Understanding when, how and why transitions take place and what certain actors can do to foster a sustainability transition is the overarching study interest of sustainability transitions researchers.

### TRANSDISCIPLINARITY

Sustainability transitions involve simultaneous changes in various aspects of society. Sustainability transitions research attempts to keep an eye on the big picture and to take as many different perspectives as possible. Therefore, it is not located in one scientific discipline but is an interdisciplinary effort involving **researchers from disciplines like sociology, political science, economics, business studies, ecology and physics**. In some studies, scholars also involve practitioners like civil servants, labor union representatives, entrepreneurs or policy makers in their research in order to co-create knowledge between academia and practice. This is then called transdisciplinarity.



The Multi-Level Perspective is very popular in sustainability transitions research. But it is not uncontested. For example, there are fierce debates about whether it's possible to clearly distinguish the regime from the landscape. There are also other approaches about how transitions happen. These include the "Technical Innovation System", "Strategic Niche Management" or "Transition Management" approaches. To learn more about them, have a look at the research agenda of the sustainability transitions research network.



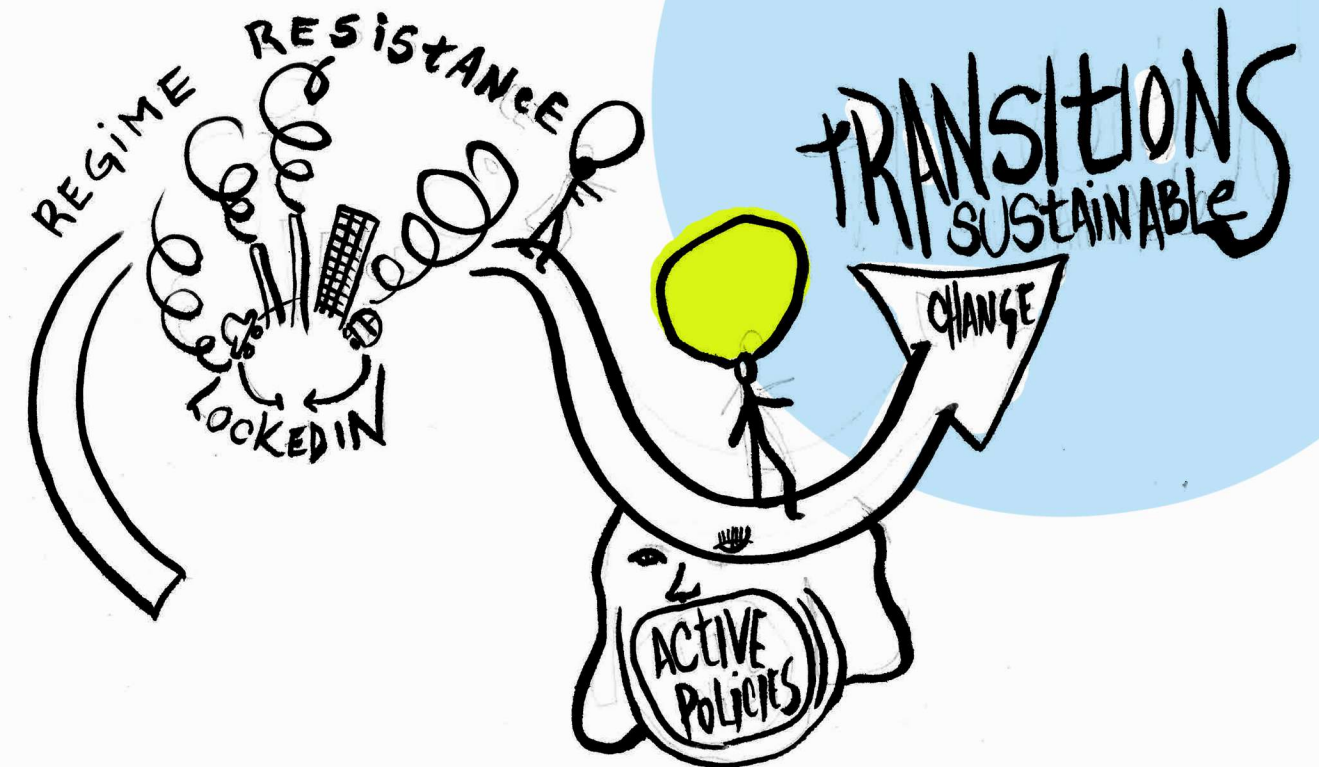
## SOCIO-TECHNICAL SYSTEM

A socio-technical system describes the combination of knowledge and technologies, cultural meanings, physical infrastructure and governing institutions that are involved in how a particular society addresses central societal demands, such as energy, transport, nutrition or communication. Socio-technical systems differ greatly between societies and throughout history. For example, transportation is organized very differently in Amsterdam as compared to San Francisco, which again differs from the transport system in ancient Rome. **Socio-technical systems** influence social structures like the law, the family, and even our language. These social structures in turn influence the beliefs, motivations and actions of individuals living in a particular society. At the same time, socio-technical systems are not determined by external conditions alone, but are constantly being changed by the very individuals and organizations that live within them.



Picture by AIT

## LOCK-IN, REGIME RESISTANCE, PHASE-OUT



An important issue in transitions research is the relation between stability and change. There are already many ideas for sustainability innovations out there, such as car sharing, low meat diets or low-waste packaging. However, to achieve a sustainability transition, these innovations need to leave their respective niches and enter the existing socio-technical regimes. But these regimes are quite hard to change. Sustainability transitions researchers say they are **"locked-in"** a certain development path. For example, consider a change in how people commute to work, a transition from driving by car to taking public transport or the bike. Changing this single practice of how to go to work would also require a change in other, related practices such as when to get up in the morning or whether one does one's shopping on one's way home. Additionally, a change in how people go to work would also require a change in the necessary infrastructures like bike lanes or public transport. Different ways of commuting to work would also depend on transitions in values, e.g. in regards to how tidy one must look at one's workplace. On top of lock-in effects, actors that benefit from the existing system present an obstacle to transitions if they actively sabotage such changes, for example by lobbying against new policies. This is called **regime resistance**. **More and more research on sustainability transitions argues that to help sustainability innovations scale-up, active policies phasing-out the old regime are needed to break up lock-in effects and overcome regime resistance.**







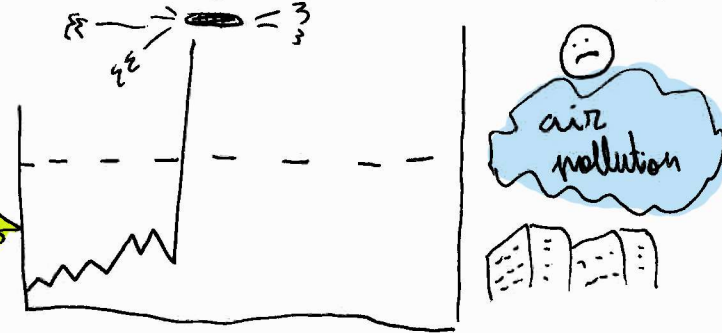
# Why

## DO CITIES MATTER?

8-

UN Habitat (2017). Strengthening Partnerships in Support of the New Urban Agenda and the Sustainable Development Goals.

More than 50% of the world population lives in cities, a number that is expected **to increase to around 70% by 2050 (8)**. In many places, especially in the Global South, this rapid urbanization comes with a lot of sustainability challenges ranging from air pollution over the supply of food to more social sustainability issues like affordable housing. At the same time, given that so many people are living in cities, the way cities react to these challenges affects societal sustainability efforts more broadly.



9-

Frantzeskaki, N., Broto, V. C., Coenen, L., & Loorbach, D. (Eds.). (2017). Urban sustainability transitions. Taylor & Francis.

Apart from having an impact on sustainability efforts on a broader level, **cities hold the potential for realizing transitions that are more difficult to achieve at other scales**, such as at the nation state or at the international level **(9)**. This is, firstly, because at the city level different types of actors, such as civil society groups, businesses, citizens and public officials, are already used to directly coordinating with one another over how to organize life in a shared space. Another reason is that the scale of the decision and with that the number of actors to consult is smaller. This makes agreeing on a pathway for a transition easier than at higher levels of government, enabling some cities to take frontrunner positions on sustainability even when their national governments do not take quite such a **progressive stance (10)**. Finally, cities play a special role in providing a breeding ground (or, in the language of sustainability transitions, a “niche”) for sustainability innovations. Innovations in the urban context are understood here as unconventional processes that provide alternatives to current socio-technical regimes governing food supply or energy production, such as urban gardening or decentralized renewable energy production on private houses. Their importance and potential for sustainability transitions has always secured cities a special spot on the sustainability transitions research agenda. The sustainability transitions research network even has its own thematic group investigating “Urban Transitions and Transformations” and at the IST2020 conference, there were many paper presentations and panel discussions on this issue.

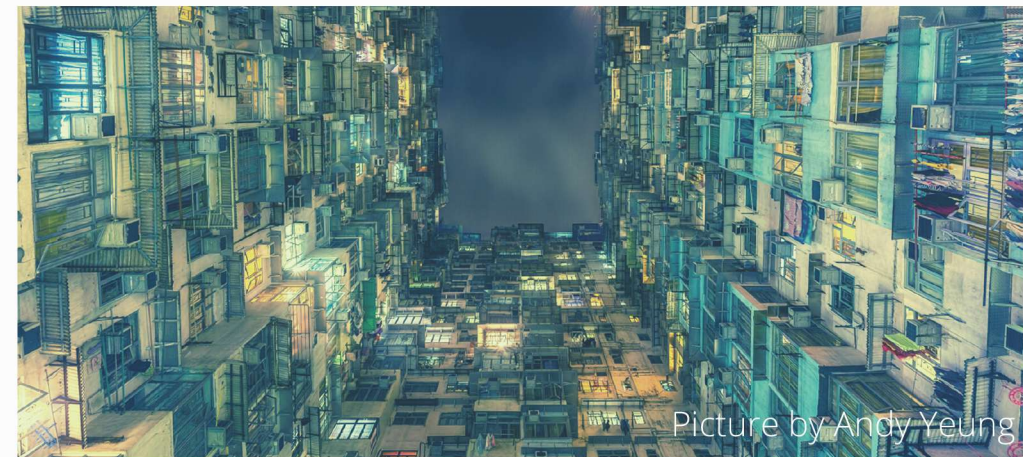
10-

Kazepov, Y., Colombo, F., & Saruis, T. (2019). The multi-scalar puzzle of social innovation. Local Social Innovation to Combat Poverty and Exclusion: A Critical Appraisal, 91.

