

Adapt or Die. Kicking our Oil Addiction to create Post-Capitalist Community led Ecocities

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Short Synopsis

Species wise, its simple: Adapt or Die. The solution: Ecocities. A Post Carbon and Degrowth proposal, based upon Creative Descent responses to the twin challenges of Global Warming and Peak Oil. Planning becomes a community facilitation process led from the bottom-up; to create a municipalist structured Global Ecocity Network.

(Key Words: Ecocities; Municipalism; Citizen Participation)

1. Framing the problem: Adapt or Die.

Failure to understand the full severity of the threat from today's global crises, followed by appropriate action, threatens humanity's survival (Capra, 1996, p.304). With the signing of the Paris agreement in 2015, world leaders finally took steps to take action to deal with the climate crisis we are already well into, despite strong warnings being made since Bookchin (1964) a half century earlier. NASA scientists warned in 2008 that to prevent runaway climate change, the limit of CO₂ in the atmosphere the world needed to stay under was 350 ppm; the current rate is 410 and rising. Since the 1970s, humanity has been in ecological overshoot (Rees, 1992), whereby a species uses resources faster than can be replenished. Today humanity uses the equivalent of 1.6 Earths to provide the resources we use and absorb our waste. Human impact is responsible for the 6th great mass extinction since life began, the Anthropocene. The ever increasing hunger for resources through the ongoing process of Planetary Urbanization (Merrifield, 2013) has led to the situation where "The earth is rapidly dying: her forests are dying, her soils are dying, her waters are dying, her air is dying" (Shiva, 1988, p. xii). Brown warns: "The bottom line is that the world is in what ecologists call an "overshoot-and-collapse" mode" and that "If we continue on the current economic path, the question is not whether environmental deterioration will lead to economic decline, but when" (Brown, 2005, p.35). Recognizing the immense challenges, this paper sets out a pathway to ensure humanity's survival, placing the city at the frontline of the necessary transition. This can only be achieved by major societal shifts, humanities stark choice: Do we adapt or Die?

1.1 Addressing our Collective Oil Addiction

Recognizing that "modern cities are a product of the oil age" (Brown, 2005, p.36), we identify ever more complex forms of energy consumption as having facilitated the momentous turning point in human history we are still witnessing; the urban shift from rural to urban. As recently as 1800, only 3% of human beings lived in cities. In the beginning of the 20th century, 10% of the world's population lived in cities. In the beginning of this century more than half of the worlds population lived in cities, for the first time (UN, 2010). By 2050, it is expected that between two thirds and three quarters of humanity is expected to live in cities (UN, 2016). A half century ago Boulding (1966) stated "Anyone who believes in indefinite growth in anything physical, on a physically finite planet, is either mad or an economist", yet all facets of life keep growing in an exponential capacity, as outlined in Coke's diagram (Figure 1), as if they will never meet their existential limits. By returning to the linguistic roots of the word Economy, Kumar outlines the tragic error with much of today's "economic" logic:

Ecology and Economy are derived from three Greek words: oikos, logos, nomos. 'Oikos' means home: a place of relationships between all forms of life, sharing and participating in the evolution of the Earth community. 'Logos' means the knowledge of our planet home, and 'nomos' means management of that home. (Kumar, 2009)

