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by Enrique Aliste and Juliette Marin

Introduction: Resilience as a new «mantra» (but another hegemonic model?)

Since the turn of the XXth century, *resilience* seems everywhere. From cities to people, ecosystems and companies, nations and households, resilience appears as a societal imperative in a world in crisis.

There are myriad definitions, conceptual frameworks, and models. To start this reflection, we will understand (very approximately) resilience as the territorial process associated with social continuity and permanence in the face of disturbing and adverse events.

The concept is developed, used and implemented in a wide range of fields of academia, public policies and private sectors, for thinking and designing strategies to face perturbations as diverse as climate change, earthquakes, terrorist attacks, or more recently a pandemic.

Although popular, the concept has also been highly criticized for its ambiguity, its disregard of power structures, agency and conflicts underlying risk, its ideological mobilization as neoliberal governmentality[1], and the focus it gives to response and emergency.

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[1] *Governmentality* is defined here from Michel Foucault's perspective as an ensemble composed of institutions, procedures, analysis, assessments and tactics, that allow to exercise a specific form of power which main target is the population, its main knowledge domain is political economy, and its essential technical instrument security devices.

The successful deployment of resilience is partly based on *models*, i.e. conceptual and methodological artefacts developed in scientific or technical centres, traduced by experts, negotiated in practical implementations, adapted in different local contexts. These models of resilience have, however, been seldom questioned. They constitute the core of the present text.

Models as practices of knowing and sociotechnical artefacts

In the tradition of sciences, there are two principal – and not mutually exclusive – ways of considering models. First, as representation of a portion of the observed world to answer specific questions, therefore created from a given perspective and necessarily a simplification. Secondly, as representation of rules or axioms of a theory. Models have thus a role of representation of different phenomena, being an intermediate between *reality* and *knowledge of reality*. This function has raised several important questions regarding relations between *reality*, *model*, *representation*, *theory* and *data*[2], which remain topical debates in an era of big data, increasing uncertainty and complexity[3].

Beyond these declarative functions, models are mediating instruments present in almost any field of modern science[4]. As such, modelling constitutes a *practice of knowing*, often taken for granted despite being a «dynamic process that is situated and provisional, collective and distributed, purposive and pragmatic, and mediated and contested»[5].

This perspective has been more deeply developed by Science and Technologies Studies (STS), with an important shift in considering models as

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[2] F. Varenne, *Épistémologie des modèles et des simulations: Tour d'horizon et tendances*. Colloque *Les modèles: possibilités et limites*, Paris, France, Société Française de Physique à la Bibliothèque Nationale de France, 2008; J.L. Le Moigne, *Qu'est qu'un Modèle?* Université d'Aix-Marseille III, Faculté d'économie appliquée, 1987.

[3] B.C. Han, *En el enjambre*, Barcelona, Herder Editorial, 2014.

[4] M. Morgan and M. Morrison, *Models as Mediators*, New York, Cambridge University Press, 1999.

[5] S. Davoudi, *Planning as a Practice of Knowing*, in «Planning Theory», vol. 14, n. 3, 2015, pp. 316-331.

more than mere representations, but as mediators that can affect (by enabling and facilitating) human actions or increase the likelihood that people will perform or abstain from performing certain actions[6].

Models as epistemic tools can also be questioned from the perspective of power relations. Scientific alleged neutrality – a legacy of the modern rationality ideal – is refuted by feminist scholars who demonstrate that formal knowledge is created by certain dominant groups and perpetuates patriarchal biases[7]. Decolonial epistemologies have also addressed the domination of occidental (eurocentric) white males' perspectives and Global North control in scientific knowledge production[8]. More generally, poststructuralist currents transcend the modern dichotomy of *power* – politics domain – and *knowledge* – sciences domains[9].

Finally, although «the map is not the territory» according to the famous statement by Alfred Korzybski, «the territory is also the map»[10]. Indeed, models can be *territorialized*, in the sense that they produce and modify territories[11] by enabling or facilitating certain interventions, for example, the

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[6] A. Pols, *How Artefacts Influence Our Actions*, in «Ethic Theory Moral Prac», vol. 16, 2013, pp. 575-587, DOI: 10.1007/s10677-012-9377-0; T. Knuuttila, *Models, Representation, and Mediation*, in «Philosophy of Science», vol. 72, n. 5, 2005, pp. 1260-1271, DOI: 10.1086/508124; B. Latour, *Science in Action: How to Follow Scientists and Engineers through Society*, Milton Keynes, Open University Press, 1987.