LET'S TALK

## WHAT ARE URBAN SUSTAINABILITY TRANSITIONS?

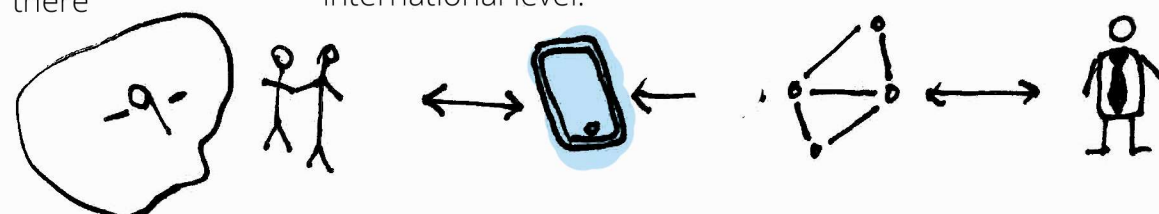
## AND WHAT IS THE ROLE OF GOVERNANCE IN MAKING THEM HAPPEN?



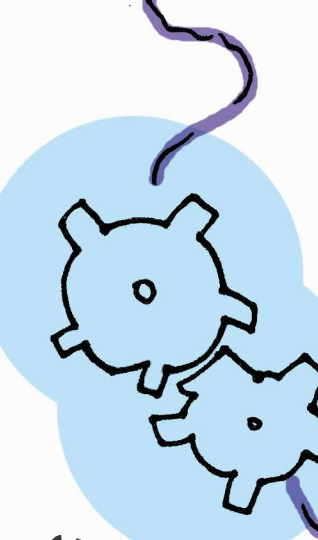
Urban sustainability transitions are defined as fundamental, long-term transformations at the city level to address broader societal challenges like climate change. According to a recent book on the topic, they involve “the realignment of urban society, its technologies and infrastructures, urban cultures and lifestyles as well as **governance and institutional frameworks (11)**”. Like any sustainability transition, urban sustainability transitions are partly driven by developments that are difficult to influence for any specific actor alone, such as demographic shifts. But they are also partly a societal innovation process actively driven – and sometimes, also prevented – by the actions of a variety of actors. These actors may come from the public, private or voluntary sector and may interact with each other at the neighborhood level, the municipality, the state and even at the international level.

11-

p.2 in Frantzeskaki, N., Broto, V. C., Coenen, L., & Loorbach, D. (Eds.). (2017). Urban sustainability transitions. Taylor & Francis.



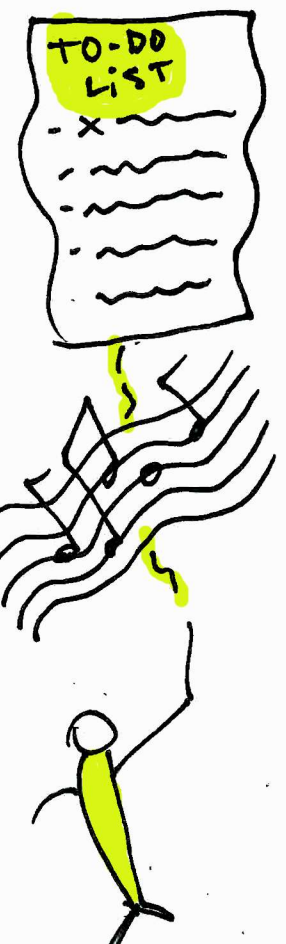




It is this second aspect of urban sustainability transitions - the active participation of various actors in making them happen or keeping them from happening - that sustainability transitions scholars focusing on urban governance are most interested in. Next, we will discuss what sustainability transitions research has found out about how city governments can coordinate different actors to work together towards urban sustainability transitions.

**Governance** is a broad term and is used in a variety of ways in the literature. In this section we use it to describe how a government, like the city council, coordinates the actions of public and private actors, such as local enterprises, schools, the building and infrastructure department.

## IMPORTANT ROLE FOR THE LOCAL GOVERNMENT



Different agendas, resources and capacities come together in the urban space. They are represented by actors, such as the local government and its administrative bodies, NGOs, religious institutions, private companies and grassroots movements. The interests of these actors are often in conflict with one another. Local government plays a key role in enabling urban sustainability transitions by orchestrating the interests and capacities of these different actors such that they align with sustainability targets.

An example of a city where the local government is working towards sustainability transitions is Vienna, the capital of Austria. Since Vienna was also the location of the IST2020 conference, there were several panel discussions about the "Viennese experience" with governing sustainability transitions. As one panelist, the City of Vienna's Director of Urban Planning Thomas Madreiter, explained, the key to a successful implementation of an overarching strategy for a sustainability transition in Vienna is that all government departments - from mobility to building - must orient their policies along the so-called Smart City Wien Framework Strategy. In his view, this is more effective for achieving far-reaching transitions than having one isolated "sustainability department".

Another panelist, the researcher and consultant Judith Borsboom-van Beurden, shared insights from her work with various cities in the Netherlands. She emphasized that businesses and citizens are often very willing to make changes, such as retrofit their offices and flats to save energy, use different transport methods or develop more sustainable food practices. Yet, these diverse actors won't act by themselves. To bring about change, city governments need to coordinate such efforts through laws and public investments, and create spaces where actors can connect and share knowledge. As you can see, an active local government is very important for urban sustainability transitions.



**Smart City Wien Framework Strategy:** In Vienna, the policy objectives to strongly reduce greenhouse gas emissions, energy consumption and the city's material footprint, are embedded in a broader long-term urban development strategy called the Smart City Wien Framework Strategy. Other objectives defined in the strategy include digitalization, social inclusion and a high life satisfaction. The Smart City Wien Framework Strategy was first adopted by the city council in 2014 and runs until the year 2050.

## THE NEED FOR BOTTOM-UP APPROACHES

As mentioned in the introduction to this chapter, there are several reasons why sustainability transitions may be easier to facilitate at the city level than at higher levels of government, such as the region or the nation state. And indeed, as explained above, there are many examples of city governments being very successful in this regard, including the City of Vienna. **But even the most committed local governments are still constrained in their sustainability efforts by greater political and economic structures.** These include national and EU regulation, but also the supposed need to compete as a business location with other cities over investments from (international) firms (12). Another problem with waiting for the city government to coordinate sustainability transitions by itself is that "top-down", planned transition strategies are bound to be full of blind spots and are often not very creative. After all, they are drawn up based on the experience of local civil servants - hardly representative of the entire urban population and certainly not all-knowing!

12-

Brenner, N. (1999). Rescaling State Space in Western Europe: Urban Governance and the Rise of Glocalizing Competition. Europe Without Borders.

TRANSITION!



For these two reasons, successful urban transitions require action at levels above and below the city government. For one, cities can cooperate with other cities and lobby national and international policymakers to support their sustainability transitions. But just as important is that different actors living in the city become engaged in making sustainability transitions happen.

In fact, so-called bottom-up approaches to transitions are just as important as the leadership role of the city government. In the words of urban governance scholar Franziska Ehnert, who spoke at the IST2020 conference, top-down guidance and bottom-up action should be combined to be successful.

**Bottom-up** means that **citizens, businesses and other organizations themselves coordinate transition projects and feed their knowledge and experiences into decision processes or even take part in these processes themselves.**

By involving many actors, bottom-up governance approaches seek to make diverse interests heard and to come up with entirely new ideas for transitions.

## URBAN EXPERIMENTATION

One tool to enable participatory governance processes that has been investigated by sustainability transitions researchers is urban experimentation. In urban experimentation, governance structures and institutions are created to test new ideas and technologies, such as smart grids or autonomous vehicles, **on the ground (13)**. Experimentation is often undertaken in so-called **Urban Living Labs**. The motivation to create such a lab is that urban experimentation works when new actors step up and act as a bridge between stakeholders. Initiatives such as **Street Lab in Copenhagen or Marineterrein Amsterdam Living Lab** are examples that bring actors together on issues like mobility or waste management. As Jonas Bylund, a researcher from Urban Europe (an EU Joint Programming Initiative specialized in innovation through urban living labs) explained at the IST2020 conference, the key idea of urban experimentation is to facilitate learning by doing, to reconceptualize so-called wicked problems that have neither a definitive formulation nor a describable set of potential solutions and are thus **notoriously difficult to address (14)** and, finally, to coordinate the implementation of new solutions.

Other actors that are very important in bottom-up mobilization are grassroots movements and grassroots organizations. As explained in the introduction to this chapter, urban sustainability transitions are not just about institutional, infrastructural and legal changes. They also require the realignment of “urban cultures and lifestyles” - a cultural transformation that triggers and **legitimizes sustainability transitions (15)**. Grassroots organizations draw their strength from being rooted in a district, region or community. They are collective initiatives with flat hierarchies and are based on the idea that people at the local level have valuable tools and knowledge to create their own solutions to **societal challenges that work for their context (16)**. Mobilizing people to create alternative living forms in the place they know best, they are an important part of creating utopias, visions, narratives and emotions about what a sustainable world can look like for the specific local context.



Open Urban Lab as a forum between citizens, Public Administration and companies, to develop innovative proposals for the improvement of the city of Zaragoza

The grassroots level also represents a “niche” where innovative ways to organize production and distribute goods outside the conventional market-economy can take place. Examples of such grassroots initiatives for sustainability include local food cooperatives, repair cafés, urban farming initiatives, **eco-housing and transition towns (17)**. That said, at the IST2020 conference, critical voices warned that such grassroots initiatives might also have a stabilizing effect on the existing socio-technical system. If grassroots initiatives in fact signal a shying away from fighting for change on a larger political level in the face of the current, in some places increasingly disheartening socio-ecological landscape, **they are not necessarily transformative (18)**. In other words, if they are the result of a “post-political retreat”, their focus on small-scale changes at the community level alone may be counterproductive to a structural transition.