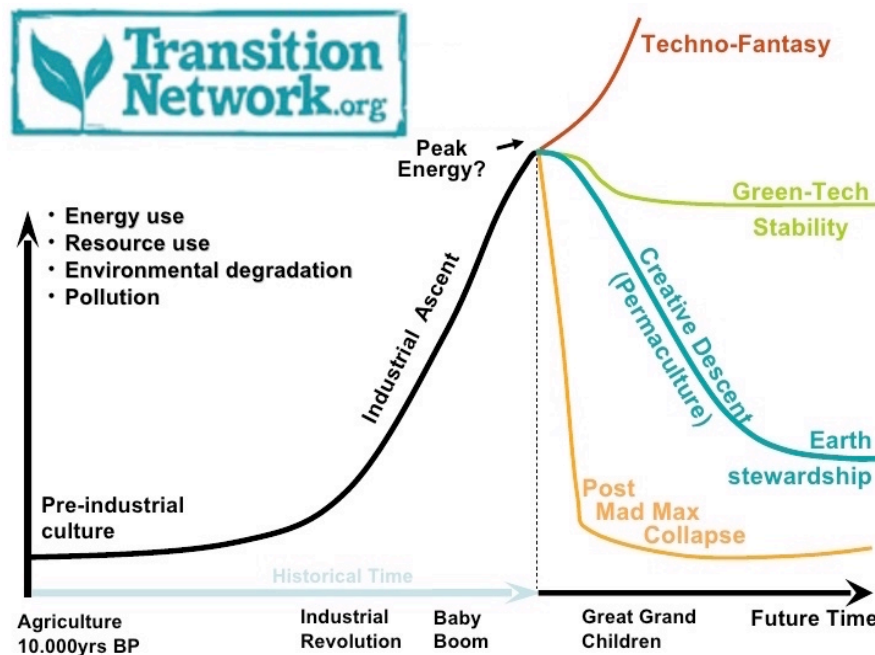


Figure 1: Permaculture inspired Creative Descent Response Strategy (Coke, 2010)

Klein identifies today's model of global capitalism as the root cause of the current ecological crisis, due to its disregard of ecological limits. In her 2014 book, **This Changes Everything: Capitalism vs. the Climate** (2014, p. 27) she states:

Our economic system and our planetary system are now at war. Or, more accurately, our economy is at war with many forms of life on earth, including human life. What the climate needs to avoid collapse is a contraction in humanity's use of resources; what our economic model demands to avoid collapse is unfettered expansion. Only one of these sets of rules can be changed, and it's not the laws of nature.

Capra (2002, p. 229) previously identified the threat from global capitalism to humanities survival, as well as new tools and structures, including network ideas, which can enable a sustainable transformation, arising from radical change in all of society:

The great challenge of the 21st century will be to change the value system underlying the global economy, so as to make it compatible with the demands, of human dignity and ecological sustainability. As the new century unfolds, there are two developments that will have major impacts on the wellbeing and ways of life on humanity. Both have to do with network, and both involve radically new technologies. One is the rise of global capitalism: the other is the creation of sustainable communities based on ecological literacy and the practice of eco design.

Realising Planet Earth's limits, we return to Figure 1, where 4 distinct near future scenarios are presented. At the extremes: 1) Techno-Fantasy, where magical technical solutions will allow for infinite exponential growth 2) Post Mad Max Collapse, similar to the nightmare situation presented in the film. Then, in between, 3) Green-Tech Stability, where today's non-sustainable levels of 1.6 Earths are somehow maintained. Finally the option this paper supports: 4) Creative Descent Strategies (CDSs), or Earth Stewardship, whereby humankind responds to the "Hydrocarbon Twins" (Hopkins, 2009) of Climate Change (CC) and Peak Oil (PO) to create Post Carbon futures, fixing ecosystems learning to live within Earth's limits.

1.2 Beyond Sustainability

Hopkins (2009) stated, "The idea of resilience is a more useful concept than the idea of sustainability" because it is a fuller response to "the two great oversights of our times" (CC & PO). PO is based on Hubbert's 1956 paper on peak theory oil production, which correctly

predicted the 1973 US oil crisis, and that was popularized by Heinberg's **Power Down** (2004), **Peak Everything** (2007) and Campbell's **The Truth about Oil and the Looming Energy Crisis** (1988). Hopkins adds:

Sustainability and its oxymoronic offspring Sustainable Development (SD) are commonly held to be a sufficient response to the scale of the climate challenge we face: to reduce the inputs at one end of the globalised economic growth model (energy, resources, and so on) while reducing the outputs at the other end (pollution, carbon emissions, etc.). However, responses to climate change that do not also address the imminent, or quite possibly already passed, peak in world oil production do not adequately address the nature of the challenge we face. (Hopkins, 2009)

Always advocating a compact city model over oil dependant suburbia, Girardet's (2014, p. 13) concept has evolved from Sustainable Cities (1999) to Regenerative Cities because:

To find solutions to the damage we have done to the world's ecosystems, we need to start thinking about regenerative rather than just sustainable urban development... We need to help regenerate the soils, forests and watercourses that our cities depend on, rather than just accepting that they are 'sustained' in a degraded condition.