[7] Y. Espinosa Miñoso, D. Gómez Correal and K. Ochoa Muñoz (eds.), *Tejiendo de otro modo: Feminismo, epistemología y apuestas descoloniales en Abya Yala*, Popayán (Colombia), Editorial Universidad del Cauca, 2014, available online at: http://www2.congreso.gob.pe/sicr/cendocbib/con4_uibd.nsf/498EDAE050587536052580040076985F/$FILE/Tejiendo.pdf; D. Haraway, *Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective*, in «Feminist Studies», vol. 14, n. 3, 1988, pp. 575-599.

[8] A. Escobar, *Beyond the Third World: Imperial Globality, Global Coloniality and Anti-Globalisation Social Movements*, in «Third World Quarterly», vol. 25, n. 1, 2004, pp. 207-230, http://www.jstor.org/stable/3993785; R. Grosfoguel, *Racismo/sexismo epistémico, universidades occidentalizadas y los cuatro genocidios/ epistemicidios del largo siglo XVI*, in «Tabula Rasa», vol. 19, 2013, pp. 31-58.

[9] M. Foucault, *The Archaeology of Knowledge*, London, Routledge, 2002.

[10] J.L. Le Moigne, *Qu'est...*, cit., p. 8.

[11] By *territory* we understand individually and collectively signified and appropriate space, including socio-spatial practices that are related but not limited to the physical environment. E. Aliste, *Territorio y ciencias sociales: trayectorias espaciales y ambientales en debate*, in E. Aliste and A. Urquiza, *Medio*

design and execution of urban transformations. They also affect the conception or view of territories, for example, by reinforcing certain dimensions or processes during modelling. These territorial conceptions are inscribed in models and become inconspicuous for model users, while models are often operated as black boxes.

Resilience models at global scale

The *Resilience Alliance* defines resilience as «the capacity of a social-ecological system to absorb or withstand perturbations and other stressors such that the system remains within the same regime, essentially maintaining its structure and functions. It describes the degree to which the system is capable of self-organization, learning and adaptation».

Another interesting definition proposed for the *100 Resilient Cities* network, based in the scientific development of the Resilience Alliance, defines it as «the capacity of people, communities, companies and systems within a city to survive, adapt and grow independently from the types of chronic tensions and acute impact they may experiment»[12].

These *translations*[13] show some tensions under the frameworks of resilience: First, resilience is itself an ambiguous concept due to its passage through multiple disciplines that have left basal traces in its contemporary understanding, such as mechanics and psychology[14]. The systemic foundations stand out, inherited from the systemic theory of ecological reproduction.

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ambiente y sociedad. Conceptos, metodologías y experiencias desde las ciencias sociales y humanas, Santiago, RIL editores, 2010, pp. 55-76.

[12] Equipo de Resiliencia Santiago Resiliente, *Santiago humano y resiliente. Estrategia de resiliencia*, 2017.

[13] *Translation* in a Latourian perspective is conceived as the displacement, mediation, invention, adaptation of an artifact by actors to serve different and possibly opposing interests (B. Latour, *La esperanza de Pandora. Ensayos sobre la realidad de los estudios de la ciencia*, Barcelona, Ed. Gedisa, 2001).

[14] D. Alexander, *Resilience and Disaster Risk Reduction: An Etymological Journey*, in «Nat. Hazards Earth Syst. Sci.», vol. 13, 2013, pp. 2707-2716, available online at www.nat-hazards-earth-syst-sci.net/13/2707/2013/ doi:10.5194/nhess-13-2707-2013.

Second, these multi-disciplinary traces facilitate a tendency to borrow theoretical elements, examples and analogies from the wide spectrum of scientific fields on resilience[15], without empirical evidence to corroborate these appropriations.

Five main categories of resilience models have territorial scope: 1) Socio-ecological systems; 2) Engineering systems; 3) Social studies; 4) Disaster risk; 5) Regional development.

A circulation of results, statements, frameworks and methodologies occurs from one field of study to others and despite being built for a precise use, in their transfer to public policies or operationalization, it is common practice to resort to models (or parts of the models) developed in a field of action different from the one in which you want to implement, raising both conceptual and ethical questions about the use of these models. Walker and Cooper[16] establish a relevant parallel between the perspective of resilience in systemic ecology and Hayek's financial theory, as theoretical constructs of models far from equilibrium, and of complex systems that allow powerful metaphors applied to contemporary security practices and function as a neutralizer of the criticisms that could be raised about the social and environmental consequences of financial deregulation, urban planning, and environmental effects of neoliberal development.