15-

Frantzeskaki, N., Broto, V. C., Coenen, L., & Loorbach, D. (Eds.). (2017). Urban sustainability transitions. Taylor & Francis.

16-

Gernert, M., El Bilali, H., & Strassner, C. (2018). Grassroots initiatives as sustainability transition pioneers: implications and lessons for urban food systems. Urban Science, 2(1), 23.

17-

Gernert, M., El Bilali, H., & Strassner, C. (2018). Grassroots initiatives as sustainability transition pioneers: implications and lessons for urban food systems. Urban Science, 2(1), 23.

18-

see number 15.

URBAN



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## FOOD FOR THOUGHT

- 1) Think about the city you are living in - what are some things that could be changed for the city to become more sustainable?
- 2) Do you know if your city government is doing anything to increase sustainability? Do you know any neighborhood organizations working on projects that incorporate the topic of sustainability?
- 3) What do you think is more effective? Lobbying your city government to implement sustainability reforms or building a sustainable future from the bottom-up, for example by becoming engaged in a neighborhood sustainability project?

## WHOM TO FOLLOW, WHAT TO READ

- 1) Some research organizations and institutes doing work on urban sustainability transitions are:

Thematic Group on Urban Transitions and Transformations of the Sustainability Transitions Research Network: <https://transitionsnetwork.org/thematic-groups/thematic-group-on-urban-transitions-and-transformations/>

DRIFT - think tank working on sustainability transitions based in Rotterdam, the Netherlands: <https://drift.eur.nl/topics/urban-transitions/>

Research Institute for Urban Management and Governance at WU Wien: <https://www.wu.ac.at/en/urban>

Institute for Global Environmental Strategies - Governance department: <https://www.iges.or.jp/en/topics/governance>

- 2) If you are interested in Smart City Strategies, Urban Living Labs or Urban grassroots organizations, have a look at these websites:

Smart City Wien: <https://smartcity.wien.gv.at/site/en/>

Urban Europe: <https://jpi-urbaneurope.eu/>

Advanced Metropolitan Solutions: <https://www.ams-institute.org/how-we-work/living-labs/>

Transitions Network: <https://transitionnetwork.org/>

- 3) To get an in-depth overview of the research on Urban Sustainability Transitions and how such transitions are governed, you may want to look into these books or texts:

Frantzeskaki, N., Broto, V. C., Coenen, L., & Loorbach, D. (Eds.). (2017). *Urban sustainability transitions*. Taylor & Francis. (book)

Fuenfschilling, L., Frantzeskaki, N., & Coenen, L. (2019). *Urban experimentation & sustainability transitions*. (book)

Ehnert, F., Kern, F., Borgström, S., Gorissen, L., Maschmeyer, S., & Egermann, M. (2018). *Urban sustainability transitions in a context of multi-level governance: A comparison of four European states*. Environmental Innovation and Societal Transitions, 26, 101-116.

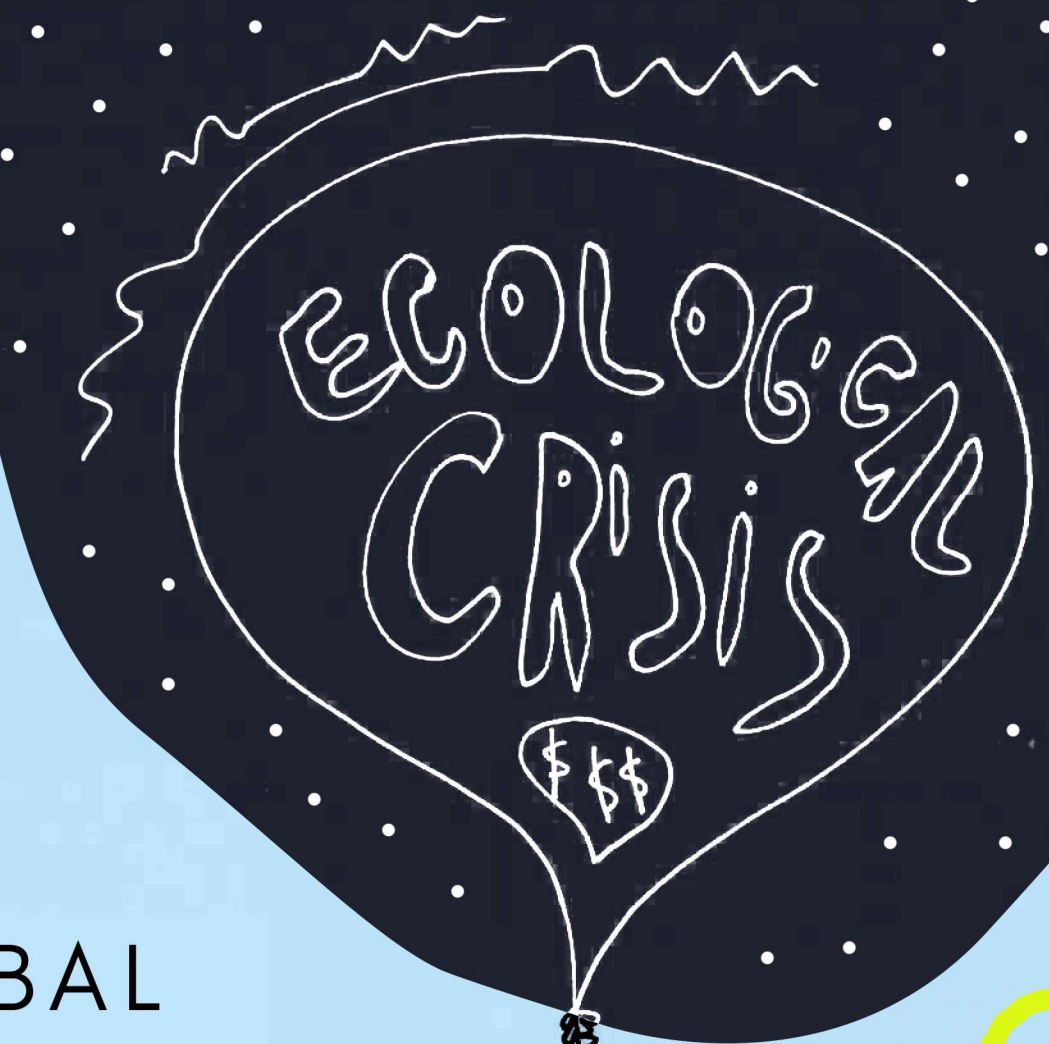
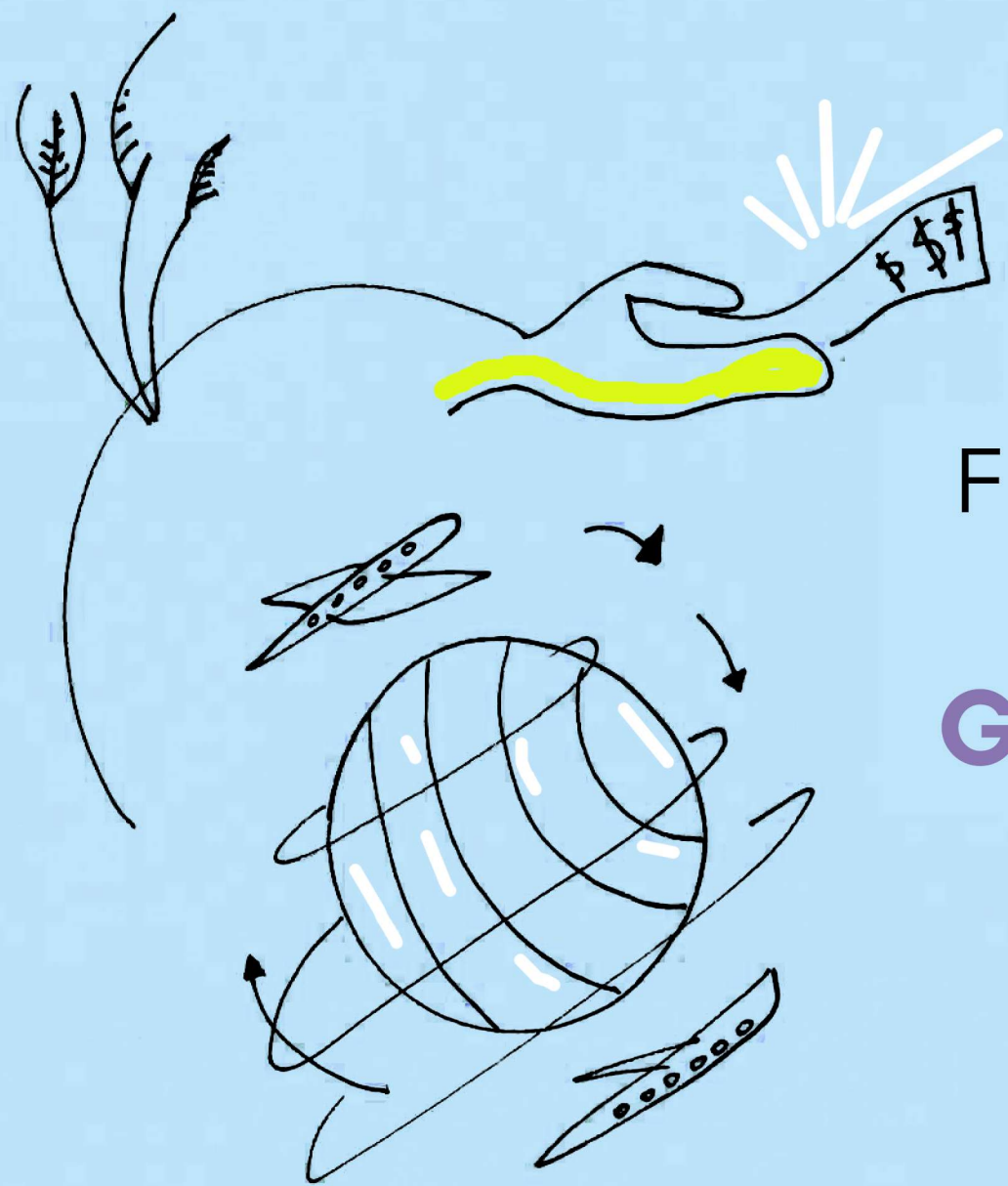
Gernert, M., El Bilali, H., & Strassner, C. (2018). *Grassroots initiatives as sustainability transition pioneers: implications and lessons for urban food systems*. Urban Science, 2(1), 23