An important movement has grown from Holmgren & Mollison's design process developed in 1978; Permaculture (PC). PC is short for "permanent agriculture", but the idea grew to stand for "permanent culture" which incorporates all forms of modern life and its 3 core tenets are: 1) Care for the earth: 2) Care for the people: 3) Return of surplus. Holmgren believed PC design principles could provide a framework "to move beyond the limited successes of SD to a reunion of culture and nature" (Holmgren, 2002). By 2004 Rob Hopkins was teaching PC in Kinsale, Ireland, and exploring community solutions to the problems of Peak Oil. Together with his students, they developed the first Energy Descent Action Plan (EDAP), a pathway to reduce dependence on cheap oil and other fossil fuels while increasing community resilience. Hopkins moved to England and founded the Transition Towns (TT) Social Movement (SM) in 2006 in Totnes, where in 1990 Kumar set up the Schumacher College, which was inspired by Schumacher's Buddhist economics text *Small Is Beautiful: A Study of Economics As If People Mattered* (1973), which importantly deals with questions of scale, community and local action. Both PC and TT are advocating CDSs with local communities all around the planet, to reduce energy and resource dependence, pollution and environmental degradation, while heightening community resilience through Citizen Participation (CP). Alongside PC and TT, other Post Carbon initiatives active globally include Degrowth, Agroecology, the Global Ecovillage Network (GEN) and its education wing, GAIA Education. Hopkins outlines the challenges humanity faces in leaving its oil addiction behind:

The end of what we might call The Age of Cheap Oil (which lasted from 1859 until the present) is near at hand, and that for a society utterly dependent on it, this means enormous change: but that the future with less oil could be preferable to the present, if we plan sufficiently in advance with imagination and creativity (Hopkins, 2008)

1.3 Urban Solutions for all the World's citizens.

Much of the Global urban shift underway is happening in the so called "Global South", where social factors are driving millions into poor sub standard precarious informal housing (slums, *favelas* in Brazil) in rapidly expanding peripheries of major cities. Neuwirth notes:

Today: a billion squatters, one in six people on the planet. 2030: two billion squatters, one in four people on the planet. And the estimate is that in 2050, there'll be three billion squatters, better than one in three people on earth... The future of these communities is in the people and in our ability to work with those people. The issue is not urban poverty. The issue is for us to recognize that these are neighbourhoods. This is a legitimate form of urban development, and that cities have to engage these residents, because they are building the cities of the future. (Neuwirth, 2005)

Any ecological solutions we choose to embrace need to be for all citizens and must address this critical social factor where “Residents of slums, while only 6% of the city population of the developed countries, constitute a staggering 78.2% of urbanites in the least-developed countries” (Davis, 2006, p. 38). While this paper explores CDSs of groups working with political, economic, and social movements based on ecological economics, anti-consumerist and anti-capitalist, or post-capitalist ideas, it is critical that these groups also promote social and climate justice for all, either explicitly like Degrowth who “object to right-wing, racist and sexist forms of growth critique”, or non explicitly through work they carry out.

The publication of the United Nations (UN) 17 **Sustainable Development Goals** (SDGs), as part of their **Transforming our world: the 2030 Agenda for Sustainable Development**, in 2015 was an important step in addressing these urban challenges. This was followed by the **New Urban Agenda** (NUA) that was launched in 2016 at **Habitat III** (HAB3), in Quito, Ecuador. SDG number 11 is of particular interest to urbanists, **To make cities Inclusive, Safe, Resilient and Sustainable**, as the Indian urban activist Revi (2016) notes:

Even though sustainable cities (SDG 11) is only one of 17 SDGs, the global discussion around the NUA of HAB3 has made it moderately clear that most of the other SDGs will never be achieved without sustainable urbanisation, and vice versa.

While the term Sustainable Cities is long established, it struggles to embrace newer concepts that cities are starting to deal with today, such as resilience, regeneration and more. With detailed clarification, the still loose and undefined term of Ecocities, could replace the Sustainable Cities term by incorporating all current concepts, along with what might come in the future, to encapsulate the utopian dream of what cities could be. Remembering Ecology and Economy share the same root, it is clear that to get the ecological part correct in our communities and planet, we need to get the economic part correct also. Any ecological economic system must live within the limits of life on earth, this means breaking from the current economic model of endless growth. Therefore, logically, the current system of global capitalism is incompatible with the Ecocity Network proposal this paper now proposes.