In resilience critical studies, there are three main criticisms: resilience is not ideologically neutral and serves the interests of dominant sectors; resilience is then a conservative concept that prevents real change; resilience allows a transfer of responsibilities from traditional sectors such as the State to more vulnerable and local sectors such as individuals, resulting in

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[15] F. Brand and K. Jax, *Focusing the Meaning(s) of Resilience: Resilience as a Descriptive Concept and a Boundary Object*, in «Ecology and Society», vol. 12, n. 1, 2007, p. 23, available online at http://www.ecologyandsociety.org/vol12/iss1/art23/.

[16] J. Walker and M. Cooper, *Genealogies of Resilience*, in «Security Dialogue», vol. 42, n. 2, 2011, pp. 143-160.

privatization of risk management and risk commodification[17]. An emblematic case of this way of operating is the emergency and reconstruction in New Orleans, USA, post-hurricane Katrina: the discursive use of resilience was used to justify neoliberal interventions, in the form of public-private partnerships and privatization of public markets for emergency shelters, logistics and emergency care, education and healthcare[18].

Simultaneously, there is growing evidence of the use of a rhetoric of climate resilience by urban economic actors to hide speculative, exclusive and even unsustainable practices, accentuating historical injustices associated with infrastructure and land use[19].

Finally, even though resilience literature acknowledges its multi-disciplinary nature, it rarely considers its links with national security and military agendas[20].

Underlying conceptual tensions of resilience models

If we are to try to open the black boxes that constitute resilience models and analyse the assumptions on which they are built, in particular ques-

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[17] J. Bergström, *An Archaeology of Societal Resilience*, in «Safety Science», vol. 110C, 2017, pp. 31-38; M. Kaika, *«Don't Call Me Resilient Again!»: The New Urban Agenda as Immunology ... Or ... What Happens When Communities Refuse to Be Vaccinated with «Smart Cities» and Indicators*, in «Environment & Urbanization», vol. 29, n. 1, 2017, pp. 89-102, DOI: 10.1177/0956247816684763; B. Evans and J. Reid, *Resilient Life: The Art of Living Dangerously*, Cambridge, Polity, 2014.

[18] K. Tierney, *Resilience and the Neoliberal Project: Discourses, Critiques, Practices – And Katrina*, in «American Behavioral Scientist», 2015, pp. 1-16.

[19] I. Anguelovski, L. Shi, E. Chu, D. Gallagher, K. Goh, Z. Lamb, K. Reeve and H. Teicher, *Equity Impacts of Urban Land Use Planning for Climate Adaptation: Critical Perspectives from the Global North and South*, in «Journal of Planning Education and Research», vol. 36, n. 3, 2016, pp. 333-348, https://doi.org/10.1177/0739456X16645166; B. Sovacool, and B.O. Linnér, *The Political Economy of Climate Change Adaptation*, DOI: 10.1057/9781137496737, London, Palgrave Macmillan, 2016, p. 226.

[20] K. Svitková, *Resilience Defense Discourse*, in «Defense & Strategy», 2017, available online at https://www.obranaastrategie.cz/en/archive/volume-2017/1-2017/articles/resilience-in-the-national-security-discourse.html; J. Walker and M. Cooper, *Genealogies of Resilience*, in «Security Dialogue», vol. 42, n. 2, 2011, pp. 143-160.

tioning how they perceive the territories that they intend to represent at least partially, four salient points deserve our attention.

First, resilience is a predominantly urban concept. This may be explained by the interests of the sectors mobilizing it. For the field of risk and sustainability, cities are foci of physical and social vulnerability, and contribute significantly to the production of environmental problems. For national security, cities play a strategic role due to their concentration of resources, while they are highly vulnerable targets for the same reason. For the private sector (technologies, consulting, construction, management, insurance, among others), cities represent important potential markets, with high returns in prestige and benefits, and the resilience discourse opens the door to public-private platforms.

There is also an epistemic dimension in this urban centrality of resilience: the modern city is thought of as a network of networks (transportation, telecommunications, electricity etc.)[21].

However, cities are not only socio-technical devices, they are also territories and are immersed in a complex environment with which they relate beyond the limits of the urban. Can we think of a resilient Santiago (Chile), without considering the mountain glaciers, soil changes in the associated basins, water scarcity in agricultural regions of Chile, socio-environmental processes of commodity regions, and other phenomena that go beyond the urban sprawl or its administrative delimitation?