CHANG



5

ENERGY, GLOBAL  
FINANCIAL MARKETS  
AND THE  
**GREEN NEW DEAL**

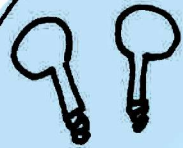
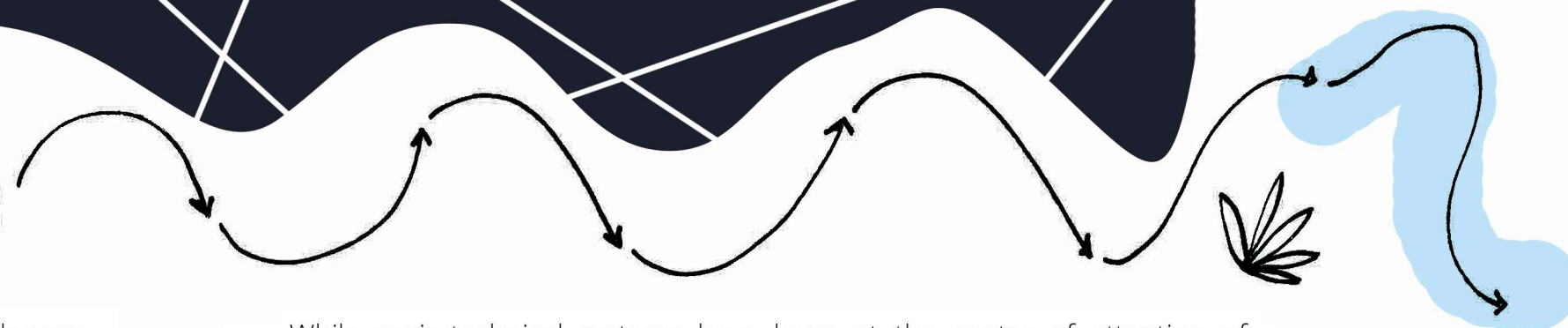






# Energy

## AND CLIMATE CHANGE



19-

The Paris Agreement is the first universal, legally binding global climate change agreement, adopted at the Paris climate conference (COP21) in December 2015.

As mentioned already, climate change is one of the core challenges investigated by sustainability transitions research. **The Paris Agreement of 2015 (19)** shows that there is international political consensus on the need to put halt to global warming. 196 nation states agreed upon keeping global warming well below under 2°C and to pursue efforts to limit it to 1.5°C above pre-industrial levels. However, the non-binding pledges and targets that governments have made so far are likely to only limit heating to a 3.0°C increase. The intergovernmental panel on climate change (IPCC) special report elaborates on the irreversible and negative effects global warming will have on the livelihood of millions of people. With high probability, temperature increases beyond 2°C will lead to rising sea levels, desertification and more frequent extreme weather events like hurricanes, droughts or wildfires. This is likely to significantly reduce the surface of livable land, to increase famines and armed conflict and, finally might result in **billions of refugees and deaths (20)**.

20-

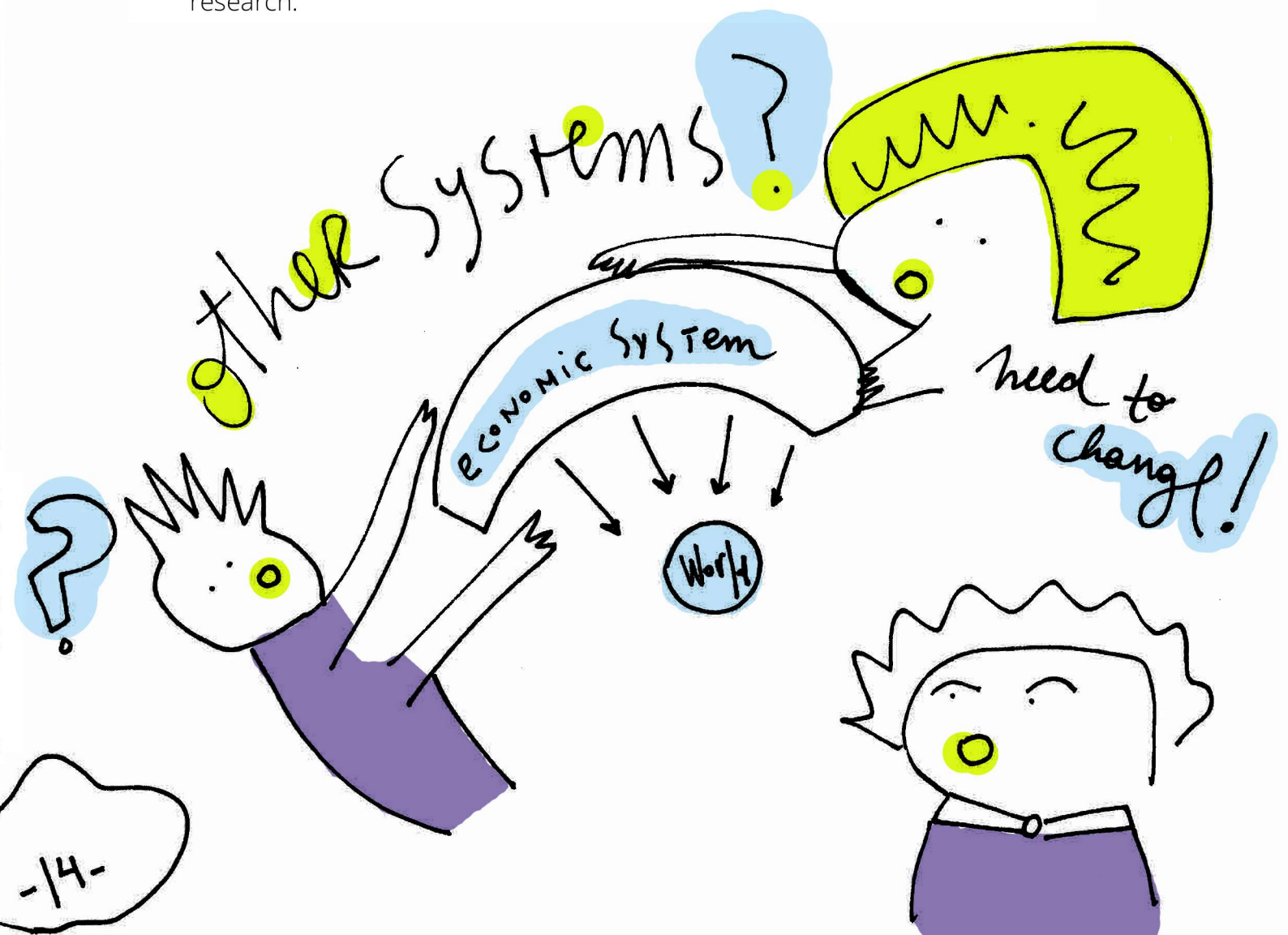
Moriarty, P., & Honnery, D. (2016). Can renewable energy power the future? Energy Policy, 93, 3-7: <https://doi.org/10.1016/j.enpol.2016.02.051>  
Alan Buis. (2020, October 12). A Degree of Concern: Why Global Temperatures Matter. Climate Change: Vital Signs of the Planet. <https://climate.nasa.gov/news/2865/a-degree-of-concern-why-global-temperatures-matter>  
IPCC. (2014). Climate change 2014: Synthesis report (p. 151). Intergovernmental Panel on Climate Change. IPCC. (2018). Chapter 3—Impacts of 1.5oC Global Warming on Natural and Human Systems. IPCC. <https://www.ipcc.ch/sr15/chapter/chapter-3/>



Image: Reuters (c)

The socio-technical system that is most responsible for global warming today is the energy system. **The question of how to transition energy production and use away from greenhouse gas emitting fossil fuels, while simultaneously reducing the amount of energy we consume is therefore of great interest to researchers investigating sustainability transitions.** As already explained in the **introduction section (page 3)**, transition studies follows the assumption that a radical transition in the energy system both requires and causes transitions in other socio-technical systems, such as food or transport.

While socio-technical systems have been at the center of attention of sustainability transitions researchers so far, a **topic that in the past did not get as much attention from this community is how other types of systems, like the macroeconomic and financial system, need to change to aid the energy transition.** Key questions in this regard include: **Why do renewable energy technologies still struggle to challenge fossil fuels despite in many cases already being the cheaper and more efficient technology? How must we restructure our economic and financial system to enable a transition towards renewables and energy saving? What role do various levels of government play? What role do actors on financial markets play?** At the IST2020 conference, the keynote by economist Ann Pettifor moved the role of the economic and financial system at the center stage. That way, the Vienna conference committee made their own contribution to emphasizing the necessity to discuss this topic within the field of sustainability transition research.





## THE GREEN NEW DEAL LINKING SUSTAINABILITY TO THE ECONOMIC SYSTEM

During the IST2020 conference Ann Pettifor, a UK-based economist and one of the architects of the so-called Green New Deal, gave a keynote speech on the relevance of macroeconomics for promoting sustainability. Macroeconomics looks at the behavior of the capitalist market economy as a whole. Economists, such as ecological macroeconomists but also some economic sociologists research the **link between our economic system and greenhouse gas emissions**. Several researchers and activists have incorporated ideas from this research into a broad policy proposal - The Green New Deal.

21-

Friedman, L. (2019, February 21). What Is the Green New Deal? A Climate Proposal, Explained (Published 2019). The New York Times.  
<https://www.nytimes.com/2019/02/21/climate/green-new-deal-questions-answers.html>  
Pettifor, A. (2008). Beyond the triple crisis: A green new deal. OpenDemocracy.  
<https://www.opendemocracy.net/en/beyond-the-triple-crisis-a-green-new-deal/>

**The Green New Deal (21)** was originally designed by a group of environmentalists and economists for the campaign of US-Representative Alexandria Ocasio-Cortez. Today, scientists and policymakers have developed different approaches to a Green New Deal, including a diverse range of aspects and topics, such as health care and minimum wages in the United States. As Ann Pettifor explained at the IST2020 conference, the original Green New Deal, designed by herself amongst others, functions as a framework that allows us to have a conversation about the current “hyper globalized” financial and economic system and its connection to multiple crises that took place in recent years: the 2008 financial crisis, the rise of the far-right in many countries and the ecological sustainability crisis. Her critique of the existing system centers around three points:

- 1) Our current economic system requires the economy to **grow** every year in order to remain stable - something which today is neither ecologically feasible nor necessarily socially desirable, because profits are increasingly distributed unequally.
- 2) The way our financial system is structured **incentivizes investments in undesirable and destabilizing activities** that cause housing bubbles or excessive financial speculation rather than investment into socially and ecologically desirable activities.
- 3) Over the past decades, democratically elected governments have retreated from actively steering this economic and financial system in a way fit for society. Instead, nation states have merely set framework conditions for the existing system, remaining **abstinent from important governance tools that could support a transition**.