2. The Solution: Ecocities for all citizens

The term “eco-city” became popular in the 1970’s (Roseland, 1997) and was first noted academically by Richard Register’s 1987 book, **Ecocity Berkeley: Building Cities for a Healthy Future**, followed by the first International Ecocity Conference in 1990 at Berkeley. During the 1980s and early 1990s, the Ecocity concept seemed somewhat vague; “a collection of ideas and propositions about sustainable urban planning, transportation, housing, public participation and social justice, with practical examples relatively few and far between” (JOSS, 2009, p.239), that changed quickly in the mid 2000s:

The phenomenon appears to have become increasingly global and mainstream, against the background of the international recognition of the scale and severity of climate change and rapid urbanisation, particularly in the developing world... with countries and cities competing to take a lead in developing and applying new socio-technological innovations and thus bringing about the next generation of sustainable towns and cities. (JOSS, 2009, p.240).

The two grandest Ecocity projects, heralding a new age for urbanism, were Dongtan, China (launched 2005) and Masdar City, Abu Dhabi, (launched 2006). Both were motivated by financial, political gain and supported by elite power structures (Sze, 2015), both projects had British design groups (Arup, Dongtan : Norman Foster, Masdar) and both turned out to be spectacular failures (Cugurullo, 2013). China announced in 2001 that its goal was to build 400 new cities of 1 million inhabitants each by 2020, or 20 new cities a year for 20 years (Mars, 2008). Dongtan was to open in 2010 with accommodation for 10,000, no construction has taken place yet. Sze & Zhou (2011, p.218) note: “The desires that Dongtan represents are those of green or sustainable capitalist discourse, which suggests that capitalist means are the best solution to environmental problems”. In the oil rich desert of Masdar, very little

has been built and much is on hold. Cugurullo (2013) argues that Sustainability is not the real aim of Masdar and that the image of the ideal sustainable city was used to boost the local economy and fulfil the political interests of the ruling class. He labels the project a Frankenstein city (2016), a metaphor for experiments generated by forced union of different, decaying parts, “a “patchwork” of different pieces of urban fabric produced by different clean-tech projects”. Analysing the most successful ecocity project in China: Tianjin eco-city, Caprotti et al. (2015) ask the critical question: ‘Eco’ for whom?. He likens Tianjin to the non-place (Cugurullo, 2013) of Masdar “characterized by grand corporate urban planning and environmental-economic visions, but devoid of an organic society- a city stillborn” (Caprotti, 2015, p.19). His findings point to the creation of modern apartments as bubbles or containers for eco living, disconnected from the public realm and void of a sustainable, socially resilient community in the eco-city. A dream built on marketing, whose degree of artificialness went as far as fake leaves being tied onto a whole avenue of bare trees which “seemed to point metaphorically to the strained marketing of a ‘harmonious’ and ‘ecologically friendly’ city as an artificial and ultimately misleading foil for yet another new-build luxury residential project” (Caprotti, 2015, p.16). What links the 3 examples? All are for the select few, not the many. Also critical of this wave of ecocity development, calling it Cyburbia (Cyborg and Suburbia), exclusive and smart, but ultimately a non-resilient city, Johnson adds:

If you look at these “ecocities”, a lot of them have been set up as this gilded speedboat city, that a few rich people jump into to escape the sinking titanic of the megacity. As the big city goes down, rather than trying to solve its problems, they get into this gated community, a gilded city for a few. (Johnson, 2015)

This paper proposes that Ecocity projects must engage with all cities and communities, not just the privileged exclusive few. In fact, such a project already exists, just not with the “Ecocity” label. It comes from the Ecovillage world, specifically the group Global Ecovillage Network (GEN). This paper imagines an Ecocity solution working around a fractal network structure, to facilitate dialogue between all communities, based on GENs values & policies.

2.1 From Ecovillages to Ecocities

Rejecting recent mega Ecocity projects in Asia, this paper suggests scaling up the existing Global Ecovillage Network (GEN) model, to where “every village is an ecovillage, every city a green city” (Joubert, 2017) without losing GENs 3 core values: 1) Being rooted in local participatory processes 2) Integrating social, cultural, economic and ecological dimensions in a whole systems approach to sustainability 3) Actively restoring and regenerating their social and natural environments. GEN formed in 1995 after an international Ecovillage conference in Findhorn, Scotland. It includes about 10.000 communities, representing all continents. By 2001, GEN obtained consultative status at the UN Economic and Social Council and in 2004 they created their global education network, GAIA Education. Jackson recounts how popular the idea for the first conference for the evolving informal ecovillage network was in 1995:

The conference was attended by over 400 people from 40 countries, while another 300 who wished to be there had to be turned away. It was clear that the ecovillage concept had hit a sensitive nerve with a lot of people. (PAIS, 2015)

Current GEN Director Kosha Joubert further developed the Ecovillage concept in 2017 to highlight it could include urban communities, now an Ecovillage is seen as (Joubert, 2017):

Intentional, traditional; rural or urban community that is consciously designed through locally owned, participatory processes in all four dimensions of sustainability (social, culture, ecology and economy) to regenerate their social and natural environments

While most GEN projects are still rural, there are now two projects in urban districts that offer insights into how future ecocities might be organised, both are classified as urban rejuvenation projects and both have an inherently political component: Los Angeles EcoVillage in the US and Christiania Freetown in Copenhagen, Denmark (Figures 2 & 3).

NAME	AREA	YEAR STARTED + RELEVANT INFO
LOCATION	INHABITANTS	
Christiania	4 hectares (84 acres)	1971 - Squatted old army barracks and surrounding lands in old military complex. Despite varying conflicts with the municipality, allowed to continue as a cultural experiment. Open decision-making process by members. Mix of cultural spaces and low-tech building solutions.
Copenhagen city centre. Denmark	About 850 residents.	
Los Angeles EcoVillage (LAEV)	2 block neighbourhood (About 11 acres)	1993 - Space includes cooperative affordable housing, native landscape, on-site food growth, micro social enterprises, a community land trust, pedestrian-friendly streetscape, bike-friendly amenities & democratic community-building activities. Created in response to Rodney King riots.
Near Koreatown, L.A. USA	30 - 40 intentional community members	

Figure 2: 2 GEN Urban ecovillages: Christiania & Los Angeles



Figure 3: Top- Christiania. Bottom- Los Angeles EcoVillage (LAEV + Wikipedia)

Now to the core challenge of this bold and hopeful proposal, to explore how a global Ecocity network might communicate and organise itself. Municipalist projects offer pathways here.

2.2 A Municipalist based Ecocity Network Strategy

The Ecocity challenge is to understand how GENs model can be scaled up and implemented globally in today's massive cities, without losing their 3 core values. Regarding structures & processes to facilitate this Ecocity network; this paper suggests Municipalist, Confederalist, Communalist solutions: A fractal-like Ecocity network, consisting of communities within communities; a confederation of clusters of ecological neighbourhoods, communicating with each other non-hierarchically, organizing both horizontally and vertically through local assemblies. Any node within the structure is both local and global at all times, with attention paid to dynamics of participation to ensure equality is paramount. In this way, all citizens co-create the cities of the futures, from the bottom up; city planning becomes a community facilitation process.

The key to this urban transition lies in seeing Municipalism as both a structure and process, as outlined by Bookchin and other Social Ecologists, which suggests that organised groups of active citizens are the ones best suited to manage local affairs with decisions moving upward from the local to the global: communities, streets, neighbourhoods, regions, cities, Bioregions. As currently demonstrated in ongoing experiments Rojava and Barcelona today.

2.3 Municipalism in action: Lessons from Rojava

Being one of the earliest to identify humanities ecological crisis (1962), Bookchin advocated the philosophical solution he called Social Ecology, an appeal for social reconstruction along ecological lines to create a truly ecological society. For him, present ecological problems originate in deep-seated social problems, due to an aggressive hierarchical and exploitative class society that exploits for power and profit through economic growth, gender oppressions, ethnic domination and corporate, state, and bureaucratic incursions. His solution is to confront these forms of domination “by collective action and by major social movements that challenge the social sources of the ecological crisis, not simply by personalistic forms of consumption and investment that often go under the oxymoronic rubric of “green capitalism.” (Bookchin, 2006, p.22). Politically, Bookchin advocated anarchism until he broke with it in 1999; but all his solutions are based around Active Citizenry:

But no ethics or vision of an ecological society, however inspired, can be meaningful unless it is embodied in a living politics. By *politics*, I do not mean the statecraft practiced by what we call politicians – namely, representatives elected or selected to manage public affairs and formulate policies as guidelines for social life. To social ecology, politics means what it meant in the democratic *polis* of classical Athens some two thousand years ago: direct democracy, the formulation of policies by directly democratic popular assemblies, and the administration of those policies by mandated coordinators who can easily be recalled if they fail to abide by the decision of the assembly's citizens. (Bookchin, 2006, p.48).