Second, representation of space and time in resilience models pose several problems. Indeed, the multiplicity of spatial scales is an element highlighted in resilience frameworks, which, however, escape their methodological translations, leading to generalities imported into various contexts without concern for checking the validity of what has been said, and ignoring the influences between scales and places, for focusing on micro scales,

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[21] A. Picon, *La ville des réseaux. Un imaginaire politique*, Paris, Éditions Manucius, 2014.

such as the community or the neighbourhood[22], or at global scales, such as communication systems or the financial system[23].

These two scalar orientations are traces of the disciplinary evolution of resilience: the predominance of the local is inherited from both initial ecosystem studies (based on the micro scale of the ecosystem) and psychology (based on the micro scale of the individual, the family and community); the predominance of the global is inherited from engineering studies of technical networks (electrical power networks, transport networks etc.). These «closed» or «essentialist» conceptualizations of the place reproduce static borders of us/others that can be ethically problematic, since they deny the relational of the conception of the place[24]. As a consequence, the interventions to enhance one city's resilience can compromise other connected places' resilience[25].

Third, resilience is apolitical, resulting in a pacified concept, a post-political term where hegemonic visions are supposedly neutral without impossibility of refutation, that is, uncritical visions of the liberal capitalist system[26] or colonial and patriarchal visions[27]. If resilience describes trajectories, future states' possibilities, changes and permanence, acceptable regimes, these should be considered as highly political categories that cannot

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[22] S.L. Cutter, *The Landscape of Disaster Resilience Indicators in the USA*, in «Natural Hazards», vol. 80, n. 2, 2015, pp. 741-758; P. Villagra, G. Herrmann, C. Quintana and R. Sepúlveda, *Community Resilience to Tsunamis Along the Southeastern Pacific: A Multivariate Approach Incorporating Physical, Environmental, and Social Indicators*, 2017.

[23] D. Helbing, *Globally Networked Risks and How to Respond*, in «Nature», vol. 497, n. 7447, 2013, pp. 51-59.

[24] D. Massey, *Space, Place and Gender*, Minneapolis, University of Minnesota Press, 1994.

[25] I. Douglas, *Flooding in African Cities, Scales of Causes, Teleconnections, Risks, Vulnerability and Impacts*, in «International Journal of Disaster Risk Reduction», vol. 26, 2017, pp. 34-42, http://dx.doi.org/10.1016/j.ijdrr.2017.09.024.

[26] M. Kaika, *«Don't Call Me Resilient Again!»...*, cit.

[27] A. Bonds, *Refusing Resilience: The Racialization of Risk and Resilience*, in «Urban Geography», vol. 39, n. 8, 2018, pp. 1285-1291, DOI: 10.1080/02723638.2018.1462968; S. Bracke, *Bouncing Back: Vulnerability and Resistance in Times of Resilience*, in J. Butler, Z. Gambetti and L. Sabsay (eds.), *Vulnerability and Resistance*, Durham, Duke UP, 2016.

be solved trivially from a technocratic perspective. It is thus necessary to situate whose resilience, and on what terms[28].

Finally, resilience frameworks are conceived as universal, refusing a plurality of interpretations of what is resilience and how territories are conceived and dwelled. Being produced mainly in Global North centres and mostly just applied in Global South territories, these models can't dialogue with important contemporary processes in Latin America territories such as gentrification in post-disaster reconstruction[29], neo-extractivism[30] or socio-environmental conflicts as collective organization processes[31].

Resilience, transformation, sustainability, green imaginary: A necessary discussion for problematizing global concepts in the Global South

In this brief and general theoretical discussion on resilience, observed from its knowledge and technical instruments production, translation and action, the need to pay special attention to unexpected effects of these artefacts in the Global South has been highlighted.

In line with this reflection, some questions emerge for a necessary discussion to understand urban and territorial processes in the Global South: What are the criteria, categories, models, problematization and method-

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[28] L. Vale, *The Politics of Resilient Cities: Whose Resilience and Whose City?*, in «Building Research & Information», vol. 12, n. 2, 2014, pp. 191-201; G. Ziervogel *et al.*, *Inserting Rights and Justice into Urban Resilience: A Focus on Everyday Risk*, in «Environment and Urbanization», vol. 29, n. 1, 2017, pp. 123-138; S. Fainstein, *Resilience and Justice: Planning for New York City*, in «Urban Geography», vol. 39, n. 8, 2018, pp. 1268-1275, DOI: 10.1080/02723638.2018.1448571.

[29] J. Insulza and A. Cárdenas, *Desplazamiento subsidiario: efectos de gentrificación contemporánea en barrios céntricos en reconstrucción post-terremoto. El caso de Talca, Chile*, in «Cuadernos Geográficos», vol. 56, n. 3, 2017, pp. 268-291.