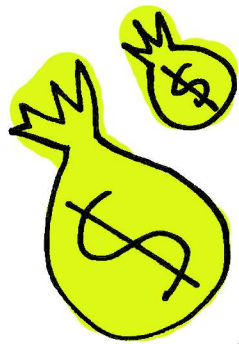
Apart from theoretical considerations, the US version of the Green New Deal includes concrete policy goals: It aims for a dramatic increase in renewable energy and an extensive expansion of green jobs through public and private investments, while it wants to end airport expansion and fracking. All of this is enabled by a **more proactive regulation of global financial markets**. In Europe, a Green New Deal is being proposed by DiEM25, a pan-European collective demanding reform of the European Union. DiEM25's proposal focuses on economic rebalancing that fosters economic stabilization between different regions and supports a strong democratization on all governance levels. That way, it aims at paving a path for a post-capitalist society. It's important to note that the Green New Deal suggested by DiEM25 differs greatly from the “European Green Deal” of the von der Leyen Commission. The latter is an investment plan that follows a green growth logic with the main target of enhancing the EU's competitiveness. Green growth is based on the idea that economic growth can be detached from environmental harm and natural resources used in a way that is sustainable. The problem with this is that so far there is no evidence that economic activity can be decoupled from environmental degradation. However, during the IST2020 conference, some discussants argued that despite its green growth logic, **the European Green Deal holds potential to be used as a framework for more transformative transitions in line with the ideas of the Green New Deal (22)**.

22-

Pettifor, A. (2019, September 26). The Green New Deal. Chatham House.  
<https://www.chathamhouse.org/publications/the-world-today/2019-10/green-new-deal>  
DiEM25. (2020). European New Deal. European New Deal.  
<https://diem25.org/campaign/european-new-deal/>



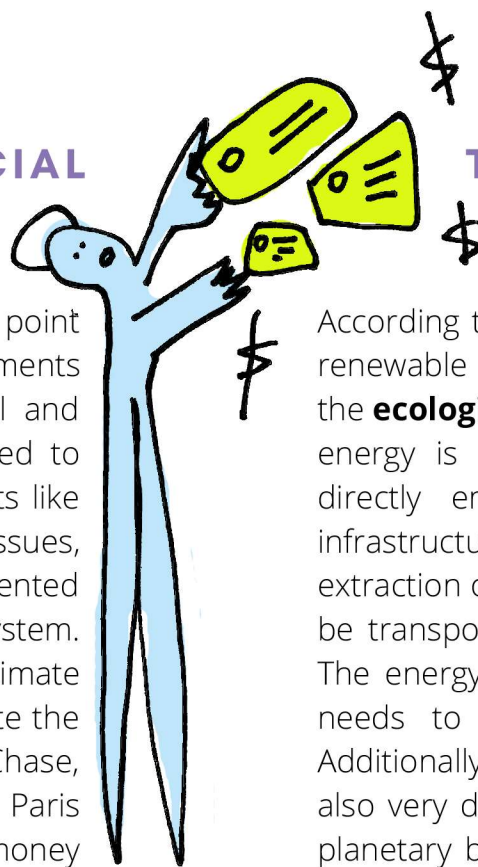




## THE NEED FOR A REFORM OF OUR FINANCIAL AND MONETARY SYSTEM

At the IST2020 conference, Ann Pettifor's speech centered around the point that already today, there is enough money to finance all the investments needed for a sustainability transition. Yet, in our modern financial and monetary system, money creation by commercial banks is regulated to incentivize them to place this money into stable and profitable assets like mortgages, existing infrastructures or financial assets. Among other issues, this has led the financial sector to undervalue the systemic risk presented by climate change and to continue to invest into a fossil fuel system. However, this **fossil fuel system is clearly unsustainable** and – if climate change is addressed in a serious manner – it cannot possibly generate the expected profits. To give an example: the largest US bank, JP Morgan Chase, has invested 169 billion US dollars in the fossil fuel industry since the Paris Agreement. However, to achieve a sustainability transition, no more money should be spent building new fossil infrastructure at this point. If countries were to follow through with their pledges at the Paris Agreement, quite some of this newly built fossil infrastructure will become “stranded” – i.e. lose its economic value – in just a few years (23).

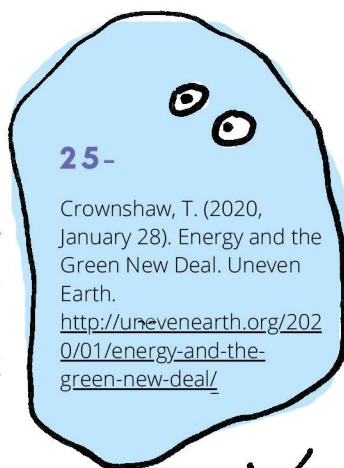
Since the last economic crisis many countries are imposing austerity measures to counterbalance rising national debts. Meanwhile, the private banking system is making money available for unsustainable projects such as the ones financed by JP Morgan Chase. Rather than focusing on austerity measures to reduce their expenditure, Pettifor argues, governments need to realize and act upon the **power** they de facto hold **over financial markets** and the money circulating in them. Pettifor argues that the most valuable assets (items you can buy as an investment) for many actors on financial markets are OECD government bonds. They are stable, liquid and are backed by no one less than every single taxpayer of the respective country's national economy. One way to better control where private financial flows go could be for governments to set conditions under which private sector institutions may have access to government bonds, such as that they must invest a given share of their assets under management into activities and infrastructures needed for a sustainability transition. From a long-term investment perspective, this even makes economic sense, as the worth of government bonds is inextricably tied to the future of our planet. **If a country and its people are struggling with continuous environmental disasters, that is not going to reflect well on a nation's tax revenues (24).** Current rules on trade and investment set limitations to this approach, though.



## THE NEED TO DECREASE ENERGY CONSUMPTION

According to Ann Pettifor, with the right policies a transition from fossil to renewable energy would be **entirely economically feasible**. However, the **ecological feasibility** of simply replacing all fossil fuels with renewable energy is still debated. While renewable energy production does not directly emit greenhouse gases, producing the necessary physical infrastructure, such as solar panels and wind turbines, does require the extraction of a great amount of resources. Further, these materials need to be transported and processed, which requires great amounts of energy. The energy required to transition to a renewable energy system already needs to be included into our greenhouse gas emission budget. Additionally, the world is not only facing the threat of climate change but also very dramatic biodiversity losses and is likely to cross multiple other planetary boundaries. Once exceeded, crossing such boundaries can fuel the collapse of vital ecosystems linked for example to our food production. Thus, a limitless destruction of natural habitat for the sake of mining materials needed for renewable energy infrastructure needs to be **critically questioned (25)**.

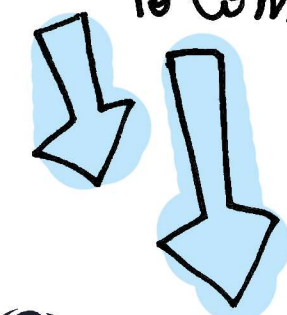
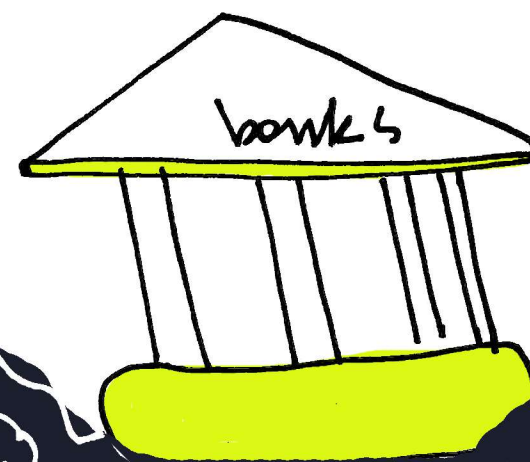
The Green New Deal shows transformative potential by strengthening city as well as nation state governments to steer economic activity into a new direction. That way, it undermines the power of the global financial market that currently is heavily invested in fossil fuels. However, moving economic forces from the fossil fuel industry to so-called “green” industries won't be enough. Instead, a profound transition towards a **reduction of energy and resource consumption is needed**.



25-

Crownshaw, T. (2020, January 28). Energy and the Green New Deal. Uneven Earth. <http://unevenearth.org/2020/01/energy-and-the-green-new-deal/>

energy to Consumption





## FOOD FOR THOUGHT

1) How do we bring macroeconomics into the public conversation, so democratically voted governments are held accountable for the existing dysfunctional system?

2) How can the energy transition be transformed into a transition towards less energy consumption, considering that continued increase in energy consumption is probably not environmentally feasible - even with renewable energies?

3) What is necessary to create new or reformed welfare institutions that are not dependent on eternal economic growth?

## WHOM TO FOLLOW, WHAT TO READ

★ Ann Pettifor: [annpettifor.com](http://annpettifor.com), @annpettifor, recommended article: "[here is a three step plan to take back control](#)".