This *living politics*, goes by different names in different locations in today's world. It can be seen as a grassroots democracy at a global scale, as Finley notes:

A growing number of people in the world are proposing “communalism”: the usurpation of capitalism, the state, and social hierarchy by the way of town, village, and neighborhood assemblies and federations. Communalism is often used interchangeably with “municipalism”, “libertarian municipalism” (a term also developed by Bookchin) and “democratic confederalism” (coined more recently by Abdullah Öcalan) (Finley, 2017).

Social Ecology took a surprising turn in the last decade, when Bookchin's writings were read by the imprisoned Kurdish leader Abdullah Öcalan in Turkey. The Kurdish independence movement (PKK) moved away from their Marxist-Leninist ideas of national liberation to Democratic Confederalism. Due to the political instability in Syria, including the war against ISIS, a giant experiment is now underway in the mostly Kurdish Northern Syrian region, Rojava. A Feminist and anti-capitalist society has been created, based around networks of grassroots people's assemblies and co-operatives, or communes, a process called *Tekmil*, who have declared their autonomy from the state, instead building what they refer to as a real democracy. Society is structured in fractal like fashion, as Weller's recent presentation from structures in Makhmur, Southern Kurdistan show (Figure 4). The communes form confederations with each other across regions. Local assemblies elect representatives at the village or street level and these representatives represent their assembly at the level of the city or region. The city or region elects representatives to represent them at higher levels. 11 different committees or institutions facilitate the day to day running of the Commune. This is all happening within a vicious multi sided war in Syria, where women's anti-fascist militias fight ISIS alongside male comrades, including international volunteers. Turkey launched military strikes against the region in 2018. The future for this experiment of hope is unclear.



Figure 4: Democratic Confederalism fractal structures in Makhmur, Southern Kurdistan (Weller, 2018)

2.4 Municipalism in action: A Feminist Democratic Revolution in Spain's Rebel Cities

Urban revolts erupted throughout Spain in May 2011 led by the *Indignados* (indignant ones), saw major squares occupied for 2 months (Figure 5) in a Rhizomatic type network structure (Castells, 2012; Deleuze & Guattari, 1972), as a reaction against the economic crisis that started in 2008. Then in Spain's 2015 municipal elections 8 city councils were won by citizen platforms, outside the traditional political party system, who took decisions collectively through local assemblies. This phenomenon has subsequently been named Spain's Rebel Cities. The city of Barcelona saw the election of a woman as mayor for the first time in over 2,000 years; she is the first member of the *Indignados* to win public office. Ada Colau was the leader of the anti eviction group Plataforma de Afectados por la Hipoteca (PAH) (Platform for People Affected by Mortgages), whose direct actions included blocking evictions and occupations of banks, for which Colau was removed and arrested by riot squad in 2013, 2 years later she became their boss. The political organization she is part of, Barcelona en Comú (Barcelona together - BEC), work on a Municipalist only platform, seeking power only at the city level, based on a set of related characteristics (Shea Baird & Roth, 2017): 1) Distinctive political organization reflects diversity of local political landscape 2) Open and participatory decision-making processes 3) Organizational structure is relatively horizontal (for example, based on neighbourhood assemblies) and guides elected representatives 4) Capacity for institutional action depends on strong, organized movements in the streets that push elected leaders. Their structure and work method is very much a continuation of the earlier groups, movements and processes they have grown from, BEC claim a feminist democratic revolution is underway, to further open up the Common Space in Barcelona based on deep communication processes that allows for a city that listens. They have occupied the institutions of the mayor's office, dispersing power by opening them up to the various assemblies in the city neighbourhoods (Figure 5), where the members of the mayors team and residents discuss plans and projects that affect them, thereby residents are co-creating their neighbourhoods of the future, based on an open participative planning process.