[30] M. Svampa, *Neo-extractivism in Latin America: Socio-environmental Conflicts, the Territorial Turn, and New Political Narratives*, Cambridge, Cambridge University Press, 2019.
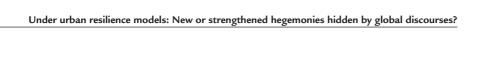
[31] M.G. Merlinsky, *Nuevos repertorios de acción colectiva y conflicto ambiental: una cronología del conflicto por la instalación de las plantas de celulosa en el Río Uruguay*, Cambridge-New York, Cambridge University Press, in «Nuevo Mundo Mundos Nuevos», 2008, available online at http://journals.openedition.org/nuevomundo/16412 DOI: 10.4000/nuevomundo.16412.

ologies that should be considered or questioned by common experiences in the Global South? What issues of hegemonic global discourses must be called into question by examining the epistemological and cultural mechanisms involved in the conception of theories, models and tools used as global truths? What should be revisited when mobilizing global frameworks that have been built with Global North conceptions and assumptions?

These questions transcend the epistemological goal of clarifying our scientific production; there are highly ethical and political questions. In use, these artefacts can transform territories, affecting everyday lives, comforting inequalities. More examples and experiences following these unexpected and invisible consequences of conceptions, methods and models of relevant global trending concepts used for development strategies today in Global South regions – particularly in Latin America and Africa – are thus needed.

In this perspective, other concepts could be analysed such as climate change governance, transformation, sustainability, green imaginaries (and its derivatives such as the green economy, for example), which uses in the Global South may be producing opposite effects than those they declare (land and green grabbing, real estate speculation, environmental inequalities, urban liveability differences between cities, among other negative effects for people)[32].

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[32] A.M. Orum and E. Aliste, *Urban Liveability*, in A.M. Orum (ed.), *The Wiley Blackwell Encyclopedia of Urban and Regional Studies*, New York, 2020, DOI: 10.1002/9781118568446.eurs0376; D. Rocheleau, *Networked, Rooted and Territorial: Green Grabbing and Resistance in Chiapas*, in «The Journal of Peasant Studies», vol. 42, nn. 3-4, 2015, pp. 695-723; D. Ojeda, *Green Pretexts: Ecotourism, Neoliberal Conservation and Land Grabbing in Tayrona National Natural Park, Colombia*, in «The Journal of Peasant Studies», vol. 39, n. 2, 2012, pp. 357-375; A. Núñez, E. Aliste, A. Bello and J. Astaburuaga, *Eco-extractivismo y los discursos de la naturaleza en Patagonia-Aysén: nuevos imaginarios geográficos y renovados procesos de control territorial*, in «Revista Austral de Ciencias Sociales», vol. 35, 2018, pp. 133-153, DOI: 10.4206/rev.austral.cienc.soc.2018.n35-09; M. Mendoza, R. Fletcher, G. Holmes, L. Ogden and C. Schaeffer, *The Patagonian Imaginary: Natural Resources and Global Capitalism at the Far End of the World*, in «Journal of Latin American Geography», vol. 16, n. 2, 2017, pp. 93-116; M.J. Martínez-Harms, B. Bryan, S. Wood, D. Fisher, E. Law, J. Rhodes, C. Dobbs, D. Biggas and K. Wilson, *Inequality in Ac-*

cess to Cultural Ecosystem Services from Protected Areas in the Chilean Biodiversity Hotspot, in «Science of the Total Environment», vol. 635, 2018, pp. 1128-1138; G. Holmes and C. Connor, *A Review of the Social Impacts of Neoliberal Conservation: Formations, Inequalities, Contestations*, in «Geoforum», vol. 75, 2016, pp. 199-209; J. Fairhead, M. Leach and I. Scoones, *Green Grabbing: A New Appropriation of Nature?*, in «The Journal of Peasant Studies», vol. 39, n. 2, 2012, pp. 237-261; M. Ehrnström-Fuentes and M. Kröger, *In the Shadows of Social Licence to Operate: Untold Investment Grievances in Latin America*, in «Journal of Cleaner Production», vol. 141, 2017, pp. 346-358; E. Aliste, M. Folchi and A. Núñez, *Discourses of Nature in New Perceptions of the Natural Landscape in Southern Chile*, in «Front. Psychol.», vol. 9, n. 1177, 2018, DOI: 10.3389/fpsyg.2018.01177.

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