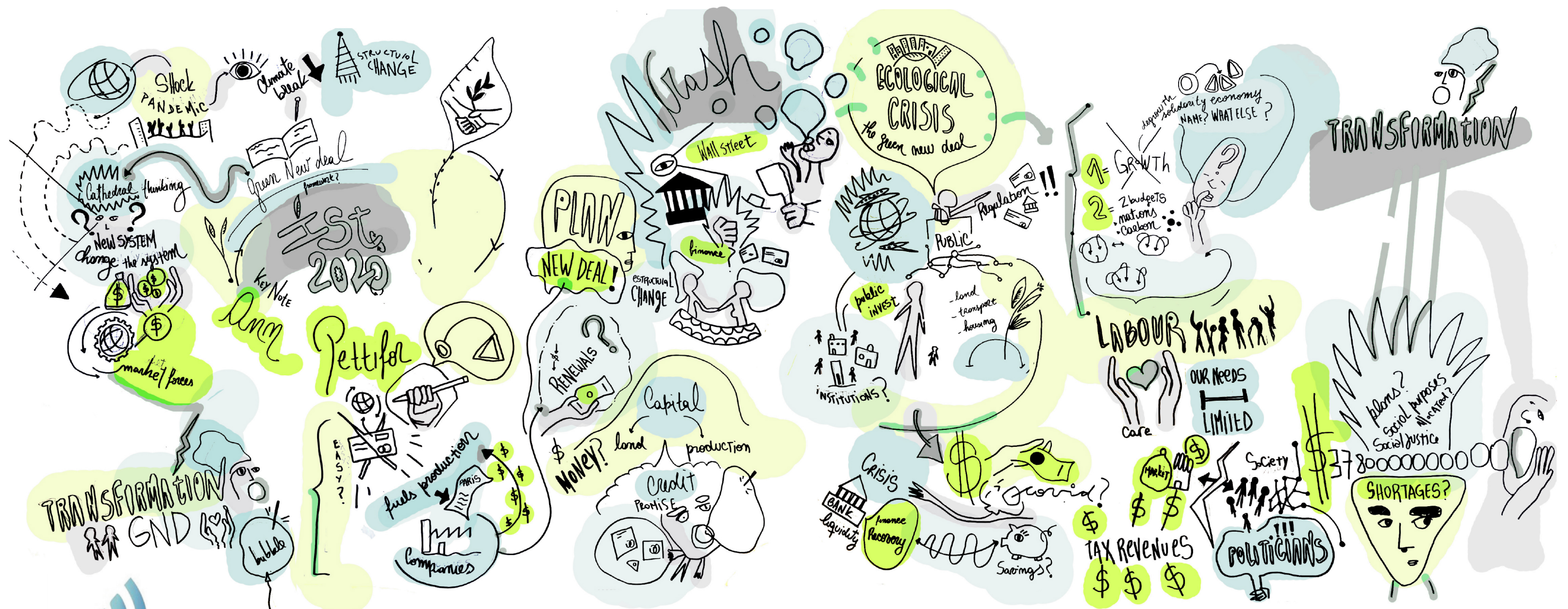
<https://www.annpettifor.com/2020/04/heres-a-three-step-plan-to-take-back-control/>

★ Naomi Klein: [naomiklein.org](http://naomiklein.org), @noemiaklein, recommended article: "[capitalism killed the climate movement not 'human nature'](#)".

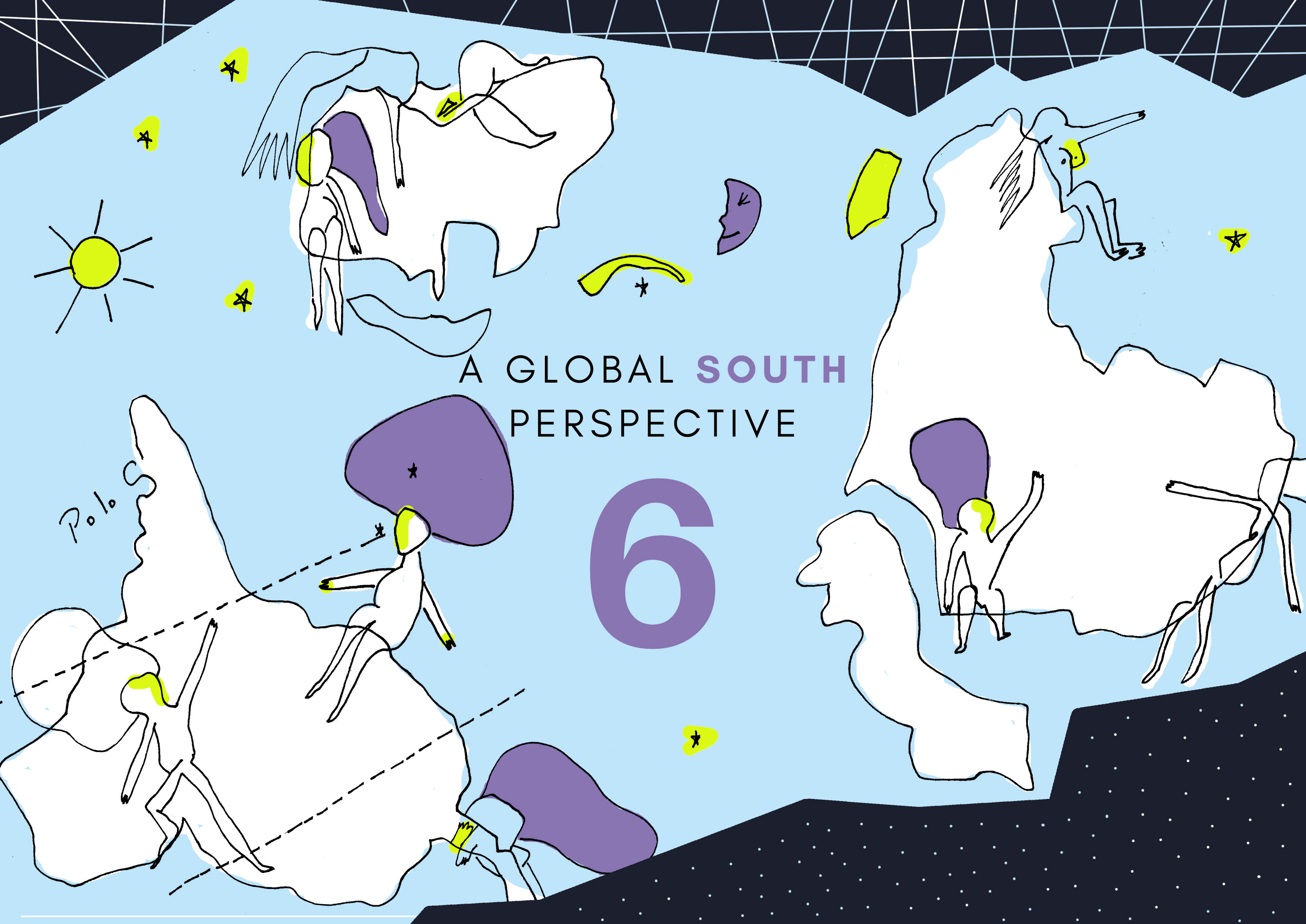
<https://theintercept.com/2018/08/03/climate-change-new-york-times-magazine/>

★ Tim Crownshaw's article: "[energy and the green new deal](#)".

<https://www.resilience.org/stories/2020-02-03/energy-and-the-green-new-deal/>







A GLOBAL SOUTH  
PERSPECTIVE

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Polo S





26-

Loorbach, D., Frantzeskaki, N., & Avelino, F. (2017). Sustainability transitions research: transforming science and practice for societal change. Annual Review of Environment and Resources, 42.

The scale of sustainability challenges like climate change demands global responses. Therefore, we now proceed to looking at Sustainability Transitions Research in the **global context**. The sustainability transitions research community originally emerged in Western Europe, specifically the Netherlands and the UK (26). Therefore, its core concepts are based on research into the sustainability challenges of Western, modern societies. However, there is a need to understand how sustainability transitions take place in different regions and places including those of the **Global South**. The fact that the Sustainability Transitions Research Network has some **fundamental gaps** in this regard came to the forefront of its research agenda in recent years and was one of the key topics at the IST2020 conference.

## THE NEED FOR CONTEXT-SPECIFIC THEORIES ABOUT SUSTAINABILITY TRANSITIONS

When researching sustainability transitions, there is a need for differentiated discussions that are context-specific. Thereby concepts relevant to researching transitions in the Global South may at times contrast with those employed when studying transitions in the Global North. There are several reasons for this. For one, many regions in the Global South are still in the **process of transitioning** towards fossil fuel dependent socio-technical systems rather than having lived with this mode of industrial organization for centuries. **A transition towards low-carbon systems thus departs from different conditions (27)**. Another example demonstrating the importance of context relates to the topic of urban sustainability. Rapid urbanization, population growth, and arbitrary urban expansion dominate the urban fabric of many cities in the Global South and pose **different sustainability challenges** compared to the ones faced by most cities in the Global North.

challenges



Further, sustainability transitions taking place in contexts of increased informality, inequality, poverty and exclusion may simply require different models and frameworks than the ones used to understand transitions in the Global North. However, it should also be noted that there are several cases in which the North-South distinction does not hold. Consider the issue of unsafe access to water. **While this was long believed to be an issue most prevalent in the Global South it has also been documented in the Global North, for example in the USA (28)**. Thus there are also shared dynamics that transcend the North-South dichotomy and, as we'll also explain further down, **there is ample room for learning processes to flow both North-South and South-North (29)**.



Picture from CIPER Chile

## THE IMPORTANT ROLE OF POLITICAL ECONOMY AND HISTORY

Finally, the economic and political connections between the Global North and Global South are vital for understanding social, political and ecological challenges in the Global South, as for example exploitative institutional arrangements or ecological destruction. Therefore, sustainability transitions in the Global South, even more than in the Global North, need to be analyzed in terms of power dynamics and through a post-colonial understanding of reality. Post-colonialism is hereby understood as the concurrent project to acknowledge and address the consequential realities of places that are experiencing or have in **the past experienced exploitation through imperialism (30)**. In this sense, we believe that sustainability transitions can only take place under **decolonized, solidary and collaborative guidelines** and these need to be considered in all sustainability transitions research.