Figure 5: L) Square to Square (S2S): Barcelona Indignados connect with Athens (Crimethinc, 2011)
R) Gràcia neighbourhood assembly, Barcelona (ikimilikiliklik, 2017)

Writing a half-year before her election win, Colau (2014) predicted: “Citizens have finally had enough and are getting down to work. A democratic revolution is sweeping the country which aims, not only to kick the mafia out of our institutions, but also to change the rules of the game so that this can never happen again”. Adding a week after her victory (Colau, 2015):

We think the city governments are key for democratic revolution, to begin governing, with the people, in a new way. But on the other hand, we’re very aware that the real change must be global, that one city alone cannot solve all the problems we’re facing, many of which are global because today the economy does not have borders.

To help facilitate further global municipal change, BEC organized a 3 day international Municipalist summit called **Fearless Cities** in 2017. It was divided along 3 lines: 1) Work as a global Municipalist network: Share tools, knowledge and experiences with Municipalist movements from around the world. 2) Feminize politics: Develop new ways of organizing based on horizontal collaboration, collective intelligence and the politics of everyday life. 3) Stop the far right: Combat the politics of hate and fear with local policies to reduce inequality and promote the common good. Attended by groups from all over the world, the network is growing rapidly; follow up conferences happening in Central Europe and New York in July.

These examples offer glimpses as to how a Global Network could function, based on fractal structural processes of active Citizen Participation. We now explore responses from Curitiba.

3. Ecocity Experiments in Curitiba

The Brazilian city of Curitiba has been seen as a leader in the area of ecologically based urbanism in the past; being the location of the 4th Ecocity World Summit in 2000, winning 2010’s Globe Forum Sustainable City Award and The Ecologist magazine labelling it as **The Greenest city on Earth** (Barth) in 2014. Curitiba’s metropolitan area (RMC) has seen nearly a tenfold increase in population in the last half century, standing now at about 3.5 million.

From 2016 to 2018 this paper’s author engaged in a Participatory Action Research (PAR) approach inspired by Social Ecology principles, to participate with and assess groups active in the city, which found that common agreement is that Curitiba is not an Ecocity or a Sustainable City today. While the city has shown innovation in the past in certain areas, the wider city struggles today with a quickly growing metropolis. Many feel since the 1990s the city has “rested on its laurels” (Irázabal, 2009). With increasing violence in the periphery, the city entered the list of 50 most violent cities in the world for the first time in 2014. “Right to the City” groups want Curitiba’s government to involve citizens in the planning process in a more thorough way, to increase “their democratic participation in the process of making the city” (Moura, 2005). Municipalities need to work together better, with mayors’ offices committing to truly sustainable development and facilitating an increased structure of citizen participation.

Since new direct action focused movements in 2007, Curitiba has started to be transformed through Social Movements based on radical ecology, citizen participation, inclusivity and a vibrant cultural movement to effect political change in the urban landscape, initially through two prime interconnected areas: cycling & gardening. In recent years these movements have matured, won many victories and began to occupy municipal institutions. With the growth of more community gardens and similar small scale projects, new citizen networks are forming in the public realm, facilitating a much-needed face-to-face means of engagement that fosters trust. With the election of Goura in 2016 and his Municipalist type structure that is open to all citizens, a great opportunity now exists to transform Curitiba into an Ecocity.

3.1 River as Fractal Networks. An Ecobairro for Curitiba?

6 river basins make up the geographical structure of the municipality of Curitiba and initial investigations are underway to explore the basins and their fractal like sub basins as possible areas for eco neighbourhoods, *ecobairros*. The river basin of the Pilarzinho river, one of the micro basins of the Belem river, has a size of about 5km² (outline in pink in Figure 6). Initial

discussions are happening about how Jacu garden could act as a catalyst for an Ecobairro. *Horta do Jacu* (2017) and *Horta Calçada Cristo Rei* (2016) are new occupied community gardens that have grown rhizomatic like since the Parque Gomm occupation since 2013.

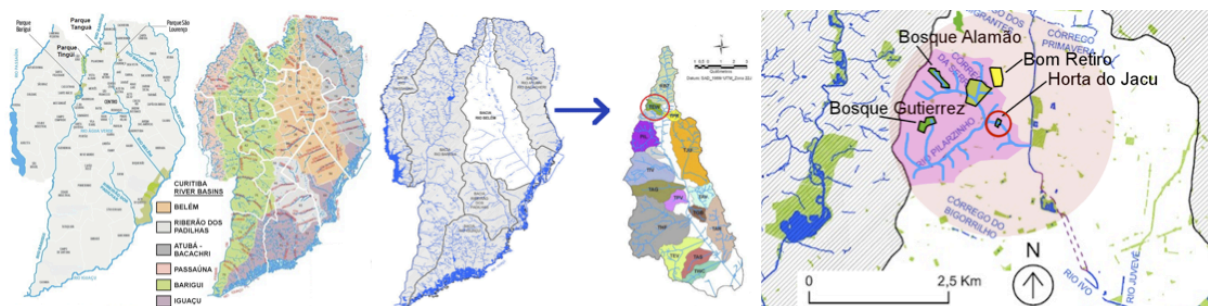


Figure 6: Curitiba river basins & Rio Belem basin detail (Gazeta do Povo, IPPUC, Córrego do Aviário)