28-

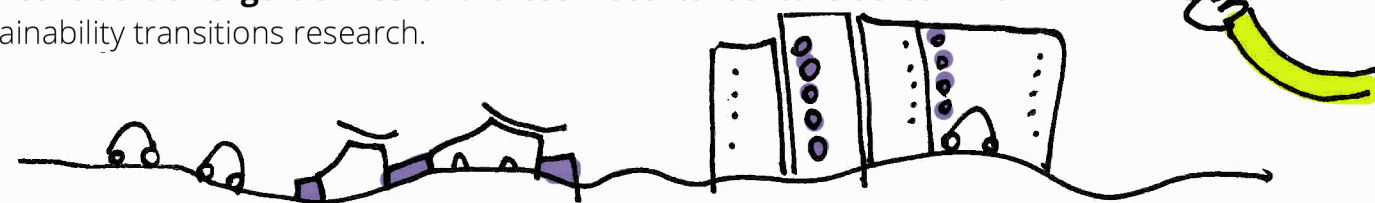
Ranganathan, M., & Balazs, C. (2015). Water marginalization at the urban fringe: environmental justice and urban political ecology across the North-South divide. Urban Geography, 36(3), 403-423.

29-

Soliman, Y. (Architecture Department, Faculty of Engineering, Alexandria University). Governance and Sustainability Transitions on New Urban Expansion: Alexandria Case, Egypt

30-

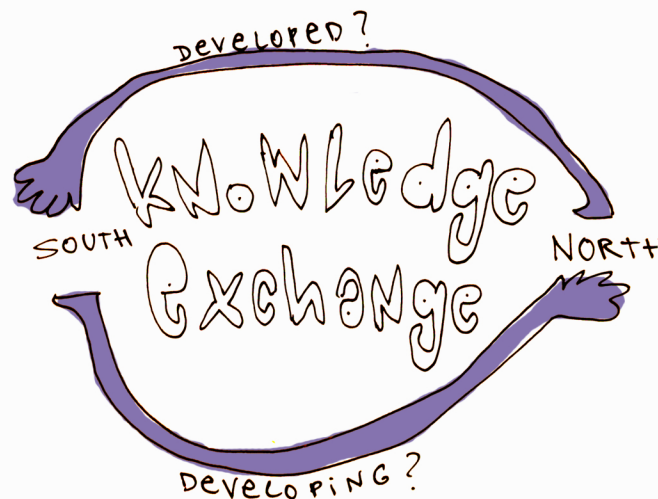
Duncan I.. (2018). Postcolonialism. Encyclopedia Britannica.





## DEVELOPING VS DEVELOPPED

To address the global sustainability crisis, sustainability transitions research uses concepts, frameworks and methodologies that have a long tradition within the field. However, as discussed in the previous paragraph, it is of vital importance to **pay attention to the particular context** the research is embedded in. This also means that implicit or explicit assumptions and intentions of concepts applied in research need to be interrogated.



**31-**  
Rabie M. (2016) Meaning of Development. In: A Theory of Sustainable Sociocultural and Economic Development. Palgrave Macmillan, New York.

A common concept used also in the context of sustainability transitions research is “development”. **The idea of development is based on the belief that economic growth improves people’s quality of life (31).** Its use often implies a linear pathway countries must strive to move forwards on - from less to more developed. Thereby, countries in the Global South are typically deemed less, countries in the Global North more developed. As discussed during sessions on sustainability transitions research in the Global South at the IST2020 conference, although not a new critique, underlying assumptions, such as those of the development concept are often still not being questioned enough. A rather recent example for this can be found in the Sustainable Development Goals, the UN’s current development framework. The so-called SDGs are already much more reflective than previous policy frameworks, but still continue to emphasize certain controversial aspects linked to the concept of development. **As the researchers argue, development goals must always be recognized - politically and analytically - as policy objectives. Recognizing them as policy objectives then means that they are political and therefore up to debate rather than self-evident and imperative (32).**

**32-**  
Winkler, H., Boyd, A., Gunfaus, M. T., & Raubenheimer, S. (2015). Reconsidering development by reflecting on climate change. International Environmental Agreements: Politics, Law and Economics, 15(4), 369-385.

But power dynamics must not only be reflected within the concepts applied by sustainability transitions researchers in the Global South. They are sometimes even hidden in the very manner research and the distribution of knowledge itself is organized. In many contexts, there is a strong assumption that knowledge and technologies to support sustainability transitions will primarily flow from the Global North to the Global South. However, this again reflects the single directionality of the notion of development, with the Global South requiring knowledge of the Global North in order to develop along the trajectory. And it misses out on countless opportunities where Global South countries may share context-specific knowledge among each other rather than relying on research from Global North contexts. Finally, it precludes vital learnings about dynamics of social exclusion and ecological degradation in the Global North context through the lens of Global South research as well as perspectives and possible pathways for sustainability transitions coming, for example, from indigenous knowledge. In this sense, the production of knowledge across South - North should instead pursue the goal of developing new positions on both sides through **interactions between researchers and people in different locations. It should enable the deconstruction of knowledge and practices through the exposure of dominant ideologies in both, the Global North and the Global South (33).**



**33-**

Smith, L. T. (2012). Decolonizing Methodologies : Research and Indigenous Peoples (Vol. 2nd ed). London: Zed Books.



## KNOWLEDGE EXCHANGE IN PRACTICE: INDIGENOUS KNOWLEDGE AT THE IST2020 CONFERENCE

One subtopic within the Global South discussion of the IST2020 conference focused on Indigenous knowledge and its role in sustainability transitions. **The question up for debate was whether and in what ways Indigenous knowledge systems could contribute to Sustainability Transitions Research. Indigenous knowledge is understood as the unique, often traditional knowledge of a particular culture or society (34).** Further, it is important to look at how Indigenous peoples and knowledge can be involved in sustainability transitions research in a way that is ethical and respectful. During the IST2020 conference, the researchers agreed that substantial intellectual engagement, decolonization, and an active response from practitioners are needed to address the imbalance between the academics of the Global North and the schools of indigenous knowledge. A post-colonial stance requires much reflexivity and openness. The position of academics facing these topics must be constantly revised and re-considered, having a permanent reflection on the positionality of the research community, policy makers and people of the Global North. **The true inclusion of different perspectives and understandings is fundamental in order to achieve just sustainability transitions (35).**

34-

S.G.J.N. Senanayake.  
(2006). Indigenous  
knowledge as a key to  
sustainable  
development.  
ResearchGate.

35-

McEwan, C (2003)  
Material geographies and  
postcolonialism,  
Singapore Journal of  
Tropical Geogr-aphy, 24  
(3), pp 340-355.

## FOOD FOR THOUGHT

- 1) What are **potential implications** of applying a theory developed in the Global North to a sustainability challenge in the Global South?
- 2) Have you ever studied a topic where you felt that important perspectives and a sense of context were **missing**?
- 3) Have you read **scholars from the Global South** in your studies? Which ones?
- 4) Do you think **Indigenous knowledge** can help find solutions to modern sustainability challenges? Why (not)?

## WHOM TO FOLLOW, WHAT TO READ

There is a specific sub-group within the STRN working on issues related to the global South called "Transitions in the Global South". You can check out these links for further information, also don't hesitate to get in contact yourself if you want to join!

### STRN thematic group: Transitions in the Global South:

- 1) Website: [www.transitionsnetwork.org/thematic-groups/transitions-global-south](http://www.transitionsnetwork.org/thematic-groups/transitions-global-south)
- 2) Instagram: @TransitionsSouth
- 3) Twitter: @TransitionsSouth

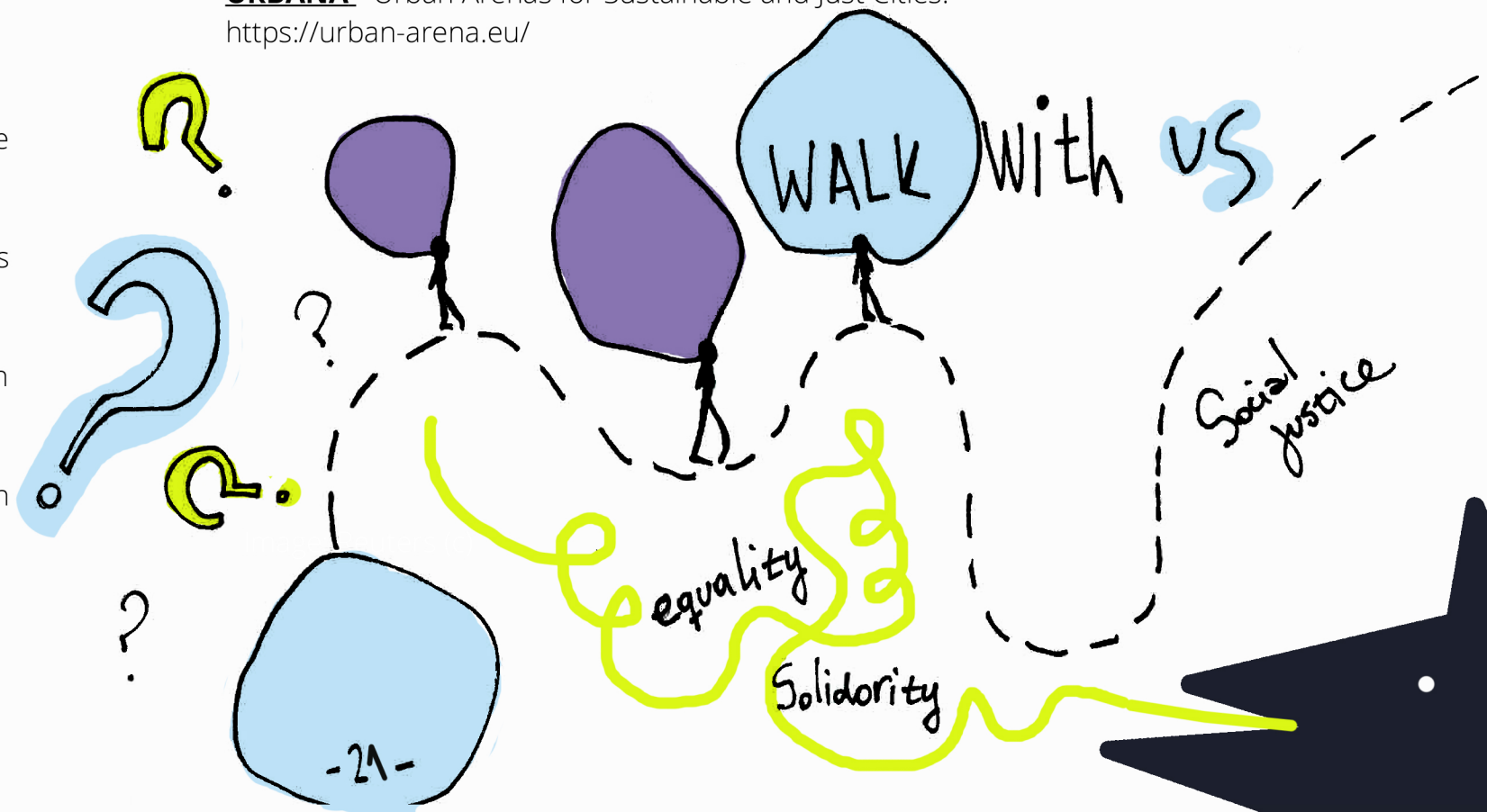
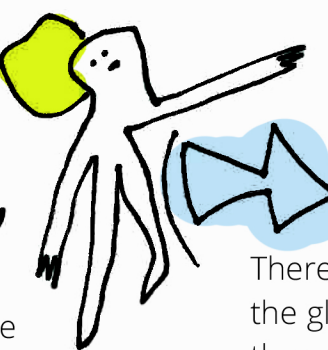
### 1st Webinar on perspectives from the Global South:

<https://www.youtube.com/watch?v=K9FHgnR4V8g&feature=youtu.be2>

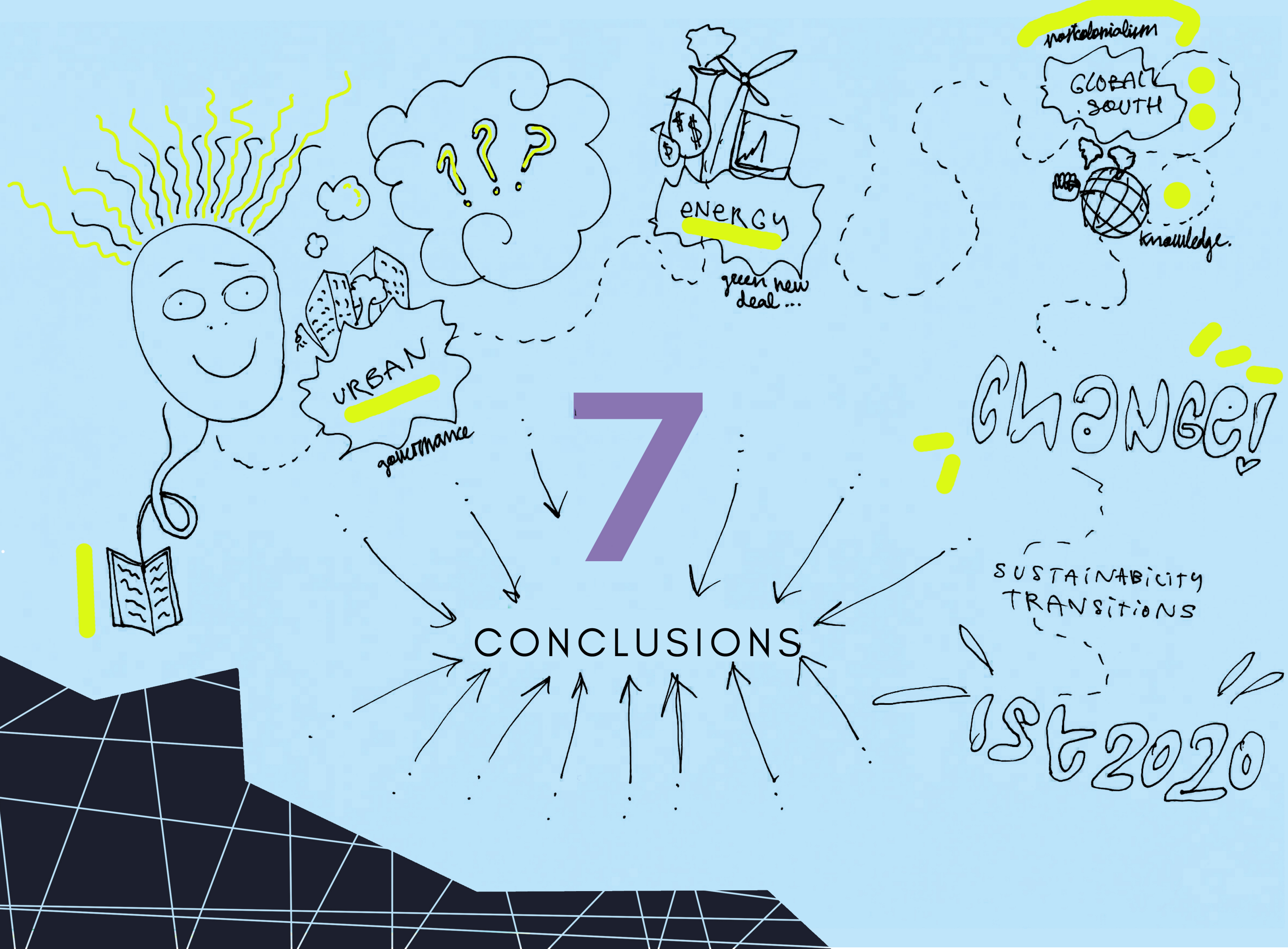
### Interesting Projects:

**OSCILATE** - two-year research project analysing the role of digitally available open source knowledge in technological capability building efforts in the Global South. This includes knowledge available through online discussion forums, wikis, file sharing repositories, and other resources. <https://unepdtu.org/project/open-source-based-capability-building-in-latecomer-firms-oscilate/>

**URBANA** - Urban Arenas for Sustainable and Just Cities. <https://urban-arena.eu/>









# Conclusion

IST2020 AND BEYOND

The goal of this brochure was to introduce sustainability transitions research from the perspective of master's students. We gave **insights into three different topics that were discussed during the IST2020 conference**: urban sustainability transition; energy, global financial markets and the green new deal; and transitions in the Global South. These topics are of course highly interrelated. However, looking at them individually helps understand the current discussions that are going on in each research area.

Concerning urban sustainability transitions, we saw that **cities play an important role as frontrunners of progressive policies and breeding ground for sustainability initiatives**. Cities are where a variety of actors come together creating collective action. Framed under the concept of governance, it is traditionally city governments that define the structures of these collaborations. However, to enable sustainability transitions existing structures are often inadequate. Thus, urban experimentation as for example urban living labs but also bottom-up grassroots initiatives can play a crucial role to influence governance and foster transitions.

Writing on our second topic, energy, global financial markets and the Green New Deal, we discussed the **importance of a transition away from greenhouse gas emitting energy in order to prevent catastrophic levels of climate change**. A central question remains how the energy system is connected to the economic and financial system. Ann Pettifor explained in her keynote speech during the IST2020 conference how the Green New Deal would change the current socio-technical regime by reforming financial institutions. Finally, we addressed the need for a profound transformation as it becomes increasingly evident that continued growth of energy consumption -even of renewable energy- is not ecologically feasible.

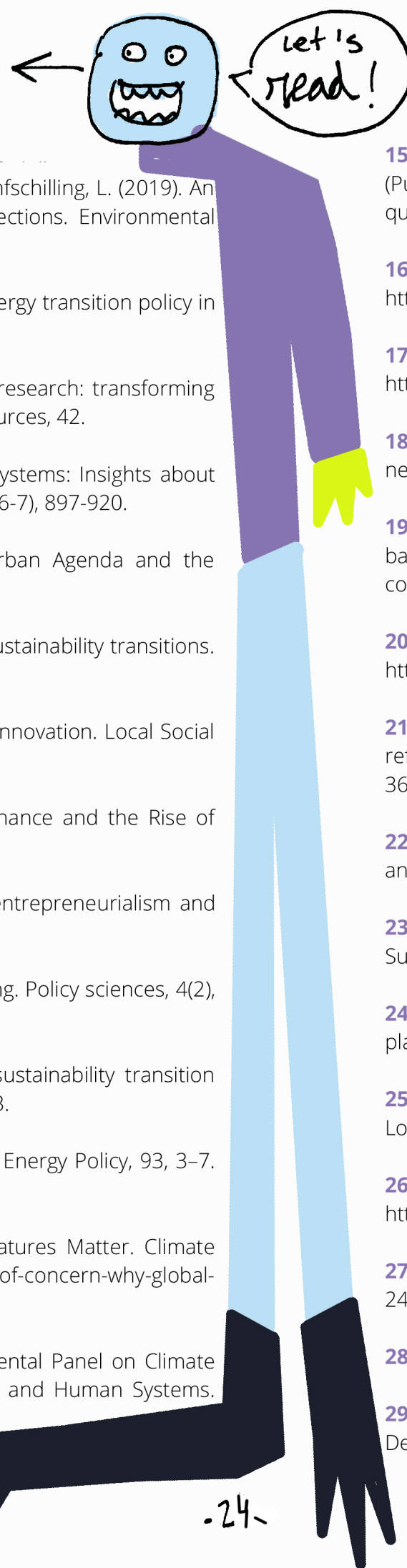
In the last section, we looked at transitions in the Global South. In order to create sustainability transitions in these regions and places, it is important to engage with the local context. Further, the **concept of development needs to be questioned as it is based on a hierarchical relationship, with those regions considered developed as superior to those that are developing**. This has the consequence of knowledge being shared only in one direction, from the Global North to Global South. Other forms of knowledge, such as indigenous knowledge, become undervalued. It requires openness and strong reflexivity of researchers from the Global North to engage with different people and knowledge in a respectful and ethical way. Yet, this is crucial to achieve fair sustainability transitions all over the world.

Sustainability transitions research engages with the biggest challenges of our generation. **To develop solutions and approaches that help us reach sustainability, we first must understand how different aspects of the current unsustainable global system are connected with each other**. Interdisciplinarity and large-scale system thinking are required to comprehend such complex interconnections. With this brochure, we wanted to introduce the reader to sustainability transitions research – a field that investigates these global links. Therefore, we hope to have intrigued students that are interested in sustainability transitions to further engage with this topic.





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**4)** Geels, F. W. (2004). From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. *Research policy*, 33(6-7), 897-920.

**5)** UN Habitat (2017). Strengthening Partnerships in Support of the New Urban Agenda and the Sustainable Development Goals.

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