3.2 Ecocity Festival Curitiba 2017

The 2017 Ecocity festival was organised in Curitiba as a parallel event to the World Ecocity Summit in Melbourne Australia, under the consent of Ecocity Builders. The objective was to explore the idea of how to Fix The City, an open invitation to urban actors working in this area to come together, share ideas, identify problems and possible solutions together. 40 local groups participated in 16 events in 14 Locations, including in the periphery of the city. Secondary objectives were a) Bring together diverse elements of the cities eco communities, to mix understanding of different groups values, needs, goals, working methods and territories b) Highlight and support the work done by grassroots groups c) Explore new ways of using technology to improve local projects and interactions between groups d) To “get out of the ghetto”, leave city centre to connect with groups based in periphery areas.

The action had both global and local aspects, simultaneously. Globally, It was an experimental, positive provocation as to how Global Forums can become multinodal with greatly increased levels of participation, leading to greater and quicker urban transformation with the construction of an expanded global Ecocity network. Inspired by Hackathons and dynamics explored in Spain’s revolts, organisers felt that technology could be used to a far greater degree, facilitating livestreams, live radio transmissions and multi nodal discussions and joint actions about different issues. The core team established contact with other cities.

The night before the “Walk for a 100% edible city” event, the mayor invited members of the *Cristo Rei* community garden to City Hall, annulled their fines for illegal food planting in areas designated as grass only and committed to working toward a Greener city. A great Success.

4. Parting hopes & Call to Action

Brazil & Curitiba are very divided communities, with huge issues of poverty and crime. It is not enough to simply build eco communities for the rich few in Brazilian society. Eco structures need to facilitate all citizens to become part of the transformation of society. Despite the grave problems in Brazil, required change is finally starting to happen in Curitiba. However, due to worsening economic and political crisis, the current climate is very volatile.

The Ecocity World Summit happens every 2 years; it will be in Vancouver from October 7-11 2019. While the Curitiba festival was felt to have been a positive event for local activists, no other cities attempted to create similar local events, apart from the Summit in Melbourne. If people feel the urgency for urban transformation, attempts should be made to extend our use of the technology tools we have at our disposal. The ecological and urban communities can learn much by connecting with the groups already using these tools, as highlighted by Castells (2012) and the unfolding structures being developed in Barcelona and Spain. Given the seriousness of the humanities crisis, radical urgent action is required. We call on citizens to organize locally in their own cities, to help build an Ecocity network for 2019 and beyond.

Conclusions

- Failure to understand today's crises and to take action threatens humanity's survival.
- To get ecological part correct for communities & planet, we need to get economic part correct. Anti or Post Capitalist strategies are essential to live within the Earth's limits.
- Resilient and Regenerative Urban Strategies are urgently required to combat the "Hydrogen Twins" of Climate Change and Peak Oil. Creative Descent Strategies needed.
- The term Sustainable Cities was of its time, but no longer encapsulates all issues a city must deal with today, or respond to, hence use of Ecocities.
- Scale up of the Global Ecovillage Network project is a challenge to understand how vision can be implemented globally in today's massive cities. Municipalism offers solutions here, as currently demonstrated by experiments in Barcelona and Rojava today.
- A Global Ecocity Network would be fractal-like in structure and consist of communities within communities; a confederation of clusters of ecological neighbourhoods. Citizens co create the cities of the future, city planning becomes a community facilitation process.
- Fractal river basin networks can form geographic base for structuring ecocity networks.
- 2007 was turning point in Curitiba, with emergence of direct action groups. In 2016 these movements entered municipal power, this could lead to a Municipalist project & Ecocity.
- For Ecocity 2019, we call all cities to organize locally & build up a global Ecocity network.

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